

**OUTREACH
ASR Public Workshop
Final Meeting Summary**

**November 6 - 7, 2002
9:00 PM**

6:30 PM –

To: Attendees

From: Everglades Partners Joint Venture (EPJV)

Subject: ASR Public Workshops

Attendees: Attendee lists supplied by Sonshine Communications

**Handouts: November 6, 2002
ASR Project Overview
ASR Fact Sheet
Brochure: Journey**

**November 7, 2002
ASR Project Overview
ASR Fact Sheet
Brochure: Journey
Regional Issues in Aquifer Storage
Estenoz letter fr Henry Dean, Exec. Dir.**

SFWMD

The Aquifer Storage and Recovery (ASR) Public Workshops were held November 6, 2002 at Florida Atlantic University Broward Community College Building at 1515 West Commercial Blvd, Room 3, Ft. Lauderdale, FL 33309; and November 7, 2002 at the Okeechobee Service Center, South Florida Water Management District (SFWMD), 205 N. Parrot Avenue, Suite 201, Okeechobee, FL 34972. An Open House was held from 6:30 PM to 7:30 PM each night with the workshop beginning at 7:30 PM.

WELCOME

Dennis Duke welcomed everyone to the workshop and thanked them for their attendance. He introduced himself as the Program Manager for the U.S. Army Corps of Engineers (Corps) Ecosystem Restoration Program. He relayed that this was the first of a series of four workshops updating the public on the status of ASR. The next three workshops will be held in Okeechobee, Ft. Myers and Belle Glade over the next week.

Dennis relayed he would go through a presentation on ASR and then would answer program-level questions during the public comment section of the workshop. Project Managers from the Corps and SFWMD would address project-specific issues. Any project-specific questions could be directed to the members of the Project Delivery Team (PDT) attending the meeting that evening.

ASR PRESENTATION

Presentation Outline

- I. Background: Restoring the Everglades**
- II. Aquifer Storage and Recovery – How it works**
- III. ASR’s role in CERP**
- IV. Implementation Strategy – ASR Regional Study and ASR Pilot Projects**

Background

The Central & South Florida (C&SF) Project was authorized by Congress in the 1940s to assist the Corps with flood control and water supply. The Project had unintended consequences. These include:

- Too much/too little water for the Everglades/south Florida ecosystem**
- Massive reductions in wading bird populations**
- Degradation of water quality**
- Repetitive water shortages and salt water intrusion**
- Declining estuary health**
- 1.7 billion gallons of water per day wasted to tide**

In 1992, Congress authorized the C&SF Project Comprehensive Review Study (the Restudy). Its primary function was to find a way “to get the water right” through quantity, quality, timing and distribution and thus revert to a more historical flow in the Everglades.

In order to conserve/save this water, several storage options are being considered. These include: surface reservoirs, in-ground reservoirs, and ASR.

ASR - How it Works

ASR involves pumping treated water (to drinking water standards) underground where it will be stored in a confined aquifer and recovered later. The pumped freshwater displaces the brackish water of the Upper Floridian Aquifer, resulting in an underground reservoir of freshwater. Reservoirs, treatment facilities, and ASR wells will operate in tandem, capturing water from rainfall, treating it, and then pumping it into the ASR wells before the next rainfall.

Why ASR?

There are significant advantages to ASR compared to traditional storage technologies.

- Provides multi-year storage and recovers large volumes of water during droughts when surface water levels are low
- Provides water during droughts
- Less water is lost through evaporation
- Wells require little land, therefore less land acquisitions are necessary

Comprehensive Everglades Restoration Plan (CERP) ASR capacity is 1,665 million gallons per day (mgd).

The ASR pilot projects will be located around Lake Okeechobee, adjacent to the Hillsboro Canal south of the Loxahatchee National Wildlife Refuge. Because of their proximity to the Lake, the ASRs will be able to capture much of the overflow from Lake Okeechobee reducing stress on the lake and the surrounding estuaries, which include St. Lucie and Caloosahatchee.

CERP Components

ASR is one of many components that will make CERP successful.

- Surface water storage reservoirs
- Aquifer Storage and Recovery
- Stormwater Treatment Areas (STAs)
- Reuse Wastewater
- Seepage Management
- Removing barriers to sheetflow
- Operational Changes

ASR Planning Construction

During the planning phase of the project, the team will consider what physical impacts may be made to the aquifer by the injected water. Considerations include:

- Duration of storage and the percentage of stored water recovered
- Source - water quality
- Water quality changes in the aquifer during storage and any movement in the underground water flow patterns
- ASR impact on other regional Floridian Aquifer users
- Potential rock fracturing
- Ecological effects of ASR

Implementation Strategy

The CERP Pilot Project program includes six projects that will be used to test new technology. Three of these pilot projects are ASR projects:

- **Lake Okeechobee ASR**
- **Hillsboro ASR**
- **Caloosahatchee (C-43) River ASR**

Current status: data collection from pilot wells is underway, as well as an evaluation of ongoing per-well capacity, geochemical considerations, water recoverability, assessment of pre- and post-treatment requirements and consideration of impacts to the environment and existing users. Future considerations include planning/application for appropriate permits, design, construction, and testing of the ASR systems and evaluation of their performance.

CERP ASR Pilot Projects Schedule

The Project Management Plan (PMP) phase has been completed and we are now in the Pilot Project Design Report (PPDR) phase. The schedule reflects time allotted for permit acquisition, and other licensure prior to construction start. The ASR projects will reach the construction phase some time in 2005/2006 with completion of the testing cycle sometime in 2009/2010.

ASR Regional Study

The ASR Regional Study is being conducted in order to collect additional data and conduct further analysis (including groundwater modeling) to evaluate the technical feasibility of the regional ASR program.

Status: The Project Delivery Team (PDT) is finalizing the PMP. The Committee on Restoration of the Greater Everglades Ecosystem (CROGEE) reviewed the PMP and had several recommendations. The comment period for public review of the CROGEE report deadlines is November 30, 2002.

CROGEE recommendations include:

- **Ensure the Draft PMP responds to issues raised**
- **Need better approach to adaptive management**
- **Need better task management for more integration, consistency and specific recommendations**
- **Need plan of action if ASR does not work**

ASR Contingency Planning

This plan takes into consideration two scenarios: 1) CERP without ASR, and 2) CERP with 50% ASR. Issues to consider if the ASR technology does not work to the level expected include an increase in surface storage options, increased land acquisition, CERP modifications, and alternative cost estimates.

PUBLIC COMMENT 110602 – Ft. Lauderdale

Roderick Terrell – Sierra Club

Comment: Mr. Terrell is concerned with the amount of money being spent for the ASR projects. He believes the drilling of new wells will damage the aquifers and reservoirs. He would like to see increased land acquisition for greater surface storage. He is not concerned with evapotranspiration. He believes this to be a natural part of the rain cycle.

Mr. Terrell also expressed some concerns with maintaining water quality throughout the project.

Pete Kwiatkowski, Project Manager, SFWMD, explained that microfiltration would be the method utilized to ensure water quality. However, some types of organics are not harmful, and therefore would not be an issue.

Tony Clemente – an individual

Question: Mr. Clemente asked for further clarification on the amount of the overall \$1.6 billion budgeted for water treatment.

Answer: Glenn Landers, Project Manager, Corps relayed it was about half, \$800,000.

Question: Has the Corps performed an analysis of deeper injection (than current ASR projects call for) into non-treated water?

Answer: No, neither the Corps nor the SFWMD is aware of other ASR systems that have deeper wells with less water quality.

Question: Has the Corps considered alternate sources of ground water storage (other than ASR) in lieu of surface water storage?

Answer: No, the Corps has not spent a lot of time on this subject because of the need to store the current level of excess surface water.

Matthew Schwartz – an individual

Comment: Was any consideration/planning given concerning the development of the area surrounding the Loxahatchee Refuge? With all the land acquisition for the ASR projects, planning could have included reserving this area for conservation.

Dennis Duke, Corps, relayed that 1,600 acres around the Hillsboro Impoundment in the Loxahatchee area was acquired. He also pointed out that land preservation acquisition is primarily a local government matter.

Brian Scherf – Florida Biodiversity Project

Comment: Mr. Scherf is concerned the Corps and SFWMD are using the ASR projects to preempt funding that would otherwise be dedicated to functional wetlands for the protection of endangered indigenous species. The Corps and SFWMD should develop a contingency plan to address this issue and guarantee the survival of these animals.

Bruce Rollette – an individual

Comment: Mr. Rollette believes control of water flow in south Florida and the Everglades should be returned to the Native Americans.

Eduardo Niezen – Andes Technical Corporation

Question: Has the Corps conducted a cost comparison of using desalinization versus ASR technology?

Answer: Dennis Duke, Corps, relayed that the Corps has not looked into desalinization very deeply due to initial concerns focusing around flood control and what to do with excess water before it meets with seawater.

Question: An incident in Colorado involving the same technology to be used in the ASR projects failed.

Answer: Mr. Duke was not familiar with the incident in Colorado, but relayed that the geology in the two regions (Florida vs. Colorado) are very different.

Question: Will the ASR technology affect the septic tanks typically used by homeowners in Monroe County?

Answer: Mr. Duke relayed that there are no ASRs planned for Monroe County, so this should not become a problem.

Lisa Erinson – an individual

Question: Where are the exact locations of the 60 ASR wells planned for south Palm Beach County?

Answer: Pete Kwiatkowski, SFWMD, relayed the sites have not as yet been chosen. The current site being contemplated is 1,600 acres near the Loxahatchee Refuge. The planning process for site location will begin approximately 2009/2010.

Question: University Drive is being extended on land acquired by the SFWMD for CERP projects. Are the Corps and SFWMD working with the Department of Transportation (DOT) on this road expansion?

Answer: Dennis Duke relayed that, yes, they are working with the DOT.

Craig Canning – City of Ft. Lauderdale employee

Question: What is the Corps planning for the area around I-75 and Tamiami Trail?

Answer: Dennis Duke, Corps, cited work is progressing on the Modified Waters Delivery project. The end result of this project is to restore flow into Shark River Slough by elevating Tamiami Trail. Currently, the Corps has Congressional authorization for the first set of 10 bridges and is completing a report to solidify further plans.

Yo Ching – an individual

Question: Who pays for Everglades restoration?

Answer: Dennis Duke, Corps explained the cost sharing 50%-50% between the Corps (Federal) and SFWMD (State). He also relayed that some funding for certain projects is being shared with the Department of the Interior. But, ultimately, we (the public) pay.

END OF WORKSHOP

Public comment concluded. Dennis Duke thanked everyone for attending. He reminded everyone that the workshop summary, presentation, meeting schedules would be available on the evergladesplan.org website.

PUBLIC COMMENT 110702 - Okeechobee

Tom Bausch – Mayor, Sewall’s Point, Florida

Mayor Bausch expressed concern about sinkholes developing.

Dennis Duke, Corps, along with Glenn Landers, Project Manager, Corps, explained to Mayor Bausch that sinkholes are a surface feature. ASR will have no impact on the surface. Chris Brown, Corps, relayed that there will be further study on the dissolution of limestone, but does not anticipate sinkholes becoming a concern.

Mark Perry – Florida Oceanographic

Question: Will the injection of water cause fracturing? Does the Corps have proper geologic knowledge of limestone?

Answer: Dennis Duke explained that part of the ASR Regional Study looks at characteristics of the aquifer in respect to how much water is collected/recovered. The ASR pilot projects will test the capability and the regional study will give a better idea of how the system will react (adaptive management). Pete Kwiatkowski, SFWMD, stated that the layers in the aquifer being targeted, the Hawthorne Group, is a good confining unit.

Question: Will water quality be affected?

Answer: Dennis Duke stated that there would be no reduction in water quality standards for ASR.

Question: What are the regional impacts, for instance land use and water quality, of ASR?

Answer: Dennis Duke stated that regarding water quality, the regional study would address the development of a ground water model to ensure there are no adverse impacts to the aquifer.

END OF WORKSHOP

Public comment concluded. Dennis Duke thanked everyone for attending.