

MEMORANDUM FOR RECORD

SUBJECT: Savannah Harbor Expansion Project;  
Summary of 8 May Interagency Meeting on Evaluation of Impacts to  
Water Quality

- Attendees:  
EPA: Jim Greenfield  
Steve Whitlock  
USGS Paul Conrads  
GA DNR-EPD: Roy Burke III  
Paul Lamarre  
City of Sav: Bob Scanlon  
MACTEC (Law Env): Larry Neal  
ATM/GPA: Steve Peene & Bo Ellis  
Danny Mendelsohn, Henry Rines & Tom Gallagher  
LGE/GPA: Larry Keegan  
COE: Doug Plachy  
Bill Bailey

2. A copy of the agenda is attached.

3. I opened the meeting by stating that ATM wanted us to review what they were doing leading to calibration of the D.O. Model, provide them with guidance, and inform the group if anything they are doing may be unacceptable to our agencies.

4. Henry Rimes began by discussing the findings in their **Draft D.O. Characterization Report**. Concerning **Primary Productivity**, it appears that algal production is not a major activity within the estuary. Algae enter the estuary from upriver and the ocean, but the low light penetration appears to limit productivity within the harbor area. ATM agreed to conduct an initial test to determine whether the model indicates that algal production is important in the harbor area. If the initial runs show no real production (loss rates > growth rates), ATM will then “turn off” the algal production components of the model and proceed with the major calibration effort without the algal production factors working. The Calibration Report will describe this testing and the conclusions reached.

Concerning **BOD**, it was mentioned that the inhibitor in the BOD test may have suppressed the CBOD5 values. The BOD values were noticeably different during Week 2 of the sampling. The group did not know of a reason for this. ATM will flag the Week

2 BOD values to identify their influence on the averages over the sampling period. ATM will use the BOD5 instream data to apply the F ratios.

Concerning the **marshes**, ATM and USFWS ecologists have delineated drainage basins and obtained elevations for the intertidal marshes between the Houlihan Bridge and I-95. The loadings from these marshes appear to be a major contributor to the BOD loading in the estuary. To ensure the best information is included in the H&S and D.O. Models, ATM will compare (1) the intertidal volumes passing through the tidal creeks based on the drainage basins and marsh elevations developed by the ecologists, and (2) the volumes for those creeks that as they are now configured in the H&S Model.

Concerning **Longitudinal Profiles**, the data showed what the reviewers expected.

Concerning **SOD**, we have data for four locations. Because of the similarities in sediment characteristics (high fines content) and the high shoaling rates in both locations, the group agreed to apply the SOD values measured in the Kings Island Turning Basin to the Sediment Basin.

Concerning **Instream D.O.**, to follow the Expectations Document, ATM will calibrate to both D.O. and D.O. deficit. We discussed the low D.O. spikes that were observed at slack tides. The D.O. data shows recurring sharp (short term) drops in D.O. at slack tides. This occurs more frequently at stations closer to the ocean. The group agreed that the data appear to be a sampling artifact or probe fouling problem, rather than a natural occurrence. The group agreed that these spikes are most likely not real and should be deleted from the dataset.

5. ATM then discussed the **Loadings**. Flows from upstream and the marshes appear to provide the largest net CBOD and TKN loads to the estuary. On the marshes, ATM has initially split the marshes (vertically) along the length of Back River, grouping Transects 2 & 5 together. With this split, the marshes are separated according to which side of Middle River they fall on. The group recommended ATM reexamine this split to determine whether it should instead be based on marsh types (which correspond to salinity levels). They should do this by examining the data obtained during the Tidal Wetland Studies and consulting with the ecologists that obtained that data. Dividing the marsh based on salinity would generally separate the marsh (horizontally) into types as one moved up the river, with the same type generally occurring on both sides of the river. ATM will also check with the ecologists from the Tidal Wetland Studies for values on the productivity of the marshes. This would be used as a check on the appropriateness of the production values used in the marsh loadings. The Redfield Ratio (N-P-K in phytoplankton) was suggested as a starting point for carbon ratios for marsh vegetation. It was observed that the Redfield Ratio was based on aquatic plants, and that upland plants possess a higher carbon ratio.

6. ATM then discussed the **Boundary Conditions**. The group provided on decisions or guidance.

7. ATM then discussed the **Coefficients**. ATM will restart the calibration using median literature values.
8. We then briefly discussed the availability of the model after it is calibrated. ATM agreed to have an answer by 23 May for both the Corps (availability of a version with the calibration locked) and EPA (availability of a version where all calibration parameters can be changed).
9. One footnote to the meeting summary is that the Corps did receive the joint letter from SC and GA dated 1 May 2003 concerning model application runs. I have attached a copy of that letter to this summary.
10. Another footnote (as a reminder) is this paragraph from the summary from our September 02 meeting:

We then discussed the parameters that the agencies believe will need to be evaluated in the EIS. The items include the following:

- Dissolved Oxygen
- Temperature
- Mixing zone of point sources
- Assimilative capacity of Dissolved Oxygen in the harbor
- Chlorides at Abercorn Creek

Attachment

William Bailey  
Environmental Resources Branch

# SAVANNAH HARBOR EXPANSION PROJECT

## INTERAGENCY COORDINATION ON WATER QUALITY

**MAY 8, 2003**

### AGENDA

#### MORNING

**D.O. Characterization Report** ATM (2 hours)

#### AFTERNOON

**“Base Case” Conditions for Calibration** ATM lead

- Boundary Conditions
- Loading
- Constants & Coefficients

**Acceptability Criteria/Goals** COE lead

**Schedule for completion of D.O. Model** ATM

**Application of the models** ATM

- Time & costs per run (including analysis)
- SH Expansion, Ecosystem Restoration, TMDL, and other projects



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Environmental Protection Division, Water Protection Branch  
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May 1, 2003

Mr. David V. Schmidt  
Chief, Planning Division  
Savannah District, Corps of Engineers  
Department of the Army  
P. O. Box 889  
Savannah, Georgia 31402-0889

Dear Mr. Schmidt:

In a letter dated 15 October 2002 you requested that the States identify conditions to be represented by the Savannah Harbor Model when used to evaluate water quality impacts of the proposed harbor deepening project. These included: model critical conditions, specific model simulations needed, and guidelines for the presentation of model results.

Staff members from the South Carolina Department of Health and Environmental Control (SCDHEC) and the Georgia Environmental Protection Division (GAEPD) met to consider this request and formulate our response which will be delivered in two phases. The Phase I response, included in this letter, represents those we can state now without further information. The Phase II response, to be delivered at a later date, requires: (1) an understanding of the dissolved oxygen standard which has not yet been proposed; (2) a finalized Harbor model which has not yet been fully calibrated; and, (3) an opportunity for our staff to examine the new standard with respect to model capabilities and the specific issues to be addressed.

This Phase I response focuses on model critical conditions reflected in State regulations and implemented through standard modeling practices to examine the protection of water quality standards and develop TMDLs and NPDES permit limits. In a letter to USEPA Region 4, dated 4 May 2000, SCDHEC and GAEPD outlined an initial set of critical conditions to be used for the analysis of water quality issues for both Savannah River and Harbor. We confirm those conditions and, as an update, add the following:

- The upstream boundary conditions for the Harbor Model will be determined by the States' Savannah River Model.
- Kinetic rate parameters, sediment oxygen demand, and non point source conditions determined during Harbor Model calibration shall be used in the critical conditions model.

- The Corps has recently proposed a modification to the drought operation plan for Thurmond Dam. The States reserve the right to redefine critical minimum flows, earlier described in our 4 May 2000 letter, in response to any changes in minimum flows from Thurmond Dam.
- All of our responses to your request relate exclusively to the use of the River and Harbor models and those issues that can be directly addressed with these models.

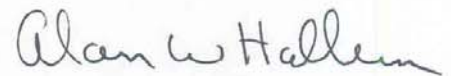
SCDHEC and GAEPD will continue to work and communicate together on issues of joint concern for Savannah River and Harbor. Additional specifications, especially those involving the Phase II response, will be provided by our combined staffs when appropriate.

Sincerely,



Alton Boozer, Chief  
Bureau of Water  
SCDHEC

Sincerely,



Alan W. Hallum, Chief  
Water Protection Branch  
GAEPD