



First Five-Year Review for Hudson River PCBs Superfund Site

INTRODUCTION

The Environmental Protection Agency conducted a Five-Year Review at the Hudson River PCBs Superfund Site to determine if the selected remedial actions (as put forth in 1984 and 2002 RODs) are working as intended to protect human health and the environment. The Five-Year Review was conducted as part of the Superfund process.

The EPA used information collected from site investigations, sampling activities, and dredging evaluations to determine if the selected remedial actions, implemented by General Electric at Operable Unit 1 (Remnant Deposits in the Upper Hudson River) and Operable Unit 2 (Upper Hudson River sediments), are proving effective or are projected to prove effective upon completion.

Acronyms and Abbreviations

5YR	Five-Year Review
CU	Certification Unit
DoC	Depth of Contamination
EPA	Environmental Protection Agency
GE	General Electric
HHRA	Human Health Risk Assessment
ICs	Institutional Controls
NRD	Natural Resource Damage
NYSCC	New York State Canal Corporation
OM&M	Operation, Maintenance, and Monitoring
OU	Operable Unit
PCB	Polychlorinated Biphenyl
ppt	parts per trillion
QoLPS	Quality of Life Performance Standards
RD	Remnant Deposit
ROD	Record of Decision
SSAP	Sediment Sampling and Analysis Program
TID	Thompson Island Dam

GENERAL Key Points

- When compared against EPA’s *Comprehensive Five-Year Review Guidance*, this 5YR lacks required and suggested efforts/information, including thorough site investigation descriptions, community interviews, OM&M plan details, and received comments on the document
- Vague language throughout the document provides an unclear assessment of the remedial success
- An updated HHRA has not been performed considering the newly revised Oral Reference Dose for dioxin. Potential affects that the updated value may have on estimated risks will be incorporated into the next 5YR

REMNANT DEPOSITS (OU1) Key Points

- The 5YR states that the remedial actions are working as intended and protective of human health and the environment
- ICs are needed to ensure the remedy’s long-term protectiveness
- In-place containment systems and capping were completed at RD 2 through 5 by May 1991
- Remedial actions were not conducted at RD 1, because most of the site had “already washed downstream,” making it impractical to cap the island
- Follow-up sampling to determine the need for remedial actions at the RD 1 area, called for in the 2002 ROD, was not completed, as EPA observed sediment in the area to not be “sufficient for sample collection”
- Post-closure maintenance plan calls for site inspections and biannual reports at RDs 2 through 5, but no post-closure sediment sampling is required and none has been conducted; additional site inspections are required after heavy rain

- The results of the Waterford Water Works study (1990) indicated that after treatment, water met “standards applicable to public water supplies;” no upgrades to the facility were required
- The Town of Moreau has expressed interest in eventually using RDs 2 and 4 as passive parks

UPPER HUDSON SEDIMENTS (OU2)

Key Points

- Remedy involves dredging 2.65 million cubic yards of PCB-contaminated sediments, containing ~70,000 kg of Total PCBs (~65% of the Total PCB mass in the Upper Hudson river), as well as source control actions
- Dredged sediments were transported to and processed at the Fort Edward sediment processing facility and then transported offsite for disposal; backfilling and/or capping was completed at dredged areas
- Phase 1 was not fully completed as planned; 10 (48 acres) of the originally-planned 18 (90 acres) CUs were dredged; 286,000 cubic yards of sediment were dredged and disposed
- An inaccurate estimation of the DoC, extensive wood debris, high river flows, shallow navigation channels, and limitations on dredged sediment transport and processing caused complications during Phase 1
- GE completed habitat reconstruction in the dredged areas in July 2011
- Changes from Phase 1 to Phase 2 include modifications to the methodology used to establish DoC, changes to the Productivity and Resuspension Standards, and the incorporation of adaptive management principles into the remedy; QoLPS for air quality were “refined,” but specific values were not included in this report
- EPA generally limited GE to two dredging passes followed by backfill or capping
- During Phase 2 Year 1, GE dredged 363,332 cubic yards of sediment, containing ~27,200 kg of Total PCBs
- **During Phase 1**
 - 1) Three water quality exceedances (PCB concentrations > 500 ppt); Seasonal net load exceedances (> 117 kg/year) mid-season at TID and Lock 5 monitoring stations.; end of season exceedances at all of the monitoring stations
 - 2) 19 air quality exceedances out of 796 samples at the processing facility; 81 out of the 1846 at

- the dredge corridor
- 3) 103 noise exceedances out of 37,500 measurements
- 4) Three light exceedances
- **During Phase 2**
 - 1) Cumulative net load of Tri+ PCBs was in compliance with the modified Phase 2 Resuspension Standard
 - 2) Air quality QoLPS was “refined” and there were less air quality exceedances during Phase 2, although the specific amount and location of exceedances are not listed
 - 3) 9 exceedances out of 775 measurements at the processing facility; 7 out of 1072 at the dredge corridor
- Fish tissue monitoring showed that PCB concentrations in fish generally rose after 2009 dredging, but effects were largely localized. EPA anticipates that increased concentrations related to resuspension from dredging will “rapidly return to baseline levels and continue to decline thereafter following remediation”
- SSAP data collected after the 2002 ROD, indicates that surface sediment PCB concentrations are higher than estimated by the ROD model
- Based on SSAP data, EPA believes that the remedy will achieve goals more quickly and reduce the “extent of injury to ecological receptors” if additional dredging is completed, especially in River Section 2
- However, EPA does not find the prolonged recovery in RS2 as a “sufficient reason to modify the remedial design,” as SSAP data indicates that fish recovery rates will improve more quickly in River Sections 1 and 3 than previously expected in the ROD
- EPA acknowledges that additional dredging may be performed, as a result of the NRD process or a possible claim from the NYSCC related to navigational dredging, and will work “to ensure these efforts are integrated as efficiently as possible”
- Based on Deposition Study results, the EPA concluded that “deposition is not expected to significantly contribute to increase in surface concentrations”

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