

Suwannee River Water Management District

Governing Board Materials

# Supplemental

The following materials have been reviewed and approved for distribution to the Governing Board and the public.

Assistant Executive Director

Executive Director

## MEMORANDUM

TO: Governing Board

FROM: Jon Dinges, Department Director

DATE: December 2, 2010

RE: Request for Qualifications for Upper Floridan Aquifer Regional Recharge Concepts

### RECOMMENDATION

**Staff recommends the Governing Board authorize publication of a Request for Qualifications for upper Floridan aquifer regional recharge concepts.**

### BACKGROUND

Long-term pumping from the Floridan aquifer has depressed aquifer levels in northeast Florida and southeast Georgia. The 2010 Water Supply Assessment determines that this source of water will not meet projected 2030 demands; thus, the District must implement water resource development and alternative water supply projects to meet water demands and protect water resources and natural systems.

One strategy for resolving this water supply issue is to recharge the upper Floridan aquifer system to recover its levels such that it will support water demands and the needs of natural systems. Staff recommends developing aquifer recharge concepts, with the assistance of qualified consultants, as part of regional water supply planning.

Pending Governing Board approval, staff will initiate development of a budget and work plan for this effort in January 2011 along with the District's overall fiscal year 2012 budget. Staff will present a draft budget and work plan in May 2011.

Consultant selection will run concurrent with budget and work plan development. Staff will form a selection committee and rank the consultants for Governing Board consideration, as required by section 287.055, Florida Statutes. Staff will commence work following budget adoption in October 2011.

A preliminary scope of work follows this memorandum. If you have any questions prior to the December 14, 2010, Governing Board meeting, please call me at any time.

JD/dd

## Attachment

### Request for Qualifications for Upper Florida Aquifer Regional Recharge Concepts

#### Introduction

The upper Floridan aquifer in Northeast Florida and Southeast Georgia is the traditional source of water for commercial, agricultural, industrial, residential, recreational, and public supply water uses.

Pumping of groundwater from the upper Floridan aquifer has significantly reduced aquifer levels across Northeast Florida and Southeast Georgia. The decrease in aquifer levels is impacting water resources.

Suwannee River Water Management District and St. Johns River Water Management District predictions show that pumping of groundwater from the upper Floridan aquifer is projected to increase through 2030. Additional pumping from the upper Floridan will result in additional reduction in aquifer levels and additional impacts to water resources.

Water conservation strategies will play a role in reducing demands on the upper Floridan aquifer, but conservation alone will not result in long-term recovery of aquifer levels and mitigation of water resource impacts.

Suwannee River Water Management District and St. Johns River Water Management District must plan cooperatively for alternative water supplies and water resource development projects to recover upper Floridan aquifer levels and prevent additional water resource impacts.

Suwannee River Water Management District needs to develop water resource development project concepts with opinions of probable costs for planning-level analysis:

1. Treatment and injection of reclaimed water from the east coast of Florida near the St. Johns River into the upper Floridan aquifer with projections on the effects of recovering the regional groundwater flow divide.
2. Capture and storage of surface water from the upper Suwannee River for treatment and injection into the upper Floridan aquifer.
3. Capture of flood waters within the floodplain along the upper Suwannee River for storage and natural recharge.
4. Other concepts to restore the upper Floridan aquifer.

## Qualifications

Suwannee River Water Management District requests submittal of qualifications from consulting firms with experience and expertise in the following disciplines:

- Hydrology
- Hydraulics
- Surface water modeling
- Groundwater modeling
- Water resource development
- Water supply development including water treatment design
- Underground injection
- Reclaimed water treatment
- Engineering economics
- Minimum flows and levels

Interested firms must document individual staffing expertise and relevant project experience.

## Scope of Work

Suwannee River Water Management District requires the services of a consulting firm to develop project concepts and opinions of probable costs (including capital costs and operation and maintenance costs) for water resource development projects to recharge and restore the upper Floridan aquifer. The project concepts and opinion of probable costs will be used for planning-level analysis. The concepts to be developed are:

1. Treatment and injection of reclaimed water from the east coast of Florida near the St. Johns River into the upper Floridan aquifer.
2. Capture and storage of surface water from the upper Suwannee River for treatment and injection into the upper Floridan aquifer.
3. Capture of flood waters within the floodplain along the upper Suwannee River on District lands for storage and natural recharge.
4. Other concepts to restore the upper Floridan aquifer.

The consultant shall consider the following elements for each concept.

## Reclaimed Water Recharge Concept Elements

- Feasibility factors:
  - Environmental feasibility

- Technical feasibility
- Regulatory feasibility
- Identify stakeholders and their roles and responsibilities.
- Develop engineering concept for taking reclaimed water from the east coast of Florida near the St. Johns River and treating it for direct injection into the upper Florida aquifer.
- Determine project effectiveness through groundwater modeling scenarios.
- Optimize location of recharge wells to maximize recovery of the upper Floridan aquifer.
- Determine treatment process requirements and regulatory constraints.
- Develop conceptual drawings showing process units, flow diagrams, location of facilities, and pipeline routes.
- Develop conceptual design elements including sizing of pumps, storage tanks, pipelines, and treatment facilities. Include preliminary system capacities.
- Use existing models and data – no field data collection.
- Determine probable costs (capital, operation and maintenance) for planning-level analysis.

#### Surface Water Capture, Treatment and Injection Concept Elements

- Feasibility Factors:
  - Environmental feasibility
  - Technical feasibility
  - Regulatory feasibility
- Identify partners and stakeholders and their roles and responsibilities.
- Determine effectiveness through groundwater modeling scenarios.
- Use existing models and data – no field data collection.

- Determine probable costs (capital and operation and maintenance) for planning-level analysis.
- Develop conceptual drawings showing location of all facilities and pipeline routes.
- Develop conceptual design elements including sizing of pumps, reservoirs, pipelines, and treatment facilities. Include preliminary system capacities.
- Determine sustainable yield of river withdrawals considering flow constraints determined by SRWMD and SJRWMD.
- Optimize location of injection wells to maximize recovery of the upper Floridan aquifer.

#### Floodplain Storage and Recharge Concept Elements

- Feasibility factors:
  - Environmental feasibility
  - Technical feasibility
  - Regulatory feasibility
- Determine if floodplain storage along the Suwannee River would provide recharge to the upper Floridan aquifer to recover levels. (Use existing models and hydrographic data.)
- Use existing topographic data to determine locations along the upper Suwannee River on SRWMD lands that can store floodwater with minimal structural alteration to the floodplain.
- Develop preliminary storage volumes for any feasible locations.
- Develop conceptual capacities, sizes, and drawings for floodplain storage facilities.
- Develop opinion of probable costs for capital and operation and maintenance.
- Identify stakeholders and their roles and responsibilities.