

Response Actions for Sediments

6. GE shall remove a maximum of 400 in-situ cubic yards of Silver Lake sediments from an area in the general vicinity of the existing outfall from the GE Plant to the lake, as generally depicted on Figure 2-25. Following such removal, GE shall replace the removed sediments and restore and vegetate that portion of the affected area that is not underwater, in coordination with the installation of a sediment cap for the entire lake bottom, as described in Standard #7 below, and in coordination with the natural resource restoration/enhancement activities described in Attachment I to this SOW.
  
7. GE shall install a cap over the entire bottom of Silver Lake. This cap shall achieve specified design standards as described in Attachment K to this SOW (Silver Lake Sediment Response Action Conceptual Design). As discussed in Attachment K, these design standards have been developed to achieve, over time, specific risk-based Preliminary Response Action Goals (PRAGs) for PCBs, which are also set forth in Attachment K, using predictive methods to assess the effectiveness of the capping system to achieve those PRAGs. The design standards, which shall constitute the Performance Standards for the Silver Lake capping system, are as follows:
  - a. The cap shall include an isolation layer positioned directly above the sediments over the entire lake bottom. This layer shall consist of silty sand, with a presumptive thickness of 10 inches, if geotextile is placed between the sediments and the cap (or 12 inches, installed in two six-inch lifts, if a geotextile is not placed between the sediments and the cap), an organic carbon content of 0.5 percent (as total organic carbon), and concentrations of PCBs at non-detectable levels and other constituents at background levels, as approved by EPA. The presumptive thickness of the cap shall be based on use of a presumptive 6-inch isolation layer to control PCB migration from the underlying sediments to the surface water of the lake, plus an additional 4 inches of silty sand if geotextile is placed between the sediments and the cap (or an additional 6 inches of silty sand if such a geotextile is not used) to account for uncertainties associated with bioturbation and mixing. GE shall perform pre-design investigations to confirm the design parameters which support the presumptive thickness and organic carbon content of the isolation layer, as described in Attachment K. If those pre-design

investigations confirm the design parameters presented in Attachment K, then the isolation layer will consist of a sandy silt layer with a thickness of 10 inches, if a geotextile is placed between the sediments and the cap (or 12 inches, installed in two six-inch lifts, if a geotextile is not placed over the sediments), and an organic content of 0.5 percent (as total organic carbon). If the pre-design investigations indicate that a thicker cap and/or a higher organic content is necessary, then the cap thickness and/or organic content will be modified using revised input parameters based on the results of the pre-design investigations and the procedures/equations presented in Exhibit K-1 of Attachment K. GE shall ensure that the design cap thickness is achieved over the entire bottom of the lake.

- b. The capping system shall also include an overlying armoring layer of stone, incorporated along the shoreline as necessary to prevent erosion of the isolation layer due to wind-induced wave action.
8. As part of Post-Removal Site Control activities, GE shall conduct periodic inspections and monitoring to assess the effectiveness of the cap in meeting the specified design standards, as provided in Attachment K. These activities shall include monitoring of the cap to ensure maintenance of the design cap thickness, sampling of the isolation layer to monitor its long-term effectiveness in controlling PCB migration from the underlying sediments, and monitoring of the shoreline armor layer to ensure that it is effectively preventing erosion.
- a. If the periodic inspections and monitoring of the cap thickness and the shoreline armoring layer indicate that the design standards for those components of the capping system are not achieved or maintained, GE shall evaluate and propose to EPA appropriate corrective actions to achieve those design standards, and shall implement such corrective actions upon approval by EPA.
  - b. If the sampling of the isolation layer indicates that layer is not performing in general accordance with the predictions on which the isolation layer design was based in terms of controlling PCB migration from the underlying sediments into the surface water of the lake, GE shall evaluate corrective actions, shall submit the results of such evaluation

to EPA for approval, and shall implement such corrective actions (if any) upon approval by EPA.

- c. If these periodic inspection/monitoring activities indicate that the capping system is continuing to achieve the design standards and is performing as generally predicted in terms of controlling PCB migration from the underlying sediments into the surface water of the lake, then no further response actions shall be necessary for the isolation layer or shoreline armoring layer, except as otherwise required pursuant to Section XIX (Emergency Response) or Paragraphs 162, 163, 167, and/or 168 (re-openers) of the Consent Decree.
9. In addition, if the periodic sampling of the cap indicates the deposition of PCBs on the surface of the cap (as opposed to migration of PCBs through the cap from the underlying sediments), GE shall evaluate, to the extent practical, whether such PCBs are attributable to sources other than erosion or surface runoff from the banks or currently known discharges of PCBs into the lake from NPDES-permitted to other outfalls. If the surface PCBs can be attributed to such other sources and such sources are located within property owned by GE, GE shall evaluate potential source control measures and shall submit a report on such evaluation, along with a recommendation for any appropriate source control measures, to EPA for review and approval. Otherwise, no further response actions shall be required to address such deposition of PCBs on the surface of the cap, except for any activities required by Attachment K to address erosion, and except as otherwise required pursuant to Section XIX (Emergency Response) or Paragraphs 162, 163, 167, and/or 168 (re-openers) of the Consent Decree.

### **2.6.3 Additional Pre-Design Field Investigations**

Prior to the performance of detailed and comprehensive RD/RA activities for the Silver Lake Area Removal Action, GE shall conduct certain pre-design activities. These activities shall include the conduct of pre-design investigations to further characterize existing site conditions, satisfy certain investigation-related requirements presented in the CD and this SOW, and serve as the basis for the development of RD/RA activities to achieve the Performance Standards set forth above. For bank soils, additional soil sampling shall be conducted as necessary to support spatial averaging of PCB concentrations and to apply the Performance Standards set forth in this SOW. Grid sampling techniques consistent with those

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*United States et al. v. General Electric Company (D. Mass.)*

*Appendix E to Consent Decree*

*Volume I*

*Statement of Work  
for Removal Actions  
Outside the River*

Pittsfield/Housatonic River Site  
General Electric Company  
Pittsfield, Massachusetts

October 1999



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6723 Towpath Road, P.O. Box 66  
Syracuse, New York, 13214-0066  
(315) 446-9120

## TECHNICAL ATTACHMENT K

### SILVER LAKE SEDIMENT RESPONSE ACTION CONCEPTUAL DESIGN

properly designed, constructed, and maintained capping system is highly effective in isolating the affected sediments and minimizing the potential for: (a) resuspension of PCB-containing sediments into the water column; (b) desorption of PCBs from the sediments into the water column; and (c) direct contact of human and ecological receptors with the affected sediments.

Conceptual design standards have been developed for the cap, which are predicted to achieve, over time, specified risk-based PRAGs for the surface water of the lake and the cap material. These PRAGs and design standards are described in the following sections.

#### **4.1 Identification of Preliminary Response Action Goals**

Solely for purposes of developing design standards for the Silver Lake cap (and not to be considered a precedent for any other area of the Pittsfield/Housatonic River Site), the PRAGs for PCBs are to:

- (a) Establish and maintain a physical exposure barrier (i.e., a cap) consisting of “clean” material over the PCBs in the sediments;
- (b) Prevent the migration of PCBs from the sediments through the cap to the water column of the lake for the foreseeable future; and
- (c) Prevent the erosion or physical displacement of sediments or capping materials in those areas potentially subject to wind-induced wave action and man-made discharges along the shoreline of the lake.

For a capping system that is properly designed, implemented and maintained, these PRAGs are protective of human health and the environment because they will ensure that human and ecological receptors will not be exposed to PCBs in the underlying sediments and that the cap will prevent the migration of PCBs from the underlying sediments to the lake water for the foreseeable future.

# ***Technical Attachment K***

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## ***Silver Lake Sediment Response Action Conceptual Design***