

## MEMORANDUM

**TO:** Governing Board Members

**FROM:** Chip Merriam, Deputy Executive Director, Water Resources

**DATE:** September 29, 2008

**SUBJECT:** Amendment to Agreement with the Florida Department of Agriculture and Consumer Services for Implementation of Hybrid Wetland Treatment Technology

**Background:** In August 2007, the District and the Florida Department of Agriculture and Consumer Services (FDACS) teamed up on a project to demonstrate the technical efficacy and cost effectiveness of the Hybrid Wetland Treatment Technology (HWTT) in the Lake Okeechobee and St. Lucie watersheds. Four full-scale and one mesocosm HWTT systems were constructed in late 2007 and early 2008. Two of the systems were designed to treat runoff from two major tributaries to Lake Okeechobee, Nubbin Slough and Mosquito Creek. A third system was deployed in Larson Dairy Barn 8 to treat dairy lagoon waters, and the fourth, which drains to the Indian River Lagoon, was installed to treat citrus runoff from Ideal 2 Grove. All systems were operational by summer 2008.

Initial optimization efforts for these systems focused on maximizing treatment effectiveness by manipulation of key design and operational parameters. Monitoring and optimization results to date are promising; the mesocosm and full-scale systems are reducing total phosphorus (TP) concentrations in the range of 80 to 90 percent. However, the wide spatial and temporal variations in water chemistry within the Lake Okeechobee tributaries along with the multiplicity of HWTT control variables indicate that a relatively rigorous optimization period is required for initial implementation of HWTT facilities in the watershed.

This amendment would provide continued monitoring and optimization efforts for the existing facilities and deployment and monitoring of up to two new additional systems in Okeechobee and Martin counties. Once optimized, HWTT systems should prove to be a predictable, sustainable, and cost-effective technology for achieving water quality targets in the Northern Everglades and Estuaries Protection Area.

**How this helps meet the District's 10-Year Strategic Plan:** This project supports the Governing Board's strategic priority to reduce phosphorus loads to Lake Okeechobee.

**Funding Source:** This is an amendment to contract 4600001034 with FDACS for continued monitoring and optimization of the existing HWTT systems and for the design, deployment, and monitoring of up to two additional facilities in Okeechobee and Martin counties, in the amount of \$3 million, for which ad valorem funds are subject to Governing Board approval of the FY09 budget. The total cost of this project upon this amendment would be \$6 million dollars. The original contract was funded with Save Our Everglades Trust Fund dollars, for which funding for this amendment would serve as cost-match.

**This Board item impacts what areas of the District, both resource areas and geography:** The areas of impact are the northern Lake Okeechobee and St. Lucie watersheds. District resources for this project include staff from the Northern Everglades Restoration and Lake Okeechobee Divisions.

**What concerns could this Board item raise?** Successful completion of the project is contingent upon continued collaboration between the District and FDACS.

**Why should the Governing Board approve this item?** The successful implementation of this technology will provide nutrient removal cost information that can be used for watershed-wide implementation of the HWTT technology or other potential future treatment systems.

CM/jl

Attachment – Resolution, Map