

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
New England Office – Region I
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023**

July 26, 2007

Mr. Andrew T. Silfer, P.E.
General Electric Company
159 Plastics Avenue
Pittsfield, Massachusetts 01201

Sent via US Mail and Electronic Mail

RE: EPA's Comments on the Treatability Study Work Plan and Determination on Water Treatment

Dear Mr. Silfer:

EPA has completed its review of GE's proposal entitled "*Corrective Measures Study Proposal – Treatability Study Work Plan*" (hereinafter Work Plan) submitted July 11, 2007. GE submitted the Work Plan as requested by EPA in response to a condition contained within EPA's April 13, 2007 conditional approval of the document entitled "*Housatonic River – Rest of River Corrective Measures Study Proposal*" submitted on February 27, 2007.

With respect to any other work plans or other submittals related to the CMS Proposal, nothing in this comment letter shall be interpreted to supersede the approval, the conditions in a conditional approval, or the disapproval of such GE submittals, unless expressly stated as such by EPA. EPA reserves all its review and compliance rights under the Consent Decree regarding such GE submittals.

EPA has made the determination that water generated during the implementation of the Treatability Study may be treated as proposed in the Work Plan.

In addition, EPA provides the following comments on the Work Plan.

1. The analysis of untreated sediment will be complicated by the residual water present (particularly for the sample collected at Woods Pond), which makes complete extraction of PCBs difficult. The Treatability Study Work Plan does not currently provide information on the proposed solids extraction procedure. GE should ensure that satisfactory extraction will be achieved, and that the extraction procedures are documented in the Final Report. EPA recommends consideration of EPA-approved procedures such as multi-stage accelerated Soxhlet extraction (ASE).
2. Similarly, if the preprocessing step of the BioGenesis process is successful in removing much of the PCB mass from the soil/sediment particles, the concentration of PCB in the aqueous phase will be well above the solubility of PCB in water, and can only be maintained by strong interactions between the PCB molecules and the proprietary chemicals (e.g., surfactants). Alternatively, the PCBs may begin to drop out of solution, resulting in two phases. Either alternative presents difficulty for the extraction step of the analysis, yet the proposed extraction method is not detailed in the Work Plan. GE should ensure that satisfactory extraction will be achieved, and that the extraction procedures are documented in the final report.
3. The discussion of the Preliminary Sampling (Attachment A, p. 3) does not indicate the depth to which these samples will be collected. If the Preliminary Sampling is to be truly representative of the test soil/sediment to be collected from each location, the depth of the preliminary samples should exactly match the proposed depth of excavation (Attachment A, Table A-2) of test material.
4. The location EPA SE000335 selected for coarse sediments should be considered carefully. This location was selected in 1999 and was located in an aggrading bar, which EPA believes may no longer be present at the same location following the extreme high flow event in 2006.
5. It would be acceptable to EPA to collect the treatability material in smaller containers than 55-gallon drums. The material placed in multiple smaller containers from each location could then be homogenized in Building 12.
6. The procedure proposed for homogenization of the test material (Attachment A, p. 4) is not very rigorous. GE should consider more effective methods for conducting the homogenization. If the procedure is conducted properly, it will be possible to analyze a single composite "untreated" sample from each drum for PCB congeners and Aroclors, as discussed in Comment 9.
7. It is recognized in the Work Plan (Attachment B, p. 2-3) that contaminant partitioning will initiate shortly after the Cavitation/Oxidation procedure, however it is not clear from the Flow Diagram (Attachment B, Fig. 3-1) whether the Cavitation/Oxidation is performed in a batch or flow-through mode. The

effectiveness of the processing mode on the repartitioning of contaminants to solids should be discussed in detail in the Final Report.

8. Considering the documented inherent high variability in PCB analytical results, EPA believes the overall defensibility of the treatability study could be greatly improved by including additional QC samples beyond those proposed in the Work Plan. EPA recommends that at least two treated soil/sediment QC samples (duplicate and MS/MSD) and two treated water samples (duplicate and MS/MSD) be analyzed for each of the three runs for each of the soil/sediment material types.
9. As acknowledged in the Work Plan, the Cavitation/Oxidation Step will result in the “destruction” of organic contaminants (e.g., PCBs) via enhanced oxidation. EPA has two concerns regarding such potential destruction:
 - If the destruction takes the form of dechlorination of PCBs, then the congener composition following the Cavitation/Oxidation step will no longer be representative of Aroclor 1260, and samples collected at points 3, 4, and 5 in the Flow Diagram will not be accurately quantitated if the same chromatogram peaks are used. Should that occur, it may not be possible to evaluate the effectiveness of the process.
 - It is also possible that some PCBs may be converted to dioxins/furans. Dioxins/furans are not quantitated in the proposed Aroclor analysis (Method 8082) and even if the PCB concentration in the solid-phase residuals is sufficiently low to permit re-use, nothing will be known about the potential concentrations of these other organic contaminants.

Analysis of PCB congeners and dioxins/furans via Method 1668A at certain points in the process would address both of these concerns. Accordingly, EPA recommends that analysis for PCB congeners and dioxins/furans be conducted on the untreated material for each of the three sediment/soil types, and on the highest volume solids residual (i.e., on the solids at either point 3, 4, and 5 in the Flow Diagram) for each of the three replicate runs for each soil/sediment type. Note that if the test material is well-mixed it will only be necessary to collect and analyze a single composite congener sample for each of the three test materials. This recommendation results in a total of 12 congener analyses with concurrent analyses using Method 8082, as currently proposed in the Work Plan.

10. EPA recognizes that a preliminary examination and chemical formulation (Attachment B, Page 3-2) step is necessary to provide a qualitative evaluation of the interactions of the soil or sediments with cleaning chemicals. EPA recommends that best practices be used for jar testing and recommends these qualitative results be discussed in the Final Report. For additional guidance and decision criteria, EPA recommends the procedures outlined in EPA’s Soil Washing Interim Guidance, which can be located using the following link: <http://www.epa.gov/superfund/policy/remedy/pdfs/5402-91020a-s.pdf>

11. EPA recognizes the treatability operators will require flexibility regarding the test runs and conditions, including possible ranges of test and operation parameters and ranges of chemical levels. EPA recommends that the starting point and the rationale by which subsequent changes or modifications are made be documented in the Final Report.
12. The discussion of Equipment Decontamination (Attachment B, Page 3-10) does not indicate that the bench-scale equipment will be tested for cross-contamination between each test run. EPA believes that equipment blank samples collected between each test run will provide quantitative information regarding cross-contamination between runs.
13. EPA recognizes opportunities for economies in the Work Plan schedule that would result in more rapid implementation of the Treatability Study. Examples of areas where time could be saved include the reduction in turnaround time for preliminary sample analysis, and time allotted for sample collection of treatability material. EPA requests that GE take advantage of these opportunities and others during the implementation of the treatability study.

This comment letter does not alter GE's requirement to submit the Corrective Measures Study Report under the terms of the Permit. As provided in the Compliance Schedule set out in Attachment B to Appendix G, in the future EPA will consider the need for an alternative schedule for the submittal of the CMS Report upon demonstration by GE of the need for such an alternative schedule.

Sincerely,

Susan C. Svirsky, Project Manager
Rest of River

Attachment

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