PIERCE
ATWOOD
ATTORNEYS AT LAW

William E. Taylor

One Monument Square
Portland, ME 04101

207-791-1213 voice
207-791-1350 fax
wtaylor@pierceatwood.com
pierceatwood.com

September 5, 2003

VIA FACSIMILE

Dawn Gallagher, Commissioner
Department of Environmental Protection
17 State House Station
Augusta, ME 04333

Re: Modeling Workshop Issues for Gulf Island Pond

Dear Commissioner Gallagher:

As we discussed at the last Gulf Island Pond stakeholder meeting, I am writing on behalf of the Gulf Island Pond Oxygenation Partnership to highlight some of the key modeling issues that should be addressed at the September 17 modeling workshop. Given that the model is the foundation for the stakeholder group's analysis of alternatives and will be the basis for regulatory decisions about Gulf Island Pond, it is critical that all of the parties understand how it is being used. Our goal is to ensure that the model is accessible and transparent to all parties and provides as accurate a tool as possible to evaluate conditions in the pond. We believe that this is necessary to ensure that the public generally and the stakeholders specifically have confidence in the model, which is essential to reaching a reasonable result.

We anticipate that this meeting will be technical in nature and therefore the discussion should be primarily among modeling experts. Accordingly, we have asked our consultants, Bill Ball of Acheron Engineering and Jim Palumbo of NCASI, to participate. We are also trying to arrange for Tom Gallagher of HydroQual to attend because he has provided comments to the Department in the past on the inputs that were used for this model.

We believe that at least the following issues need to be addressed at the modeling workshop. In addition, we need to be flexible enough to address other issues that may arise during the stakeholder process.

I. Process Transparency

Perhaps the most important issue that needs to be addressed is the lack of transparency in the model itself and the modeling process. We have spent a considerable amount of time working with our consultants and the Department to understand the model and its assumptions, and attempting to replicate the various model runs. Unfortunately, even though we are modeling the same inputs as the Department, we have been unable to replicate the Department's results. This issue includes the following elements:

- The Department's use of a DOS-based model that cannot be easily replicated vs. the newer Windows-based model that can be verified and replicated
- Basis for calculation of minimum dissolved oxygen results from daily average outputs
- Retention and publication of input and output files
- Identification of the modeling process and its assumptions and input variables so that these can be peer reviewed
- Method of model calibration for both QUAL IIE and WASP models

II. Accuracy Required by Modeling Process

- Technical impact of revisions to pond volume on model results
- Impact of revisions to pond volume on public confidence in model accuracy
- Apparent typographical and transpositional errors in input data

III. Sensitivity Analysis

- Range in BOD decay rate from 0.03 mg/l to 0.05 mg/l
- Nitrification rate
- Assumptions regarding SOD inputs
- BOD_5 vs. BODU
- Temperature -- 24° C vs. 26° C
- Oxygen injection rate
  - Common understanding of how the Department modeled the existing oxygenation system
  - Ability to run variations for a second diffuser at different locations and rates to present to Department for discussion
- Boundary conditions for algae

Thank you for your attention to this matter. We look forward to discussing these issues at the modeling workshop on September 17.

Sincerely,

Bill Taylor

William E. Taylor

cc: Paul Mitnik
Deb Garrett
Senator John Martin
Representative Theodore Koffman
GIPOP Partners
Jack Cashman