

**Hudson River Sloop Clearwater
Natural Resources Defense Council
Riverkeeper
Scenic Hudson**

May 4, 2012
Judith Enck, Regional Administrator
US EPA Region 2294 Broadway
New York, NY 10007

Dear Judith:

We would like to thank you for your recent decision to provide a short extension of the completion deadline for the mandatory, statutory 5-Year Review of the Hudson River's PCB remediation site, and we truly appreciate your willingness to respond to the concerns we shared with you in our letter dated April 2, 2012.

However, we remain troubled that the Hudson's first 5-Year Review will be limited in scope and fails to allot the time customary for this process, especially in regards to document review and stakeholder participation. Given the scope and complexity of the Remedy and the ongoing issues raised by an array of governmental and non-governmental stakeholders, we believe that a six month completion deadline would allow for an adequate review. Importantly, Section VIII of the 5-Year Review report is supposed to contain "a discussion of unresolved concerns or items raised by support agencies and the community."¹

Under both CERCLA's statutory language and long-standing EPA policy, a cornerstone of the 5-Year Review process is that cleanup projects must be responsive to current conditions, new information, and technological advances. The 5-Year Review is intended to broadly assess a remedy and ensure that it is designed and implemented to achieve the intended protectiveness for human health and natural systems. Both the law and guidance clearly anticipate that new understandings and advanced removal methods will be incorporated during remediation to ensure the protectiveness of a remedy.

Several federal and state natural resource agencies, along with municipal governments and respected independent scientists, have raised serious concerns including a) the discovery that the Hudson's PCB contamination is much greater than originally assumed and its implication for the remedy's protectiveness b) the effect of this greater contamination on restoration and recovery options, c) the lack of adequate monitoring protocols for sediment and benthic fauna, d) additional exposure pathways that may impact the Remedial Action Objectives. Current quantitative and qualitative analyses not available at the time of the Record of Decision (ROD) or Consent Decree (CD) support these concerns. These and other issues must be included within the scope of the 5-Year Review and examined in conjunction with the project's initial assumptions and predictions, to determine the long-term protectiveness of the remedy. The resulting data will also serve to inform the adaptive-management framework under which the Remedial Action Work Plans (RAWPs) for each successive year of Phase 2

¹ OSWER No. 9355.7-03B-P pg.3-7

dredging are implemented. This is also consistent with the Peer Review Panel recommendation that “in a project of the complexity and duration of the Hudson River PCBs Site cleanup, EPA needs to be able to adapt to new information and make or require changes through adaptive management in order to achieve the expected benefits of the project.”

Given the overall requirements and standards involved in this review process, we hope additional time will be devoted to ensure this examination accomplishes all critical components of USEPA’s Comprehensive Five-Year Review Guidance documents. Accordingly, as part of that process we have summarized below specific concerns and issues that should be considered as USEPA determines the protectiveness of the remedy.

Impact of Greater PCB Contamination Levels on Protectiveness of Remedy

The amount of PCB toxins expected to remain in the Hudson at the end of the cleanup is a primary trigger for Superfund’s 5-Year Review requirements² and is foundational to Remedial Action Objectives (RAOs) in the ROD. However, actual conditions found during in-the-water operations revealed that high levels of PCB contamination are much deeper and more widely distributed than originally assumed. We believe that accurately determining both the depth and areal extent of contamination is a priority issue that must be examined in order to answer the three questions that frame the Hudson’s first Five-Year Review. This would be entirely consistent with provisions in the ROD that directed the USEPA to conduct sampling that “will cover both target areas as well as the areas outside the current target area boundaries. In this manner, EPA will produce a current contamination map of the Site on which to finalize its target area selection.”³

Study Issues

- The discovery of much greater PCB contamination during Phase 1 requires a more comprehensive identification of the vertical and horizontal distribution of toxic sediment for Phase 2. Two significant unknowns are the distribution of contaminated sediment outside of the Dredge Area Delineations (DAD) and how the greater contamination of unremediated areas may reduce the protectiveness of the remedy if not addressed.
- Re-analyze the sediment transport model with the new contamination data to determine the likelihood that unremediated PCBs outside the current DAD would recontaminate the site after dredging is completed.

Impacts of Projected Post-Remedy Contamination Levels on Protectiveness

In addition, federal agencies tasked with completing the Natural Resource Damage Assessment (NRDA) and implementing a restoration plan after the Superfund cleanup is completed have identified, an estimated 136 acres of highly toxic sediment in River Sections 2 & 3 that will be left unremediated in the current remedy, but which the ROD anticipated would be much less highly contaminated than it actually is. This amount of contamination

² CERCLA § 121(c), “If the President [or his delegate, in this case the EPA Administrator] selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.”

³ Responsiveness Summary; Hudson River PCBs Site Record of Decision: Response to Master Comment 605 pg. 4-2.

will continue to impair human health and wildlife recovery, can limit the restoration of the river and may be a source of recontamination to dredged areas if not addressed during the present cleanup.

Study Issues

- Review the results of the federal agencies' analyses and conclusion that, due to greater PCB contamination than assumed under the ROD, response action is not expected to achieve all target cleanup levels in the timeframe expected and therefore an important Remedial Action Objective (RAO) may not be achieved.
- Both federal and state support agencies responsible for the maintenance and health of the river's economic and environmental resources have offered sound guidance to address this issue. USEPA and GE should determine how to incorporate these recommendations into the design and Remedial Action Work Plan (RAWP) in successive years of the cleanup.
- Monitoring of pre- and post-remedy sediment concentrations are not adequate to determine the protectiveness of the remedy, especially in river sections 2 and 3, where recent data estimates that post-remediation PCB concentrations (in the river section as a whole, not limited to the areas within the DAD) will be five times higher than predicted by the USEPA models.
- There is no unlimited use/unrestricted exposure for Phase 1 dredge areas, specifically CU-1, which includes the Ft. Edward yacht basin where sediment redeposition over the remedy cap will impede full use and unrestricted access. Further remediation action should be examined and implemented.
- Future RAWPs should include navigational dredging as part of the dredging design as there will otherwise, be no unlimited use/unrestricted exposure for the navigational channel in the entire 40-mile active remedy area of the Superfund site. This will continue to impede the New York State Canal Corporation from executing its constitutionally mandated dredging responsibility for the Champlain Canal.
- Re-examination of untargeted hot-spots should be conducted in river sections 2 & 3 as under the current approach, there will be no unlimited use/unrestricted exposure for human, wildlife and NRD restoration activities in the Phase 2 dredge area.

Predicting Protectiveness of Remedy for Fish Tissue Concentrations.

Reducing fish tissue levels of PCBs is a major cleanup level parameter in the ROD, but it is no longer clear that the current remedy will meet the timelines projected in the ROD for fish tissue level reductions.

The "protectiveness" provisions in the ROD target the attainment of a fish PCB concentration of 0.4 mg/kg – which was deemed protective of the average adult who consumes one fish meal from the Upper Hudson every two months – within the entire upper Hudson River within 20 years of active remediation. A target PCB fish concentration of 0.2 mg/kg was expected to be attained in River Section 2 within 32 years of active remediation.

The ROD's target reductions in cancer risk correspond to these fish tissue concentrations and timelines; however, other examinations of sediment concentrations, like those described by the Federal Trustees, indicate these targets will not be reached in the timeframe anticipated in the ROD and imply further remediation of heavily contaminated sediment may be necessary.

Study Issues

- Bioaccumulation model assumptions of contaminant concentrations have not been updated to reflect the new sediment contaminant data and projections of fish tissue PCB concentrations are systematically over-optimistic relative to observed values. Re-analysis of this fundamental model with the new sediment contamination data is required to assess the short- and long-term likelihood of the remedy's protectiveness.
- The peer review panel recommended further development of the bioaccumulation model to improve its accuracy for the Hudson River system. A status update should be provided and plans for further model development should be developed.
- Since the ROD, the science of human health risk assessment has evolved, with respect to the use (or misuse) of the "average adult male" as a metric for evaluating risks of exposure to contaminated fish and shellfish. EPA should evaluate the protectiveness of the remedy, for all affected human populations and sub-populations, in light of current best practices for scientific risk assessment.

Institutional Controls and Fish Advisories

Institutional controls are currently inadequate to prevent ongoing overconsumption of contaminated fish (e.g., fish advisories are not preventing subsistence anglers from eating the fish). For example, a 2010 Angler Survey performed by Clearwater along the Peekskill waterfront from Annsville Creek to Verplanck as part of a Community-Based Environmental Justice Inventory reports higher levels of contaminated fish consumption, especially by Environmental Justice populations, than previous surveys. This indicates that far more public education and better signage is needed to effectively prevent this route of exposure to PCBs.⁴

Study Issues

- Review current institutional controls, assess efficacy, and develop enhanced control strategies to improved public awareness and behavior, and minimize exposure in communities.

Optimizing Habitat Reconstruction

The ROD and all subsequent decisions projected a cleanup that substantially reduces PCB contamination in the water and soil and a remedy that leaves behind an environment capable of supporting diverse marine communities that will help heal the river after active remediation is completed. The habitat recovery work is intended to reestablish marine vegetative beds and habitats damaged by dredging operations and residual PCB contamination. However, adjustments to dredge area slopes, backfill sediment profiles and selection of plants must be appropriate for natural and native regeneration to occur. In addition, USEPA should adequately identify, and ensure the repair and restoration of, unique natural resources of the riverine system, like benthic invertebrate populations, that may suffer severe damage during active remediation.

⁴ Citizen's for Equal Environmental Protection (CEEP), Hudson River Sloop Clearwater and Peekskill Environmental Justice Council, Community-Based Environmental Justice Inventory for the City of Peekskill, Dec. 21010 www.clearwater.org/wp-content/images/2011/03/CBEJI_FINAL-_DRAFT-1-30-11-for-printing.pdf

Study Issues

- The five-year review should evaluate pre- and post-dredge habitat assumptions and address state and federal natural resource agency concerns in regards to habitat reconstruction during remediation.

Protectiveness for Human Health

Recent studies by the NYS Department of Health have investigated additional dimensions of public health impacts from PCB exposure, including non-cancer risks and non-consumption exposure pathways. These initial results warrant further assessment of the remedy's protectiveness for human health.

Study Issues

- Review the protectiveness of the remedy in light of the potential for airborne exposure and the larger amount of contamination to remain in place post-remedy.
- New York State's Department of Health Reference Doses (RfDs) for Chronic Oral Exposure has not changed but the USEPA Integrated Risk Information System⁵ (IRIS) is currently assessing noncancerous risks from PCBs. The Review should develop a plan for incorporating any new guidance into the remedy as it becomes available.

Protectiveness With Respect to Other Remedial Action Objectives

The goals of the ROD include compliance with ARARs, reduction of cancer and non-cancer health risks to humans through exposure pathways other than fish consumption (such as through primary and secondary contact), reducing the inventory (mass) of PCBs in sediments that are or may be bioavailable, minimizing the long-term downstream transport of PCBs in the river, and compliance with federal and state water quality standards.

Study Issues

- Review the effectiveness of the remedy with respect to all of the ROD's objectives.

Environmental Conditions and Extreme Events

A significant type of site-condition highlighted in 5-Year Review guidance documents is whether the site was subject to a 100-year flood after the remedy was selected. The Upper Hudson experienced this level of flooding in 2011, which scoured PCBs from the unremediated river bottom and sent elevated PCB loads downstream and also was subject to storm events that forced a halt to dredging operations twice. Climate change science also teaches that the frequency of such storms will increase in the coming decades. .

Study Issues

- Review engineering standards of cap and habitat reconstruction and designs in light of the multiple events already experienced by the site and projections for increasing frequency and intensity of storm/flooding events due to climate change.
- Review sediment transport models to determine the likelihood that unremediated PCBs outside the current DAD would recontaminate the site after dredging is completed, under projected future climate conditions.

⁵ USEPA's Integrated Risk Information System (IRIS) is a human health assessment program that evaluates information on health effects that may result from exposure to environmental contaminants.

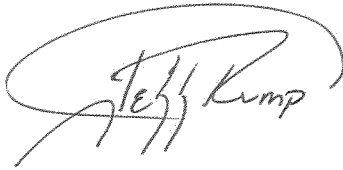
Returning the economic and ecological potential of the Hudson River to communities long denied these benefits is our highest priority. A measured and focused review of the PCB project will help ensure a cleanup that is responsive and protective in both the short and long-term.



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