

MEMORANDUM FOR RECORD

SUBJECT: Savannah Harbor Expansion Project;
Summary of 25 May meeting of the Water Quality Interagency
Coordination Team

1. Attendees:

GA DNR-EPD	Paul Lamarre
SC DHEC	Wade Cantrell
COE	Bill Bailey
	Joe Hoke
	Hugh Heine
EPA	Steve Whitlock
	Tim Wool
USGS	Paul Conrads (by phone)
Tetra Tech	Steve Davie

2. The meeting was held at EPA in Atlanta from roughly 1000 to 1500. The meeting was an information meeting only, not a decision meeting. The Corps was not requesting concurrence from the agencies on the level of impacts predicted for the project alternatives.

3. The following is a summary of the discussion and does not include all the information that was presented or all comments made during the discussion.

4. The Corps started by reviewing the process the Team had followed to arrive at this point:
 - EPA (through Tetra Tech) developed the initial version of the hydraulic and water quality models of the Savannah River estuary for TMDL purposes. Then the Corps (through Tetra Tech), under the review of the full Interagency Coordination Team, enhanced the models. The Corps will use these models for impact evaluation purposes on the Savannah Harbor Expansion Project
 - The agencies recently approved use of those two models for impact evaluation purposes on the SH Expansion Project.
 - The modelers had completed their impact runs using the input and output criteria specified by numerous resource agency reviewers. The modelers prepared a report documenting their findings and containing all the outputs that had been requested by the agency reviewers. The Corps sent that report to the Interagency Team for review.
 - The meeting was called to review the report and identify (A) what information is helpful to the water quality reviewers, (B) any information that was requested by

does not appear to be helpful, and (C) any information which is now believed to be needed to adequately assess potential project impacts to water quality but that is not in the present version of the report.

5. Steve Davie (Tetra Tech) gave a PowerPoint presentation with an overview of the impact analyses.

6. The group looked through the report and made several general observations:

- The increase in salinity at the surface at the Kings Island Turning Basin for a 6-foot deepening (90%) is predicted to 2-3 ppt.
- The increase in salinity at the bottom at the Kings Island Turning Basin for a 6-foot deepening (10%) is predicted to 5-6 ppt.
- The increase in salinity at the bottom at Drakies Cut for a 6-foot deepening (90%) is predicted to 6-7 ppt.
- The increase in salinity at the surface at the Sediment Basin for a 6-foot deepening (10%) is predicted to 2-3 ppt.
- Tables 3 & 4 show the water temperature to be cooler with a 6-foot deepening alternative.
- Figures 11 & 12, 13 & 14, and 15 & 16 show the areas of low dissolved oxygen extending further up in the water column with the deepening alternative. The location of the area of low dissolved oxygen also appears to move somewhat. It doesn't change substantially. It was difficult to get more than just general information from these plots.
- Figures 19 & 20 show areas of lower dissolved oxygen in the shallows just upstream of the Tidegate.

7. The group looked through the report and made the following observations and recommendations:

- The SC D.O. standard includes an allowable impact component, which applies when numeric criteria are not attained under natural conditions. Modeling indicates this is the case over much of the system. The allowable impact ("delta D.O.") is specified as a daily average, which we take to mean the reduction in D.O. on any given calendar day. To compare to the SC D.O. standard, we will need to see the daily average delta D.O. for each transect plotted longitudinally from the inlet up Back River to the Tidegate and on up Back-Little Back Rivers. At each transect, surface, bottom, and water column average delta D.O. should be shown. Each plot should show the maximum, mean, and minimum daily average delta D.O. during the simulation period (in this case August 1999). We will start with the 6-foot deepening and coordinate the results with SC DHEC to evaluate this presentation format. Examination of these results could lead to more refined presentations to address compliance with this SC standard if (1) timing shifts confound the daily average comparison (in which case percentiles may be a better way), (2) showing the maximum delta D.O. for the entire simulation period overstates the extent of the impact on any single day, (3) it is determined it is

appropriate to group transects into segments to evaluate impacts, (4) etc. At this time, we will not develop this presentation format for the Front and Middle Rivers.

- The percentiles should be calculated first, then the differences between alternatives.
- Items #1 & 2 (Tables A.1.1 and A,1.2) are not useful to the States. They could be of use to EPA.
- Items #3 & 4 (temperature) are OK.
- Items #5 & 6 and 7 & 8. The volumes are OK. Use a cumulative frequency distribution function rather than the existing tables.
- Items #11 & 12, and 13 & 14, and 15 & 16 (D.O. Dynamics). The Without Project is OK. Show the change (delta) rather than the actual values for the deepening alternatives.
- Items #17 & 18 (Maximum velocity along perimeter). Value to the Corps only.
- Items #19 & 20, and 21 & 22 (Minimum D.O.). The Without Project is OK. Show the change (delta) rather than the actual values for the deepening alternatives. Why are there lower D.O. values along the bottom in Back River? Is this an influence of the Sediment Basin or discharges from the CDFs?
- Items #23 through 26. Value to EPA.
- Items #27 through 40 and 41 through 54 (dissolved oxygen). The Without Project is OK. Show the change (delta) rather than the actual values for the deepening alternatives. Possibly plot D.O. vs. cumulative frequency of exceedence (volume weighted).
- Items #55 through 68, and 69 through 82 (salinity). The Without Project is OK. Show the change (delta) rather than the actual values for the deepening alternatives.
- The report should describe how the input flow conditions are used for the various resources – varying flow for water quality, and constant flow for fisheries and wetlands.
- One member questioned whether the Middle and Back Rivers are stratified. This could affect how the model is applied for evaluating impacts to some resources. NOTE: After the meeting Paul Conrads (USGS) confirmed that after reviewing the field data and EFDC model results, except for one station (LBR-15), those areas are well mixed.
- One member wanted the group to remember that the model’s performance (reliability in matching field data) is lower in the Middle and Back River areas. This should be considered when the model is used to evaluate the effects of “replumbing” to modify flows in that portion of the estuary.

8. The Corps stated that it is continuing to evaluate use of oxygen injection to mitigate for project-induced impacts to dissolved oxygen. Designing oxygen injection systems to mitigate for project impacts is the next step in that process. The SC DHEC position on this technique had been stated in a letter dated 12 August 2005. Separate from the SH Expansion Project, the Corps is resuming the Savannah Harbor Ecosystem Restoration Study, which is evaluating methods of restoring dissolved oxygen levels within the harbor. The Corps will carefully consider the siting of the oxygen injection

during the design process. Co-locating an oxygen injection system with an existing point source discharge is one measure that will be examined.

9. One member reported that report and CD did not contain the results of the 1850's bathymetry, and the maximum permitted loads. These had been requested by the Team. The Corps will look into this and make sure these runs are included when a CD with the revised reports are distributed.

10. One member requested the raw EFDC and WASP BMD files for the existing and 6-foot deepening scenarios for August 1999. The Corps will ensure they are made available to the Team.

11. After the meeting, one member requested that the final impact analyses include BOD loadings from the SC CDFs. These loadings should include (A) any increases in flow expected from the CDFs during construction of the harbor deepening, and (B) the potential contribution of ammonia to the total oxygen demand. If an increase would occur only during construction, then it would be appropriate to consider only potential increases from regular maintenance of the deeper channel.

12. After the meeting, one member questioned why the model predicts dissolved oxygen levels in Little Back River decreasing at the surface by 0.3-0.4 mg/l, while increasing at along the bottom by 0.3-0.45 mg/l. They also questioned why point source loadings appear to affect dissolved oxygen levels differently from surface to bottom.

13. The Corps will provide revised Impact Reports to the agencies when those revisions and corrections are complete. The updated report will be provided on CD only. Agency Team members are free to send the Corps any comments they may have after further review of the present Impact Report or review of the revised report.

14. The Corps will continue its work on evaluating potential mitigation measures. When it has developed combinations of mitigation measures that it believes would be effective, the Corps will hold another meeting of the Interagency Coordination Team to share those results. That meeting would be prior to the Corps' completion of a Draft EIS or a request for agency concurrence on the acceptability of the mitigation plans or the project alternatives.

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