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

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

October 20, 2011

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Housatonic River, Rest of River Site

FROM: Amy R. Legare, Chair
National Remedy Review Board

Stephen J. Ells, Chair
Contaminated Sediments Technical Advisory Group

TO: James T. Owens III, Director
Office of Site Remediation and Restoration
U.S. EPA Region 1

Purpose

The National Remedy Review Board (the Board) and the Contaminated Sediments Technical Advisory Group (CSTAG) have completed their review of the proposed cleanup action for the Housatonic River, Rest of River site, in Pittsfield, MA. This memorandum documents the Board's and CSTAG's advisory recommendations.

Context for Review

The Administrator established the Board as one of the October, 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective remedy decisions. The Board furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The Board review is intended to help control remedy costs and to promote both consistent and cost-effective decisions. Consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), in addition to being protective, all remedies are to be cost-effective. The Board considers the nature of the site; risks posed by the site; regional, state, tribal and potentially responsible party (PRP) opinions on proposed actions; the quality and reasonableness of the cost estimates; and any other relevant factors or program guidance in making our advisory recommendations.

The overall goal of the review is to ensure sound decision making consistent with current law, regulations, and guidance.

Generally, the Board makes the advisory recommendations to the appropriate regional division director. Then, the region will include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the region is expected to give the Board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the region's final remedy decision. The Board expects the regional division director to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. Although the Board's recommendations are to be given substantial weight, the Board does not change the Agency's current delegations or alter the public's role in site decisions; the region has the final decision-making authority.

Office of Solid Waste and Emergency Response (OSWER) Directive 9285.6-08, February 2002, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites*, 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. EPA decided not to have a separate technical review by the CSTAG per OSWER Directive No. 9285.6-20, September 2009, *Changes to the Roles and Responsibilities of the Contaminated Sediments Technical Advisory Group (CSTAG),* but instead elected to have a combined NRRB/CSTAG meeting for this site. This joint meeting format is the approach EPA plans to take in the future at CSTAG sites.

Overview of the Proposed Action

The preferred alternative outlined by the Region for the Board and CSTAG included the following general actions:

- Sediment removal followed by capping in Reach 5, Reach 6 (Woods Pond), Reach 7 impoundments, and Reach 8 (Rising Pond) to meet human health and ecological risk reduction goals; monitored natural recovery (MNR) in the remaining portions of Reach 7 as well as in Reaches 9 through 16.
- Excavation and backfill of contaminated floodplain soils exceeding human health and environmental risk-based thresholds.
- Disposal of excavated/dredged river sediment, bank and floodplain soil off-site in properly permitted and maintained TSCA and non-TSCA landfills.
- Operation, monitoring, and maintenance; five-year reviews; and, institutional controls (ICs).

National Remedy Review Board and Contaminated Sediments Technical Advisory Group Advisory Recommendations

The Board and CSTAG (hereafter referred to as the Boards) reviewed the information package describing this proposal and discussed related issues with Region 1 staff and management (Susan Svirsky, Bob Cianciarulo, Tim Conway, and Jim Owens) on July 27 and 28, 2011. Region 1 Office of Environmental Stewardship (Susan Studlien, Joanna Jerison, and Audrey Zucker) and Larry Brill, Region 1 Office of Site Remediation and Restoration, participated via web conference. Massachusetts Department of Environmental Protection (Ken Kimmell, Mike Gorski, Paul Locke, and Eva Tor); Massachusetts Department of Fish and Game (Rich Lehan, Mark Tisa, and Mary Griffin); Curt Spalding, Region 1 Regional Administrator, Ira Leighton, Region 1 Deputy Regional Administrator; and Jim Murphy, Region 1 Office of the Regional Administrator participated by web conference for the presentation by the Commonwealth of Massachusetts (the Commonwealth). The Boards reviewed this site generally as if it were a CERCLA proposed remedial action, recognizing that at this stage of the cleanup process, the application of certain aspects of the CERCLA/NCP remedy selection process is complicated and unique. Based on this review and discussion, the Boards offer the following comments:

Site Characterization

In the package presented to the Boards, modeling results played an important role in evaluating MNR as a remedial option. The Boards recommend that additional adult largemouth bass fish tissue data be collected and analyzed in the context of historical data and model output. If the apparent discrepancy between the 2008 data (mean of about 5 ppm PCB in fillet) and model output (about 18 ppm) remains, the modeling should be updated to provide risk projections that more appropriately reflect current conditions. In addition, the updated sampling results may be used to evaluate the effectiveness and benefits of the upstream remediation.

Related to the above recommendation, but from broader perspective, the Boards recommend that the Region expand the adult fish tissue collection efforts to provide an adequate baseline database for evaluating the effectiveness of completed, ongoing and planned remedial actions.

Based on the model predictions described in Appendix F of the package, the Region concluded that Woods Pond, even if modified by deepening and changing the flow direction of the input channel, could not be an effective sediment trap. Based upon a brief analysis of the empirical data for the site, however, it appears to the Boards that the model predictions for trapping efficiency may not be consistent with some of the historical sedimentation data for the site. The Boards believe that a modified Woods Pond, acting as a sediment trap, could reduce the amount of PCBs released over the dam in addition to the reductions that would result from other proposed active remedial measures. Therefore, the Boards recommend that the Region further evaluate the potential incremental improvement in sediment trapping of a modified Wood Ponds and recommends that the Region ask engineers from the US Army Corps of Engineers to assist in this evaluation.

Human Health/Ecological Risk

During the presentation, the Region stated it is conducting a risk-based PCB cleanup as described in 40 Code of Federal Regulations (CFR) 761.61(c). The Boards recommend that, since, for example, the Region plans to leave soils with PCB contamination in excess of 50 parts per million (ppm), the Superfund program closely coordinate with the Region's Toxic Substances Control Act program to ensure the remedy meets the requirements of 40 CFR 761.61(c).

From the presentations by the Commonwealth and the Region to the Board, it appears that there is a fundamental disagreement concerning the interpretation and application of some of the criteria for remedy selection. Particularly noteworthy are the differences in perspective on the balancing of short-term and potential long-term environmental impacts from remedy implementation and the reduction of long-term risks predicted to be achieved by a protective remedy. The presentation by the Commonwealth indicated that it sees the impacts to Commonwealth-listed species resulting from the need to control stream meandering as a long-term impact whereas the Region contends that habitat restoration and other impact reduction measures will be effective in meeting the requirements of the Commonwealth's endangered species law and therefore any impacts will be only short-term. The Commonwealth's presentation also indicated that it believes the long-term ecological risks (e.g. adverse effects to mink and wood duck) were acceptable when balanced against the impacts of remediation on habitat loss. Alternately, EPA sees these long-term ecological risks as requiring remediation to meet the threshold criteria for selecting a remedy that is protective. The Boards recommend that the Region consolidate the discussion on the documented ecological impacts at the site and compare them to the Agency's requirements under CERCLA and the RCRA Permit to select a remedy protective of all identified receptors (assessment endpoints). This consolidated presentation will allow for a direct comparison of short –term and long-term risks and impacts and how these risks are balanced, justified and consistent with remedy selection criteria in any decision documents.

The Boards note that CERCLA and the RCRA Permit identify protectiveness of human health and the environment as a threshold criterion that all remedies must achieve. Furthermore, the NCP states that the use of institutional controls should supplement (not substitute for) active response measures (e.g., ICs should not substitute for active response measures as the sole remedy unless such active measures are determined not to be practicable). The remedy supported by the Commonwealth appears to rely solely on institutional controls (ICs) to protect human health through consumption of fish by restricting all consumption, whereas the remedy preferred by the Region would achieve a measure of risk reduction that results in risks from fish consumption within the acceptable risk range and at a hazard quotient of 1 under a central tendency exposure scenario in virtually all reaches. The Board recommends that the Region emphasize in the decision document (through both deterministic and probabilistic risk methods) that the remedy allows for some degree of fish consumption and, consistent with the NCP, does not rely solely on ICs to achieve a level of protectiveness for this exposure.

Principal Threat Waste

The package presented to the Boards included a discussion of principal threat waste (PTW). While the discussion addressed contaminant mobility, it did not specifically address toxicity and why the high concentrations of PCBs (some locations at greater than 800 ppm) in floodplain soils would not be

considered PTW materials subject to Comprehensive Environmental Response, Compensation and Liability Act's (CERCLA's) and the NCP's preference for treatment to the maximum extent practicable. Consistent with *A Guide to Principal Threat and Low Level Threat Wastes* (OSWER Directive No. 9380.3-06FS) which addresses the preference for treatment of highly toxic materials, and in light of *A Guide on Remedial Actions at Superfund Sites with PCB Contamination* (OSWER Directive No. 9355.4-01FS) which states that PTW will generally include soils contaminated at concentrations greater than 100 ppm PCBs, the Boards recommend that in its decision documents, the Region more thoroughly explain how its reading of Agency guidance and its approach to treatment at this site are consistent with the statute and NCP.

Remedial Action Objective

The review package states that RAOs will address human and ecological risks as well as downstream migration of PCBs. The Boards recommend that any decision documents for an engineering performance-based (dredging to a depth to allow placement of a 2-2.5 foot cap) remedy that isolates PCBs in the sediments through a bank-to-bank design should clearly explain why a numeric remediation goal (known as interim media protection goals [IMPGs] in the review package) for sediments that is protective of human health will not be developed. The decision documents should also better explain where the IMPGs/cleanup standards will be applied (i.e., in which exposure area) in the floodplain and how meeting these levels will be met and how the RAO will be achieved.

Remedy Performance

Based on the information presented, the Boards believe that the proposed cleanup at this site would leave large quantities of PCBs in floodplain soils. In the future, EPA may determine that leaving this remaining waste on site is not protective of human health and the environment. Therefore, the Boards recommend that the Region consider including a contingency remedy (e.g. pursuing other response actions in an adaptive framework) in the decision documents that would describe a cleanup approach resulting in more risk reduction through additional floodplain soil source removal or other active remediation alternatives.

The Region's presentation included a discussion on implementing an adaptive management approach to the remedial action. The Board and CSTAG recommend that the decision document better describe that the selected remedy is based on the current understanding and knowledge of the site and that its implementation will be phased and conducted within the adaptive management framework. For example, the first phase of implementation could begin with remediation (or a demonstration project) of Reach 5A and Woods Pond (pending the results of further analysis of Woods Pond being a potential sediment trap) that includes habitat replacement and reconstruction. Additionally, the Region should describe the various implementation contingency approaches (e.g., remediation and habitat mitigation/replacement/reconstruction methods) that will be developed to provide implementation options within the adaptive framework. This description should also include provisions to pilot test amendments to the cap, such as active amendments and/or granular activated carbon, to reduce the bioavailability of PCBs. Recent pilot projects for in-situ amendments at Hunter's Point (CA) and Grasse River (NY) have demonstrated reduction in PCB bioavailability.

The Region stated that there are a number of dams (including the ones at Woods Pond and Rising Pond) that must be maintained in order for the remedy to be protective. The Boards note that dams are being removed in a number of places across the country to improve the environmental conditions of rivers. Therefore, the Boards recommend that the remedy include requirements for addressing contaminated sediments stored behind the dams as part of any future dam maintenance and/or dam removal activities. Costs for dam maintenance (to the extent necessary to ensure that sediments remain contained) and/or sediment removal activities should be included in the cost estimates.

A critical component potentially affecting the success of the Region's preferred remedy is the prevention of the future releases of PCBs from the eroding banks in the upper seven miles or so of the river. The Commonwealth and many of the stakeholders acknowledge that the banks are eroding significant amounts of PCBs but are strongly opposed to the type of hard bank stabilization techniques that were used in the upper two miles. The Boards recommend that the Region provide additional information in the decision documents supporting the effectiveness of softer bioengineering techniques in this part of the river with its low gradient, locations with steep banks, and high flow rates during storm events. The Region also should explain the key uncertainties that were considered in evaluating the long-term effectiveness of these bioengineering techniques. In its presentation to the Boards, the Commonwealth was confident that the extensive bank stabilization proposed in the preferred remedy would prevent the river from meandering and the subsequent formation of new oxbow lakes. The Commonwealth believes that containment of the river within its current banks would have long-lasting detrimental and irrevocable impacts on the floodplain wetlands, vernal pools, and many of the Commonwealth-listed wildlife and plant species that depend on these habitats. The Boards recommend that in the decision documents the Region expand its rationale on why bank stabilization will not result in the long-term adverse impacts to the ecosystem suggested by the Commonwealth. The rationale should address the relative importance of oxbow lake formation versus periodic flooding on the long-term continued existence of wetlands, vernal pools, and the Commonwealth-listed species that rely on a wetland ecosystem. The Boards also recommend that in the decision documents, the Region directly address the Commonwealth's position that channel migration is critical to "maintain[ing] a diverse mosaic of wetlands and habitats that support species diversity over time." The Boards believe it would be useful for purposes of evaluating alternatives and ensuring meaningful public participation for the Region to estimate how many of the 66 vernal pools and how many acres of wetlands would disappear or be ecologically non-functional if the river stops meandering.

Stakeholders

The Boards appreciate all of the time and effort taken by the stakeholders to provide their thoughts on the future actions to be taken at this portion of the site.

The package provided to the Board outlines the complexity of the remedy components as selected through the RCRA permit process yet implemented as a Superfund remedial action. It may be challenging to stakeholders to understand the logic/basis of the remedy option components, how they fit into the overall remedy, and how the remedy as a whole meets and is consistent with Superfund remedy selection criteria and guidance. The Board recommends that the Region develop a communication plan for the stakeholders to concisely and clearly convey how the individual components of the remedy fit together to achieve the remedial action objectives and meet the criteria for remedy selection.

Early Action

In the presentation the Region identified three residential areas above Superfund residential PCB action levels (i.e. 1 ppm per OSWER Directive No. 9355.4-01 FS, *A Guide on Remedial Actions at Superfund Sites With PCB Contamination*) and high use recreational areas (river access, camping, etc) above PCB action levels. Since the Rest of River will be implemented as a Superfund remedial action, the Board recommends that the Region consider conducting an early action (e.g., removal or early interim action) in parallel with the other Rest of River activity to address the exposure as soon as practical.

Conclusion

We commend the Region's collaborative efforts in working with the Board, CSTAG and stakeholder groups at this site. We request that a draft response to these recommendations be included with the draft proposed plan when it is forwarded to the Office of Superfund Remediation and Technology Innovation's Site Assessment and Remedy Decisions (SARD) branch for review. The SARD branch will work with both your staff and the Boards to resolve any remaining issues prior to your release of the proposed cleanup plan and subsequent remedy decision. This memo will be posted to the Board's website (http://www.epa.gov/superfund/programs/nrrb) and CSTAG's website (http://www.epa.gov/superfund/health/conmedia/sediment/cstag.htm) within 30 calendar days of our signatures. Once your response is final and made part of the site's administrative record your response will also be posted on the Boards websites.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call Amy Legare at (703) 347-0124 or Steve Ells at (703) 603-8822 should you have any questions.

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