



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

June 15, 2009

MEMORANDUM

SUBJECT: CSTAG Updated Recommendations on the Housatonic Rest of River Contaminated Sediment Superfund Site

FROM: Stephen J. Ells, Chair /s/**Stephen J. Ells**
Contaminated Sediments Technical Advisory Group (CSTAG)
Office of Superfund Remediation & Technology Innovation

TO: Susan C. Svirsky, Remedial Project Manager
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Background

OSWER Directive 9285.6-08, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites* (February 12, 2002), established the CSTAG as a technical advisory group to "...monitor the progress of and provide advice regarding a small number of large, complex, or controversial contaminated sediment Superfund sites...." One main purpose of the CSTAG is to guide Regional site project managers on how to appropriately manage their sites throughout the cleanup process in accordance with the 11 risk management principles set forth in the OSWER Directive. The Directive also stated that the CSTAG should follow-up on these sites until a remedy is selected and then periodically thereafter until all remedial action objectives have been met.

CSTAG Recommendations

The CSTAG visited the site and met with the Site Team from April 21 to 22, 2009. Based upon our site visit, our review of the site information provided to us, and our discussions with the Site Team, the CSTAG offers the following recommendations in order to more fully address the eleven principles. The CSTAG expects that the site project manager will consider these recommendations as the remedial alternatives are further developed and evaluated. The site project manager should send a response to these recommendations to the CSTAG chair within 60 days. These recommendations and the Regional response will be posted on the CSTAG website. When the Region develops a proposed remedy for the site, the CSTAG, in

coordination with the National Remedy Review Board, may provide additional recommendations.

Principle 1. Control Sources Early.

- Continue to monitor the effectiveness of the upstream source control efforts (*i.e.*, remediation of the first two miles) and present data describing the current and predicted future PCB input to the Rest of River (ROR).
- Continue to work with the Massachusetts Department of Environmental Protection (MDEP) on the stormwater permit from the GE facility to ensure that it meets its source control objectives, the objectives of the Consent Decree permit, and the eleven sediment management principles.

Principle 2. Involve the Community Early and Often.

- Consider holding informational sessions or workshops with the public, state, and other federal agencies to discuss remedial options for the ROR. Topics could include:
 - a) the findings of the risk assessment (*i.e.*, harm to human health and the environment from PCB contamination);
 - b) the short-term damage to the environment from remediation and how these impacts can be minimized; and
 - c) examples of what the river might look like after remediation and after habitat restoration/re-creation and how long recovery might take based on completed habitat restoration/re-creation projects at other locations.
- Consider hiring a consulting firm and using a mediator to assist in organizing and leading workshops or other public involvement activities.

Principle 3. Coordinate with States, Local Governments, Tribes, and Natural Resource Trustees.

- CSTAG encourages the Site Team to continue its cooperative efforts to work with the State to decide how to address the Area Critical Environmental Concern (ACEC) designation when comparing remedial alternatives.

Principle 4. Develop and Refine a Conceptual Site Model that Considers Sediment Stability.

- Update the conceptual site model to more clearly depict the PCB mass flux among the floodplain soils, banks, and ROR sediments within and among river reaches. Such a depiction will be useful in demonstrating how various remedial actions can lessen or eliminate contaminant exposures.
- CSTAG supports the Site Team in its consultation with experts in river geomorphology and habitat restoration/re-creation to ensure that remedial alternatives adequately address bank and sediment stability in an environmentally sensitive manner (*i.e.*, bioengineering to armor banks) and account for resulting changes in flow velocities and energies.

- Any action in the in-stream sediments/riverbanks, or floodplains will likely affect sediment and PCB transport and exposure in the other components. When the Site Team proposes a remedy, they need to clearly describe how the combination of alternatives affects exposures and PCB transport between in-stream sediments/river banks and floodplains.

Principle 5. Use an Iterative Approach in a Risk-based Framework.

- Consider conducting early restoration/re-creation demonstration studies to inform the design of subsequent remediation and restoration efforts at this site. These studies should include monitoring of recovery and function of vernal pools and stream bank habitats at these pilot remediated locations.

Principle 6. Carefully Evaluate the Assumptions and Uncertainties Associated with Site Characterization Data and Site Models.

- CSTAG recognizes that there is inherent uncertainty associated with the use of any complex model and encourages the Site Team to summarize and describe the results of the sensitivity analyses performed for this site model and explain how this information was considered when evaluating remedies for the ROR.
- CSTAG believes that it is not appropriate to use the model in a smaller resolution or spatial scale than it was originally designed (*i.e.*, 0.25 to 0.50 mile). Specifically, the use of cross-sectionally averaged bed shear stresses to estimate flow-induced stresses applied to the toe and face of banks is not appropriate.
- CSTAG expects that a key factor used for decision-making at the site will be the modeled fish tissue concentrations and the predicted timeframes for achieving various risk reduction metrics such as cancer and non-cancer benchmarks and the Interim Media Protection Goals. CSTAG recommends that new fish residue data, from the on-going monitoring program, be compared to the modeling predictions in order to further assess the model's validity and accuracy.

Principle 7. Select Site-specific, Project-specific, and Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals.

- A description of all remedial action objectives (RAOs) should be presented. How and when each alternative will meet each of the RAOs should be clearly described. This will help clarify that while the ultimate fish consumption goals may take many years to achieve, other RAOs may be met more quickly.
- When proposing a remedy for the ROR, present the fish tissue levels that would be achieved based on food web model predictions, discuss how realistically achievable they are and explain why EPA believes these levels of risk are acceptable.
- Because of the potentially long time frames associated with achieving safe fish tissue goals, consider establishing interim remediation goals for PCBs in fish tissue. Interim goals (*i.e.*, those less than concentrations considered safe) can be acceptable objectives and have been used at other sites.

- The CSTAG believes that it is appropriate to include alternatives that do not meet the most protective IMPGs. The revised Corrective Measures Study (CMS) should not discount the benefits of risk reduction associated with each alternative evaluated.

Principle 8. Ensure that Sediment Cleanup Levels are Clearly Tied to Risk Management Goals.

- Consider emphasizing the potential benefits from reducing PCB loading from the upper ten miles in addition to achieving significant risk reduction in these upper reaches of the ROR. It may also be helpful to explain the anticipated benefits of the proposed action to ecological resources and water quality in the Housatonic River downstream of any locations proposed remedial action.

Principle 9. Maximize the Effectiveness of Institutional Controls and Recognize their Limitations.

- CSTAG encourages the Site Team to work with the Massachusetts Department of Public Health to improve the effectiveness of the fishing advisories.
- The CSTAG recommends that the CMS expand the description of the institutional controls that will be required to protect the public from wastes left in place after remedial action.

Principle 10. Design Remedies to Minimize Short-term Risks while Achieving Long-term Protection.

- While some stakeholders appear very concerned about potential adverse habitat effects associated with remediation and with compliance with the Massachusetts Endangered Species Act, CSTAG believes that these concerns do not obviate the need to consider alternatives that will address the unacceptable risks from the presence of high levels of PCBs in the ROR floodplain soils, banks and sediments. Instead, the alternatives should be reconfigured to minimize effects on ecological habitats during construction and to mitigate, replace, and reconstruct habitats, as necessary, after remediation.
- CSTAG supports the Site Team's efforts to consider remedies that optimize the Housatonic River's inclination to return to its geomorphologic origin over the long-term while concomitantly minimizing costs.
- CSTAG supports the Site Team's efforts to include long-term maintenance of remediated areas to minimize invasive species encroachment as part of the CMS.
- In light of the recent ACEC designation for the Upper Housatonic River, we encourage the EPA and GE restoration teams to begin a dialogue, on the ecological "trade-offs" of the various remedial options that were outlined in the March 2008 CMS and expected in the Fall 2009 CMS revision.
- The CSTAG does not consider "Thin Layer Capping" as described in the CMS to be a viable containment remedy. As discussed in EPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (OSWER 9355.0-85, December 2005), thin layer capping (which is more accurately called thin layer placement) is not an isolation remedy

and should not be considered a cap. It should be evaluated solely as a means to enhance natural recovery.

Principle 11. Monitor During and After Sediment Remediation to Assess and Document Remedy Effectiveness.

- CSTAG recommends the continued collection of fish tissue (bi-annual adult and young of year fish collections) and surface water data in order to maintain a strong baseline for future comparisons. The long-term time series data will inform analysis of the ROR's fish tissue contaminant dynamics, the achievement of risk-based metrics, and the relationship between fish contaminant concentrations and remedial actions.

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