Attachment 11

Excerpts from EPA's Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River" (June 2014) ("Statement of Basis")

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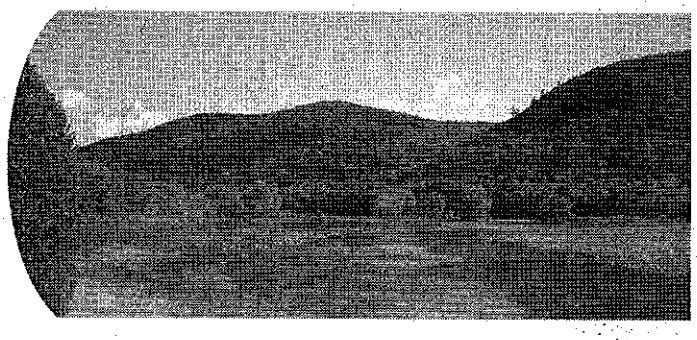
Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River"

THE RIVER *The Housatonic River is contaminated with polychlorinated biphenyls (PCBs) released from the General Electric Company (GE) facility in Pittsfield, MA. The entire site consists of the 254-acre GE facility; the Housatonic River and its banks and floodplains from Pittsfield, MA, to Long Island Sound; and other contaminated areas. Under a federal Consent Decree, GE is required to address contamination throughout the site, including in the River.*



YOUR OPINION COUNTS: OPPORTUNITIES TO COMMENT

EPA is accepting public comment on this proposal from June 25, 2014 through August 8, 2014. EPA's Proposed Remedial Action is based on current information and the cleanup plan could change in response to public comment or new information. The following two public informational meetings will include a presentation describing the Proposed Remedial Action, followed by a question and answer session. EPA will begin a formal public comment period on June 25, 2014. Near the end of the public comment period, EPA will schedule a Public Hearing where the public will have an opportunity to make oral comments during this Hearing for EPA to consider. You may also submit written comments – see page 43 to find out how.

For further information about these meetings, call Kelsey O'Neil of EPA's Community Affairs office at 617-918-1003, or toll-free at 1-888-372-7341.

Public Informational Meeting
Wednesday, June 18, 2014 at 6:00 pm at Lenox Memorial Middle/High School, Lenox, MA

Public Informational Meeting
Tuesday, June 24, 2014 at 6:00 pm at Kent Town Hall, Kent, CT

Public Hearing
date/time/location to be determined

SUMMARY:

After careful study of the impacts of PCBs released to the Housatonic River from the GE-Pittsfield/Housatonic River site in Pittsfield, MA, and in consideration of the contaminant reduction accomplished by cleanup activities at other parts of the site, EPA proposes the following cleanup actions, known as corrective measures, or remedial action, for the "Rest of River" component of the GE-Pittsfield/Housatonic River site. EPA's Proposed Remedial Action was developed after consultation with Massachusetts Departments of Environmental Protection (MassDEP) and Fish and Game (MassDFG) and the Connecticut Department of Energy and Environmental Protection (CT DEEP).This Statement of Basis, in conjunction with the Draft Modification to the Reissued RCRA Permit, constitute EPA's "Proposed Plan" or "Proposed Cleanup Plan," setting forth EPA's Proposed Remedial Action for the Rest of River and Operation and Maintenance (O&M) as prescribed by Paragraph 22.n. of the Consent Decree (termed the "Proposed Remedial Action" or "Proposed Cleanup Plan" throughout this document) to address polychlorinated biphenyl (PCB) contamination in river sediment, banks and floodplain soil, and biota which poses an unacceptable risk to human health and the environment.

In addition to addressing risks in the areas slated for cleanup, the Proposed Remedial Action also includes provisions to reduce downstream transport of PCBs, relax or remove fish consumption advisories, and to avoid, minimize and/or mitigate adverse impacts to state-listed species and their habitats regulated under the Massachusetts Endangered Species Act (MESA), and

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techniques reestablish the prior conditions and functions of the affected habitats.

None of the Combinations preclude the implementation of additional corrective measures if deemed necessary. Additional corrective actions, such as cap or bank repairs, if necessary, should provide the same implementation challenges for all active alternatives.

EPA anticipates a robust monitoring program to monitor the effectiveness of the remedy. Each of the components of the active remedy combinations (Combinations 3-9) can be monitored effectively. However, alternatives that have little or no active remediation are less reliable, therefore, they would require more extensive monitoring.

No regulatory and/or zoning restrictions are known that would affect the implementability of the sediment/floodplain Combinations. Implementation of all alternatives (except alternatives 1 and 2) would require GE to obtain access from all property owners. Issues associated with obtaining access would be similar for alternatives 3-9, except that alternative 9 avoids the large-scale use of sheet pile and large cranes, which may facilitate access negotiations.
-All of the combinations would require coordination with EPA and state agencies to ensure compliance with state ARARs. In addition, implementation of Institutional Controls, obtaining access to State and municipally-owned properties, conducting public/community outreach programs and implementing biota consumption advisories will require both state and local coordination. The alternatives that require a greater extent of remediation and a longer implementation time would likely require more extensive and prolonged coordination activities. However, implementation of Institutional Controls where less remediation is performed would require more extensive Institutional Controls.

Lastly, regulatory and zoning restrictions, state and local coordination related to treatment, storage and disposal facilities, and the availability of suitable of such facilities and specialists is discussed below in the evaluation of Treatment/Disposition alternatives.

Cost

Estimated total and present worth for all of the Combination Alternatives are presented in Table 6. In addition, costs associated with these Combinations coupled with the Treatment/Disposal Alternatives can be found in Table 7. The costs are based primarily on information available at the time of the estimate and are based on GE's unit cost estimates provided in GE's Revised CMS. As shown in Table 6, Combination 1 is the least costly alternative while Combination 6 is the most costly. For purposes of direct comparison of treatment and disposal costs associated with EPA's preferred sediment and floodplain alternative, total treatment/disposal costs for Combination Alternative 9 have also been included in Table 7.

COMPARATIVE ANALYSIS OF TREATMENT/DISPOSITION ALTERNATIVES

This section presents a summary of a comparative evaluation of the five alternatives for treatment and/or disposal of excavated contaminated river sediment and floodplain soil using the same criteria that were used for the sediment/floodplain combination alternatives. All five alternatives would involve disposition of the sediment, riverbank soil, and floodplain soil in a disposal facility, either directly or after treatment. The three alternatives involving disposal only are TD 1/TD 1 RR (off-site disposal in permitted landfill(s)), TD 2 (on-site in a Confined Disposal Facility (CDF)), and TD 3 (on-site in upland disposal facility or facilities). The other two alternatives would involve treatment, either by a chemical extraction process (TD 4) or by thermal desorption (TD 5), followed by disposition of the byproducts of the treatment and the treated soil/sediment.

Overall Protection of Human Health and the Environment

TD 1, 3 and 5 would provide high levels of protection to human health and the environment because all excavated contaminated material would either be removed from the site (TD 1), contained in an upland disposal facility (TD 3), or treated to levels safe for off-site disposal or potential reuse (TD5). TD 2 could also provide human health protection as long as monitoring, maintenance and/or Institutional Controls are effective in the long term, in order to avoid negative impacts to the river system. Alternative TD 4 (chemical extraction) may not be able to effectively treat PCB contamination from the site, calling into question the protectiveness of this alternative.

Control of Sources of Releases

All the treatment/disposal alternatives would control the potential for PCB-contaminated sediment and soil to be released and transported within the river or onto the floodplain, although some alternatives would provide more effective control of such releases than others. TD 1 best meets this criterion, followed by TD 3.

Under TD 1, placement of the removed PCB-contaminated sediment and soil into a licensed off-site landfill or landfills would effectively isolate those materials from being released into the Housatonic River and associated floodplain. Under TD 2, there is a potential for releases of sediment into the river during the CDF construction process. TD 3 would address future releases through the placement of the materials in an upland disposal facility that will have a double liner and the implementation of a long-term monitoring and maintenance program. Placement of

the PCB-contaminated sediment and soil into an upland disposal facility could effectively isolate the removed materials from being released into the environment. However, there is the potential for PCB releases to the Housatonic watershed if the landfills are not properly operated, monitored and maintained. Under TD 4 and TD 5, the potential for the PCB-contaminated sediment and soil to be released within the river or onto the floodplain during treatment operations would be minimal as long as these facilities are properly operated and maintained.

Compliance with Federal and State ARARs

The ARARs identified for the treatment/disposal alternatives are discussed in more detail in the Administrative Record. Each of the TD alternatives would involve moving the sediment, bank soil, and floodplain soil from the point of excavation to the treatment/disposition point. Of all the disposal alternatives (TD 1, TD 2, TD 3), only TD 1 complies with all State ARARs. TD 4 and TD 5 could potentially meet all ARARs. TD 2 will not meet, without limitation, wetland and floodplain requirements; and not all potential locations of TD 2 or TD 3 will meet the requirements of 310 CMR 30.700, 310 CMR 16.40(3)(4), and/or 990 CMR 5.04, which prohibit, without limitation, hazardous waste and solid waste facilities in an Area of Critical Environmental Concern ("ACEC") or adjacent to or in close proximity to an ACEC such that it would fail to protect the outstanding resources of an ACEC.

Long-Term Reliability and Effectiveness

TD 1, 4, and 5 result in the greatest reductions in residual risk. With TD 1, all material is removed from the site and sent to an offsite disposal facility; with TD 4 and TD 5, all material that was treated but did not reach safe PCB levels would be removed from the site and sent to an offsite disposal facility. Contamination remains on-site untreated under TD 2 and TD 3 and therefore the residual risk is greater under these alternatives. However, TD 3 would permanently isolate those materials from direct contact with human and ecological receptors in a secure location outside the floodplain. Under TD 4 and TD 5, residual risk is decreased because treatment reduces the levels of contaminants, however the reductions may not be to levels allowing for unrestricted reuse.

There are considerable differences in the adequacy and reliability of the five treatment/disposal alternatives. TD 1 is adequate and reliable because it does not rely on operation, monitoring, and maintenance requirements (except at the receiving facility) to adequately and reliably address the contamination. The other alternatives rely on operation, monitoring, and maintenance requirements to address the contamination remaining onsite to be effective in the long-term. Both TD 4 and TD 5 rely on these requirements to ensure that material is safely treated to acceptable concentrations. TD 2 and TD 3 rely particularly on monitoring and maintenance in the long

Table 6 Cost Summary for Combinations of Sediment and Floodplain Alternatives

Combination	1	2	3	4	5	6	7	8	9
	SED 1/FP 1	SED 2/ FP 1	SED 3/ FP 3	SED 5/ FP 4	SED 6/ FP 4	SED 8/ FP 7	SED 9/ FP 8	SED 10/ FP 9	SED 9 MOD/FP 4 MOD
Total Capital Costs	0	0	$167 M	$307 M	$384 M	$900 M	$381 M	$84 M	$314 M
Total Operations Monitoring and Maintenance Costs	0	$5 M	$10 M	$12 M	$13 M	$17 M	$13 M	$10 M	$12 M
Total Cost for Alternative (excluding Transportation and Disposal)	**0**	**$5 M**	**$177 M**	**$319 M**	**$397 M**	**$917 M**	**$394 M**	**$94 M**	**$326 M**
Total Present Worth	0	$1.8 M	$133 M	$193 M	$219 M	$300 M	$251 M	$78 M	$228 M

Notes:

1. All costs are in 2010 dollars. $ M = million dollars.
2. Total capital costs are for engineering, labor, equipment, and materials associated with implementation.
3. Total OMM costs include cost for monitoring, post-construction inspections and repair activities (if necessary), long-term monitoring (fish, sediment, water column, visual), and for the maintenance of institutional controls and EREs.
4. Total present worth cost is based on using a discount factor of 7%, considering the length of the construction period and an OMM period of 100 years on a reach-specific basis.
5. Estimates do not include costs for treatment or disposition of any soil/sediment removed; those costs are outlined below (see Table 7).

term to ensure that material remains adequately contained, and TD3 may require long-term transport of leachate to the GE facility in Pittsfield or construction of a separate facility to treat leachate.

Labor and materials are available for operation, monitoring, and maintenance for all of these alternatives. While TD 1, 2, 3 have been used under similar conditions, TD 4 has not been demonstrated at full scale on sediment and soil representative of those in the Rest of River. TD 5 has been used to treat PCB-contaminated soil but only in limited cases for treatment of sediment, thereby creating some uncertainty regarding the adequacy and reliability of this alternative.

None of the alternatives are expected to have long-term adverse impacts on human health, however TD 2 will have significant long-term impacts on wetlands and floodplain areas. TD 3 may have long-term environmental impacts depending upon where the upland facility is located.

Attainment of IMPGs

Attainment of IMPGs is directly applicable to the sediment and floodplain remediation approaches outlined and evaluated for the various Combination Alternatives discussed earlier in this document. IMPG attainment is not directly applicable to the transportation and disposal alternatives, thus EPA did not conduct a comparative analysis for these alternatives for this criterion.

Reduction of Toxicity, Mobility, or Volume

Reduction of Toxicity: TD 1 through TD 3 would not include any treatment processes that would reduce the toxicity of, or directly affect, PCB concentrations in the removed sediment and soil. TD 4 and TD 5 would incorporate treatment processes that can, to varying degrees, reduce concentrations of PCBs. Under TD 4, the chemical treatment process would reduce the toxicity of the sediment and soil by permanently removing some PCBs from these materials but likely will not reduce concentrations to levels allowing reuse of the material, and as such would still require landfilling. Under TD 5, the thermal desorption system would reduce the toxicity of the PCB-contaminated sediment and soil by permanently removing PCBs from these materials. The PCBs in the liquid stream would be sent to a licensed off-site disposal facility for additional treatment. The degree of expected reduction in toxicity, and the amount of hazardous materials to be destroyed or treated are dependent on the sediment/floodplain alternatives selected, with Combinations 3 through 9 providing varying levels of expected removal of PCBs from the River and floodplain. For TD4 and TD5, the treatment process would be irreversible and the reduction in toxicity would be permanent.

Reduction of Mobility: All of the alternatives would reduce the mobility of PCBs in the sediment and soil. In TD 1, TD 2, and TD 3, these materials would be removed and disposed of in off-site permitted landfill(s) (TD 1) or contained within on-site CDF(s) (TD 2) or an on-site upland disposal facility (TD 3). TD 4 and TD 5 would reduce the mobility of PCBs present in the sediment/soil via ex-situ chemical extraction or thermal desorption.

Reduction of Volume: TD 1, TD 2, and TD 3 would not reduce the volume of PCB-contaminated material, although, TD 1 would reduce the volume of material that remains at the Site. For TD 4, treatment of sediment/soil would reduce the volume of PCBs present in those materials by transferring some of the PCBs to an aqueous waste stream for subsequent treatment. PCB-contaminated sludge would be generated from the wastewater treatment system and would be sent to a permitted off-site facility for disposal. For TD 5, treatment of sediment/soil in the thermal desorption system would reduce the volume of PCBs present in those materials, with the liquid condensate transported to an off-site facility for destruction.

Short-Term Effectiveness

Each of the alternatives has the potential for short-term impacts to the community. Alternatives that require on-site treatment (TD 4 and TD 5) require operation of a treatment facility, which would have air emissions albeit at very low levels, which could be treated prior to discharge if needed to meet regulatory levels. Alternatives that require on-site containment (TD 2 and TD 3) would also have additional short-term impacts to the areas and community surrounding the disposal sites. Construction of such facilities will temporarily increase community impacts during the time work is done in these areas. The alternative with off-site disposal (TD 1/TD 1 RR) will have short-term impacts during transport of the waste material; however, the impacts of truck traffic may be greatly reduced by reliance on rail transportation. The short-term impacts to workers are all relatively the same under all alternatives. All alternatives have the potential for accidental releases of various PCB-contaminated materials during transportation to off-site or local disposal or treatment facilities. However, actions will be taken to prevent these potential releases. All alternatives would require truck traffic. TD 1 and TD 4 require transportation of the most material, followed closely by TD 5, then TD 3. Depending on the location of the upland disposal facility under TD 3, TD 3 may have truck traffic comparable to TD 1. The impacts of truck traffic may be greatly reduced by reliance on rail transportation, consistent with EPA's intention to maximize use of rail.

There are also some differences in impacts to the environment under the different alternatives. TD 2 through TD 5 could