

Response to Comments – Savannah Harbor 5R

1. **Comment:** BOD5 and CBOD5: The document appears to have inconsistencies in referencing these two parameters (e.g., p. i and p. 19).

Response: The document was revised to refer to BOD5 if the oxygen demanding substance included the CBOD and ammonia or if that is how the parameter is written in the NPDES permit.

2. **Comment:** Unique Features of Analysis (p. 19): The phrase *allowance for an exceedance of the maximum 0.1 mg/l decrease in the Harbor DO* should be revised. An alternative reading to better reflect the analysis should be: *calculation of the numeric target of 0.1 mg/l delta DO by subtracting the model scenario outputs from the “Natural” model outputs for each zone and taking the 90 percentile of the daily DO differences for the simulation period* (this language appears at the bottom of p.16 and top of p. 17).

Response: The phrase in Section 3.6 Savannah River and Harbor DO Calculator was revised to read: *Allowance for a 10 percentile exceedance of the numeric target 0.1 mg/L delta DO calculated by subtracting the model scenario outputs from the “Natural” model outputs for each zone during the time period March through October.*

3. **Comment:** Standards achieved: Consider clarifying the purpose of the following and how that might be achieved: *Effluent data required in each facility’s operating permit will be reviewed, at a minimum, every 2-years for listing purposes consistent with the Section 303(d) listing cycle to evaluate whether water quality standards are being achieved.*

Response: The text in Section 6.3 Compliance Schedule and Monitoring Plan to Track Effectiveness was revised to: *Effluent limits required in each facility’s operating permit will be reviewed, at a minimum, every 2-years for listing purposes consistent with the Section 303(d) listing cycle to evaluate whether water quality standards are being achieved. If the permit indicates compliance with their applicable effluent limits, then the waterbody may be moved from subcategory 5R to the appropriate attainment category on the State of Georgia’s Integrated Report. If permit limits do not indicate compliance with their applicable effluent limits, additional pollution controls or compliance measures may be explored and implemented.*

4. **Comment:** Future Conditions: Suggest clarifying the following phrase about “TMDL models” on page 35 as follows: *Any future assimilative capacity evaluations and wasteload allocations will be performed using the TMDL water quality models ...*

Response: The text in Section 6.4 Future Conditions regarding the models was clarified as follows: *Any future assimilative capacity evaluations and wasteload allocations will be performed using the Savannah Harbor and River Models used for the 5R Plan.*

5. **Comment:** Trading: Suggest revising the following phrase on page 36 as follows: *The Savannah River and Harbor DO Calculator will allow the States to evaluate and determine UOD (BOD5 or CBOD5 and ammonia) load and oxygen injection trading proposals to ensure that water quality standards will be met.*

Response: The text in Section 6.5 Pollutant Trading was revised as suggested.

6. **Comment:** Page 14, Appendix A is the low flow analysis and does not include details of the HQI 50-year DO analysis, so suggest rewording last two sentences as follows: “In addition, HydroQual (HQI) conducted a fifty year DO analysis and showed that 1999 was a year that adequately represented the past 50 years (HQI, 2010) (2010 HQI). Details are provided in Appendix A.” or adding the HQI document into Appendix A (see attached).

Response: Appendix A was updated to include the fifty year DO analysis conducted by HydroQual.

7. **Comment:** In Appendix D, please consider removing “Percent Delta DO Excess Remaining” results for Savannah River/Harbor segments that are not impaired for dissolved oxygen.

Response: Appendix D was revised and updated to clarify compliance with the dissolved oxygen water quality standard in the section of the Savannah Harbor designated as Coastal Fishing. Zones FR29-FR55, which cover River Miles 28-60, were removed. These segments are designated as Fishing and are not impaired for dissolved oxygen.

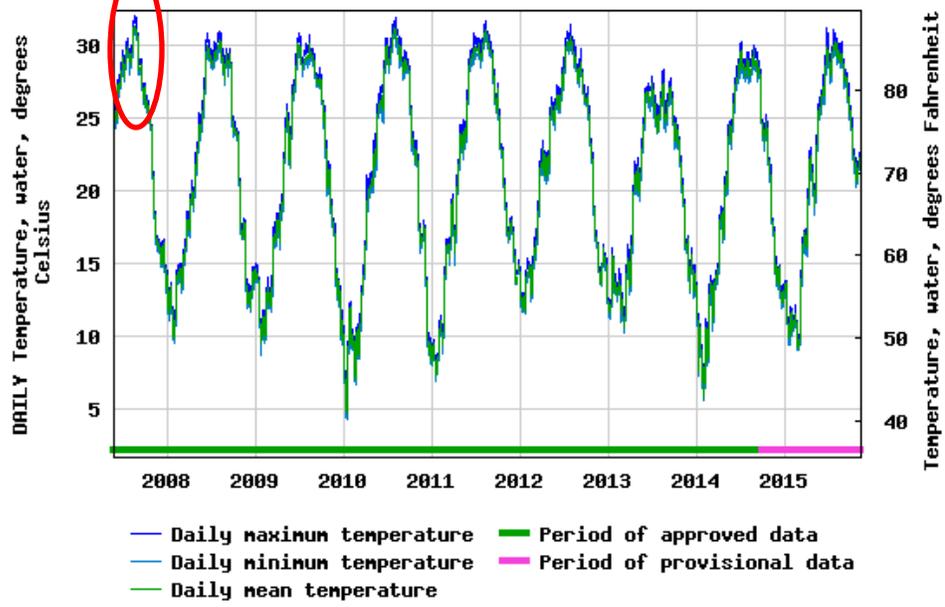
8. **Comment:** DO injection should not be used as a solution of first resort. There is still significant uncertainty as to the effectiveness of Speece Cones, especially when used on a large scale or for dynamic water bodies such as estuaries. The widespread use of DO injection devices in Georgia would render the health of the state’s water bodies entirely dependent on the effective and continuous operation of those devices.

Response: It is generally more economically feasible to utilize oxygen injection if it is used in combination with treatment technologies that substantially reduce the oxygen demanding load of the effluent to the receiving water. While it is true that proper operation and maintenance of the Speece Cones will be necessary to meet water quality standards, the same is true for the proper operation and maintenance of every wastewater treatment plant and is therefore is not a contraindication for their use.

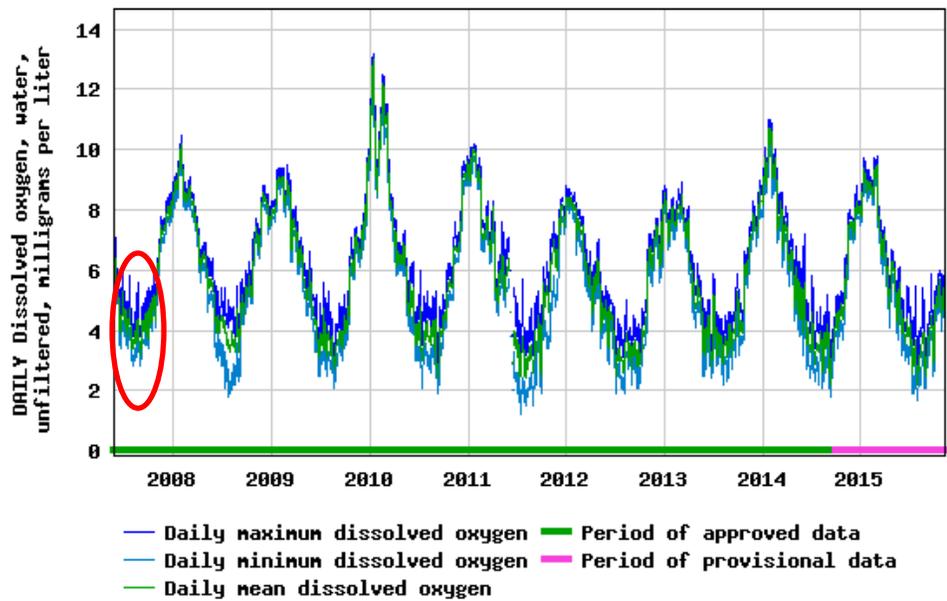
In regards to the uncertainty of the effectiveness of the Speece Cones in the Savannah Harbor, the following graphs were obtained from the USGS website and include data from 2007 to present. Please note that the Speece Cone pilot study was conducted in August 2007. The first graph shows the temperature of the water. Note that the water temperature in the summer of 2007 was higher when compared to the other years. Normally dissolved oxygen is lower when water temperatures are higher. However, the second graph shows that the DO concentrations in the Harbor were higher in the summer of 2007 (when the Speece Cones were operational) than in subsequent summers. These results appear to indicate that the Speece Cones did increase the DO concentration in the Harbor.



USGS 021989773 SAVANNAH RIVER AT USACE DOCK, AT SAVANNAH, GA



USGS 021989773 SAVANNAH RIVER AT USACE DOCK, AT SAVANNAH, GA



9. **Comment:** Water quality trading, and DO injection trading in particular, should not be used to meet the DO water quality standard in the Harbor. Water quality trading schemes often create localized “hot spots” with undesirably high levels of pollution. These “hot spots” degrade aquatic habitats and threaten public health.

Response: Appropriate trading of pollutant allocations and/or DO deficits between or among sources, or through oxygen injection into the Harbor, is allowed under the 5R process as long as the total loading does not cause an exceedance of the DO deficit allocated to the regulated point sources. In order to assure that the DO criteria will be met, Section 6.5 Pollutant Trading of the 5R document, states that *the Savannah River and Harbor DO Calculator will be used to evaluate and determine UOD (BOD₅ or CBOD₅ and ammonia) load and oxygen injection trading proposals to ensure that water quality standards will be met. Any water quality trading will have to be approved by the States and EPA, and will have to be reflected in the dischargers’ NPDES permits.* The public will have the opportunity to comment on any proposed trading through the public notice process for the NPDES Permits.

10. **Comment:** Natural, self-sustaining restoration methods should be used to remedy low DO where feasible. Instead of using DO injection devices, EPD should first determine whether natural stream restoration methods are available. There are many restoration practices that can increase DO concentrations, such as restoring oxbows, re-establishing streamside vegetation, preserving land, or restoring degraded wetlands and streamside vegetation.

Response: Comment Noted. EPD agrees that natural methods of restoring DO are beneficial; however, there is no evidence that any “natural” method will lead to compliance with the DO criteria. While EPD may utilize oxygen injection as part of the plan for meeting the DO criteria in the future, other options, such as land preservation activities, are also being explored.