

## MEMORANDUM

**TO:** Lake County Water Authority - Board of Trustees  
Larry Everly, Chairman, District 3  
Ann Wettstein-Griffin, District 1  
Nancy Fullerton, District 2  
Stan Bainter, District 4  
Everett Kelly, District 5  
Sean Parks, At-Large

**FROM:** Robert W. Taylor, Ph.D., Vice Chairman/Member At-Large

**DATE:** May 24, 2006

**SUBJ:** Nutrient Reduction Facility

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The following is a summary of my concerns, both old and new, about the proposed alum treatment system (Nutrient Reduction Facility - NURF) that is being planned to process water flowing through the Apopka-Beauclair Canal. I have consistently opposed moving forward with the NURF project under the conditions that it has been presented to the Board, and have been vocal about my reasons for doing so. Since the project was first discussed, my objections have included the following:

1. The task of improving the quality of the water in Lake Apopka, and therefore, the quality of the water flowing down the Canal to the Harris Chain of Lakes, was given to the St. Johns River Water Management District by the State Legislature, through the Surface Water Improvement and Management (SWIM) Act of 1987, and subsequent actions. For the Water Authority to unilaterally usurp the role of the District, and to move ahead with the NURF project without the full support and cooperation of the District (or any funding commitment), simply because the District has failed to adequately improve water quality, is inappropriate and imposes an unreasonable financial burden on the Water Authority. The Board of the Water Authority has simply chosen to disregard this important issue.
2. After almost three years of planning, design, and permitting, only one financial participant has been identified to help the Water Authority fund the project. Florida Dept. of Environmental Protection (FDEP) has pledged one-half million dollars. The Board has been told that the projected construction cost is over five million dollars, and that annual operating costs will average approximately one million dollars. Based on a 25-year life of the project, the predicted total cost will exceed thirty million dollars. FDEP's pledge represents only 1.7% of the anticipated cost of cleaning up the nutrient-laden water that still exits the Lake Apopka Restoration area. It is irresponsible of the Water Authority to move ahead without significant financial participation by other appropriate entities, especially the Water Management District. No such financial support has been pledged, and

we have no basis to assume any will materialize. The Board of the Water Authority has never expressed the sentiment that implementation of the NURF project would be contingent upon any outside funding.

3. The primary project advocate (in addition to the Water Authority Staff) has been the same entity that has, and will continue to, make a profit from the project. When the Board first heard of the project, the concept and general design for an “alum treatment facility” had already been determined by Water Authority Staff, in consultation with Environmental Research and Design. We did not operate with the goal of finding the best system to improve water quality, we were operating from the position of how to implement an alum treatment facility. The RFP process favored the selection of the alum treatment system that had been envisioned. I repeatedly objected for two years about the lack of independent assessment or verification of the claims about the proposed system, but no other Board Member seemed to care that no critical review existed. Some limited statements of support for the concept finally came from FDEP and District staff, including financial support by FDEP. The District is hardly independent in these matters, however, since Environmental Research and Design is under contract to the District on numerous other alum projects. While one would expect that a product vendor would declare that his product will be successful, what the Water Authority needs is an objective and critical review of the technology, the proposed costs, the expected outcomes, and relevant operational issues and potential problems. The Board of the Water Authority has never received any such confirmation based on an independent assessment. It is critical that this occur.
4. There is no operating agreement with the Water Management District that commits their support to the concept of the NURF project, or that provides any confidence that, in the operation of the Lake Apopka Lock and Dam, a high priority will be placed on ensuring that all flow volumes, up to the design capacity of the NURF project, will be provided to the facility. Experience has shown that the high-level decisions of the District are driven by what is best for the District, not by tentative commitments that have been given by the scientists and field managers. I cannot understand how the Board of the Water Authority can justify the past expenditure of hundreds of thousands of dollars, and plans to spend many millions more, based on a vague promise of cooperation by an entity that has, on more than one occasion, backed out of its preliminary commitments to the Authority.

The items described above are long-standing problems with the NURF project as it has been proposed to the Board of the Water Authority. Unfortunately, in recent months, additional issues have arisen that continue to undermine the assumptions and predictions upon which the NURF project was proposed.

5. Consumptive Use Permits (CUP's) to withdraw surface water from Lake Apopka for municipal water supply have been submitted by the cities of Apopka and Clermont/Minneola. Additional applications from other utilities are likely. The

District has not fully investigated the effects of such withdrawals, and it could be years before any permits are issued. However, District representatives have indicated that millions of gallons per day might be directed to such allocations. The underlying premise for the attractive cost-to-benefit ratio for the proposed NURF project would be weakened if flow volumes that discharge through the Canal are significantly reduced. What effect will these surface water withdrawals have on the operation or anticipated benefits of the facility? At this point, no one knows. I believe, however, that the Water Authority should have a better understanding of the impact of CUP's before building a multi-million dollar treatment system.

6. Alternative technologies may be available, either that did not exist when the alum treatment system was proposed three years ago, or that were overlooked. Is there another system available that may cost less to build, be less expensive to operate, remove more pollutants, take up less space, or be more reliable? Again, before we commit a major portion of the Water Authority's budget for many years to come to a treatment technology, we need to be sure that an objective assessment has determined that we are pursuing the best available path.
7. At the April Board Meeting a discussion of phosphorus chemistry, flow-way effectiveness, and lake vs. canal water quality conditions degenerated into a series of confusing statements, conflicting opinions, and complicated explanations. The highly-optimistic predictions from ERD about phosphorus removal, based only on jar tests, became less reliable to me. Evidently, no pilot project using the proposed technology has been performed at the Apopka-Beauclair Canal. My confidence in what is proposed by ERD fell even more when, in response to a question about the centrifuge which is a critical component in the dewatering of the flocculent material, the vendor stated that "the manufacturer said" that the centrifuge couldn't be heard in a closed building from 100 feet away. The Water Authority should not have to rely on what "the manufacturer said"; a vendor selling a technology that relies on such equipment as a central feature should have first-hand experience with it, and should be able to speak with certainty about its operation. Evidently this is not the case.
8. Long-term operational and management costs seem to be underestimated. These expenses are necessarily estimates, and to a large extent are dependent upon the cost of alum, which will be obtained through the bid process. We have been provided little information, however, regarding other on-going expense items that must be paid for year after year. Costs for staffing at the site, maintenance and repairs to equipment, and restoration of the project site upon deactivation of the system, for example, have been vague and characterized as relatively low. The addition of the centrifuge, and the realization that more staffing may be required than originally described, will drive up those costs. The Board of the Water Authority needs to receive updated and more detailed cost estimates for the annual financial burden that would be associated with the alum treatment system.

9. The combination of all the factors summarized above puts the majority of Water Authority Board Members in the position of having supported an expensive and long-term project that:
- may or may not have any financial participants to help the Authority
  - may or may not remove phosphorus as effectively as its vendor says
  - may or may not have a cooperative agreement with the District to provide the necessary operational support
  - may or may not have enough water passing through the Canal to accomplish what is envisioned
  - may or may not be the best available technology to accomplish what is desired
  - may or may not attain the cost-to-benefit ratio that has been claimed for it

In light of the numerous significant issues described above, I propose that the Lake County Water Authority identify and retain an independent consultant that is knowledgeable in these water resource matters to evaluate all pertinent aspects of the proposed alum-based Nutrient Reduction Facility. The evaluation should include:

- a) the technical aspects and predicted water quality improvements of the system as currently proposed,
- b) operational factors including ongoing costs, staffing, and the proposed cooperative agreement with the Water Management District
- c) the potential impacts of Consumptive Use Permits that may be issued for surface water withdrawals from Lake Apopka,
- d) other treatment systems that should be evaluated as alternatives to alum,
- e) construction and operational cost projections, and
- f) potential funding assistance for the Water Authority.

No action should be taken by the Board of the Lake County Water Authority to bid-out the alum-based NURF project until the results of this independent objective assessment are complete, and the Board is satisfied that the proposed NURF project will function as predicted, can be reasonably expected to be effective, and is the most cost-efficient alternative available. If the Board cannot be assured that this is the case through an independent, objective review, then we should consider other alternatives for the improving water quality of our lakes.