

Riverbanks on residential properties will be remediated to the residential use criterion of 2 ppm to a depth of 3 feet and to an average of 10 ppm below 3 feet to a maximum of 15 feet (as calculated in the EE/CA Report) or to the groundwater table whichever is less. The cleanup standard of 2 ppm is the Massachusetts DEP's default standard for Method 1 soils (unrestricted use). Because existing laws and regulations restrict excavation of riverbanks, EPA and MADEP agree that applying the residential cleanup goal of 2 ppm below 3 feet in the riverbanks is overly conservative, due to the reduced potential for human exposure. Rather, applying a recreational type exposure scenario to residential bank soils below 3 feet is more indicative of the exposures that could be expected and is consistent with the removal action objectives described earlier. Therefore, residential bank soils below 3 feet will be cleaned up to meet an average PCB concentration of 10 ppm and a not to exceed concentration for any one sample of 50 ppm.

The following table summarizes the cleanup criteria for riverbank soils:

Areas	Cleanup Level		Excess Cancer Risk	Hazard Quotient
	Concentration (PPM)	Depth (ft)		
Recreational	10	0 - 3	7×10^{-6}	1.4
Residential	2	0 - 3	4×10^{-6}	0.8
	10	3 - 15*	7×10^{-6}	1.4

* maximum depth of 15 feet or to the groundwater table whichever is less.

The risk justification and calculations associated with these cleanup standards can be found in the August 4, 1999 risk justification memorandum found in Appendix D to the Consent Decree (Attachment A hereto).

Sediment PCB Cleanup Criteria

Sediment is defined as the material below the mean annual high-water line. Above the mean annual high-water line, the soils are defined as riverbank soils.

The cleanup objective for sediments is to prevent human and ecological exposure to PCB levels that present unacceptable risks. In order to meet that objective, EPA considered the exposure pathways of direct contact and ingestion of sediments by humans and potential adverse effects to ecological receptors.

For protection against adverse effects to ecological receptors, EPA considered various sediment quality guidelines including NOAA standards, OMEE standards, and a level calculated using EPA's draft Sediment Quality Guidelines (SQG) approach (utilizing equilibrium partitioning

theory). These guidelines represent a range of PCB concentrations from approximately .03 ppm to 5.7 ppm that could result in adverse effects to ecological receptors. EPA's SQG approach, which incorporates site specific inputs into the calculation, results in a level of .08 ppm. (See EPA's February 2000 Memorandum, Attachment B hereto).

In order to protect against exposure to humans, EPA also had to consider that certain areas of the 1 ½ Mile Reach as subject to residential exposures. The Consent Decree established a performance standard of 2 ppm for residential exposures and provides that this 2 ppm standard meets the protectiveness goals in the NCP for both cancer and non-cancer effects. The risk justification and calculations associated with this level can be found in the August 4, 1999 risk justification memorandum found in Appendix D to the Consent Decree (Attachment A hereto).

Therefore, EPA determined that a cleanup goal below 2 ppm, and approaching .08 ppm, would be appropriate for protecting against both adverse ecological and human health effects. A level of 1 ppm (as opposed to a lower guideline value) was used in the design and evaluation of EE/CA alternatives in recognition of the fact that, even using 1 ppm, the entire 1 ½ Mile Reach would be excavated to depths of at least 2 feet and backfilled with at least 2 feet of clean material, effectively reducing exposure to only those levels that can be detected in the clean backfill (estimated at .075 ppm for analysis at a fixed off-site laboratory). Even should mixing of clean backfill and residual sediments (generally less than 1 ppm) occur, the resulting concentrations would remain well below 1 ppm.

EPA believes that the utilization of the 1 ppm action level, coupled with the replacement of contaminated sediments with clean (non-detect PCB levels) backfill material, will result in PCB levels that are protective of humans, aquatic life, piscivorous birds, and mammals. In addition, in the long term, EPA also believes this action level to be an important step in reducing the PCB concentration in fish and contribute to the overall site-wide strategy of reducing human exposure to PCBs from fish consumption.

PCB contamination shall be removed based on the 95% Upper Confidence Limit (UCL) of the mean PCB concentrations in the sediments and bank soils, except for riverbanks below 3-feet on residential properties, which will be removed based upon an average concentration and a not-to-exceed limit. The 95% UCL was calculated in accordance with the procedures outlined in *Supplemental Guidance to RAGS: Calculating the Concentration Term* (99-0003). Use of the 95% UCL is based on the goal of providing a reasonable level of assurance that material exceeding applicable standards has been removed where data tend to be variable in space and time.

Riverbank and Sediment Appendix IX Cleanup Criteria

In addition to ecological risks and human health risks from fish consumption calculated using PCB sampling results, risks posed by Appendix IX compounds were evaluated. The Consent Decree sets forth an agreed upon procedure GE must follow for evaluating and removing

Appendix IX contamination. Since GE is responsible for cleanup actions beyond the banks in the 1 ½ Mile Reach, for consistency, a similar approach is also applied for the 1 ½ Mile Reach banks and sediments. Where Appendix IX contamination is not co-located with PCB contamination, the limits of the PCB excavation will be extended to remove exceedences for the Appendix IX contaminants.

For sediments, the Appendix IX data were compared against three screening criteria: Massachusetts Contingency Plan (“MCP”) S-2 Soil Standards, OMEE Lowest Effect Level (“LEL”) values, and OMEE Severe Effect Level (“SEL”) values. The OMEE Sediment Quality Guidelines define three levels of chronic effects on benthic organisms. The no-effect level is defined as the level at which no toxic effects have been observed on aquatic organisms and food chain biomagnification is not expected. The LEL indicates a level of sediment contamination that can be tolerated by most benthic organisms. The SEL indicates a level of contamination at which pronounced disturbance of sediment-dwelling organisms will occur and the contaminant concentration will be detrimental to the majority of benthic species (Persaud, et al., 99-0015). For this assessment, both LELs and SELs were used to assist in evaluating potential effects on the benthic community. The comparison was made on a subreach basis and used the average concentration for each parameter (calculated using half the detection level in the case of a non-detect). Analytical data indicate that Appendix IX contamination exceeding the sediment criterion is predominantly co-located with PCB contamination and will be mitigated by the removal of PCB-contaminated sediment.

For riverbank soils, samples were compared to EPA Region IX Preliminary Remediation Goals (“PRGs”), background concentrations, and MCP S-2 soil cleanup standards. The comparison was made on an individual sample basis. The observed concentration for each parameter was compared to the PRG. If the observed concentration exceeded the PRG, it was compared to the average background concentration and the maximum background concentration. If the observed concentration exceeded both background values (average and maximum), or if the observed concentration exceeded either background concentration by greater than 150%, the result was compared to the MCP S-2 soil cleanup standards. Compounds that failed the background comparison and the comparison to MCP S-2 soil cleanup standards were flagged as requiring remediation. Except for some riverbank soils in five subreaches (totaling approximately 1,500 yd³), Appendix IX contamination in riverbank soil is also co-located with PCB contamination.

Proposed Action

The Proposed Action consists of the excavation and disposal of approximately 95,000 cubic yards of contaminated sediment and riverbank soil. The excavated areas will be backfilled with clean material. The remediation will consist of Sheetpiling and Pump Bypass (modified Base Alternative 2 of the EE/CA). Disposal will consist of consolidation of 50,000 cubic yards of contaminated soil and sediment at the GE On Plant Consolidation Areas (“OPCAs”), which were the subject of EPA’s August 4, 1999 Action Memorandum, with off-site disposal of the excess material (Option A). The Proposed Action was chosen based on what the Region believes to be

Site: GE-004
Break: 2.9
Other: 9483

United States Environmental Protection Agency
New England
Office of Site Remediation and Restoration
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Enforcement-Sensitive Information Attached

Memorandum

Date: November 21, 2000

Subject: Request for Removal Action Housatonic River 1 ½-Mile Reach at the GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts—**Action Memorandum and Exemption from the Statutory \$2,000,000 and 12-Month Limits on Removal Actions**

From: Chester Janowski, Remedial Project Manager *CJ*
Office of Site Remediation and Restoration

Through: Patricia L. Meaney, Director *plm*
Office of Site Remediation and Restoration

To: Mindy S. Lubber
Regional Administrator

I. Purpose

The purpose of this Action Memorandum is to request and document approval for the proposed removal action described herein for a 1 ½-mile portion of the Housatonic River at the GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts. The proposed removal action will mitigate the human health and environmental threats posed by the existing levels of polychlorinated biphenyls ("PCBs") and other hazardous substances in this 1 ½ mile portion of the river. This Action Memorandum also requests and documents the approval of a "consistency" exemption from the \$2 million and 12-month statutory limits for removal actions under the National Contingency Plan.

This Action Memorandum concerns the 1 ½ mile section of the East Branch of the Housatonic River and its riverbanks from Lyman Street, Pittsfield, Massachusetts to the confluence with the West Branch of the Housatonic River and is referred to in this Memorandum as the "1 ½ Mile Reach." The 1 ½ Mile Reach does not include the actual/potential lawns and other non-riverbank portions of the floodplain properties adjacent to this Reach. As discussed below, EPA and GE will jointly finance, and EPA will perform, the required removal action activities for the sediments and riverbanks in the 1 ½ Mile Reach. GE will conduct the required removal actions on the non-bank portions of the properties adjacent to the 1 ½ Mile Reach.

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