

2

Description of Project Remedial Activities

In order to develop meaningful quality of life performance standards for the expected remedial activities, it is essential to have an understanding of the remediation project activities, including the sequence of those activities and the equipment that will be used to complete the work. For example, to develop a meaningful navigation performance standard it is important to understand the expected number of vessels on the river, the vessel sizes, and vessel movements. However, for some quality of life performance standards (e.g., air) where specific criteria (a measurable value) can be applied as the performance standard, the performance standard depends less on the remedial activity and more on the contaminants found in the dredged sediment.

Information regarding the expected remedial activities used to develop the performance standards described in this document was obtained primarily from the ROD, the RS, conceptual designs (developed by the USEPA), and the Remedial Design Work Plan (General Electric Co. 2003). These documents can be reviewed on the Hudson River Web site at <http://www.epa.gov/hudson/>.

The performance standards will be reviewed as the design progresses to ensure that they are protective of human health and the environment. The intermediate design, which follows preliminary design (conceptual design stage), is the phase during which specific methods and equipment (to meet the requirements of the performance standards) are selected.

2.1 Preliminary Design of the Remedial Action

The primary components of the RA will include:

- Dredging (mechanical and/or hydraulic);
- Transport of the dredged material by barge or pipeline;
- PCB-release containment, as appropriate (sheet piles, silt curtains);
- Material handling, dewatering, and water treatment;
- Transportation and disposal of processed sediments; and

2. Description of Project Remedial Activities

- Habitat replacement and reconstruction.

Construction activities before, during, and after dredging are also part of the expected RA.

2.1.1 Dredging (Mechanical and/or Hydraulic)

PCB-contaminated sediments will be removed from the river bottom by dredging. The dredging work may be completed using a variety of techniques, including but not limited to any combination of the following:

- Hydraulic dredging and pipeline transport;
- Mechanical dredging and barge transport;
- Mechanical dredging and pipeline transport;
- Shoreline-based excavation (if water-side excavation is not practicable); and
- Use of specialty dredge equipment or techniques.

2.1.2 Transport of Dredged Material by Barge or Pipeline

The dredged sediments will be transported from the dredging location to a sediment processing/transfer facility. Factors that influence the transportation of the dredged sediments include:

- Location of dredging;
- Type and size of dredges;
- Location of land-based sediment processing/transfer facilities;
- Production rates (hourly, daily, and weekly) for dredging and sediment processing;
- Distance and elevation change between the sediment processing facilities and the dredge area;
- Physical attributes of the river and shoreline between the dredge area and the sediment processing/transfer facilities (water depth, hydraulic characteristics, physical barriers, adjacent land uses, and water-dependent uses); and
- Physical attributes of the sediment processing/transfer facilities (size, area land use, capacity, and ease of construction).

2. Description of Project Remedial Activities

2.1.3 PCB-release Containment

Various structures to contain possible PCB releases may be used during dredging to reduce the potential for dredge-related contaminated sediment resuspension/migration. These structures may include sheet piles, silt curtains, coffer dams, and air curtains.

2.1.4 Material Handling, Dewatering, and Water Treatment

Dredged sediment will require material handling and dewatering to prepare (or condition) the removed sediment for transport and disposal. Water from the dewatered sediment also will require treatment. The sediment processing/transfer facilities (land and/or water-based, as applicable) will likely include:

- Barge unloading;
- Untreated sediment staging, mixing, and transport facilities;
- Solids separation facilities (e.g., screening equipment, hydrocyclones);
- Solids dewatering facilities (e.g., gravity separation, filter press, centrifuge);
- Solidification facilities;
- Dewatered or processed sediment staging and loading facilities;
- Water treatment facilities (e.g., clarification, multimedia filtration, oxidation, granular activated carbon);
- Chemical and materials unloading, staging, and loading facilities;
- Loading facilities for transport of dewatered materials to disposal facilities;
- Rail spurs and railcar staging areas;
- Loading and staging areas for backfill material (a separate facility or facilities may be used); and
- Space for staff facilities and equipment storage.

2.1.5 Transportation and Disposal of Processed Sediments

The ROD indicates that all processed sediments (except those that may be used for beneficial use) shall be transported to the selected disposal facilities by either rail or barge. The disposal facilities will be located outside the Hudson River Valley.

2. Description of Project Remedial Activities

2.1.6 Habitat Replacement and Reconstruction

Habitat replacement and reconstruction activities primarily involve placing clean backfill where sediments have been removed. Additional details regarding these anticipated remedial activities as they relate to quality of life considerations are included in Section 4.

2.2 Application of Performance Standards to the Remedial Action

The performance standards described herein shall be applied to remedial activities that may affect the community and are intended to minimize quality of life impacts. Other minor activities, such as sampling, have been considered but are not expected to affect the community's quality of life; therefore, performance standards will not be developed for these activities. The USEPA and other agencies will review each activity as proposed by the RD Team to ensure that appropriate measures are implemented to minimize quality of life impacts and ensure protection of human health and the environment during the course of the RA.