1 Introduction

This draft document describes the quality of life performance standards that will be incorporated into the Hudson River PCBs Superfund Site remedial design (RD) and used to monitor the performance of the remedial action (RA). These performance standards were prepared as required by the Hudson River PCBs Superfund Site Record of Decision (ROD). The project shall be designed to meet the final quality of life performance standards, which will reflect, as appropriate, comments received on this document during the public review comment period. The United States Environmental Protection Agency (USEPA), which will enforce the performance standards, will also review the RD to confirm that the design is completed in accordance with the performance standards.

This document provides the public with information regarding development of the performance standards and describes the recommended standards. Additional information regarding the project and the contents and structure of this document are presented below.

1.1 Background Information

The ROD for the Hudson River PCBs Superfund Site was issued by the USEPA on February 1, 2002. The ROD specifies that the selected remedy includes dredging and off-site disposal (i.e., outside the Hudson River Valley) of approximately 2.65 million cubic yards of PCB-contaminated sediments from the Upper Hudson River portion of the site. Beneficial-use options for portions of the dredged sediments also will be evaluated during the design phase (USEPA 2002). The ROD identifies specific reaches of the Upper Hudson River (i.e., River Sections 1, 2, and 3) where the dredging activity will occur. River Sections 1, 2, and 3 extend from the former Fort Edward Dam to the Federal Dam at Troy (see Figure 1-1) (USEPA December 2000). The RD and the RA involve the removal, processing, transport, and disposal of the PCB-contaminated sediments.

The ROD requires the development of performance standards that will serve as specific goals and requirements under which the remedial activities are to be implemented. The quality of life performance standards described in this document are separate and distinct from the engineering performance standards. The engineering performance standards address dredging-related resuspension, dredging residuals, and dredging productivity. The USEPA expects to finalize the engineering performance standards in early 2004.

The performance standards that address community impacts are the quality of life performance standards that are the subject of this document. These performance standards are based on objective environmental and scientific criteria. The USEPA is developing the quality of life performance standards in consultation with New York State agencies, the federal Natural Resources Trustees, and the public.

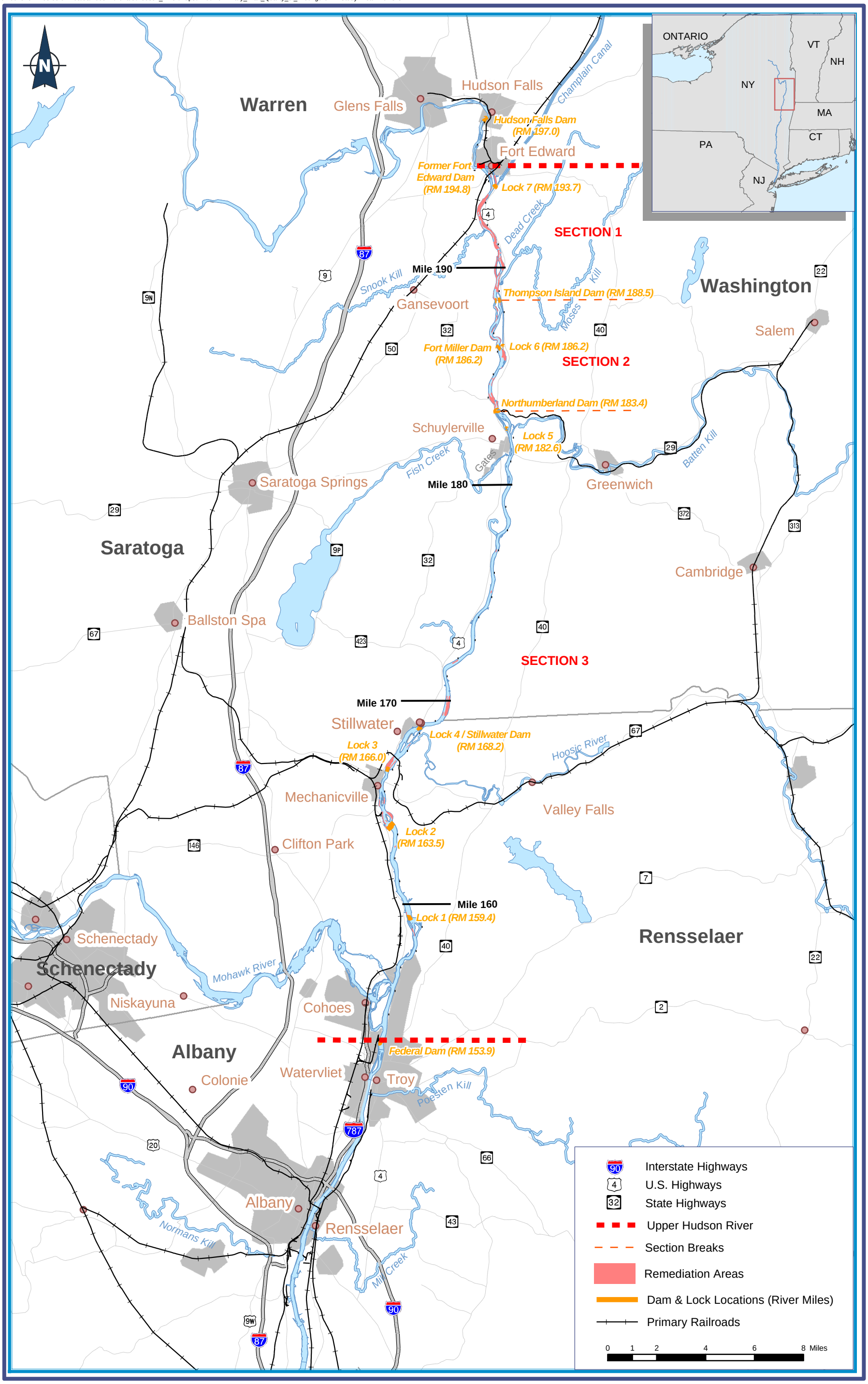
1.2 Structure and Content of this Document

The types of activities expected to occur during the RA were used to develop the quality of life performance standards. Section 2 summarizes these activities (e.g., dredging, transport, and treatment). Section 3 describes the performance standards. Sections 4 and 5 provide a discussion of the potential impacts of the remedial activities on the community and how quality of life performance standards are developed. Section 6 specifies the performance standards, and Section 7 discusses the procedures that will be used to refine the standards.

This document is based on the ROD, the Responsiveness Summary (RS) (TAMS Consultants, Inc. January 2002), and various other project documents. Therefore, it should be noted that some of the concepts, discussions, and conclusions set forth in those documents are included herein. Where direct quotations are used, a reference is provided.

Hudson River
PCBs SUPERFUND SITE

02:001515.HR03.08.01 - 09/08/2003 L:\Buffalo\Hudson_River\Maps\Mxd\Preliminary_Draft_Quality_of_Life\Figure 1-1 Study Area.mxd -GIS



SOURCE ECOLOGY & ENVIRONMENT, INC. 2002, ESRI 2002, USEPA 2002a
Note: RM = River Miles

Figure 1-1: Hudson River PCBs Superfund Site Project Area, Upper Hudson River

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 draft 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/. It is anticipated that additional information will be available during design for consideration and possible inclusion in this document before it is finalized.

The performance standards will be reviewed as the design progresses to ensure that they are protective of human health and the environment. The performance standards are expected to be provided to the RD Team before the intermediate design phase begins. 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
- 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).

2.1.3 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, storage, 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 of the Hudson River Valley.

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.

3 Description of Performance Standards

Performance standards are established by the USEPA to guide the RD Team and RA Team toward successful completion of the remedial activities while minimizing impacts on the community and the environment. Performance standards have been developed to provide the RD and RA Teams with the flexibility to complete the remedy both efficiently and safely.

The standards developed for this project are performance-based rather than prescriptive: A performance-based approach describes the required performance (i.e., the parameters by which the task will be completed). These parameters could include requirements such as how fast the task shall be done, when it shall be done, and what impacts shall be prevented while it is in progress. A prescriptive approach describes a specific procedure or technology that will comply with certain standards. For example, a prescriptive approach would specify that a specific type of equipment or process be used to complete a certain task. Prescriptive standards work well for typical, ordinary actions where extensive experience and precedence have been established. A performance-based approach has the advantage of allowing innovation and optimization during the course of the RA.

4 Quality of Life Considerations

The public has expressed various concerns about possible effects of remedial activities on the quality of life of people residing near the river or using the river in the vicinity of the remediation activities. The USEPA responded to these concerns in the RS (TAMS Consultants, Inc. January 2002). As a means of ensuring that such concerns are addressed and potential impacts are minimized to the extent practicable, USEPA decided to develop quality of life performance standards. The standards are being developed early on to ensure that the public has an opportunity to provide comments and to ensure that the standards are considered in designing the remedy.

The quality of life concerns identified in the RS primarily relate to traffic, noise, construction lighting, air quality, odor, aesthetics, and recreation. While there may be short-term impacts with respect to some of these issues, the project will follow strict requirements (including adherence to the performance standards) to minimize and mitigate potential impacts to the extent practicable. The RD Team will comply with the quality of life performance standards during design. It is expected that any temporary impacts will be manageable and will be far outweighed by the long-term benefits of the remediation for human health and the environment. In addition, to ensure the protection of the community and the environment, extensive monitoring will be conducted throughout the life of the project, and the effectiveness of the performance standards will be reviewed as the remediation process continues and after Phase 1 dredging. Phase 1 includes dredging at an initially reduced scale with extensive monitoring that will be used to compare the dredging operations against the performance standards. If necessary, the standards will be refined or adjusted for Phase 2, which will be the remainder of the dredging operation. Information collected during Phase 1 dredging will be useful in establishing the final performance standards by which the remedial activities will be completed.

Assessing impacts of the RA involves identifying and estimating the effects of remediation activities (such as facility construction and transportation operations) on quality of life factors. Modeling to evaluate quality of life impacts (e.g., air quality and noise) will also be completed by the RD Team using USEPA-approved models. Modeling is a typical method used in design processes. The USEPA will review the results of the modeling to ensure accuracy. Impact as-

sessment will proceed in conjunction with facility siting and dredging-design development.

The quality of life concerns that were determined by the USEPA to require performance standards (as established in the ROD) are defined further below. Each of these concerns was reviewed and considered in developing the performance standards. Other quality of life considerations (that have the potential to affect the community or the environment) are also presented.

4.1 Public Concerns

4.1.1 General Concerns

The following are some of the quality of life concerns that were raised by some members of the public and that have been documented in the RS:

- Dredging would severely affect the overall public quality of life, the rural lifestyle of the Upper Hudson, and the aesthetic value of living in the region.

- Placement of the sediment processing facilities would have an adverse impact on the overall quality of life of those individuals near the processing facilities.

- Operation of the sediment processing/transfer facilities and storage of operating materials and dredged sediment could be hazardous, dangerous, and disruptive of the community's quality of life.

- Possible effects on agriculture would include changes to drainage in farmland bordering the river; possible adverse effects during spring flooding; impacts on wells that are hydraulically connected to the river; possible damage to soils and water conservation systems from heavy construction equipment; use of large areas of agricultural land for sediment processing facilities and backfill sources; and hindrances to agricultural activities during construction.

- Several waterfront festivals may be disrupted by project activities.

The USEPA acknowledges these concerns, which are being addressed by developing the quality of life performance standards and by the review and approval of the design and/or the facility siting process.

4.1.2 Air Quality

Various remedial activities could result in the release of airborne pollutants. The public has expressed the following concerns regarding air emissions:

- The project will produce diesel fumes and exhaust, possibly release contaminants to the ambient air, and produce dust and other particles.

- Volatilization during dredging may disrupt the ecosystem, including upland areas, crops, habitat, and inland waters.

The receptors of air emissions include the public and workers at the site. The USEPA has assessed these concerns and has determined that the most significant potential for generation of air emissions is associated with the dredging and sediment processing/transfer facility operations. Air monitoring, engineering controls, appropriate personal protection equipment for workers, and standard safety procedures will be used to protect on-site workers and nearby communities. As part of the design, a Worker Health and Safety Plan (W HASP) will be developed. With public involvement, a Remedial Action Community Health and Safety Plan (RA CHASP) will be developed and implemented that will include air monitoring to address any potential risk associated with dredging and processing of PCB-contaminated sediments.

4.1.3 Odor

Potential sources of odor from the project include construction equipment and the dredged material from the river (including aquatic vegetation that may require removal as part of remediation). The public has expressed concern that the project will decrease air quality and produce odors and has indicated concern that poor air quality and nuisance odors will have a negative impact on local communities, tourism, local wildlife and, eventually, property values.

The USEPA has assessed these concerns and has determined that odors from construction equipment are not likely to be significant based on experiences at other construction projects where such equipment has been used. Although hydrogen sulfide (which has an unpleasant odor) is present in the river sediments, concentrations are sufficiently low as to preclude the generation of noticeable and persistent odors from hydrogen sulfide in dredged material (RS White Paper, "Odor Evaluation" [TAMS Consultants, Inc. January 2002]). If hydrogen sulfide odors are encountered, proven strategies shall be implemented to mitigate adverse effects.

4.1.4 Noise

The public has expressed the following concerns regarding noise:

- Elevated noise levels will result from increased traffic and equipment use, and noise during evening and night hours will be disruptive.

- Noise from dredging operations will have a negative impact on milk production in dairy cows.

- Noise from dredging and operation of the sediment processing/transfer facilities will disrupt local wildlife, especially territorial species.

The USEPA has assessed these concerns and has determined that the noise associated with construction and continuous operation of the sediment processing/transfer facilities and hydraulic and mechanical dredging operations is not

expected to be a significant concern. A variety of equipment and proven procedures are available and shall be implemented, as appropriate, to control and mitigate noise impacts.

4.1.5 Lighting

Artificial lighting systems will be used to illuminate nighttime dredging and in-river transport operations as well as land-based sediment processing/transfer facility operations. The public has expressed the following concerns regarding lighting:

- Continuous lighting needed to complete the project would disrupt dairy cattle.
- Project lighting may be disruptive for local communities.
- Project lighting will adversely affect local wildlife (mammals and birds) and insects.

The USEPA has assessed these concerns and has determined that the positioning of lights, brightness, and direction are key factors in minimizing the potential for off-site impacts. While nighttime lighting requirements for the work will need to conform to established industry safety standards, it will not be necessary to use high-mast lighting systems that could cause off-site impacts at dredging sites or at the sediment processing/transfer facilities. To the extent practicable, lighting shall be directed toward work areas and away from neighboring properties. In addition, the use of low-mast lights and shielding will limit off-site glare.

4.1.6 Navigation

The public has expressed the following concerns regarding navigation:

- Project-generated traffic (including vessel traffic) would disrupt the community.
- Clear and safe passage of recreational vessels along the Champlain Canal will be impeded, and bottlenecks at locks will be created.

The USEPA has assessed these concerns and has determined that because of the relatively small area of the river that will be affected by dredging at any given time, recreational activities on the river will remain substantially unaffected in areas not immediately adjacent to the dredging operation. Adverse impacts are not expected for recreational boaters during implementation of the selected remedy. A portion of the dredging, when completed, will provide an expanded and safer capacity for recreational use of the river. Commercial use of the river will also be considered, and the project will be designed to minimize impacts on commercial traffic.

4.1.7 Other Quality of Life Considerations

Aesthetics

Residents who live along the riverbanks expressed concern about the dredging operations impairing their views of the river. However, the majority of residences in the project area would not be near the dredging operation, and the dredging operation is a mobile operation, targeted to limited areas of the river. In general, dredging is expected to occur directly in front of a particular location in a targeted area for a short period of time (several weeks) and be within view for several weeks longer. Thus, potential visual impacts from the dredging would apply to only a small portion of the 40 miles of river at any given time and would be temporary. The visual impact from the dredges will be short-term and limited by the geography of the targeted dredging.

Traffic

The public has expressed concerns regarding the increased road traffic that would be caused by this project. For example, members of the public expressed concern that the volume of sediment to be removed and the amount of stationary and mobile equipment needed to do so would put a great deal of stress on local roadways in terms of congestion and increased road maintenance.

In response to these concerns, the USEPA determined that dredged materials will be taken from the site by barge and/or rail rather than by truck, and material used for backfill will be transported within the Upper Hudson River area by barge and/or rail.

The public also had concerns about potential impacts from vehicle and truck traffic caused by workers constructing the sediment processing/transfer facilities. However, given that this increase in road usage is relatively small (based on evaluations done as part of the RS), it is unlikely that there will be an escalation in road hazards or a need for increased road maintenance as a result of implementing the selected remedy.

Other Uses of the River

Risks associated with exposures while swimming in the Hudson River (i.e., from ingestion of water, wading in the river, etc.), as discussed in the revised Human Health Risk Assessment (HHRA) (TAMS January 2002), are reported to be within the acceptable risk range. It is anticipated that during the remediation project, PCB concentrations in the river will remain at or near current levels. Swimming in the immediate area being actively dredged will be prohibited (primarily for safety reasons). Therefore, during the project, as now, the risk associated with swimming in the river will remain within the acceptable range. It is anticipated that the impact on recreational fishing will be minimal during the remediation. Anglers will be able to find alternate sites to fish where the dredging and backfill operations are not proximate; impacts (due to remedial activities) on fish habitat will be temporary and will affect only limited areas and certain species; and mi-

nor, temporary resuspension of PCBs during dredging should not affect catch-and-release fishing. The fish consumption advisories are expected to remain in effect during the remediation. However, the PCB remediation offers long-term prospects of renewed and enhanced recreational fishing by reducing the level of PCBs found in fish.

The quality of life considerations for major project remedial activities are identified in Table 4-1.

Table 4-1 Quality of Life Considerations for Major Remedial Action Project Activities

Major Project Activities	Quality of Life Considerations[1]				
	Air	Odor	Noise	Lighting[2]	Navigation
Dredging					
Sediment Handling	√	√	√	√	√
Barge/Tug Use	√		√	√	√
Mechanical Dredging					
Crane/Excavator Operations	√		√	√	√
Bucket Operation (clam shell; others)	√		√		
Screening/Separation Operations	√		√		
Hydraulic Dredging					
Crane/Excavator Operation	√		√	√	√
Cutter Head Operation			√		
Pumping			√		
Piping (to barge)			√	√	√
Containment System (Installation, Monitoring, and Removal)					
Sheet Pile	√		√		√
Silt Curtains					√
Air Curtains or Other Methods					√
Power Generation					
Generator Operations	√		√		
Backfilling/Backfill Transport					
Barge/Tug Operations	√		√	√	√
Crane/Excavation Operation	√		√	√	
Sediment Transport to Facility					
By Barge					
Loading Operations/Sediment Handling	√	√	√	√	
Tug Operations	√		√		√
By Pipe					
Transfer by Piping			√	√	√
Use of Booster Pumps	√		√		
Sediment Transfer at Facility					
Sediment Handling	√	√	√	√	
Barge Unloading at Wharfs/Docks	√		√	√	
Excavator/Loader Use Operation	√		√		
Crane (clamshell) Use Operation	√		√		
Sediment Processing at Land-based Facility					

Table 4-1 Quality of Life Considerations for Major Remedial Action Project Activities

Major Project Activities	Quality of Life Considerations[1]				
	Air	Odor	Noise	Lighting[2]	Navigation
Storage/Staging/Holding of Sediment	√	√			
Stockpiling	√	√			
Impoundment Use	√	√			
Separation, Screening, and/or Hydrocyclone Operation	√	√	√		
Dewatering, Gravity Separation, Filter Press Use, and Centrifuge Use	√	√	√		
Water Treatment					
Storage	√	√			
Clarification	√	√			
Filtration	√	√			
Oxidation					
Carbon Use					
Solidification					
Solidification Agents Use	√				
Materials/Chemical Storage					
Stabilized Sediment Loading					
Sediment Handling	√	√			
To Rail					
Railcar Staging			√		
Loading by Heavy Equipment	√		√		
Rail Operations (Locomotive Operation)	√		√	√	
To Barge					
Barge Staging			√	√	
Loading by Heavy Equipment	√		√		
Barge Operation with Tug	√		√	√	√
Transportation (within project area only)					
Rail Transport			√	√	
Barge (with tug) transport			√	√	√
Other Activities					
Sampling Activities					
Sampling Equipment Use			√		√
Surveying (by boat or on land)			√		√
Deliveries/Shipments					
Vehicle Use	√		√		
Water Transportation (including oversight vessels)					
Vessel Use	√		√	√	√
Facility Construction Activities and Decommissioning Activities					
Heavy Equipment Use	√		√	√	
Hand Tool Use			√		
Truck Operation	√		√		

Table 4-1 Quality of Life Considerations for Major Remedial Action Project Activities

Major Project Activities	Quality of Life Considerations[1]				
	Air	Odor	Noise	Lighting[2]	Navigation
Other Typical Construction Activity (hammering, etc.)			√		

[1] Other quality of life considerations may be identified during review of the design.
[2] During night operations, lighting will be a quality of life consideration for most project activities listed in the table.

Key:

√ = Activity has potential to create a quality of life impact.

5 Development of Quality of Life Performance Standards

Quality of life performance standards were developed as required by the ROD. In the ROD, the USEPA identified performance standards to address air and noise emissions from the dredging operations and the sediment processing/transfer facilities. With respect to air emissions, the ROD requires the dredging and facility operations to comply with applicable or relevant and appropriate requirements (ARARS) that deal with such emissions. For noise, the ROD preliminarily adopted the Federal Highway Administration's noise ambient criteria (NAC) as the performance standard for the facility operations and the New York State Department of Transportation's (NYSDOT's) construction noise impact guidance for temporary construction noise for the dredging. The ROD further indicated that the performance standards for noise would be finalized after getting public input on those standards and that other quality of life performance standards (e.g., PCB air emissions, odor, lighting, navigation) would be developed during design with input from the public and in consultation with the state and federal Natural Resources Trustees. The performance standards set forth in the ROD are included in this document.

Developing quality of life performance standards differs from developing engineering performance standards. Engineering standards are project-specific standards that are developed for dredging resuspension, residuals, and production rates. In contrast, quality of life performance standards are primarily based on ARARs and/or other well-established environmental and scientific criteria. However, one performance standard (odor) is based on the senses (i.e., smell), which are subjective in nature and therefore can be difficult to measure and assess. For example, an odor that is objectionable to one individual may not be objectionable—or even detectable—to another individual. In those cases, information collected from those who note odors can assist with determining community impact. In general, however, quality of life performance standards were developed in a manner that resulted in a measurable requirement. In addition, they were developed to be practicable and achievable while being protective of human health and the environment.

The performance standards presented in Section 6 were developed based on the potential impacts (as discussed in Section 4) associated with the anticipated remedial activities (described in Section 2).

5.1 Technical Approach to Standards Development

The following steps were completed first to define the technical approach to establishing quality of life performance standards:

- **Research/Data Gathering.** Information from other environmental dredging projects was reviewed for potential applicability. However, it should be noted that limited quality of life data for these projects were available. Use of information from other projects is noted in this document as appropriate.

- **Regulatory Review.** Development of performance standards included a review of regulatory standards, guidelines, and other requirements. Government documents and academic and other organization studies (including industry standards) were reviewed for appropriateness for this project.

- **Contingencies and Mitigation Review.** Performance standards also account for the measures required if a performance standard is not met or is exceeded. Mitigation of exceedances may include a modification in operation or activities, the use of engineering controls, and/or other mitigation methods. Engineering controls and other mitigation measures aimed at reducing quality of life-related impacts were reviewed for applicability to the remedial activities.

- **Rationale.** The performance standards development process included establishing a rationale to select and establish each of the performance standards. The rationale and reasoning for each standard are discussed below.

- **Impact Assessment.** Short-term and long-term impacts associated with pre-, during, and post-remedial activities were considered in developing the performance standards.

- **Consideration of Variability of the Locations of Remedial Activities**. Dredging operations are expected to extend through the three river sections and to vary based on the target dredge areas. Thus, location and mobility of both sources and receptors were considered.

  - **Land-based Facilities.** Potential impacts from the facilities on surroundings areas will be dictated by various factors, including facility design and layout. Although it is expected that these facilities will be land-based, the use of water-based facilities is also being evaluated as required by the ROD.

  - **Dredging Near Sensitive Areas.** Some of the dredging work will occur near structures such as bridge abutments, dams, locks, and wing walls, as well as areas near utilities. Remedial activities in those areas may require specialty dredging equipment.

– **Transportation of Contaminated Sediment.** Once the sediments are processed/stabilized they will be transferred to rail or barge for transport to an approved landfill for disposal or to another facility for beneficial use. Potential quality of life concerns associated with transportation activities also were considered. Remedial activities such as transportation, transfer, and loading at facilities outside the project area were not considered.

- **Demonstration of Compliance.** The RD Team shall develop monitoring plans that address the requirements of the performance standards. These plans are expected to include, at a minimum, an Environmental Monitoring Plan, and RA CHASP. The plans will identify specific procedures, equipment, and responsible personnel in order to protect the residents and workers and to educate and inform the public on project progress. The specific plans (relative to the quality of life performance standards) that are required, and the minimum requirements for these plans, are described in Table 5-1 and are presented in Section 6.

Table 5-1 Plans to be Developed by the Remedial Design Team

Plan	Elements
Environmental Monitoring	- Air Monitoring - Noise Monitoring - Lighting Monitoring - Odor Monitoring
Remedial Action Community Health and Safety Plan, and Worker Health and Safety Plan for the Remedial Action	- Worker Education and Monitoring - Air Monitoring - Contingency Plan - Site Health and Safety Personnel Contact Information

5.2 Quality of Life Performance Standards Development Process

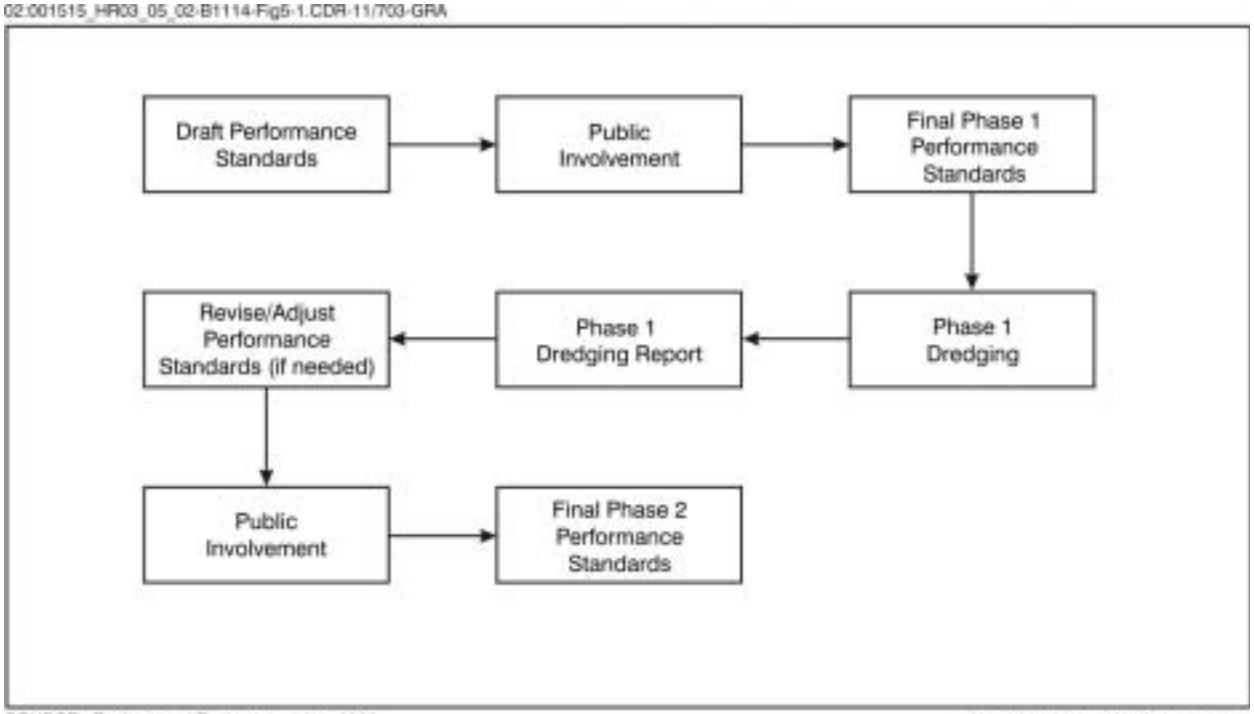
The quality of life performance standards development process included the following general steps:

- Definition of the technical approach to standards development;
- Development of draft performance standards;
- Development of the Final Phase 1 performance standards, including monitoring and demonstration of compliance requirements; and
- Revision of Standards after Phase 1 dredging has been completed (as needed).

Additional information on possible revision and adjustment of standards and development of the final Phase 2 dredging standards is included in Section 7. The

quality of life performance standards development process, including expected points of public involvement is shown on Figure 5-1.

02:001515_HR03_05_02-B1114-Fig5-1.CDR-11/703-GRA



SOURCE: Ecology and Environment, Inc. 2003

Figure 5-1 Hudson River PCBs Superfund Site, Quality of Life Performance Standards Development