

GENERAL ELECTRIC COMPANY, PITTSFIELD, MASSACHUSETTS
REVISED FINAL PERMIT MODIFICATION TO THE 2016 REISSUED RCRA PERMIT
AND SELECTION OF CERCLA REMEDIAL ACTION AND OPERATION & MAINTENANCE FOR REST OF RIVER
DECEMBER 2020

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND

PERMIT UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
AS AMENDED (42 U.S.C. SECTION 6901 ET SEQ.)

General Electric Company
1 Plastics Avenue
Pittsfield, Massachusetts 01201
EPA I.D. No. MAD002084093

The Permittee is required to conduct certain activities at areas affected by releases of hazardous waste and/or hazardous constituents from the General Electric Facility located in Pittsfield, Massachusetts, in accordance with Sections 3004(u), 3004(v), and 3005(c) of the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), as specified in the conditions set forth herein.

This Revised Final Permit Modification to the 2016 Reissued RCRA Permit (or "Permit") has been prepared for RCRA Corrective Action activities to be performed by General Electric pursuant to a final Consent Decree, United States, et al. v. General Electric Company (D. Mass.) ("Consent Decree"). The Consent Decree memorializes an agreement to address releases of waste materials, including hazardous substances, hazardous waste, and/or hazardous constituents from the General Electric Company's Facility in Pittsfield, Massachusetts, including, but not limited to, the releases of hazardous waste and/or hazardous constituents addressed in this Permit. This Permit, upon the Effective Date, shall replace the HSWA Permit previously issued to the Permittee, initially issued on February 8, 1991, modified effective January 3, 1994, reissued in October 2000 and reissued again, effective December 5, 2007. Upon the Effective Date of this Permit, the previously issued 2007 Permit hereby is revoked, and, pursuant to the Consent Decree, the Remedial Action set forth in this Permit shall be implemented pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Consent Decree.

Dated: 12/16/2020

Signed: 
Dennis Deziel, Regional Administrator
U.S. Environmental Protection Agency, EPA New England
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

**GENERAL ELECTRIC CO. – PITTSFIELD, MA
RCRA CORRECTIVE ACTION PERMIT**

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DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Permit (including all tables, figures and attachments), which are defined in the Consent Decree, or in CERCLA, RCRA, or in regulations promulgated under CERCLA or RCRA, shall have the meaning assigned to them in the Consent Decree, CERCLA, RCRA, or in such regulations.

1. “2016 Permit” means the Final Permit Modification to the Reissued RCRA Permit issued by EPA on October 20, 2016 for the Rest of River portion of the GE-Pittsfield/Housatonic River Site.
2. “2020 Settlement Agreement” means the Settlement Agreement entered into in February 2020 by the following parties: EPA, State of Connecticut, City of Pittsfield, the Rest of River Municipal Committee (representing the Towns of Lee, Lenox, Stockbridge, Great Barrington, and Sheffield), Massachusetts Audubon Society, Berkshire Environmental Action Team, C. Jeffrey Cook, and General Electric Company.
3. “Act” or “RCRA” means the Solid Waste Disposal Act, as amended (also known as the Resource Conservation and Recovery Act), 42 United States Code (U.S.C.) §§ 6901 et seq.
4. “Backwaters” means the areas that are typically inundated or open water adjacent to the main channel of the river in Reaches 5, 6, and 7, a preliminary identification of which is generally depicted on Figure 3-17 of GE’s October 2010 Revised Corrective Measures Study.
5. “CERCLA” means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.
6. “Consent Decree”, “Decree”, or “CD” means the Consent Decree among the General Electric Company, the United States, Massachusetts and Connecticut state governmental agencies, the City of Pittsfield, Massachusetts, and the Pittsfield Economic Development Authority, which was entered by the United States District Court for the District of Massachusetts on October 27, 2000, in the case of United States et al. v. General Electric Company, Civil Action No. 99-30225-MAP and consolidated cases.
7. “Core Habitat Areas”, “Core Area 1”, “Core Area 2”, and “Core Area 3” mean the areas above Woods Pond in the Rest of River that Massachusetts Division of Fisheries and Wildlife (DFW) mapped to assist the governments in determining areas for habitat protection and the locations of habitats and state-listed species that might be particularly sensitive to impacts from remediation activities. These Core Habitat Areas are described in a letter transmitted from DFW to EPA on July 31, 2012 and shown in accompanying maps, which are included in Attachment B.
8. “Corrective Measure” means corrective measure under RCRA until the Permit, or any severable portion thereof, is finalized pursuant to Paragraph 22 of the Consent Decree, whereupon the finalized corrective measure converts to and means response action under CERCLA.

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9. “Effective Date” shall mean the date upon which any relevant Performance Standard(s), Corrective Measure(s) and/or other requirements in this Permit become(s) finalized pursuant to the process set forth in the Consent Decree, Paragraph 22, including, but not limited to, the regulations at 40 C.F.R. Part 124.
10. “EPA” means the United States Environmental Protection Agency, EPA New England, and any successor department or agency.
11. “Exposure Point Concentration” or “EPC” means the concentration of a contaminant that is used in the calculation of risk to humans or ecological receptors.
12. “Floodplain” means the area located within the floodplain of the Housatonic River to which hazardous waste and/or hazardous constituents originating at the GE Facility are migrating, have migrated, or may have migrated.
13. “Frequently Used Subareas” or “Heavily Used Subareas” means the areas subject to frequent use by humans, including, but not limited to, trails, access points, and known recreational areas that pose a direct contact risk, which generally include the areas shown in Figure 5.
14. “GE Facility” means, for the purposes of this Permit, the General Electric facility in Pittsfield, Massachusetts, as generally depicted on the map attached hereto as Attachment A.
15. “Hazardous Constituents” include those constituents listed in Appendix VIII to 40 C.F.R. Part 261 and Appendix IX to 40 C.F.R. Part 264.
16. “Hazardous Waste” means a solid waste or combination of solid wastes defined as a hazardous waste under 40 C.F.R. Part 261.
17. “HSWA” means the Hazardous and Solid Waste Amendments of 1984.
18. “Impoundment” means any area of sediment, soil, or water subject to the influence of a dam or dam component, including, but not limited to, sediment or soil present in spillways, sluiceways, channels, by-passes, conduits, ponds, settling basins, intake structures, or other structures used for collection, withdrawal, or use of water and any water withdrawn and used as process water, non-contact cooling water, etc.
19. “Legally Permissible Future Project or Work” shall mean when the property owner, the owner’s successors and assigns, or any other party with an interest in the property such as a lessee or easement holder: (1) has submitted a plan to the appropriate governmental authority(ies) to authorize any project or work (if such plan or authorization is necessary) and such plan (if required) has been approved by the governmental authority(ies), or, provides documentation that a proposed project or work is legal without additional government approvals (for example, authorized by an easement or existing permit) and (2) provides to EPA and to Permittee (directly or through EPA) other documented evidence of a commitment to such project or work (for example, such evidence may include evidence of financing or other financial assurance for the project or work, other plans for implementing the project or work (such as architectural plans, contracts for performance of the project or work, or other similar plans), or

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an affidavit that the owner intends to go forward with the project or work or if the necessary response actions are taken). Legally Permissible Future Projects or Work includes, but is not limited to, construction and repair of structures; utility work; flood management activities; road and infrastructure projects; dam removal, maintenance, repair, upgrades, and enhancement activities; and activities such as the installation of canoe/boat launches and docks.

20. “Legally Permissible Future Use” shall mean A) when the property owner, the owner’s successors and assigns, or any other party with an interest in the property such as a lessee or easement holder: (1) has submitted a plan to the appropriate governmental authority(ies) to authorize any use (if such plan or authorization is necessary) and such plan (if required) has been approved by the governmental authority(ies), or, provides documentation that a proposed use is legal without additional government approvals (for example, authorized by an easement or existing permit) and (2) provides to EPA and to Permittee (directly or through EPA) other documented evidence of a commitment to such use (for example, such evidence may include evidence of financing or other financial assurance for the project, other plans for implementing the project (such as architectural plans, contracts for performance of the project, or other similar plans), or an affidavit that the owner intends to go forward with the project or other change in use if the necessary response actions are taken); or B) the use of a property changes from the exposure scenario upon which the initial or subsequent remediation(s) was determined, to a different exposure scenario, including those scenarios identified in Tables 2, 3 and 4.

21. “Monitored Natural Recovery” means a remedy for contaminated sediment that typically uses ongoing, naturally occurring processes to contain, destroy, or reduce the bioavailability or toxicity of contaminants in sediment, and requires monitoring the natural processes and/or concentrations of contaminants in surface water, sediment, or biota to see if recovery is occurring at the expected rate, and the maintenance of institutional controls until the necessary reductions in risk have occurred.

22. “PCBs” means total polychlorinated biphenyls.

23. “Performance Standards” mean cleanup standards, design standards, and other measures and requirements necessary to protect human health and the environment. Such Performance Standards that must be achieved and maintained are identified in the Consent Decree, this Permit, and/or will subsequently be identified in the Rest of River Statement of Work (“Rest of River SOW” or “SOW”), and/or amendments thereto.

24. “Permittee” means the General Electric Company.

25. “Reach” means the designation established by EPA in its 2000 Supplemental Investigation Work Plan for different segments of the East Branch and main stem of the Housatonic River shown in Figures 1 and 2.

26. “Release” includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing, or migrating into the environment.

27. “Rest of River or Rest of River area” shall mean, for the purposes of this Permit, all sediments, surface waters, and Floodplain soils of the Housatonic River which are downstream

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of the confluence of the East and West branches of the River, including Backwaters in the Floodplain, and to which releases of hazardous wastes and/or hazardous constituents are migrating or have migrated from the GE Facility, but excluding any Actual/Potential Lawns within the Housatonic River Floodplain – Current Residential Properties Downstream of Confluence, within the definition of the Removal Actions Outside the River in the Consent Decree.

28. “Restoration of Areas Disturbed by Remediation” means, for all areas disturbed by remediation activities under this Permit, the implementation of measures to return such areas to pre-remediation conditions (e.g., the functions, values, characteristics, vegetation, habitat, species use, and other attributes), to the extent feasible and consistent with the remediation requirements.

29. “Revised Final Permit Modification to the 2016 Reissued RCRA Permit” or “Permit” or “Revised Final Permit” means this Revised Final Permit Modification to the 2016 Reissued RCRA Permit issued by EPA for the “Rest of River” portion of the GE-Pittsfield/Housatonic River Site.

30. “Solid Waste” means a solid waste as defined in 40 C.F.R. § 261.2.

31. “States”, for purposes of this Permit, means the Commonwealth of Massachusetts and the State of Connecticut.

32. “Surface Water” means water occurring immediately adjacent to land as overland flow, open channel flow, closed conduit flow, and waters in lakes, ponds, and reservoirs.

33. “Upland Disposal Facility” means the facility described in Section II.B.5. of this Permit and generally depicted in Figure 6.

34. “Vernal Pools” mean ephemeral fresh-water wetlands that meet the criteria specified in the Commonwealth of Massachusetts Natural Heritage & Endangered Species Program’s Guidelines for Certification of Vernal Pool Habitat (March 2009 publication, Sections I, II, and III).

I. GENERAL PERMIT CONDITIONS

A. Background

1. Overview of Permit and Consent Decree

On October 27, 2000, the U.S. District Court for the District of Massachusetts, Western Division, entered a Consent Decree in United States, State of Connecticut, and Commonwealth of Massachusetts v. General Electric Company, Civil Action No. 99-30225, 99-30226, 99-30227 – MAP (consolidated cases) (the “Consent Decree,” or “Decree”).

The following explanation summarizes and describes certain provisions of the Consent Decree regarding the process for finalizing the modified

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Permit and implementing the work selected in the final Permit as a CERCLA remedial action pursuant to the Consent Decree. Nothing in this summary shall modify or otherwise change the meaning of the Consent Decree.

The Consent Decree, at Paragraph 22.p through 22.dd, provides explicit direction on Permittee's opportunities for challenge of the final permit modification, the ability of EPA or Permittee to perform work pursuant to the final permit modification prior to conclusion of all challenges to the final permit modification, the obligations in the event of the final permit modification, or a revised final permit modification is vacated or remanded, and the obligation of Permittee to perform the work, or severable work, in the permit modification decision as a CERCLA remedial action and any required Operation and Maintenance (O&M) at the conclusion of all opportunities for a challenge to the final permit modification, or severable portion(s) of the permit modification. (The process for severing portions of the Permit and work is described in Paragraph 3 below).

2. Final Permit Modification Pursuant to Process Set Forth in Consent Decree

Following issuance of the 2016 Permit, certain provisions of the 2016 Permit were not challenged by any party. Permittee has submitted several design documents for the uncontested portions of the 2016 Permit.

Permittee has agreed, pursuant to the 2020 Settlement Agreement, in order to expedite response actions, to commence and perform investigation and design work as contractual obligations effective February 10, 2020. Specifically, Permittee shall submit a schedule for the Rest of River Scope of Work (SOW), develop the Rest of River SOW, and, subject to approval by EPA, implement the investigation and design components of the Rest of River SOW and subsequent Work Plans to accelerate the commencement of the Rest of River cleanup. Such Rest of River SOW shall include provisions and schedules for the subsequent development by the Permittee of Remedial Design Work Plan(s), Remedial Action Work Plan(s), Quality Assurance Project Plan/Field Sampling Plan, and/or other appropriate associated plans to achieve and maintain the Performance Standards and other requirements set forth in this modification of the Reissued RCRA Permit. Paragraph 22.x. of the Consent Decree explains the process for developing a Rest of River SOW. Following EPA approval, disapproval, or modification of the Rest of River SOW, the Permittee shall develop and submit the necessary Remedial Design and Remedial Action Work Plans and other documents to EPA for review and approval in accordance with the Rest of River SOW and Section XV of the Consent Decree and subject to Paragraph 39 of the Consent Decree.

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The obligation to perform this investigation and design work shall continue unless and until EPA issues a revised permit that does not contain terms substantially similar to those in the terms of the 2016 Permit, revised as specified by terms in Sections II and III of the 2020 Settlement Agreement.

Otherwise, this Permit, or severable portion(s) thereof, after the opportunity for challenges to the EPA Environmental Appeals Board as specified in the Decree and described below in this Revised Final Permit, shall be performed by the Permittee as a CERCLA remedial action pursuant to the Consent Decree.

As provided in Paragraph 22.z of the Consent Decree, the Permittee shall design and implement the Rest of River Remedial Action, and any required O&M, as a CERCLA remedial action pursuant to the Consent Decree, in accordance with EPA's final RCRA permit modification decision, or severable portion(s) thereof, the final outcome of any dispute resolution proceedings, the Rest of River SOW, and any approved Work Plans thereunder. For purposes of the Rest of River Remedial Action and O&M, EPA's modification of the Reissued RCRA Permit, or severable portion(s) thereof, to select such Remedial Action and O&M that is effective at the time of initiation of the Rest of River Remedial Design/Remedial Action shall be considered to be the selected remedial action pursuant to Section 121 of CERCLA and Section 300.430 of the National Oil and Hazardous Substances Contingency Plan (NCP). If such modification is changed by appeals and/or remands, the subsequent modification of the Reissued RCRA Permit shall be considered the selected remedial action pursuant to Section 121 of CERCLA and Section 300.430 of the NCP, and any and all performance or actions required of the Permittee under this Reissued RCRA Permit shall be incorporated into, and conducted pursuant to, the Consent Decree.

3. Performance of Severable Work during Remedy Challenges

a. Initial Challenge to Final Permit Modification

In addition to the expedited work commitment by Permittee described above, and the performance of uncontested obligations described above, the Decree provides opportunities for the Rest of River Remedial Action to take place during challenges to this Permit.

b. Second Appeal

Pursuant to the 2020 Settlement Agreement, Permittee has agreed not to challenge the Revised Final Permit unless the Revised Final Permit is inconsistent with the terms of the 2020 Settlement

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Agreement. EPA's position is that this Revised Final Permit is not inconsistent with the terms of the 2020 Settlement Agreement, and accordingly the Permittee's obligation to not challenge the Revised Final Permit remains in force.

Paragraph 22.u of the Decree provides that upon EPA's issuance of a revised permit modification decision, Permittee shall perform the selected Rest of the River Remedial Action and O&M set forth in EPA's revised permit modification decision unless Permittee timely files a petition for review with the EPA Environmental Appeals Board ("EAB"). Further, pursuant to Paragraph 22.u.(iii), in that event, Permittee shall perform all severable work which is not subject to the dispute. Permittee shall perform such severable work in accordance with EPA's revised permit modification decision and a Rest of River SOW developed in accordance with that decision and Paragraph 22.x of the Decree.

Paragraph 22.u.(ii), 22.u.(iv), and 22.u.(v) provide for a stay of the disputed portions of the revised permit modification decision in certain circumstances, but pursuant to Paragraphs 22.u.(iv) and 22.u.(v), Permittee is also required to proceed with severable work on the selected Rest of River Remedial Action and O&M in certain circumstances.

c. Subsequent Appeals

Pursuant to the 2020 Settlement Agreement, Permittee has agreed not to challenge the Revised Final Permit unless the Revised Final Permit is inconsistent with the terms of the 2020 Settlement Agreement. Pursuant to Paragraph 22.v of the Decree, if the EAB or the United States Court of Appeals for the First Circuit ("First Circuit Court of Appeals") vacates or remands all or part of EPA's revised permit modification decision, EPA may again revise its permit modification decision. Permittee shall perform such Rest of the River Remedial Action and O&M in accordance with such further revised permit modification unless Permittee timely files a petition for review. Further, Paragraph 22.v provides for a stay of the disputed portions of the revised permit modification decision in certain circumstances, and for Permittee to proceed with severable work on the selected Rest of River Remedial Action and O&M in certain circumstances.

If there are no challenges to the permit modification decision, or no challenges to a severable portion of the permit modification decision, or at the conclusion of all challenges to the permit modification decision, or at the conclusion of all challenges to any severable portion of the permit modification decision, Permittee

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shall perform the final selected Rest of River Remedial Action and O&M, as stated in the final permit modification, or final portion thereof, as a CERCLA remedial action pursuant to the Consent Decree.

B. General Obligations and Commitments

1. Duty to Mitigate

In addition to the requirements of the Consent Decree, in the event of any noncompliance with the corrective action requirements of the Permit that results in a new release of hazardous waste and/or hazardous constituents to the environment, the Permittee shall take all reasonable steps to minimize releases of hazardous waste and/or hazardous constituents to the environment, and shall carry out such measures as are reasonable to prevent its noncompliance from having significant adverse impacts on human health and/or the environment.

2. Property Rights

- a. The issuance of this Permit does not convey any property rights of any sort, or any exclusive privilege to the Permittee.
- b. The issuance of this Permit does not authorize any injury to persons or property or invasion of other private rights.

3. Duty to Provide Information

- a. Within a reasonable time, the Permittee shall furnish to EPA any relevant non-privileged information which EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. Upon request, the Permittee shall also furnish to EPA copies of records required to be kept or prepared by this Permit and copies of other documents and information within the Permittee's possession or control relating to the implementation of this Permit, in accordance with and subject to Section XXX of the Consent Decree.
- b. All information which the Permittee furnishes to EPA, either in the form of a request or a report pursuant to this Permit, shall contain or reference the sources from which the information was obtained.

4. Inspection and Entry

The Permittee shall provide EPA or an authorized representative, upon presentation of credentials and other documents as may be required by law, with access at reasonable times to the GE Facility or other property

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owned by the Permittee where any activity under this Permit is located or conducted, for the purpose of conducting, inspecting, or monitoring any activity pursuant to this Permit; inspecting or copying records required to be kept under this Permit; conducting sampling or other investigations related to implementation of this Permit; assessing the Permittee's compliance with this Permit; or conducting other activities described in Paragraph 53 (access obligations) of the Consent Decree insofar as they relate to activities under this Permit. The Permittee's provision of such access to EPA or an authorized representative shall be in accordance with and subject to Paragraph 53 of the Consent Decree.

5. Monitoring and Records

- a. Samples and measurements taken for the purpose of waste analysis shall be representative of the waste to be analyzed. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 C.F.R. Part 261 or as provided in the approved and most recent edition of the Project Operations Plan (including the Field Sampling Plan and Quality Assurance Project Plan) and any amendments approved thereto.
- b. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- c. The Permittee shall retain the records described in Paragraph 206.a of the Consent Decree, insofar as they relate to implementation of this Permit, for the time period specified in the second sentence of Paragraph 206.b of the Consent Decree.
- d. Records of data obtained through monitoring shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The raw data (e.g., chromatograms) collected and data reduction;
 - (4) The date(s) analyses were performed;
 - (5) The individuals(s) who performed the analyses;
 - (6) The analytical techniques or methods used;
 - (7) The result of analyses; and
 - (8) The quality assurance/quality control data.

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6. Signatory Requirements

All proposals, reports, and other documents submitted by the Permittee under this Permit shall be signed by an authorized representative of the Permittee, which may include the Permittee's Project Coordinator, designated pursuant to Section II.J.

7. Notice of Anticipated Noncompliance

The Permittee shall give advance notice to EPA and the States of any planned changes in any corrective action activity under this Permit which may result in noncompliance with the requirements of this Permit.

8. Transfer of Permit

This Permit shall not be transferred to a new owner or operator except after notice to and approval of the planned transfer by EPA, which may require that the Permit be modified or revoked and reissued.

9. Twenty-Four-Hour Reporting and Follow-Up

The Permittee shall comply with the reporting requirements set forth in Paragraph 69 of Section XIV of the Consent Decree; provided, however, that the Permittee shall not be subject to multiple enforcement actions or liable for multiple penalties under the Consent Decree, CERCLA, the Emergency Planning and Right-to-Know Act, RCRA, and/or this Permit for the same instance of noncompliance with such requirements.

10. Other Notification and Reporting Requirements

a. The Permittee shall report to EPA all instances of noncompliance with the terms of this Permit in the monthly progress reports to be provided pursuant to Paragraph 67 of the Consent Decree. Copies of such reports shall also be sent to Massachusetts and Connecticut Project Coordinators. For each instance of noncompliance, such report shall contain the following information:

- (1) A description of the noncompliance;
- (2) The name and quantity of materials released, if any, as a result of such noncompliance;
- (3) The extent of injuries, if any, resulting from such noncompliance;
- (4) An assessment of actual or potential hazards to human health and/or the environment, where applicable, resulting from such noncompliance;

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- (5) Any steps taken to mitigate the impact of such noncompliance or otherwise to correct such noncompliance; and
 - (6) A description of the impact of such noncompliance on the performance and timing of other activities required under this Permit.
- b. When the Permittee becomes aware that it failed to submit any relevant facts in a required report, or submitted incorrect information in a required report to EPA, it shall promptly submit the correct facts or information.

11. Computation of Time

- a. For the purpose of compliance with this Permit, computation of time periods shall be made by the methodology specified in 40 C.F.R. 124.20.
- b. Where this Permit requires the submission of written reports or notification to EPA, the report or notification shall be deemed submitted on the post-marked date.

12. Severability

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby.

13. Confidentiality of Information

In accordance with 40 C.F.R. Part 2, any information submitted to EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words Confidential Business Information on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. Part 2.

14. Interpretation of Migration from GE Facility

For purposes of this Permit, the Permittee agrees that, for hazardous waste and/or hazardous constituents in the Rest of River area which are also present both at the GE Facility and at the Former Oxbow Areas (as

defined in the Consent Decree) and which could have migrated to the Rest of River area from either the GE Facility or the Former Oxbow Areas, the Permittee will not contend that such waste and/or constituents did not migrate from the GE Facility.

II. SPECIAL CONDITIONS

A. Introduction

The special conditions in this Permit for Rest of River describe the Rest of River Remedial Action and required O&M, including the Performance Standards, Corrective Measures, and other related requirements necessary to achieve and maintain such Performance Standards that the Permittee shall perform pursuant to the CD and this Permit, as finalized, or finalized portions thereof.

As described in the CD and this Permit, all Permittee activities shall be conducted pursuant to this Permit and the CD under the oversight and approval of EPA. All EPA approvals, disapprovals, or modifications of plans and other submittals under this Permit will be pursuant to Section XV of the CD, including the reasonable opportunity for review and comment by the Commonwealth of Massachusetts (MA) and Connecticut Department of Energy and Environmental Protection (CT DEEP). “Approval” by EPA, as used in this Permit, represents this process.

Additionally, as described in Section VI of the 2020 Settlement Agreement, EPA has made specific commitments to coordinate and consult with stakeholders throughout the design and implementation of the actions described in this Permit.

Any modification by EPA of a Performance Standard (e.g., work in a riverbank that modifies Performance Standards set forth in Section II.B.2.a.(1)) would have to be based on EPA’s determination under Paragraphs 162-163 of the CD or based on agreement under Paragraph 217 of the CD.

B. Description of Performance Standards and Corrective Measures.

Section II.J. of the 2007 Permit provides that this modification of the Permit will include Performance Standards, and the appropriate Corrective Measures necessary to meet the Performance Standards. In Section II.B. of this Permit, provided below are such Performance Standards and Corrective Measures.

1. General

a. Downstream Transport

(1) Performance Standard

The Downstream Transport Performance Standard shall be the PCB flux over Woods Pond Dam and Rising Pond Dam as described in the table below.

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An exceedance of the Performance Standard occurs when the average PCB flux is greater than the standard (at either Woods Pond or Rising Pond) in any three or more years within any 5-year period following completion of construction-related activities outlined herein.

Woods Pond		Rising Pond	
Average Daily Flow at Woods Pond Dam Gage (cubic feet per second (cfs))	Average PCB Flux (kg/yr)	Average Daily Flow at Great Barrington USGS Gage (cfs)	Average PCB Flux (kg/yr)
≤ 325	2.2	≤ 485	1.9
> 325 ≤ 395	2.8	> 485 ≤ 600	2.4
> 395 ≤ 1,450	3.3	> 600 ≤ 2,670	4.0
> 1,450	NA	> 2,670	NA

Note: The average PCB flux values that correspond to the associated flow ranges were determined as follows: The PCB fate and transport model (EFDC) results were used to generate average annual PCB fluxes at both Woods Pond and Rising Pond for the years following construction, which include a range of average annual flows. The model was run based on the sediment/bank remediation requirements, excluding the use of activated carbon in Reach 5B and the Backwaters, as set forth in this Permit. The average annual fluxes were segregated into the flow ranges shown in the table above and the maximum flux for each flow range was determined. To account for uncertainty, the value at the upper flow range for each flow-bin was selected from a 95% prediction interval of the regression of average annual flux versus flow.

In the event that this Downstream Transport Performance Standard is exceeded, the Permittee shall evaluate and identify the potential cause(s) of the exceedance and propose, to EPA for review and approval, additional actions necessary to achieve and maintain the Performance Standard. EPA, upon reasonable opportunity for review and comment by the States, will determine any additional actions necessary to achieve and maintain the Performance Standard in accordance with the CD.

(2) Corrective Measures

To achieve and maintain this Performance Standard, Permittee shall conduct all of the Corrective Measures set forth in this Section II.B. In addition, Permittee shall measure compliance with the Performance Standard in accordance with Sections II.B.1.a.(2)(a) through II.B.1.a.(2)(g) below and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

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- (a) Install, operate and maintain a flow gauge at the outlet of Woods Pond that is similar to the USGS gage downstream of Rising Pond Dam (gage number 01197500).
 - (b) Conduct sampling at regularly scheduled intervals (each year), regardless of stream flow. On days when the average daily flow exceeds 1,450 cfs at Woods Pond or 2,670 cfs at Rising Pond, sampling does not need to occur.
 - (c) Calculate the average daily flow for each sampling event using the data from the gage to be installed at Woods Pond outlet for Woods Pond and data from the USGS gage near Great Barrington (gage number 01197500) for Rising Pond.
 - (d) For each year of sampling, calculate the arithmetic average of the average daily flows on days when samples were collected. This average daily flow determines the flow bin for a given year.
 - (e) Calculate the PCB flux by multiplying the sample concentration times the daily average flow for the date sampled. The average PCB flux for a given year is the arithmetic average of the flux calculations for each day of sampling.
 - (f) Compare the average PCB flux to the standard in the table for the corresponding flow bin for Woods Pond and for Rising Pond.
 - (g) Permittee shall propose further details for EPA approval in a Work Plan submitted pursuant to Section II.H.5.
- b. Biota
- (1) Performance Standards
 - (a) The Short-Term Biota Performance Standard shall be an average total PCB concentration of 1.5 milligrams per kilogram (mg/kg) wet weight, skin off, in fish fillet¹ in each entire reach of the river and Backwaters to be achieved within 15 years of completion of construction-related activities for that reach (or if the reach is subject to Monitored Natural Recovery (MNR), upon completion of the

¹ Based on the probabilistic risk assessment central tendency exposure (CTE) adult exposure Hazard Index (HI) = 1.

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closest upstream reach subject to active remediation) under this Permit.

In the event that the Short-Term Biota Performance Standard is exceeded in any two consecutive monitoring periods after the 15-year period specified above, the Permittee shall evaluate and identify the potential cause(s) of the exceedance and propose, to EPA for review and approval, additional actions necessary to achieve and maintain the Performance Standard. EPA, upon reasonable opportunity for review and comment by the States, will determine any additional actions necessary to achieve and maintain the Performance Standard in accordance with the CD.

- (b) The Long-Term Biota Monitoring Performance Standard shall be the requirement that the Permittee continue to monitor, even after the Short-Term Biota Standard has been attained, the reduction in risk posed by the biota and the progress towards achieving an average total PCB concentration of 0.064 mg/kg, wet weight, skin off, in fish fillet² in each entire reach of the river and Backwaters in Massachusetts, 0.00018 mg/kg, wet weight, skin off, in fish fillet³ in each entire reach of the river in Connecticut, and 0.075 mg/kg in duck breast tissue⁴ in all areas along the river.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall conduct all of the Corrective Measures set forth in this Section II.B. Permittee shall propose, pursuant to Section II.H., a methodology to evaluate compliance with the Short-Term Biota Performance Standard and a plan to continue to monitor biota after the Short-Term Biota Performance Standard has been achieved.

² Based on the probabilistic risk assessment Reasonable Maximum Exposure (RME) 1×10^{-5} cancer risk.

³ Based on CT DEEP consumption calculation assuming 365 fish meals per year and a 1×10^{-6} cancer risk.

⁴ Based on the probabilistic risk assessment RME 1×10^{-5} cancer risk.

c. Restoration of Areas Disturbed by Remediation Activities

(1) Performance Standards

For all areas disturbed by remediation activities under this Permit, the Permittee shall:

- (a) Implement a comprehensive program of restoration measures that addresses the impacts of the Corrective Measures on all affected ecological resources, species and habitats, including but not limited to, riverbanks, riverbed, floodplain, wetland habitat, and the occurrence of threatened, endangered or state listed species and their habitats, and
- (b) Return such areas to pre-remediation conditions (e.g., the functions, values, characteristics, vegetation, habitat, species use, and other attributes), to the extent feasible and consistent with the remediation requirements⁵.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall complete the activities in Sections II.B.1.c.(2)(a) through II.B.1.c.(2)(d) below as components of a program that addresses the impacts of the Corrective Measures on all affected ecological resources, species and habitats, including but not limited to: riverbanks, riverbed, floodplain, wetland habitat; the occurrence of threatened, endangered or state-listed species and their habitats; the restoration of all such areas to pre-remediation conditions (to the extent feasible and consistent with the remediation requirements); and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Prepare a Work Plan detailing steps to conduct a Baseline Restoration Assessment (BRA). Perform a baseline assessment of pre-remediation conditions, functions, and values of river bottom, bank, Backwater, Floodplain, Impoundment, and Vernal Pool habitat, and the occurrence of threatened,

⁵ The requirements of Section II.B.1.c. do not alter or modify the Permittee's obligation to comply with ARARs including, but not limited to, any activities to satisfy the separate net benefit mitigation standard in the Massachusetts Endangered Species Act (MESA). See Section II.E.

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endangered or state-listed species in the areas affected by Corrective Measures. This BRA shall include, but not be limited to:

- i. Identification of the presence and location of specific habitat types, including delineation of existing wetlands;
 - ii. Identification of the presence, location, abundance, and condition of threatened, endangered or state-listed species and their habitats and other representative species;
 - iii. Identification of the presence, location, abundance, and condition of invasive species;
 - iv. Evaluation of Vernal Pool locations, hydrology, and species use; and
 - v. Characterization of physical/biological attributes (e.g., substrate characteristics, water depth, velocity, temperature, elevation/bathymetry, species composition, density, percent cover, structural components).
- (b) Develop Restoration Performance Objectives and Evaluation Criteria (RPOEC) to guide the design, remediation, restoration, construction, implementation of Corrective Measures, and evaluation of restoration success. The RPOEC shall include, but not be limited to:
- i. Definition of restoration objectives, including without limitation:
 - A. While achieving the Performance Standards described in this Permit, minimization of the impacts on all ecological resources and habitats, including the riverbanks and Floodplain, resulting from the implementation of the Corrective Measures;

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- B. Restoration of all ecological resources and habitats, including the riverbanks and Floodplain, impacted as a result of implementing the Corrective Measures;
 - ii. Identification of measurable evaluation criteria and applicable methods or specifications, including, without limitation, criteria and methods or specifications for evaluating the success in achieving the restoration objectives developed pursuant to Section II.B.1.c.(2)(b)i;
 - iii. Identification of stakeholder concerns;
 - iv. Preliminary Monitoring Program;
 - v. Preliminary Maintenance Program; and
 - vi. Specification of corrective actions and circumstances.
- (c) Develop a Restoration Corrective Measures Coordination Plan (RCMCP) to be performed during the implementation of the Corrective Measures. This RCMCP shall include, but not be limited to:
- i. Integration of restoration activities with remediation activities (e.g., locations of access roads/staging areas, harvesting of material for subsequent use in restoration construction, habitat layer characteristics, bank stabilization methods, construction of bed/bank interface);
 - ii. Timing/phasing of remediation activities;
 - iii. Identification of restoration specialists, roles, and responsibilities;
 - iv. Specification of pre-construction preparation requirements (e.g., installation of silt fence or other protective/exclusion measures, propagation of materials, monitoring/relocation/propagation of

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species, field delineation of species occurrences/Vernal Pool boundaries); and

- v. Specification of protocols to be implemented prior to and during construction to minimize impacts to threatened, endangered or state-listed species and their habitats, including elements discussed above as well as other measures such as seed-banking, transplanting, wildlife exclusion barriers, and turtle tracking.

- (d) Design a Restoration Plan (RP) to return all areas disturbed by the remediation activities to pre-remediation conditions (e.g., the functions, values, characteristics, vegetation, habitat, species use, and other attributes), to the extent feasible and consistent with the remediation requirements. This RP shall include, but not be limited to:

- i. Identification of materials, sources, and specifications;
- ii. Development of restoration construction plans;
- iii. Identification of restoration specialists, roles, and responsibilities;
- iv. Revised Monitoring Program; and
- v. Revised Maintenance Program.

2. River Sediment and Banks

a. Reach 5A

(1) Performance Standards

- (a) Throughout Reach 5A, river bed sediment shall be removed and an Engineered Cap (references in this Permit to “Engineered Cap” shall mean an Engineered Cap as described below in Section II.B.2.i.) shall be placed over the entire riverbed.
- (b) Contaminated soil from eroding riverbanks in Reach 5A shall be removed.

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- (c) A bank shall be considered contaminated if it contains ≥ 5 mg/kg total PCBs.
- (d) A bank shall be considered to be erodible if the Bank Erosion Hazard Index (BEHI) and Near Bank Stress (NBS) rating is classified in the BANCS model as “Moderate-High” or greater at the same transect location as the PCB samples.
- (e) Excavated riverbanks shall be reconstructed to minimize erosion considering the principles of Natural Channel Design⁶ and result in a channel that is in dynamic equilibrium, balances flow and sediment loads, and reduces erosive forces. This will allow the maximum use of bioengineering methods in restoring riverbanks. Riverbank reconstruction shall follow a hierarchy of approaches as follows, with i. being the most preferred.
 - i. Reconstruct disturbed banks with solely bioengineering restoration techniques;
 - ii. Reconstruct disturbed banks with an Engineered Cap extending into the riverbank placed under a bioengineering layer; or
 - iii. Place rip-rap cap or hard armoring on residual surface of banks (e.g., where needed for protection of adjacent infrastructure).
- (f) Implementation of remediation activities shall result in no net loss of flood storage capacity (FSC) and no increase in water surface elevation in this Reach.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall remove sediment, install an Engineered Cap in the entire riverbed, remove riverbank soils, reconstruct the riverbanks, and perform all other related activities. Permittee shall perform the foregoing pursuant to the

⁶ Natural Channel Design methods are described in Chapter 11, Rosgen Geomorphic Channel Design, of the Stream Restoration Handbook (Part 654) and in the Natural Channel Design Review Checklist Manual.

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Performance Standards and the requirements in Sections II.B.2.a.(2)(a) through II.B.2.a.(2)(d) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Sediment and riverbank removal and subsequent capping shall result in a final grade generally consistent with the original grade or with modifications, as approved by EPA, considering the principles of Natural Channel Design. Performance of removal and capping shall generally use engineering methods employed from within the river channel or other methods approved by EPA.

- (b) The location of contaminated eroding riverbanks shall be determined using a BANCS model⁷ calibrated for the Housatonic River and the collection of additional riverbank soil PCB data. A bank shall be considered contaminated if it contains ≥ 5 mg/kg total PCBs measured in the surficial 0 to 12 inches as the average of three 12-inch cores taken at the toe, midpoint, and top of the bank at a maximum spacing of every 25 feet of linear bank. The Permittee shall complete bank excavation for the Thiessen polygon⁸ representing the sample transect that is contaminated and eroding.⁹

⁷ A description of the BANCS or "Bank Assessment for Non-point source Consequences of Sediment" model can be found at http://water.epa.gov/scitech/datait/tools/warsss/pla_box08.cfm and in the River Stability Field Guide, David Rosgen, copyright 2008 by Wildland Hydrology.

⁸ Thiessen polygon method is described in Technical Attachment E of Appendix E to the Consent Decree.

⁹ EPA's May 2012 status report entitled "Potential Remediation Approaches to the GE-Pittsfield/Housatonic River Site 'Rest of River' PCB Contamination" (the Status Report) highlighted the objectives of addressing the unacceptable risks posed by PCBs and of minimizing the amount of bank excavation to preserve the dynamic character and related biodiversity and habitats of the river. To that end, the Status Report proposed a remedial approach that, based on data collected prior to the issuance of the Permit, would result in an amount of bank excavation in Reach 5A of 3.5 miles, and an amount of bank excavation in Reach 5B of 0.2 miles. The actual remediation amounts will be determined during remedial design pursuant to the process described herein. If the new data to be collected identifies the need for greater bank excavation, then the foregoing amounts of bank excavation will change based on new data. Consistent with the remedial approach identified in the Status Report, the Corrective Measures for the riverbanks will be designed and implemented to achieve the Performance Standards while minimizing impacts on river dynamics and other ecological processes, and on the abundance of state-listed and other wildlife species and the diversity of their habitats that are supported by the existing river ecosystem.

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- (c) For Reach 5A banks that do not otherwise require remediation pursuant to Sections II.B.2.a.(2)(a) through II.B.2.a.(2)(b) above, the Permittee shall also evaluate the PCB data, erosion potential, adjacent floodplain removal (if any), constructability issues, and likelihood of future downstream transport at such concentrations should such banks erode, and based on these factors, shall consider supplemental riverbank removal, and shall propose any further action consistent with the evaluation above.
 - (d) The location of soil excavated shall be determined based on the collection, pursuant to this Permit, of bank soil PCB data and bank erosion/shear stress data, and a further evaluation of bank soils pursuant to subsection (c) of this Section.
- b. Reach 5B
 - (1) Performance Standards
 - (a) The river bed sediment associated with each discrete sample with ≥ 50 mg/kg total PCBs shall be removed and backfilled. The backfill shall consist of material with characteristics similar to existing sediment and placed to original grade.
 - (b) Subsequent to excavation and backfill, Enhanced Monitored Natural Recovery (Enhanced MNR or EMNR) shall be implemented throughout Reach 5B. Permittee shall place an amendment such as activated carbon and/or other comparable amendments proposed by Permittee and approved by EPA throughout Reach 5B to reduce the bioavailability of the remaining PCBs in the sediment bed.
 - (c) The riverbank soil with ≥ 50 mg/kg total PCBs shall be removed, and disturbed banks shall be reconstructed using bioengineering methods to minimize erosion and reduce downstream transport of the residual PCBs in bank soil (see footnote 9).

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall remove sediment, install backfill in the riverbed, implement EMNR, including placement of an amendment such as activated carbon and/or other comparable amendments, remove riverbank soils, reconstruct the riverbanks, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.2.b.(2)(a) through II.B.2.b.(2)(d) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Four cores (thalweg, center, left, right) shall be collected from the surficial 0 to 12 inches of the river bed along transects at a spacing of every 25 linear feet of river channel. Sediment shall be removed from the Thiessen polygon associated with each discrete sample with ≥ 50 mg/kg total PCBs.
- (b) Riverbank soil shall be removed from Thiessen polygon represented by a concentration ≥ 50 mg/kg total PCBs in any of three samples (bottom, midpoint, or top of the riverbank) collected from the surficial foot of the riverbank at an interval of 25 feet of linear bank.
- (c) For Reach 5B banks that do not otherwise require remediation pursuant to Sections II.B.2.b.(2)(a) and II.B.2.b.(2)(b) above, the Permittee shall also evaluate the PCB data, erosion potential, adjacent floodplain removal (if any), constructability issues, and likelihood of future downstream transport at such concentrations should such banks erode, and, based on these factors, shall consider any supplemental riverbank removal, and shall propose further action consistent with the evaluation above.
- (d) The location of soil and sediment excavated per this subsection shall be determined based on the collection of the bank soil and sediment PCB data collected pursuant to this Permit and a further evaluation of bank soils pursuant to subsection (c) of this Section.

c. Reach 5C

(1) Performance Standards

- (a) Throughout Reach 5C, sediments shall be removed, including any areas with ≥ 50 mg/kg total PCBs, to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in surface sediment (0- to 12-inch depth) and subsurface sediment in each averaging area and depth interval.
- (b) Permittee shall backfill as necessary to ensure channel stability; however, the placement of backfill shall not be considered in the spatially-weighted averaging calculations. The backfill shall be a minimum of 6 inches and consist of material with characteristics similar to existing sediment to provide functions and values equivalent to the pre-existing surficial sediment substrate.
- (c) Sediment shall be removed with either dredging or wet excavation techniques to be approved by EPA and, if feasible, conveyed hydraulically to the Upland Disposal Facility location for processing.
- (d) Implementation of remediation activities shall result in no net loss of FSC and no increase in water surface elevation in this Reach.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall remove sediment and backfill the riverbed and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.2.c.(2)(a) and II.B.2.c.(2)(b) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall propose in Work Plans separate averaging areas within Reach 5C, additional sampling for PCBs, and a method for averaging surface and subsurface PCB concentrations, including proposed depth intervals.

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- (b) River bed sediment shall be removed, generally using engineering methods employed from within the river channel with dredging or wet excavation techniques to be approved by EPA. Regardless of sediment removal technique, the sediment shall, if feasible, be conveyed hydraulically to the Upland Disposal Facility location for processing. Sediment removal and subsequent backfill shall result in a final grade generally consistent with the original grade or with modifications, as approved by EPA, considering the principles of Natural Channel Design.
- d. Backwaters adjacent to Reaches 5, 6, and 7
- (1) Performance Standards
 - (a) For contaminated sediment in the portions of Backwaters located outside of Core Area 1 Priority Habitat (as generally shown in Attachment B):
 - i. For surface sediment (0- to 12-inch depth): remove sufficient sediment, including any areas ≥ 50 mg/kg total PCBs, and replace with a contiguous Engineered Cap to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in each averaging area. When calculating post-remediation surficial spatially-weighted average concentrations, a PCB concentration equal to 1% of the existing average surficial concentration shall be used as the PCB concentration in capped areas.
 - ii. For subsurface sediment: in areas outside the footprint of the Engineered Cap necessary to meet the requirements in Section II.B.2.d.(1)(a)i. above, remove sufficient sediment and replace with a contiguous Engineered Cap(s) to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in subsurface sediment in each averaging area and depth interval. For areas beneath an Engineered Cap, a total PCB concentration equal to 1% of the existing average surficial concentration shall

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be used as the PCB concentration in spatial-weighting calculations.

- iii. In lieu of the provisions in Sections II.B.2.d.(1)(a)i. and II.B.2.d.(1)(a)ii. above, Permittee may propose to excavate sediments, including any areas ≥ 50 mg/kg total PCBs, to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in surface sediment (0- to 12-inch depth) and subsurface sediment in each averaging area and depth interval. The placement of backfill shall not be factored in the spatially-weighted averaging calculations.
- iv. All backfilling or capping shall result in a final grade generally consistent with the original grade.

- (b) In the portions of Backwater areas located within Core Area 1 habitat with discrete total PCB concentrations ≥ 50 mg/kg in surficial (0- to 12-inch) sediment, the sediment for each sample ≥ 50 mg/kg shall be removed followed by placement of an Engineered Cap to original grade.
- (c) The Permittee shall place an amendment such as activated carbon and/or other comparable amendments proposed by Permittee and approved by EPA to reduce the bioavailability of the remaining PCBs in areas defined as Core Area 1 habitat where total PCB concentrations are between 1 mg/kg and 50 mg/kg in the surficial (0 to 12 inches) of sediment.
- (d) Sediment shall be removed with either dredging or wet excavation techniques to be approved by EPA and, if feasible, conveyed hydraulically to the Upland Disposal Facility location for processing.
- (e) Remediation activities shall result in no net loss of FSC and no increase of water surface elevation in this Reach.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall remove sediment, install an Engineered Cap

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or backfill in the Backwaters, and place an amendment such as activated carbon and/or other comparable amendments in the Backwaters, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.2.d.(2)(a) through II.B.2.d.(2)(c) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall propose in a Pre-Design Work Plan (see Section II.H.3. below) additional sampling for PCBs in sediment, and a method for averaging surface and subsurface PCB concentrations using a 50-foot grid, including proposed averaging areas and depth intervals.
- (b) The location of sediment excavated or dredged and/or capped per this subsection shall be determined based on the collection of additional PCB data on a 50-foot sample grid. For Section II.B.2.d.(1)(b), sediment shall be removed from the Thiessen polygon associated with each discrete sample with ≥ 50 mg/kg total PCBs.
- (c) Sediment shall be removed with either dredging or wet excavation techniques to be approved by EPA and, if feasible, conveyed hydraulically to the Upland Disposal Facility location for processing.

e. Woods Pond (Reach 6)

(1) Performance Standards

- (a) Sediment shall be removed throughout the pond and an Engineered Cap shall be placed over residual PCBs to result in a post-capping minimum water depth of 6 feet measured from the crest of the dam, except in near-shore areas where the slope from the shore to the 6-foot water depth shall be as steep as possible, while also being stable and not subject to erosion or sloughing. In areas deeper than 6 feet prior to remediation, sufficient sediment shall be removed to allow for the placement of an Engineered Cap so that the final grade is equal to or deeper than the original grade.

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- (b) Permittee shall conduct updated bathymetric surveys before sediment removal, and before and after capping. The post-capping bathymetry survey shall be the baseline used in determining the amount of future sediment deposition on the Engineered Cap.
- (c) If during monitoring following construction, EPA determines that significant concentrations and depths of PCB-contaminated sediment have accumulated above the Engineered Cap in Woods Pond, the Permittee shall remove such accumulated sediment while ensuring the integrity of the Engineered Cap.
- (d) Remediation activities shall result in no net loss of FSC and no increase of water surface elevation in this Reach.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall conduct sediment removal, capping, bathymetric surveys, and perform all other related activities. Sediment shall be removed with dredging or wet excavation techniques to be approved by EPA and, if feasible, conveyed hydraulically to the Upland Disposal Facility location for processing. Permittee shall perform the foregoing pursuant to the Performance Standards and in accordance with plans submitted pursuant to Section II.H. below.

- f. Columbia Mill Impoundment (Reach 7B), Eagle Mill Impoundment (Reach 7C), Willow Mill Impoundment (Reach 7E), and Glendale Impoundment (Reach 7G).

(1) Performance Standards

- (a) For surface sediment (0- to 12-inch depth): remove sufficient sediment, including any areas with ≥ 50 mg/kg total PCBs, and replace with a contiguous Engineered Cap to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in surface sediment in each averaging area. When calculating post-remediation surficial spatially-weighted average concentrations, a total PCB concentration equal to 1% of the existing

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average surficial concentration shall be used as the PCB concentration in capped areas.

- (b) For subsurface sediment: for areas outside the footprint of the Engineered Cap necessary to meet the requirements in Section II.B.2.f.(1)(a) above, remove sufficient sediment and replace with contiguous Engineered Cap(s) to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in subsurface sediment in each averaging area and depth interval. For areas beneath an Engineered Cap, a total PCB concentration equal to 1% of the existing average surficial concentration shall be used as the PCB concentration in spatial-weighting calculations.
- (c) Engineered Capping shall result in a final grade generally consistent with original grade. Engineered Capping pursuant to Sections II.B.2.f.(1)(a) and II.B.2.f.(1)(b) above shall not exceed 3 acres within Reach 7E and 6.5 acres within Reach 7G.
- (d) For Reaches 7B and 7C, in lieu of the provisions in Sections II.B.2.f.(1)(a) through II.B.2.f.(1)(c) above, Permittee shall remove sediment and remove the dams in these impoundments (which include the coves/ponds adjacent to Columbia Street in Lee). Materials requiring removal under this paragraph shall include sufficient sediment, including any areas with ≥ 50 mg/kg total PCBs, to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs, in surface sediment (0- to 12-inch depth) and subsurface sediment in each averaging area and depth interval. Permittee shall backfill with a minimum of 6 inches of backfill of suitable material and additional material as necessary to ensure channel stability; however, the placement of backfill shall not be considered in the spatially-weighted averaging calculations.
- (e) In Reaches 7E and 7G, in lieu of the provisions in Sections II.B.2.f.(1)(a) through II.B.2.f.(1)(c) above, Permittee may propose to excavate sediments, including any areas with ≥ 50 mg/kg total PCBs, to achieve a spatially-weighted average

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concentration of 1 mg/kg total PCBs in surface sediment (0- to 12-inch depth) and subsurface sediment in each averaging area and depth interval. Permittee shall backfill with a minimum of 6 inches of backfill of suitable material as necessary to ensure channel stability; however, the placement of backfill shall not be considered in the spatially-weighted averaging calculations. Permittee shall use this approach to ensure that no more than 3 acres within Reach 7E and 6.5 acres within Reach 7G require capping.

- (f) For Reaches 7E and/or 7G, in lieu of the provisions in Sections II.B.2.f.(1)(a) through II.B.2.f.(1)(c), Permittee may propose to EPA for review and approval that Permittee coordinate with any entity planning to remove any Reach 7 dam. Such proposal shall include a schedule for reaching an agreement with an entity(s) on the scope and extent of the work to be performed, the entity(s) conducting the work, the allocation of costs, and, if applicable, the prompt payment by Permittee of costs in advance of implementation of the necessary work on the dam removal once necessary approvals have been received. Materials requiring removal under this paragraph shall include soil or sediment that could be mobilized downstream as part of dam removal and sediments greater than 1 mg/kg total PCBs in the river bed. For any Floodplain area created as a result of dam removal (former impounded areas exposed due to removal of a dam), Permittee shall follow the process outlined in Section II.B.7.b.(2)(b)ii.¹⁰ If Permittee cannot secure and implement an agreement pursuant to this Section in a timely manner, the Permittee shall implement the requirements in Sections II.B.2.f.(1)(a) through II.B.2.f.(1)(c) above and/or implement actions in Section II.B.2.f.(1)(e) above.

¹⁰In addition to the requirements outlined above, at the time that the dam removal work is anticipated, EPA expects that there will be an agreement in place that, among other things, will ensure that the planned dam removal and material removal are conducted in accordance with applicable legal requirements, and that will ensure EPA review and approval of work plans and oversight of the sediment removal work.

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- (g) Remediation activities shall result in no net loss of FSC and no increase of water surface elevation in each of Reaches 7B, 7C, 7E and 7G.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall remove sediment, install an Engineered Cap or backfill in the Impoundments, remove dams in Reaches 7B and 7C, and/or secure and implement an agreement with entity(s) to remove dam(s) in Reaches 7E and/or 7G, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards, the requirements in this Section, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

Permittee shall propose in Work Plans separate averaging areas within each Impoundment, additional sampling for PCBs, and a method for averaging surface and subsurface PCB concentrations using a 50-foot grid, including proposed depth intervals. This plan shall include characterization for the three approaches in Sections II.B.2.f.(1)(a) through II.B.2.f.(1)(f) above.

g. Rising Pond (Reach 8)

(1) Performance Standards

- (a) For surface sediment (0- to 12-inch depth): remove sufficient sediment, including any areas with ≥ 50 mg/kg total PCBs, and replace with a contiguous Engineered Cap to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in surface sediment in each averaging area. When calculating post-remediation surficial spatially-weighted average concentrations, a total PCB concentration equal to 1% of the existing average surficial concentration shall be used as the PCB concentration in capped areas.
- (b) For subsurface sediment: for areas outside the footprint of the Engineered Cap necessary to meet the requirements in Section II.B.2.g.(1)(a) above, remove sufficient sediment and replace with contiguous Engineered Cap(s) to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in subsurface sediment in each

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averaging area and depth interval. For areas beneath an Engineered Cap, a total PCB concentration equal to 1% of the existing average surficial concentration shall be used as the PCB concentration in spatial-weighting calculations.

- (c) Engineered Capping shall result in a final grade generally consistent with original grade. Engineered Capping pursuant to Sections II.B.2.g.(1)(a) and II.B.2.g.(1)(b) above shall not exceed 31 acres.
 - (d) In lieu of the provisions in Sections II.B.2.g.(1)(a) through II.B.2.g.(1)(c) above, the Permittee may propose to excavate sediments, including any areas with ≥ 50 mg/kg PCBs, to achieve a spatially-weighted average concentration of 1 mg/kg total PCBs in surface sediment (0- to 12-inch depth) and subsurface sediment in each averaging area and depth interval. Permittee shall backfill with a minimum of 6 inches of backfill of suitable material as necessary to ensure channel stability; however, the placement of backfill shall not be considered in the spatially-weighted averaging calculations. Permittee shall use this approach to ensure that no more than 31 acres within Reach 8 require capping.
 - (e) Permittee shall conduct updated bathymetric surveys before sediment removal and before and after capping. The post-capping bathymetry survey shall be the baseline used in determining the amount of future sediment deposition.
 - (f) If during monitoring following construction, EPA determines that significant concentrations and depths of PCB-contaminated sediment have accumulated, the Permittee shall remove such accumulated sediment while ensuring the integrity of the Engineered Cap, where present.
 - (g) Remediation activities shall result in no net loss of FSC and no increase of water surface elevation in this Reach.
- (2) Corrective Measures
- To achieve and maintain Performance Standards, Permittee shall remove sediment, install an Engineered Cap or backfill, conduct bathymetric surveys and monitoring

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activities, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in this Section, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

Permittee shall propose in a Pre-Design Work Plan (see Section II.H.3. below) separate averaging areas within the pond, additional sampling for PCBs on a 50-foot grid, and a method for averaging surface and subsurface PCB concentrations, including proposed depth intervals. For Section II.B.2.g.(1)(d), sediment shall be removed from the Thiessen polygon associated from each discrete sample with ≥ 50 mg/kg total PCBs.

h. Flowing Subreaches in Reach 7 and Throughout Reaches 9 Through 16, Including Impoundments

(1) Performance Standard

Monitored Natural Recovery (MNR) shall be implemented in these reaches.

(2) Corrective Measure

To achieve and maintain this Performance Standard, Permittee shall conduct monitoring of PCB concentrations in affected media (including surface water, sediment, and biota) in these reaches to see if recovery is occurring at the expected rate, maintain institutional controls, and perform all other related activities. Permittee shall perform the foregoing pursuant the Performance Standard and in accordance with Sections II.B.4., II.B.7., and II.H. of this Permit.

i. Engineered Caps

(1) Performance Standards

(a) All Engineered Caps constructed shall include the following layers or functions:

- i. A Mixing Layer to prevent contamination of the chemical isolation layer due to mixing with underlying contaminated sediment during cap placement, taking into account geotechnical considerations, placement techniques, and other factors as appropriate.

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- ii. Chemical Isolation Layer sufficient to minimize (reduce by 99%) the flux of PCB concentrations through the isolation layer.
- iii. Erosion Protection Layer to prevent erosion in accordance with federal and state requirements and consistent with pertinent EPA or U.S. Army Corps of Engineers (USACE) guidance.
- iv. Geotechnical Filter Layer, as needed based on the design evaluation, to prevent mixing between other layers.
- v. Bioturbation Layer to prevent bioturbation from impacting underlying layers.
- vi. Habitat Layer to provide functions and values equivalent to the pre-existing surficial sediment substrate.

- (b) Installation of the cap shall not result in a loss of FSC, and there shall be no increase in water surface elevations in any of the reaches where Engineered Caps are installed.
- (c) Engineered Caps shall be inspected, monitored, and maintained to ensure long-term protectiveness and to ensure that they continue to function as designed.

(2) Corrective Measures

To achieve and maintain these Performance Standards, the Permittee shall design, construct, inspect, monitor, and maintain Engineered Caps and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Section II.B.2.i.(2), including, but not limited to, Sections II.B.2.i.(2)(a) through II.B.2.i.(2)(g) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

The Permittee shall design and construct all Engineered Caps to physically isolate contaminated sediments from potential ecological and human receptors, and minimize the transport of PCBs from the sediment beneath the caps to the bioavailable surface layer and the water column, consistent with the principles presented in pertinent EPA or

USACE guidance such as EPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (EPA, 2005) and Guidance for In-Situ Subaqueous Capping of Contaminated Sediments (Palermo et al., 1998) and in accordance with federal and state requirements.

Engineered Cap designs generally specify mixing, chemical isolation, erosion protection, filter, bioturbation, and habitat layer(s). They also may specify the inclusion of an amendment such as activated carbon where necessary to minimize the flux of PCBs. Under some circumstances, a single layer of material may serve more than one purpose in achieving the Performance Standards above. Engineered Cap design must also take into account constructability concerns (e.g., placement tolerances, method of construction). The design process shall address the following items:

(a) Mixing Layer

Evaluate the composition and thickness necessary to meet the Performance Standard.

(b) Chemical Isolation Layer

- i. Modeling of the isolation layer shall be performed in general accordance with EPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (EPA, 2005) and Guidance for In-Situ Subaqueous Capping of Contaminated Sediments (Palermo et al., 1998).
- ii. Modeling shall be conducted using site-specific data collected during the design process, as appropriate.
- iii. Modeling shall consider the processes of advection, diffusion, sorption, bioturbation, and exchange with the surface water, and sediment deposition consistent with current state-of-the practice for cap design.
- iv. Modeling shall be used to determine the thickness and composition (i.e., the amount of activated carbon/total organic carbon (TOC) or equivalent sorptive amendment) of

the chemical isolation layer sufficient to meet Performance Standards.

(c) Erosion Protection Layer

- i. The stable particle sizes necessary to resist the erosive forces in the different reaches of the Housatonic River shall be computed in accordance with federal and state requirements and consistent with pertinent EPA and USACE guidance such as EPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (EPA, 2005) and Guidance for In-Situ Subaqueous Capping of Contaminated Sediments (Palermo et al., 1998).
- ii. The design flow event for the erosion protection layer is a flow event up to and including the applicable return interval event (for example, 100 year or 500 year flow event), which shall be calculated using up-to-date flow data. However, consideration shall also be given during the cap design to the potential impact of climate change on cap performance, and to including appropriate measures to mitigate the potential impacts.
- iii. Site-specific data and modeling will be used to determine the design velocities and associated bed shear stresses associated with various flow events.
- iv. In addition, other potential erosional forces, including, but not limited to, bioturbation, wind-generated waves, debris, motor boat wakes, and ice impacts will be considered.

(d) Geotechnical Filter Layer

The use of a geotechnical filter layer between the chemical isolation layer material and erosion protection layer material shall be evaluated and may be necessary for those areas requiring cobble or larger sized material in the erosion protection layer.

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(e) Bioturbation Layer

The assemblage of species, bioturbation depth profile, and abundances of dominant organisms shall be evaluated to determine the need for and thickness of a bioturbation layer to be included.

(f) Habitat Layer

Engineered Caps shall include a habitat layer that provides functions and values equivalent to the pre-existing surficial sediment substrate.

(g) Other Design Considerations

- i. The geotechnical stability of the caps (e.g., bearing capacity, slope stability, ebullition) shall be evaluated.
- ii. The need for over-placement allowances with additional excavation for each layer shall be considered.
- iii. The requirement for periodic removal of contaminated sediment that accumulates on top of the Engineered Caps at Woods Pond and Rising Pond shall be considered in the design of such Engineered Caps.

j. Additional Response Actions and/or Inspection, Monitoring and Maintenance for Dams and Impoundments in Reaches 5 through 9

(1) Performance Standards

- (a) The Permittee shall minimize PCB releases related to dams and Impoundments by ensuring inspection, monitoring, and maintenance of such dams and Impoundments, and operating the Woods Pond and Rising Pond Dams.
- (b) If there is a catastrophic failure and/or a material breach of any dam or component of the dam that results in a release of PCBs that is materially greater than the PCB transport from that dam under the normal range of flow conditions, the Permittee shall propose and implement a response to maintain the Performance Standards or to maintain the effectiveness of the Rest of River Remedial Action.

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- (c) The Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work including, but not limited to, dam removal (either before or after completion of any response action conducted pursuant to Sections II.B.2.e. through II.B.2.g. above). Permittee shall conduct such response actions (including material handling and off-site disposal and engineering controls) to allow such Legally Permissible Future Project or Work to be conducted in a manner that maintains Performance Standards and/or maintains the effectiveness of the Rest of River Remedial Action.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall perform the following: ensure the inspection, monitoring, and maintenance of the dams, and/or Impoundments; operate Woods Pond and Rising Pond Dams to minimize releases; conduct response actions to be protective of any Legally Permissible Future Project or Work including, but not limited to dam removal; if there is a catastrophic failure and/or material breach of any dam or dam component, propose and respond to such release to maintain the Performance Standards or to maintain the effectiveness of the Rest of River Remedial Action; and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards, the requirements in Sections II.B.2.j.(2)(a) through II.B.2.j.(2)(e) below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall operate, inspect, monitor, and maintain Woods Pond and Rising Pond Dams, even if the Permittee transfers ownership interest in the dams. Such activities shall include, (i) maintaining the integrity of the dam to contain contaminated sediments and (ii) conducting materials handling and off-site disposal and engineering controls related to dam maintenance, repair, upgrades, and enhancement activities (including, but not limited to, addressing sedimentation in sluiceways, conveyances, and other channels that transport water over, through or around the dam); and (iii) and all other related activities. Upon conveyance of either dam, Permittee may seek EPA

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approval for another party to implement some or all of Permittee's operation, inspection, monitoring and maintenance obligations.

- (b) For all other dams, except Eagle Mill Dam remnants, and Impoundments in Massachusetts Permittee shall ensure inspection, monitoring and maintenance for such dams. Such activities shall include, (i) maintaining the integrity of the dam to contain contaminated sediments, and (ii) conducting materials handling and off-site disposal, and engineering controls related to dam maintenance, repair, upgrades, and enhancement activities (including, but not limited to, addressing sedimentation in sluiceways, conveyances, and other channels that transport water over, through or around the dam) and (iii) and all other related activities. Permittee shall make best efforts to obtain an access agreement with each owner of a dam to allow Permittee to perform such inspection, monitoring and maintenance activities. Permittee may seek EPA approval for another party to implement some or all of the Permittee's inspection, monitoring and maintenance activities. If Permittee uses best efforts but cannot fulfill these obligations, Permittee may submit to EPA for review and approval a plan that includes, without limitation, the reasons why Permittee cannot fulfill these obligations, any proposed actions Permittee will take to remediate the PCB contamination behind the dams, any further actions to be taken to obtain agreement from the dam owner, and whether the Engineered Caps will maintain effectiveness without Permittee having fulfilled its obligations regarding dam inspection, monitoring and maintenance.
- (c) If there is a catastrophic failure and/or a material breach of any dam or dam component that results in a release of PCBs from the dam that is materially greater than the PCB transport from that dam and/or Impoundment under the normal range of flow conditions, Permittee shall, within thirty (30) days of notification by EPA of such failure or breach, submit a Report for EPA approval that (i) proposes repairs to, or removal of, such dam, and (ii) proposes a plan to characterize and respond to the

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PCBs released by such failure and/or breach (if necessary to maintain the Performance Standards or to maintain the effectiveness of the Rest of River Remedial Action). The Report shall include a proposed schedule to implement the required response actions. Following receipt of EPA's approval of the Report and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule.

- (d) Permittee shall every five years determine whether there has been a change in ownership of any dam. In addition, within 30 days of conducting response actions behind a dam, and at any time there is a change in ownership of such dam, and every five years after any of the foregoing events, Permittee shall provide notice to such dam owner (for the initial notice, notice shall also be sent to any holders of easements), with copies to EPA, MA DEP, CT DEEP, and applicable regulatory agencies, of:
 - i. A commitment that the Permittee will conduct the requirements set forth in Sections II.B.2.j.(1)(b) and II.B.2.j.(1)(c) above, and will conduct response actions including inspections, monitoring and maintenance (such as dam maintenance, repair, upgrades, and enhancement activities), including, without limitation, engineering controls, restoration of any aspect of the Rest of River Remedial Action disturbed by such work, and materials handling and off-site disposal. For any activities that would involve the removal, disposal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such excavation activities, in accordance with applicable laws and regulations.

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- ii. Notice of contact persons for Permittee, EPA, MA DEP, and CT DEEP and a request that the property owner notify the contact persons prior to conducting work at the dam, and
 - iii. A description of the PCB contamination behind the dam, including the presence of an Engineered Cap, if applicable.
- (e) If Permittee or another entity implements a Legally Permissible Future Project or Work including, but not limited to, the removal of any dam (either before or after completion of any response actions conducted pursuant to Sections II.B.2.e. through II.B.2.g. above), Permittee shall conduct sufficient response actions (including materials handling and off-site disposal and engineering controls) to allow such Legally Permissible Future Project or Work to be conducted in a manner that maintains the Performance Standards and/or maintains the effectiveness of the Rest of River Remedial Action. Permittee may seek EPA approval for another party to implement some or all of these obligations. Further response actions under this Section II.B.2.j. will be (i) in accordance with and pursuant to the Consent Decree; and (ii) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.
- k. Additional Response Actions for Sediment, Riverbanks, Backwaters, Impoundments in Reaches 5 through 9
- (1) Performance Standard
- The Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work. Permittee shall conduct such response actions (including material handling and off-site disposal and engineering controls) to allow such Legally Permissible Future Project or Work to be conducted in a manner that maintains Performance Standards and/or maintains the effectiveness of the Rest of River Remedial Action.

(2) Corrective Measures

To achieve and maintain this Performance Standard, Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work. Such response actions may include, without limitation, material handling and off-site disposal and engineering controls, repairing any aspect of the Rest of River Remedial Action disturbed by such Legally Permissible Future Project or Work, and all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards, the requirements in Sections II.B.2.k.(2)(a) and II.B.2.k.(2)(b) below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work. Within 30 days of Permittee receiving notification from EPA that EPA has determined that an entity has met the criteria for a Legally Permissible Future Project or Work, Permittee shall submit to EPA for approval, a work plan and schedule to respond to such Legally Permissible Future Project or Work. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such excavation activities, in accordance with applicable laws and regulations. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations. Further response actions under this Section II.B.2.k. will be (i) in accordance with and pursuant to the Consent Decree; and (ii) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

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- (b) Permittee shall annually provide letters to the Conservation Commissions and Departments of Public Works (“DPWs”) for the municipalities located along the River, and the Massachusetts Department of Transportation District 1 (“MA DOT”) (with copies to EPA, MA DEP, and CT DEEP), that provide notice of the potential for contamination and request that such entities notify Permittee, EPA, MA DEP, CT DEEP prior to approving any application for and prior to implementing any Legally Permissible Future Project or Work in the Reaches 5 through 9 of the River and/or Floodplains.
- 1. Additional Response Actions for Dams and Impoundments and Sediment, Riverbanks, and Backwaters in Reaches 10 through 16
 - (1) Performance Standards
 - (a) The Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work, where documentation is provided that such Legally Permissible Future Project or Work requires the handling or disturbance of sediment or riverbank soils with total PCBs greater than 1 mg/kg. Permittee shall conduct such response actions (including material handling and off-site disposal and engineering controls) to allow such Legally Permissible Future Project or Work to be conducted in a manner that maintains Performance Standards and/or maintains the effectiveness of the Rest of River Remedial Action.
 - (b) If there is a catastrophic failure and/or a material breach of any dam or dam components that results in a release of PCBs that is materially greater than the PCB transport from that dam under the normal range of flow conditions, the Permittee shall propose and implement a response to maintain the Performance Standards and/or to maintain the effectiveness of the Rest of River Remedial Action.
 - (2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work including, without limitation,

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engineering controls, and materials handling and off-site disposal, and if there is a catastrophic failure and/or material breach of any dam or dam component, propose and respond to such release, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards, the requirements in Sections II.B.2.1.(2)(a) through II.B.2.1.(2)(d) below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall conduct further response actions to be protective of any Legally Permissible Future Project or Work. Within 30 days of Permittee receiving notification from EPA that that EPA has determined a) that an entity has met the criteria for a Legally Permissible Project or Work, and b) that such Legally Permissible Project or Work requires the handling or disturbance of sediment or riverbank soils with total PCBs greater than 1 mg/kg, Permittee shall submit to EPA for approval, a work plan and schedule to respond to such Project or Work, including, without limitation, sampling and analysis, engineering controls, and materials handling and off-site disposal. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such excavation activities, in accordance with applicable laws and regulations. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations.

- (b) Permittee shall every five years, determine whether there has been a change in ownership of each dam. In addition, any time there is a change in ownership of such property, and every five years thereafter, Permittee shall provide notice to the dam owner (for the initial notice, notice shall also be sent to any holders of easements), with copies to EPA, CT DEEP and applicable regulatory agencies, of:

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- i. A commitment that the Permittee will conduct the requirements set forth in Section II.B.2.1.(2)(a) above, and will conduct response actions to be protective of any Legally Permissible Future Project or Work in locations where documentation is provided that such Project or Work requires the handling or disturbance of sediment or riverbank soils with total PCBs greater than 1 mg/kg. Such response actions include, without limitation, sampling and analysis, engineering controls, and materials handling and off-site disposal. For any activities that would involve materials handling or the removal of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper handling, management, and off-site disposal of such materials and the protection of workers and other individuals during such excavation activities, in accordance with applicable laws and regulations.
 - ii. Notice of contact persons for Permittee, EPA and CT DEEP, and
 - iii. A description of the PCB contamination behind the dam.
- (c) If there is a catastrophic failure and/or a material breach of any dam or dam component that results in a release of PCBs from the dam that is materially greater than the PCB transport from that dam under the normal range of flow conditions, Permittee, shall within thirty (30) days of notification by EPA of such failure or breach, submit a Report for EPA approval that (i) proposes repairs to such dam and (ii) proposes a plan to characterize and respond to the PCBs released by such failure and/or breach (if necessary to maintain the Performance Standards or to maintain the effectiveness of the Rest of River Remedial Action). The report shall include a proposed schedule to implement the required response actions. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with

EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations.

- (d) Further response actions under this Section II.B.2.1. will be (i) in accordance with and pursuant to the Consent Decree; and (ii) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

3. Floodplain and Vernal Pools

a. Floodplain Soil Adjacent to Reaches 5 through 8

(1) Performance Standards

- (a) Primary Floodplain Performance Standards and Secondary Floodplain Performance Standards are outlined in Table 1.
- (b) For each Exposure Area (see Figures 3, 3A, and 4), excavate and replace the top 12 inches of soil to achieve either the Primary Floodplain Performance Standards or Secondary Floodplain Performance Standards based upon the approach set forth in Section II.B.3.a.(2) below. The excavated areas shall be backfilled to original grade.
- (c) In addition, for each Frequently Used Subarea (shown in Figure 5), excavate and replace the top 3 feet of soil to achieve the Performance Standards presented in Table 2. The excavated areas shall be backfilled to original grade.
- (d) For Residential Floodplain Parcels adjacent to Reach 5A, as identified in Table 5, Permittee shall excavate and replace soil to achieve the Residential Performance Standards set forth in Table 3. For the residential floodplain properties in Reach 5C that are identified in Table 5, Permittee shall, if the Town of Lenox determines that any of the property owners consent to such removal, excavate and replace soil at such consented-to property(ies) to achieve the Residential Performance Standards set forth in Table 3.

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- (e) Permittee shall avoid excavation in Core Area 1 habitat (other than Frequently Used Subareas) except in limited areas where necessary to meet Secondary Floodplain Performance Standards in Table 1.
- (f) Permittee shall minimize the impacts from remediation on a case-by-case basis¹¹ for Core Areas 2 and 3 (as shown in Attachment B); however, at a minimum, Secondary Floodplain Performance Standards in Table 1 shall be attained.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall excavate and backfill Floodplain soil and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.3.a.(2)(a) through II.B.3.a.(2)(g) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) The Permittee shall conduct additional sampling of Floodplain soil (as needed) to determine the total PCB exposure point concentration (EPC)¹² for each Exposure Area using a Thiessen polygon approach.

¹¹ Minimization of impacts from remediation of Floodplain and Vernal Pool soil in Core Area 2 and 3 habitat means the implementation of a range of best construction practices that includes, but is not limited to, minimizing impacts when determining the location and scale of staging areas and access roads, phasing the work, use of time of year restrictions, tracking and/or exclusion of animals from work areas, plant transplantation. Minimization of impacts may also include the avoidance of remediation in certain areas where, e.g., the impact to state-listed species or their habitats of constructing an access road or a staging area to remediate such areas outweighs the benefits of remediation. Permittee may propose areas to avoid excavating based on this concept; however, final approval of any avoidance in Core Area 2 and 3 habitats will be made by EPA, after consultation with the States.

¹² EPCs for properties being cleaned to residential standards shall be calculated using the spatial averaging procedures outlined in Attachment E to Appendix E of the Consent Decree and used to evaluate the actual and potential lawns of floodplain residential properties under the CD. For the remaining exposure areas, the EPCs shall be calculated using the methods described in Appendix D to the GE's Corrective Measures Proposal and subsequent revisions described in Section 4.4 in GE's October 2010 Revised Corrective Measures Study, including the use of an approved 95th Upper Confidence Limit method to estimate the mean concentration of total PCBs, the use of spatially interpolated representation of Floodplain soil PCB data, and factoring in habitat community mapping where applicable.

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- (b) Where applicable per Section II.B.3.a.(1)(d), the Permittee shall submit to EPA for approval a proposed remediation plan based on meeting the Residential Performance Standards in Table 3.

- (c) The Permittee shall submit to EPA for approval a proposed remediation plan based on meeting Primary Floodplain Performance Standards in Table 1 for each Exposure Area and the Performance Standards in Table 2 in each Frequently Used Subarea using the following approach:
 - i. Remediation in Frequently Used Subareas to attain Floodplain Performance Standards in Table 2;
 - ii. Remediation in all Exposure Areas to attain Primary Floodplain Performance Standards in Table 1;
 - iii. A proposal for avoidance of Core Area 1 habitat (other than Frequently Used Subareas) except in limited areas where necessary to meet Secondary Floodplain Performance Standards in Table 1; and
 - iv. A proposal for minimization on a case-by-case basis for Core Areas 2 and 3 (as shown in Attachment B); however, at a minimum, Secondary Floodplain Performance Standards in Table 1 shall be attained.

- (d) Based on the proposal submitted pursuant to Section II.B.3.a.(2)(c) above, EPA shall identify any modification to areas proposed to be avoided, and the Permittee shall recalculate the EPC, to ensure that the resultant excavation plan meets, at a minimum, Secondary Floodplain Performance Standards in Table 1 in each Exposure Area as a whole and the Performance Standards in Table 2 for Frequently Used Subareas.

- (e) To the extent that Secondary Floodplain Performance Standards are not met in each Exposure Area as a whole, the Permittee shall propose additional areas to be excavated in order to

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meet, at a minimum, Secondary Performance Standards in the Exposure Area as a whole, repeating the steps in Sections II.B.3.a.(2)(c) and II.B.3.a.(2)(d) as needed.

- (f) In conjunction with the steps in Sections II.B.3.a.(2)(c) through II.B.3.a.(2)(e), the Permittee shall also evaluate the presence of any areas of remaining PCB concentrations in Floodplain soil for erosion potential and the likelihood of future downstream transport at concentrations that could result in the exceedance of the General Performance Standards specified in Sections II.B.1.a. and II.B.1.b. Based on the erosion potential and likelihood of future downstream transport at such concentrations, the Permittee shall reevaluate, as needed, any area of proposed Floodplain soil remediation, considering the steps in Sections II.B.3.a.(2)(c) through II.B.3.a.(2)(e) above, and shall propose further action as necessary.
- (g) The Permittee shall submit the revised evaluation to EPA. Upon approval by EPA, the Permittee shall implement the required actions.

b. Vernal Pools Adjacent to Reaches 5 Through 8

(1) Performance Standards

- (a) In addition to any remediation conducted in Vernal Pools in order to meet the Floodplain Performance Standards in Section II.B.3.a.(1) above, the Permittee shall remediate Vernal Pools that exceed a spatially-weighted average concentration of 3.3 mg/kg total PCBs (based upon risk to amphibians).
- (b) The Permittee shall evaluate the best approach to remediation of Vernal Pools by first conducting a pilot study on not more than ten (10) vernal pools (“Pilot Vernal Pools”), evaluating the following approaches:
 - i. On a select number of Pilot Vernal Pools, place an amendment such as activated carbon and/or other comparable amendments in Vernal Pools that exceed a spatially-weighted average concentration of

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3.3 mg/kg total PCBs to reduce the bioavailability of PCBs to a level less than or equivalent to the bioavailability of PCBs associated with 3.3 mg/kg total PCBs in sediment.

- ii. On a select number of Pilot Vernal Pools, excavate soil and backfill Vernal Pools to pre-excavation elevations to achieve a spatially-weighted average concentration of 3.3 mg/kg total PCBs in each Vernal Pool except for Vernal Pools in Core Area 1, where no excavation shall occur. Permittee shall minimize the impacts from excavation in Vernal Pools in Core Areas 2 and 3 (as shown in Attachment B) on a case by case basis in the manner described in footnote 11.
- iii. Based on EPA's evaluation of the initial pilot round of Vernal Pool remediation and restoration and taking into the consideration the Core Area habitat, EPA will determine the preferred method/approach to remediation and restoration of each subsequent Vernal Pool and the Permittee shall implement this approach.

(2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall place an amendment such as activated carbon and/or other comparable amendments, and/or conduct excavation and backfill, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.3.b.(2)(a) through II.B.3.b.(2)(h) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) The Permittee shall submit a plan to EPA and, upon approval, conduct one or more site visits to identify potential Vernal Pools. EPA will make the determination as to what constitutes a Vernal Pool. Areas determined not to be Vernal Pools shall be considered Backwaters or Floodplain soil under Sections II.B.2.d or II.B.3.a, respectively, depending on whether or not the area is typically inundated.

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- (b) The Permittee shall conduct additional sampling and characterization of Vernal Pools, to generate baseline data on the concentrations of total PCBs, the presence and abundance of animal species and a range of taxa, including, but not limited to, threatened, endangered or state-listed species, and water and soil chemistry. The Permittee shall also conduct additional field reconnaissance as needed to evaluate the potential ecological effects of remediation of the Vernal Pools. The Permittee shall conduct the above actions in accordance with a work plan approved by EPA.
- (c) The Permittee shall identify Vernal Pools that exceed a spatially-weighted average concentration 3.3 mg/kg total PCBs.
- (d) The Permittee shall submit a plan for EPA approval proposing the number of Vernal Pools to be piloted for remediation by both the use of activated carbon or other comparable sediment amendment and for remediation by traditional excavation and restoration methods. For both methods, Permittee shall submit plans describing the methods to be used and the criteria for success for both reduction of bioavailability/concentration of PCBs and impact to ecological receptors and as outlined below.
- (e) Permittee shall, in the plan referenced immediately above, describe the type of activated carbon or other comparable sediment amendment, how it would be applied, and a method to measure the effectiveness of activated carbon or sediment amendment to meet the Performance Standard for reduction in PCB bioavailability in Sections II.B.3.b.(1)(a) and II.B.3.b.(1)(b) above. Such methods may include, but are not limited to, measuring the reduction in PCB concentrations in porewater, surface water, benthic invertebrates and/or other biota. The plan shall also identify the criteria for success and how to measure the ecological effects of the placement of activated carbon or sediment amendment in comparison to the pre-remediation conditions documented in Section II.B.3.b.(2)(b) above.

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- (f) Permittee shall, upon EPA approval of the plan submitted pursuant to Section II.B.3.b.(2)(d) above, implement the placement of activated carbon and/or other comparable sediment amendment in an initial set of Vernal Pools and submit a report describing the following: the effectiveness of placement activities in achieving the Performance Standards in Sections II.B.3.b.(1)(a) and II.B.3.b.(1)(b) and Section II.B.1.c. above; the ecological effects of the activated carbon and/or other comparable sediment amendment on Vernal Pools compared to the criteria for success; any suggested modifications to the procedures; and a proposal for how to address the remaining Vernal Pools such that the Performance Standard in Sections II.B.3.b.(1)(a) or II.B.3.b.(1)(b) will be met.
- (g) The Permittee shall submit a plan for remediation by excavation and backfill of an initial number of pools, to achieve a spatially-weighted average concentration of 3.3 mg/kg total PCBs in each Vernal Pool. Permittee shall, upon EPA approval of the plan, implement this method and submit a report describing the following: the effectiveness of excavation and backfill activities in achieving the Performance Standards in Sections II.B.3.b.(1)(a) and II.B.3.b.(1)(b) and Section II.B.1.c. above; the ecological effects of the excavation and backfill on Vernal Pools compared to the criteria for success; and any suggested modifications to the procedures. Permittee shall conduct subsequent remediation activities using excavation and backfill pursuant to EPA approval of this report.
- (h) Upon EPA review and approval of the reports submitted pursuant to Sections II.B.3.b.(2)(e) through II.B.3.b.(2)(g) above, after providing an informal opportunity for public input, Permittee shall proceed with remediation of the remaining Vernal Pools with the placement of activated carbon and/or other comparable amendment, or implementation of excavation and backfill (excluding Vernal Pools in Core Area 1), or a combination of the two methods. The excavation and backfill shall be conducted such that the hydrology necessary for a Vernal Pool is not adversely affected.

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4. Inspection, Monitoring and Maintenance for All Response Actions Except for Those Related to the Upland Disposal Facility.

a. Performance Standard

Permittee shall implement a baseline and construction monitoring program and an inspection, monitoring and maintenance program.

b. Corrective Measure

To achieve and maintain this Performance Standard, Permittee shall implement baseline and construction monitoring, and inspection, monitoring and maintenance activities, and perform all other related activities. Permittee shall perform the foregoing pursuant to this Performance Standard and the requirements in Sections II.B.4.b.(1) and II.B.4.b.(2) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

(1) Baseline and Construction Monitoring Program

A baseline and construction monitoring program shall be implemented, including but not limited to, the following:

- (a) Prior to the commencement of construction activities, PCB data in surface water, sediment, and biota (and other data) shall be collected to serve as a baseline for the evaluation of the potential impacts of the Corrective Measures and project operations as well as to inform model parameterization in the model re-evaluation plan.
- (b) The Permittee shall propose a program to minimize adverse impacts of construction activities on the environment (e.g., resuspension) including:
 - i. Measures to assess these impacts (e.g., establishing notification and action levels for PCBs measured in surface water);
 - ii. A monitoring plan to collect these data; and
 - iii. Establishing response actions (e.g., slowdown and evaluation of operations, stop work and modification of operations, etc.).

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This program shall be designed to be consistent with an adaptive management approach, as outlined in Section II.F. below.

- (2) An inspection, monitoring, and maintenance program shall be conducted in phases and be implemented upon completion of each phase of the Rest of River Remedial Action, except for areas subject to MNR. For areas where MNR is the Performance Standard, monitoring shall begin with baseline monitoring and shall continue throughout the Remedial Action and O&M.

The inspection, monitoring, and maintenance program shall be implemented throughout the Remedial Action to evaluate the effectiveness of the Corrective Measures in achieving Performance Standards, to evaluate MNR, to monitor the sediment accumulation above the Engineered Caps at Woods Pond and Rising Pond, and to conduct maintenance, repair, or other response actions necessary to achieve and maintain compliance with Performance Standards. This program shall be designed to be consistent with an adaptive management approach as outlined in Section II.F. below.

5. Upland Disposal Facility

a. Performance Standards

- (1) The Permittee shall construct an Upland Disposal Facility to contain certain sediment, floodplain soils and other waste material (as defined in the Consent Decree) generated as part of the Rest of River Remedial Action that meet the Acceptance Criteria in Attachment E to this Permit at the location shown in Figure 6.
- (2) The Upland Disposal Facility shall meet the following design Performance Standards:
 - (a) The Upland Disposal Facility shall have a maximum design capacity of 1.3 million cubic yards.
 - (b) The landfill consolidation area shall have a maximum footprint of 20 acres and a maximum elevation of 1,099 feet above mean sea level. If the seasonally high groundwater elevation is determined to be higher than 950 feet above mean sea level, the maximum elevation of the landfill

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consolidation area may be increased by the number of feet that is the difference between the seasonally high groundwater elevation and 950 feet above mean sea level in order for the Upland Disposal Facility to have a maximum capacity of 1.3 million cubic yards.

- (c) The Upland Disposal Facility shall consist of a double bottom liner, separated by a drainage layer, and shall incorporate primary and secondary leachate collection systems.
- (d) The bottom liner of the landfill will be installed a minimum of 15 feet above a conservative estimate of the seasonally high groundwater elevation. The seasonally high groundwater elevation will be projected using site-specific groundwater elevation data collected in the location of the Upland Disposal Facility, modified by an appropriate technical method that takes into account historic groundwater level fluctuations at similarly-sited off-site long-term monitoring wells in Massachusetts. The estimation of a seasonally high groundwater elevation will be performed pursuant to a methodology reviewed and approved by EPA. The estimate of seasonally high groundwater elevation shall then be used to support the design of the landfill relative to achieving the required minimum separation distance from the bottom of the liner system to the seasonally high groundwater elevation.
- (e) The landfill will be capped with a low-permeability cap to include liner(s) drainage layer(s) and vegetation.
- (f) Liners (bottom liners and cap liners) shall have a permeability equal or less than 1×10^{-7} cm/sec, a minimum thickness of 30 mils and be chemically compatible with PCBs.
- (g) Landfill design will include a stormwater management system to control surface runoff, to minimize the potential for surface erosion or stormwater contribution to leachate generation.

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- (h) A groundwater monitoring network shall be designed and installed around the Upland Disposal Facility to monitor for PCBs and other constituents identified in the groundwater monitoring plan as approved or modified by EPA. Groundwater monitoring shall include a sufficient number of monitoring wells to allow detection of groundwater impacts.

- (3) Permittee shall identify all non-community and private water supply wells currently within 500 feet of the Upland Disposal Facility consolidation area. Unless the well owner does not consent, Permittee shall pay the installation cost of a connection to public water. In the event that a well owner consents at a later date or any new water users (e.g., new construction) move within 500 feet of the Upland Disposal Facility consolidation area during construction or O&M, Permittee shall pay the installation cost of a connection to public water.

- (4) Permittee shall be responsible for the proper functioning of the Upland Disposal Facility landfill during landfill operations and shall remain responsible for the proper O&M of the landfill thereafter. Permittee shall be responsible for the closure of the landfill including the installation of the low-permeability cap and vegetative cover promptly upon EPA's determination that either of the following conditions has occurred: (1) the landfill is full (e.g., when the maximum footprint, elevation and/or design capacity are reached), or (2) excavation and dredging activities conducted as part of the Rest of River Remedial Action are complete. Permittee shall be responsible for post-closure activities and monitoring thereafter.

- (5) No material from the Rest of River Remedial Action will be disposed of at any other location in Berkshire County.

- (6) No one shall take any materials to the Upland Disposal Facility for disposal except those meeting Acceptance Criteria and generated pursuant to this Permit. No materials from previously remediated sites in the Upper 2-Mile Reach of the Housatonic River cleanup nor any other materials associated with the other response actions conducted pursuant to the Site Consent Decree may be disposed of at the Upland Disposal Facility.

b. Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall construct, operate and maintain an Upland Disposal Facility. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

- (1) Landfill operations, inspections, maintenance, and air and groundwater sampling activities will be conducted in accordance with approved plans.
- (2) Permittee shall include in its landfill design submissions one or more proposals (based on Permittee's consultations with officials from the Town of Lee) describing how Permittee will prepare the Upland Disposal Facility for potential re-use once the landfill is capped if the Town of Lee desires. Any such proposals shall be described in the final Remedial Design/Remedial Action Work Plans.
- (3) During the implementation of the Corrective Measures, the Permittee may propose to EPA for approval the use of innovative treatment technologies as part of an adaptive management approach as outlined in Section II.F. below.

6. Off-Site Disposal of Contaminated Sediment and Soil

a. Performance Standards

- (1) The Permittee shall dispose of contaminated sediment and soil, as well as other waste material, that do not meet the Acceptance Criteria for the Upland Disposal Facility outlined in Attachment E, and any other waste material that is otherwise not placed in the Upland Disposal Facility, off-site at existing licensed facilities that are approved to receive such waste material and are in compliance with EPA's off-site rule (40 C.F.R. 300.440).
- (2) At a minimum, 100,000 cubic yards of PCB-contaminated soil and/or sediment will be disposed of off-site.

b. Corrective Measures

To achieve and maintain this Performance Standard, Permittee shall dispose of certain contaminated sediment and soil, as well as other waste material, at an approved and licensed existing off-site disposal facility and perform all other related activities. Permittee

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shall perform the foregoing pursuant to the Performance Standard and the requirements in Sections II.B.6.b.(1) and II.B.6.b.(2) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (1) The Permittee shall propose the methods and locations for off-site disposal to EPA for review and approval. Permittee's proposal shall include measures to maximize the transport of such waste material to off-site facilities via rail, to the extent practicable.
- (2) During the implementation of the Corrective Measures, the Permittee may propose to EPA for approval the use of innovative treatment technologies as part of an adaptive management approach as outlined in Section II.F. below.

7. Institutional Controls and Related Requirements

a. Biota Consumption Advisories

(1) Performance Standard

The Permittee shall cooperate with and support EPA and the States regarding all biota consumption advisories issued by EPA and/or the States for the Rest of River area until such time that the advisories are discontinued.

(2) Corrective Measures

To achieve and maintain this Performance Standard, the Permittee shall cooperate with and support EPA and the States to improve public awareness of the advisories by conducting the following: preparing, distributing, inspecting, monitoring and maintaining educational and outreach activities, including the producing and posting of signs; providing to hunting and fishing license distributors appropriate written notices regarding such advisories to be included with licenses; and performing all other related activities. Signs and outreach material shall be produced in languages appropriate for communities that hunt or fish in the Rest of River area. Permittee shall perform the foregoing pursuant to the Performance Standard, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

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- b. Floodplain soils (inclusive of Vernal Pools and Backwaters) in Exposure Areas in Reaches 5 through 8.
 - (1) Performance Standards
 - (a) On all property without a registered or recorded Environmental Restriction and Easement (ERE) or Notice ERE (including Conditional Solution properties as discussed below), and for all non-subordinated property interests on properties with an ERE or a Notice ERE, Permittee shall conduct such response actions (including material handling and off-site disposal, engineering controls, repairing any aspect of the Rest of River Remedial Action) to allow such Legally Permissible Future Project or Work to be conducted in a manner that maintains Performance Standards and/or maintains the effectiveness of the Rest of River Remedial Action.
 - (b) For all Exposure Areas (see Figures 3 and 4) that do not meet the Performance Standard for Residential Use set forth in Table 3, Permittee shall, for the portion of the property within the Exposure Area, record (hereinafter “record” shall mean record or register as appropriate) an ERE or a notice ERE for the purposes of implementing, ensuring non-interference with and/or ensuring the integrity and protectiveness of the response actions performed; or after a response has been implemented pursuant to Section II.B.3. above, implement a Conditional Solution to achieve and maintain the applicable Performance Standard set forth in Tables 3 and/or 4 for any Legally Permissible Future Use and for the purposes of ensuring the integrity and protectiveness of the response actions performed.
 - (2) Corrective Measures

To achieve and maintain these Performance Standards, Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work, and shall, for all Exposure Areas (see Figures 3 and 4) that do not meet the Performance Standard for Residential Use set forth in Table 3, for the portion of the property within the Exposure Area, record an ERE, a Notice ERE or after a response has been implemented pursuant to Section II.B.3. above implement a Conditional Solution to achieve and

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maintain the applicable Performance Standard in Tables 3 or 4 for any Legally Permissible Future Use, and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards, the requirements in Sections II.B.7.b.(2)(a) through II.B.7.b.(2)(c) below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

(a) Environmental Restriction and Easements:

For all Exposure Areas (see Figures 3 and 4) that do not meet the Performance Standard for Residential Use set forth in Table 3, Permittee shall, for the portion of the property within the Exposure Area:

- i. Prepare and record EREs for properties owned by Permittee in accordance with Section XIII of the CD.
- ii. Prepare and record Notices of Environmental Restriction and Easements (Notice EREs) for properties owned by the Commonwealth. These activities shall be conducted in accordance with Section XIII and the Twelfth Modification of the Consent Decree.
- iii. For properties not owned by Permittee or the Commonwealth, make best efforts to obtain and record an ERE with an offer of appropriate compensation in accordance with Section XIII of the CD. Permittee shall make such best efforts in coordination with requesting access from the property owners to implement the response actions to be conducted pursuant to Section II.B.3. above or on a schedule approved by EPA.
- iv. Permittee shall, on an annual basis after the recordation or registration of an ERE or Notice ERE, conduct an inspection of any property with an ERE or a Notice ERE that is not owned by Permittee as generally described in Appendix Q to the Consent Decree. For properties not owned by Permittee or the Commonwealth, Permittee

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shall also on an annual basis determine if there has been an ownership change in the property. Whenever there is an ownership change, and at a minimum of every two years, Permittee shall send a letter to the property owner notifying them of the presence of the ERE.

(b) Conditional Solutions:

If the owner declines the ERE offer in Section II.B.7.b.(2)(a)iii. above, or an easement holder or an entity with a property interest declines to subordinate its property interest to the ERE, Permittee shall, after a response has been implemented pursuant to Section II.B.3. above, implement a Conditional Solution to be protective of a Legally Permissible Future Project or Work and/or to achieve and maintain the applicable Performance Standards set forth in Table 3 or 4 to be protective of any Legally Permissible Future Use in accordance with the following requirements:

i. Response actions to be protective of a Legally Permissible Future Project or Work:

For any response action to be protective of any Legally Permissible Future Project or Work that would involve handling, excavation, or the removal of sediment or soil, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such sediment or soil, the protection of workers and other individuals during such activities, and restoration of any aspect of the Remedial Action, in accordance with applicable laws and regulations. Further response actions under this Section II.B.7.b. will be (A) in accordance with and pursuant to the Consent Decree; and (B) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

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- ii. Response Action to achieve and maintain the applicable Performance Standards set forth in Table 3 or 4 to be protective of any Legally Permissible Future Use:

For any change in the exposure scenario basis from Table 1 (or from the exposure scenario basis for subsequent response actions), Permittee shall conduct additional response actions, if necessary, to achieve and maintain the applicable Performance Standards in Tables 3 and/or 4. Permittee shall:

- A. Determine the appropriate exposure scenario from Tables 3 and 4.
- B. Determine the EPC for the exposure area.
- C. Evaluate whether or not the EPC meets the Primary Performance Standard for Table 3 and/or the Performance Standard for Table 4. For non-agricultural future uses, if the EPC exceeds the Primary Performance Standard, follow the procedures outlined in Section II.B.3 of this Permit to determine if additional response actions are required.
- D. The Permittee shall submit this evaluation to EPA. Upon approval, by EPA, the Permittee shall implement the required actions.
- E. Further response actions under this Section II.B.7.b. will be (I) in accordance with and pursuant to the Consent Decree; and (II) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

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- iii. Timing Requirements for implementing Sections II.B.7.b.(2)(b)i. and II.B.7.b.(2)(b)ii. above. Permittee shall:

Within 30 days of the date that EPA notifies Permittee in writing that EPA has determined that the criteria for a Legally Permissible Future Use or a Legally Permissible Future Project or Work has been met, Permittee shall submit to EPA for approval, a work plan and schedule for the additional response actions described in Sections II.B.7.b.(2)(b)i. and II.B.7.b.(2)(b)ii above. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations. Further response actions under this Section II.B.7.b. will be (A) in accordance with and pursuant to the Consent Decree; and (B) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

- iv. Notifications

Within 30 days of completion of response actions conducted pursuant to Section II.B.3 or Sections II.B.7.b.(2)(b)i. and II.B.7.b.(2)(b)ii above, at any time there is a change in ownership of such property, and no later than every two years after the most recent notification, Permittee shall provide notice to the owner (for the initial notice, notice shall also be sent to any holders of easements), with copies to EPA, MA DEP and applicable regulatory agencies, of:

- A. A commitment that the Permittee will conduct the requirements set forth in Sections II.B.7.b.(2)(b)i. through II.B.7.b.(2)(b)iii. above, including the requirements for conducting response actions to be protective of any Legally Permissible Future Project or Work, or any

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Legally Permissible Future Use including without limitation, materials handling and off-site disposal, engineering controls, and restoration of any aspect of the Rest of River Remedial Action disturbed by such work. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such activities, in accordance with applicable laws and regulations.

- B. A recommendation that the property owner notify EPA or MA DEP prior to conducting soil excavation or disturbance or a change in use. In addition, provide contact persons for Permittee, EPA and MA DEP, and
- C. A description of the residual PCB contamination on the property where the Conditional Solution has been implemented.

- v. Annual inspections and determinations of property ownership

Following the implementation of any Conditional Solution pursuant to Section II.B.7.b.(2)(b) above, Permittee shall on an annual basis: determine if there is new ownership and conduct an inspection of such property to determine: whether there has been any change in uses that are inconsistent with the exposure scenario basis upon which the Conditional Solution was implemented; identify any activities resulting in the disturbance of 10 or more cubic yards of soil; and identify other items based on additional criteria developed in accordance with the Institutional Controls and Related Requirements Plan submitted pursuant to Section II.H.20. of this Permit. Within 30 days of such inspection,

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Permittee shall submit a report to EPA and MA DEP based on an evaluation of the criteria set forth above and in the Institutional Controls and Related Requirements Plan submitted pursuant to Section II.H.20. of this Permit.

(c) Additional Conditional-Solution related requirements:

With respect to the following three scenarios, Permittee shall within 30 days of Permittee receiving notification from EPA that EPA has determined that an entity has met the criteria for a Legally Permissible Future Project or Work, Permittee shall submit to EPA for approval, a work plan and schedule to respond to such use, project, or work, including, without limitation, sampling and analysis, materials handling and off-site disposal, engineering controls, restoration of any aspect of the Rest of River Remedial Action disturbed by such work. Such scenarios are as follows: prior to the recording of ERE or Notice ERE; after recording of an ERE or a Notice ERE for property interests that do not subordinate their property rights, including property interests other than the owner for properties with a recorded Notice ERE; and, prior to implementing the initial response action set forth in Section II.B.3. for a Conditional Solution. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such activities, in accordance with applicable laws and regulations. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to assume some or all of these obligations. Further response actions under this Section II.B.7.b. will be (i) in accordance with and pursuant to the Consent Decree; and (ii) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be

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limited to those costs solely related to the presence of PCBs.

Permittee shall also, in accordance with a schedule set forth pursuant to Section II.H., provide notice to the owner (for the initial notice, notice shall also be sent to any holders of easements), with copies to EPA, MA DEP and applicable regulatory agencies, that meets the requirements of Section II.B.7.b.(2)(a)iv. above.

- c. Floodplain Soils outside Exposure Areas in Reaches 5-16
- (1) Performance Standards
- (a) Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work where there is sampling data documenting that total PCBs are greater than 1 mg/kg on the Floodplain portion of the property subject to the Legally Permissible Future Project or Work.
- (b) Permittee shall conduct response actions to achieve and maintain the applicable Performance Standards in Tables 3 and 4 for the Floodplain portion of properties where there is sampling data documenting that total PCBs are greater than 1 mg/kg on the Floodplain portion of the property to be protective of any Legally Permissible Future Project or Work or any change in use of the property after the Effective Date of the Permit that constitutes a Legally Permissible Future Use.
- (2) Corrective Measure

To achieve and maintain these Performance Standards, Permittee shall: conduct response actions to be protective of any Legally Permissible Future Project or Work where there is sampling data documenting that there are greater than 1 mg/kg total PCBs on the Floodplain portion of the property; conduct response actions to achieve and maintain the applicable Performance Standards in Tables 3 and 4 for the Floodplain portion of properties where there is sampling data documenting that total PCBs are greater 1 mg/kg on the Floodplain portion of the property to be protective of any Legally Permissible Future Project or Work or any change in use of the property after the Effective Date of the Permit that constitutes a Legally Permissible Future Use; and perform all other

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related activities. Permittee shall perform the foregoing pursuant to these Performance Standards, the requirements in Sections II.B.7.c.(2)(a) through II.B.7.c.(2)(c) below, and in accordance with the plans submitted and approved pursuant to Section II.H. of this Permit.

- (a) Permittee shall conduct response actions to be protective of any Legally Permissible Future Project or Work, including, but not limited to, flood management activities, road and infrastructure projects, and activities such as the installation of canoe and boat launches. Within 30 days of the date that EPA notifies Permittee in writing that EPA has determined: a) that the criteria for a Legally Permissible Project or Work has been met, and b) that there is sampling data documenting that there are greater than 1 mg/kg total PCBs on the Floodplain portion of the property, Permittee shall submit to EPA for approval, a work plan and schedule to respond to such Legally Permissible Future Project, or Work, including, without limitation, sampling and analysis, engineering controls, repairing any aspect of the Rest of River Remedial Action disturbed by such work, and materials handling and off-site disposal. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such activities, in accordance with applicable laws and regulations. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations.

- (b) For any property subject to Section II.B.7.c.(2)(a) above, and for any property with a change in use of the property after the Effective Date of the Permit that constitutes a Legally Permissible Future Use where there is sampling data documenting that there are greater than 1 mg/kg total PCBs on the Floodplain portion of the property, Permittee shall implement additional response actions, (including

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characterization and evaluation activities) to achieve the applicable Performance Standards in Tables 3 and 4. Permittee shall:

- i. Determine the appropriate exposure scenario from Tables 3 and 4.
 - ii. Determine the EPC for the exposure area.
 - iii. Evaluate whether or not the EPC meets the Primary Performance Standard for Table 3 and/or the Performance Standard for Table 4. For non-agricultural future uses, if the EPC exceeds the Primary Performance Standard, follow the procedures outlined in Section II.B.3. of this Permit to determine if additional response actions are required, substituting Table 3 for Table 1. For agricultural future uses, if the EPC exceeds the Performance Standard in Table 4, evaluate soil removal necessary to meet the Performance Standard in Table 4.
 - iv. The Permittee shall submit this evaluation to EPA. Upon approval by EPA, the Permittee shall implement the required actions.
- (c) Within 30 days of the date that EPA notifies Permittee that the criteria in this subsection have been met, Permittee shall submit to EPA for approval a work plan and schedule for the additional response actions. Permittee shall submit to EPA for approval such work plan and schedule, including, without limitation, sampling and analysis, engineering controls, repairing any aspect of the Rest of River Remedial Action disturbed by such work, materials handling and off-site disposal. For any activities that would involve the removal, handling or excavation of sediments and/or soils, Permittee shall be required to take response actions to ensure the proper excavation, management, and off-site disposal of such materials and the protection of workers and other individuals during such activities, in accordance with applicable laws and regulations. Following receipt of EPA's approval of the work plan and schedule, Permittee shall implement the additional response actions in accordance with EPA's approval, including the approved schedule. Permittee may seek EPA approval for another party to implement some or all of these obligations.

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Further response actions under this Section II.B.7.c. will be (i) in accordance with and pursuant to the Consent Decree; and (ii) consistent with the scope of the response actions selected in this Permit. Permittee's responsibility for the costs of said further response actions will be limited to those costs solely related to the presence of PCBs.

d. Upland Disposal Facility

(1) Performance Standard

Permittee shall record an ERE to restrict future uses of land and groundwater that are inconsistent with the use of the Upland Disposal Facility.

(2) Corrective Measure

To achieve and maintain this Performance Standard, Permittee shall prepare and record an ERE in accordance with Paragraph 54 of the CD to prohibit excavation of the landfill, prohibit extraction, consumption, or utilization of the groundwater located underneath the Upland Disposal Facility, including a 500-foot zone around the consolidation area, and restrict the future use of and access to the Upland Disposal Facility. Permittee shall perform the foregoing pursuant to the Performance Standard above, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

8. Water Withdrawals and Uses

a. Performance Standard

The Permittee shall minimize/mitigate impacts during implementation of Corrective Measures to withdrawals and/or uses of water from the Rest of River by any entity.

b. Corrective Measures

To achieve and maintain this Performance Standard, Permittee shall minimize/mitigate impacts during implementation of Corrective Measures to withdrawals and/or uses of water from the Rest of River by any entity and perform all other related activities. Permittee shall perform the foregoing pursuant to the Performance Standards and the requirements in Sections II.B.8.b.(1) through II.B.8.b.(3) below, and in accordance with plans submitted and approved pursuant to Section II.H. of this Permit.

- (1) Identify all industrial, commercial, private, or other withdrawals and/or uses of water from the Rest of River;
- (2) Identify requirements associated with these uses (including water quality and quantity) that may be affected by implementation of Corrective Measures; and
- (3) Propose methods to minimize/mitigate impacts during implementation of response actions.

C. Operation and Maintenance

Permittee shall implement an O&M program upon completion of the Remedial Action for the Rest of River. The O&M program shall be implemented to maintain the effectiveness of the Corrective Measures, to evaluate MNR, and to conduct inspection, maintenance, repair, or other response actions necessary to achieve and maintain compliance with Performance Standards. This program shall be designed to be consistent with an adaptive management approach, as outlined in Section II.F. below.

The O&M Plan will be a component of the Final Remedial Action Completion Report. Permittee shall submit a draft O&M Plan to EPA for review as a component of the Draft Remedial Action Completion Report. Upon approval or modification of the Final Remedial Action Completion Report, the O&M Plan will take effect. Components of the O&M Plan shall include, but not be limited to:

1. Monitoring of PCBs in groundwater, surface water, air, sediment, and biota.
2. Inspection and maintenance of Engineered Caps.
3. Inspection and maintenance of the Upland Disposal Facility, including collection and management of leachate.
4. Maintenance/implementation of Institutional Controls and Related Requirements in Section II.B.7. and the requirements in Sections II.B.2.j. through II.B.2.l.
5. Inspection and maintenance of restoration activities, including invasive species control.
6. Inspection and maintenance of other Corrective Measures to ensure that Performance Standards are maintained.

D. Review of Response Actions

In accordance with Paragraph 43 of the CD, the Permittee shall conduct studies and investigations as requested by EPA to permit EPA to conduct periodic reviews, consistent with Section 121(c) of CERCLA and any applicable regulations, of whether the Rest of River Remedial Action is protective of human health and the environment. The Permittee shall also comply with any additional requirements pursuant to Section X of the Consent Decree with respect to periodic reviews.

E. Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) Requirements

The federal and state laws and regulations that constitute applicable or relevant and appropriate requirements (ARARs) for the response actions for Rest of River and To Be Considered (TBC) requirements are identified in Attachment C.

The ARAR tables include a description of the listed ARARs and a determination by EPA as to whether the listed ARARs will be met, any ARARs waived and any modified performance requirements based on EPA's waiver determination, and all TBC requirements. EPA may also, in accordance with CERCLA and the National Contingency Plan, 40 C.F.R. 300, waive an ARAR during the implementation of the remedy.

In addition, the technical Remedial Design/Remedial Action (RD/RA) submittals for response actions for the Rest of River shall, consistent with CERCLA, specify additional ARARs (not listed in Attachment C), if any, for such response actions. Additionally, such RD/RA submittals shall contain a proposal as to how the response action will comply with any such additional ARARs, and to the extent that EPA determines a waiver is appropriate, any modified performance requirement. The Permittee shall comply with and attain any such additional ARARs that EPA determines should be met by such response action.

F. Adaptive Management

An adaptive management approach shall be implemented by the Permittee in the conduct of any of the Corrective Measures, whether specifically referenced in the requirements for those Corrective Measures or not, to adapt and optimize project activities to account for "lessons learned," new information, changing conditions, evaluations of the use of innovative technologies, results from pilot studies, if any, and additional opportunities that may present themselves over the duration of the project, including during periodic reviews. The Permittee shall modify the implementation of the Corrective Measures, with EPA approval, after a reasonable opportunity for review and comment by the States, through this process to minimize any adverse impacts of the response action, expedite the response, improve the Corrective Measures, and/or to ensure compliance with, or continued progress towards, achieving Performance Standards. To implement an adaptive management approach effectively, Permittee shall submit deliverables identified in Section II.H. (Rest of River SOW) in phases, where appropriate, and

identify how any lessons learned and any new information will be incorporated into subsequent deliverables and/or other methods to optimize project activities.

The Permittee shall perform the Corrective Measures in accordance with any modifications that are so identified by the Permittee (with EPA's approval), or that are identified and required by EPA, including, but not limited to, applying an adaptive management approach to the Rest of River SOW, or any other plans, specifications, schedules, or other documents. Any requirements identified by EPA pursuant to this provision cannot be inconsistent with the Consent Decree (including, but not limited to, Paragraphs 39, 162 and 163).

G. Coordination of Corrective Measures

Corrective Measures associated with the Rest of River will require a significant level of project scheduling, coordination, and sequencing, which shall be addressed by the Permittee in the Rest of River SOW. As the corrective measures are expected to be implemented in a phased approach, it is expected that the work to be implemented in each phase will have its own set of deliverables, including several of the deliverables identified in Section II.H.

H. Requirements for the Rest of River SOW

As required in Paragraph 22.x of the CD, the Permittee shall submit a Rest of River SOW for the implementation of the Corrective Measures, including pre-design activities and the subsequent performance of Corrective Measures. The SOW shall incorporate the Performance Standards and Corrective Measures from this Permit, or portion thereof, and shall include a description of, and a submittal schedule for, at a minimum, the documents outlined below. In addition, the contents of the documents required in the SOW are subject to modification or adjustment based on specific activities for a given Corrective Measure and any site- or activity-specific considerations, including, but not limited to, resulting from an adaptive management approach. If deviations to such documents are proposed, such proposals shall be presented for EPA approval in the technical deliverables specific to that Corrective Measure.

1. Expedited Deliverables

- a. In order to expedite response actions, Permittee shall commence and perform investigation and design work as contractual obligations effective February 10, 2020. Specifically, Permittee shall submit a schedule for the Rest of River SOW, develop the SOW, and, subject to approval by EPA, implement the investigation and design components of the SOW and subsequent Work Plans to accelerate the commencement of the Rest of River cleanup. The obligation to perform this investigation and design work shall continue unless and until EPA issues a revised permit that does not contain terms substantially similar to those in the 2016 Permit, revised as specified by the 2020 Settlement Agreement.

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- b. Permittee agreed in the 2020 Settlement Agreement to coordinate as soon as practicable with municipal officials and affected landowners regarding work activities, schedules and traffic routes. Permittee's coordination with officials and landowners shall be described in the relevant work plans submitted to EPA.
- c. Permittee has already submitted pursuant to the 2016 Permit the following documents:
 - Rest of River Initial Statement of Work, including a section meeting the Requirements for the Overall Strategy and Schedule for Implementation of Corrective Measures submittal relating to GE's project organizational structure: roles, responsibilities, and lines of communication among GE, EPA, and state and local entities
 - Baseline Monitoring Plan
 - Floodplain Pre-Design Investigation Work Plan, Reach 5A (and related documents)
 - Health and Safety Plan, a component of the Updated Project Operations Plan
 - Components of the Institutional Controls and Related Requirements Plan limited to Biota Consumption Advisory Outreach Plan – Connecticut; Biota Consumption Advisory Outreach Plan – Massachusetts; and Plan for Obtaining Environmental Restrictions and Easements
 - Dam Operation, Inspection, Monitoring and Maintenance Plans and related documents for Woods Pond Dam and Rising Pond Dam

2. Overall Strategy and Schedule for Implementation of the Corrective Measures

The Permittee shall present its overall strategy for implementing the Corrective Measures that have been selected by EPA in this Permit, including the preparation of work plans, designs, and reports, completion of pre-design investigations, construction and implementation of the remediation, and inspection, maintenance, and monitoring. In addition, the Permittee shall describe the Permittee's project organizational structure, roles, and responsibilities, and lines of communication among the Permittee, EPA, and state and local entities, as appropriate, and will include the project organization and a project implementation schedule. The overall strategy shall include:

- a. Coordination of Floodplain and sediment and bank remediation;
- b. Sequence of remediation;
- c. Project management structure.

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3. Pre-Design Investigation Work Plans, including for the Upland Disposal Facility
4. Pre-Design Investigation Summary Reports
5. Plan for Measuring Compliance with Performance Standards
6. Conceptual Remedial Design/Remedial Action Work Plans, including for the Upland Disposal Facility
7. Final Remedial Design/Remedial Action Work Plans, including for the Upland Disposal Facility
8. Supplemental Implementation Plans (e.g., contractor health and safety plans (HASPs), operations plan)
9. Updated Project Operations Plan and Field Sampling Plan/Quality Assurance Project Plan for Rest of River-specific changes, including a Construction Monitoring Plan
10. On-Site and Off-Site Transportation Plan
11. Quality of Life Compliance Plan:
 - a. Noise, air, odor, light standards;
 - b. Continued recreational activities during and after the remediation, including that Permittee shall work cooperatively with the City of Pittsfield, the Towns of Great Barrington, Lee, Lenox, and Stockbridge, and the State of Massachusetts to facilitate their enhancement of recreational activities, such as canoeing and other water activities, hiking, and bike trails in the Rest of River corridor, on properties where remediation will occur and/or where temporary access roads are constructed;
 - c. Road use, including restrictions on transport of waste material through residential areas and methods to minimize and/or mitigate transportation related impacts to neighborhoods, infrastructure and the general public; consideration of methods to reduce residential impacts where practical, including remediation techniques that further restrict transport of waste material through residential areas. Examples of roads that would warrant such further restrictions include: Brunswick, Kenilworth, Warwick, and Chester Streets; Noblehurst Avenue; Revilla Terrace; Shetland, Clydesdale, Pinto, and Palomino Drives; and Anita, Lucia, Quirico, Joseph, and Eric Drives;

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- d. Coordination with local governments, affected residents and landowners at or near areas impacted by remediation to take reasonable steps to minimize the adverse impact of work activities by, among others, coordinating work activities, scheduling, and traffic routes; and
- e. Community Health and Safety
 - (1) The Permittee shall maintain a website (similar to <http://www.hudsonredging.com/>) to provide community access to information such as data, technical reports, work plans, and project fact sheets, as well as updates on current and future project activities; and
 - (2) The Permittee shall establish and maintain a system to identify and address community complaints and concerns during construction activities.
- 12. Baseline Restoration Assessment (BRA) Work Plan, Baseline Restoration Assessment, Restoration Performance Objectives and Evaluation Criteria (RPOEC), Restoration Corrective Measures Coordination Plan (RCMCP), and Restoration Plan (RP)
- 13. Adaptive Management Plan
- 14. Sustainability and Climate Adaptation Plan, including measures to ensure that Corrective Measures are designed and constructed to be resilient to potential changes due to climate change and incorporate, where practical and appropriate, methods to minimize greenhouse gas emissions.
- 15. Work Plan for Phase 1B Cultural Resource Survey and Overall Cultural Resource Plan
- 16. Model Reevaluation Plan
- 17. Dam Removal-Related Activities Plan(s)
- 18. Inspection, Monitoring and Maintenance Plan
 - a. Inspection, Monitoring and Maintenance Plan(s) (including an Invasive Species Control Plan, a plan for the accumulation of contaminated sediment on top of the Woods Pond and Rising Pond Engineered Caps, a plan for Engineered Caps, and a plan to measure the effectiveness of MNR.)
- 19. Upland Disposal Facility Operation, Maintenance, and Monitoring Plan
- 20. Institutional Controls and Related Requirements Plan

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21. Dam Operation, Inspection, Monitoring and Maintenance Plan
22. Water Withdrawal and Uses Plan
23. Plan for Further Response Actions, and any implementation of further response actions, in accordance with Section X of the Consent Decree (Review of Response Actions).
24. Remedial Action Completion Report, including an O&M Plan.

I. Schedule

As required under Paragraph 22.x of the CD, whenever the Permittee is required to design and implement the Rest of River Remedial Action or a portion thereof as the Permit or portions of the Permit become finalized, the Permittee shall develop and submit within 7 days to EPA for review and approval, a schedule for the subsequent submission of the SOW or relevant portions thereof. The schedule for the submittal for the SOW or relevant portions thereof shall be no sooner than 90 days and no later than 120 days from the Effective Date of this Permit, or relevant portions thereof. The SOW shall contain schedules for the subsequent development of Remedial Action activities.

Implementation of the Corrective Measures shall begin concurrently, if feasible. Permittee shall begin such concurrent implementation in Reach 5A (sediment and Floodplain) and Woods Pond, unless Permittee proposes, and EPA approves an alternate approach.

Unless the Permittee proposes and EPA approves a modified schedule, Corrective Measures shall proceed downstream from Reach 5A and Woods Pond on a parallel track. The final sediment caps in the Impoundments shall not be placed, however, until all remediation in the upstream reaches has been completed. Following the placement of the cap in Reach 7G, sediment removal and subsequent capping shall take place in Rising Pond (Reach 8). This approach shall be subject to review under an adaptive management approach to evaluate the effectiveness of sequencing.

The Corrective Measures in the Floodplain shall be performed by the Permittee while the adjacent sediment cleanup activities are taking place and shall share construction infrastructure to the maximum extent practicable to minimize the Corrective Measures footprint.

J. Project Coordinators

1. Pursuant to the Consent Decree, EPA and the Permittee have each designated a Project Coordinator and an Alternate Project Coordinator.

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2. EPA and the Permittee shall provide at least five (5) working days' written notice prior to changing Project Coordinators or Alternate Project Coordinators, unless impracticable but in no event later than the actual day the change is made.
3. The absence of EPA's Project Coordinator shall not be cause for stoppage of work by the Permittee.
4. Unless otherwise specified, reports, notices, or other submissions required under the Permit shall be in writing and shall be sent to:

EPA's Project Coordinator

Dean Tagliaferro
U.S. Environmental Protection Agency
EPA New England
5 Post Office Square Suite 100
Boston, MA 02109-3912

EPA's Alternate Project Coordinator

Alternate Housatonic Rest of River Project Coordinator
U.S. Environmental Protection Agency
EPA New England
5 Post Office Square Suite 100
Boston, MA 02109-3912

Permittee's Project Coordinator

Andrew T. Silfer
General Electric Company
Corporate Environmental Programs
319 Great Oaks Boulevard
Albany, NY 12203

Permittee's Alternate Project Coordinator

Alternate Housatonic Rest of River Project Coordinator
General Electric Company
Corporate Environmental Programs
1 Plastics Avenue
Pittsfield, MA 01201

Massachusetts Project Coordinators

Michael Gorski
Massachusetts Department of Environmental Protection
436 Dwight Street - Fifth Floor
Springfield, MA 01103

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Mark Tisa
Massachusetts Department of Fish and Game
Division of Fisheries and Wildlife
Field Headquarters, One Rabbit Hill Road
Westborough, MA 01581

Connecticut Coordinator

Connecticut Housatonic Rest of River Coordinator
Planning and Standards Division
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06103

K. Sampling Requirements

The Permittee shall provide the results of all sampling and/or tests or other data generated by the Permittee or on the Permittee's behalf with respect to the implementation of the Permit to EPA and shall submit these results to EPA, at a minimum, in monthly progress reports. Data and supporting information shall be provided in electronic format and shall include locational information for all samples collected.

At the request of EPA, the Permittee shall allow split or duplicate samples to be taken by EPA and/or its authorized representative, of any samples collected by the Permittee or on the Permittee's behalf pursuant to the implementation of this Permit. The Permittee shall notify EPA not less than seven (7) days in advance of any sample collection activity.

EPA will notify the Permittee not less than seven (7) days in advance of any sample collection activity by EPA in connection with the implementation of this Permit. At the request of the Permittee, EPA shall provide to the Permittee, or allow the Permittee to take split or duplicate samples of any samples collected by EPA or on EPA's behalf in conducting work in the Rest of River area.

L. Reservation of Rights

EPA and the Permittee reserve all rights and defenses that they may have, subject to the provisions of the Consent Decree.

M. Access to or Use of Property

1. To the extent that the work required of the Permittee under this Permit requires access to or use of property currently owned or under the control of persons other than the Permittee, the Permittee shall use its best efforts to obtain access in accordance with the provisions of Paragraph 59.a of the Consent Decree relating to access.

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2. Except as otherwise provided in the Consent Decree or this Permit, nothing in this Permit shall be construed to limit EPA's authority to exercise its rights pursuant to Section 3007 of RCRA, 42 U.S.C. 6927, or to affect any rights of entry possessed by EPA pursuant to any applicable laws, regulations, or permits.

N. Dispute Resolution

Resolution of disputes arising from implementation of this Permit shall be resolved consistent with the provisions in the Consent Decree.

TABLES

Table 1 Performance Standards for PCBs for Floodplain Soil by Exposure Area – Current Use

Exposure Areas	Performance Standard (in mg/kg)		Exposure Scenario Basis	
	Primary (RME 10 ⁻⁵ / Hazard Index (HI)=1)	Secondary (RME 10 ⁻⁴ / HI=1)		
			Exposure Scenario/Receptor	Assumed Frequency of Use (days per year)
10a, 10b, 70, 87	4.6	4.6	General Recreation, young child (high use)	90d/yr
10	4.6	6.9	General Recreation, young child (high use)	90d/yr
2b, 25, 78, 85b	27	27	General Recreation, older child (high use)	90d/yr
3, 11, 13-17, 19, 20, 24, 32, 33, 38, 44-46, 48, 54, 58, 67-69, 73-77, 79, 89	14	38	General Recreation, adult (high use)	90d/yr
2, 4, 5, 7, 12, 21, 22, 26a, 26F, 27, 28, 30, 31, 31a, 35, 35a, 37, 37b, 40, 40b, 55, 57, 59, 60, 90	14	27	General Recreation, adult/older child (high use)	90d/yr
1, 56	21	40	General Recreation, adult/older child (medium use)	60d/yr
23, 88	40	40	General Recreation, older child (medium use)	60d/yr
18, 34, 41, 42, 43	21	58	General Recreation, adult (medium use)	60d/yr
6, 49, 50, 51, 80a, 81, 82, 84	43	115	General Recreation, adult (low use)	30d/yr
2a, 9	80	80	General Recreation, older child (low use)	30d/yr
29	43	80	General Recreation, adult/older child (low use)	30d/yr
37a, 38a, 40a, 41a, 42a, 43a, 59a, 70a, 71,72, 87a	26	42	Bank Fishing adult/older child	30d/yr
22a, 27a, 28a	14	14	Dirt Biking/ATVing (older Child)	90 d/yr
8,47, 47F, 52, 53, 60a, 85a	12	28	Recreational Canoeist	Adult 60 d/yr Older child 30 d/yr

Table 1 Performance Standards for PCBs for Floodplain Soil by Exposure Area – Current Use (Continued)

Exposure Areas	Performance Standard (in mg/kg)		Exposure Scenario Basis	
	Primary (RME 10 ⁻⁵ / Hazard Index (HI)=1)	Secondary (RME 10 ⁻⁴ / HI=1)	Exposure Scenario/Receptor	Assumed Frequency of Use (days per year)
39	7.8	13	Marathon Canoeist	150d/yr
26b, 36b, 80b	12	43	Agricultural Use (farmer)	40d/yr
36a	89	126	Low-use Commercial (groundskeeper)	30d/yr
83, 86	18	25	High-use Commercial (groundskeeper)	150 d/yr
61-66	169	242	Utility Worker	5 d/yr
50a, 51a, 55a, 56a	90	140	Waterfowl Hunting	14 d/yr

Table 2 Performance Standards for PCBs for Floodplain Soil Frequently Used Subareas – Current Use

Exposure Area	Performance Standard (in mg/kg)	Exposure Scenario Basis	
		Exposure Scenario/Receptor	Assumed Frequency of Use (days per year)
4, 12, 26a, 37b, 40, 58, 59	14	General Recreation, adult/older child (high use)	90 d/yr
39	7.8	Marathon Canoeist	150 d/yr
47, 52, 53, 60a	12	Recreational Canoeist	Adult 60 d/yr Older child 30 d/yr

Table 3 Performance Standards for PCBs for Floodplain Soil – Future Use

Type of Area/Exposure Scenario	Receptor	Assumed Frequency of Use	Performance Standards (in mg/kg)	
			Primary (RME 10 ⁻⁵ /HI=1)	Secondary (RME 10 ⁻⁴ /HI=1)
Residential	All	All	2*	2*
General Recreation	Young child	90 d/yr	4.6	4.6
		15 d/yr	27	27
	Older child	90 d/yr	27	27
		60 d/yr	40	40
		30 d/yr	80	80
	Adult	90 d/yr	14	38
		60 d/yr	21	58
30 d/yr		43	115	
Bank fishing	Older child	30 d/yr	42	42
	Adult	30 d/yr	26	56
Dirt biking/ATVing	Older child	90 d/yr	14	14
Marathon canoeist	Adult	150 d/yr	7.8	13
Recreational canoeist	Older child	30 d/yr	42	42
	Adult	60 d/yr	12	28
Waterfowl hunting	Older child	14 d/yr	140	140
	Adult	14 d/yr	90	196
Agricultural use (farmer) (See note)	Adult	40 d/yr	12	43
Commercial (groundskeeper)	Adult	150 d/yr	18	25
		30 d/yr	89	126
Utility worker	Adult	5 d/yr	169	242

*The Performance Standard for residential use is 2 mg/kg at 0-1 foot depth increment, 2 mg/kg at the 1-X depth increment where X equals the depth at which PCBs are detected at 2 mg/kg or greater (up to a maximum depth of 15 feet), and a not-to exceed of 10 mg/kg in the top foot.

Note: Values in this table for agricultural use represent human exposure to soil. For Performance Standards representing future agricultural use (protective of exposure through consumption of dietary items grown in the Floodplain), see Table 4.

Table 4 Performance Standards for PCBs for Agricultural Uses in Floodplain Soil

Because cleanup standards for future agricultural uses were derived as diet, a formula back-calculating from the dietary concentrations to concentration of PCBs in Floodplain soil was necessary. The equation below incorporates a soil concentration (C_{ea}) calculated using the deterministic reasonable maximum exposure (RME) risk equations for each agricultural scenario from the baseline Human Health Risk Assessment. Each C_{ea} is the more stringent of the two soil concentrations corresponding to an excess lifetime cancer risk of 1×10^{-5} and a Hazard Index of 1. The equation below also takes into account the fraction of the use conducted in the Floodplain.

$$C_t = \frac{C_{ea}}{F_t},$$

where:

C_t = Performance Standard in Floodplain soil where agricultural activities will take place (in mg/kg)

C_{ea} = Soil concentration in mg/kg for a given agricultural use assuming 100% of the use is in the Floodplain. See table below for the C_{ea} for specific agricultural uses

F_t = Fraction of agricultural use in the Floodplain

Note: If this formula results in a C_t less than 2 mg/kg total PCBs, the Performance Standard will be 2 mg/kg total PCBs.

Agricultural Scenario	C_{ea} (in mg/kg)
Commercial Farm Family: Dairy Consumption	2.4
Backyard Farm Family: Dairy Consumption	0.059
Commercial Farm Family: Beef Consumption	0.17
Backyard Farm Family: Beef Consumption	0.16
Commercial Farm Family: Poultry Meat Consumption	0.15
Backyard Farm Family: Poultry Meat Consumption	0.27
Commercial Farm Family: Poultry Egg Consumption	0.062
Backyard Farm Family: Poultry Egg Consumption	0.091
Commercial Farm Family: Produce Consumption	4.1
Backyard Farm Family: Produce Consumption	6.5

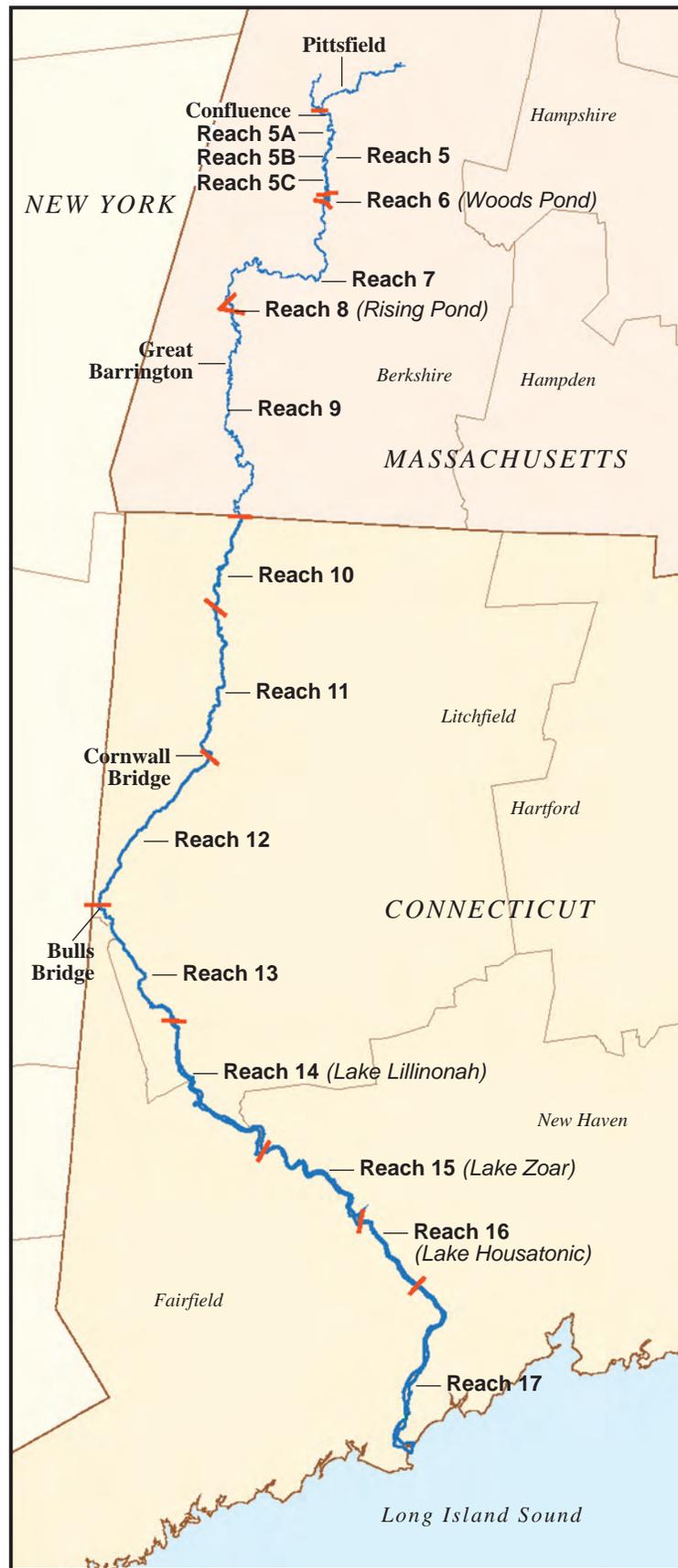
See July 20, 2012 letter from The Science Collaborative to Weston Solutions, titled *Calculate Performance Standards for Agricultural Production Consumption* for the basis of the Performance Standard.

Table 5 Floodplain Properties Subject to Residential Performance Standards

Reach 5A Floodplain Properties Subject to Residential Performance Standards (Listed by Tax Parcel ID)			
I6-1-42	J4-3-10	J3-1-12	J3-2-5
I6-3-13	J4-3-11	J3-1-13	J3-2-6
J6-2-3	J3-1-8	J3-1-14	K3-1-2
J4-3-7	J3-1-9	J3-2-2	K2-1-10
J4-3-8	J3-1-10	J3-2-3	
J4-3-9	J3-1-11	J3-2-4	

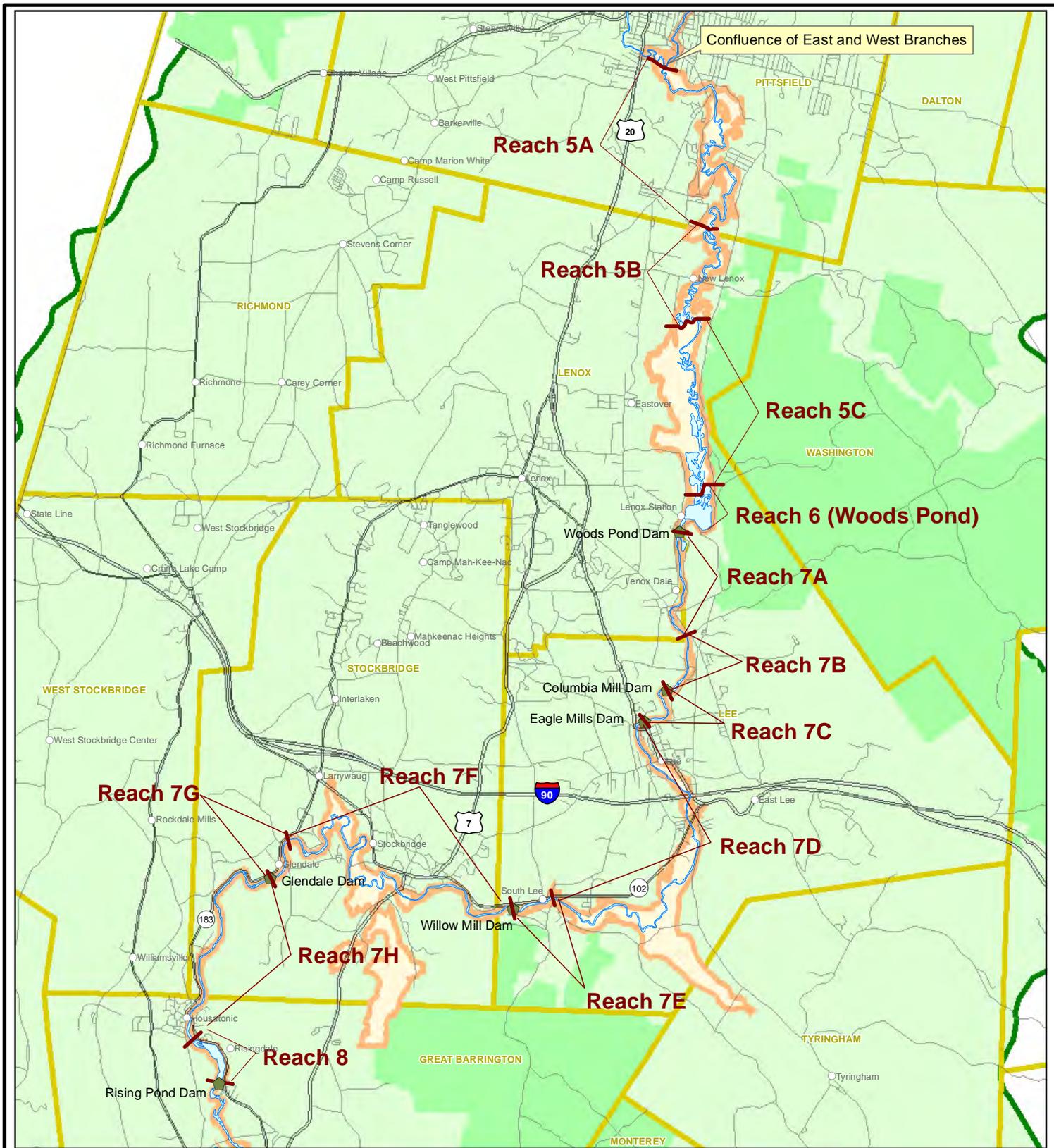
Reach 5C Floodplain Properties Subject to Residential Performance Standards (Listed by Tax Parcel ID) (if the Town of Lenox determines that any of the property owners consent to such soil removal, and with the costs to be shared equally by the Permittee and the Town of Lenox)		
24-1	24-3	24-5
24-2	24-4	24-6

FIGURES



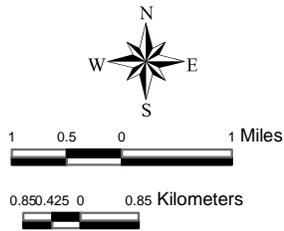
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FIGURE 1 HOUSATONIC RIVER, REACHES 5 THROUGH 17



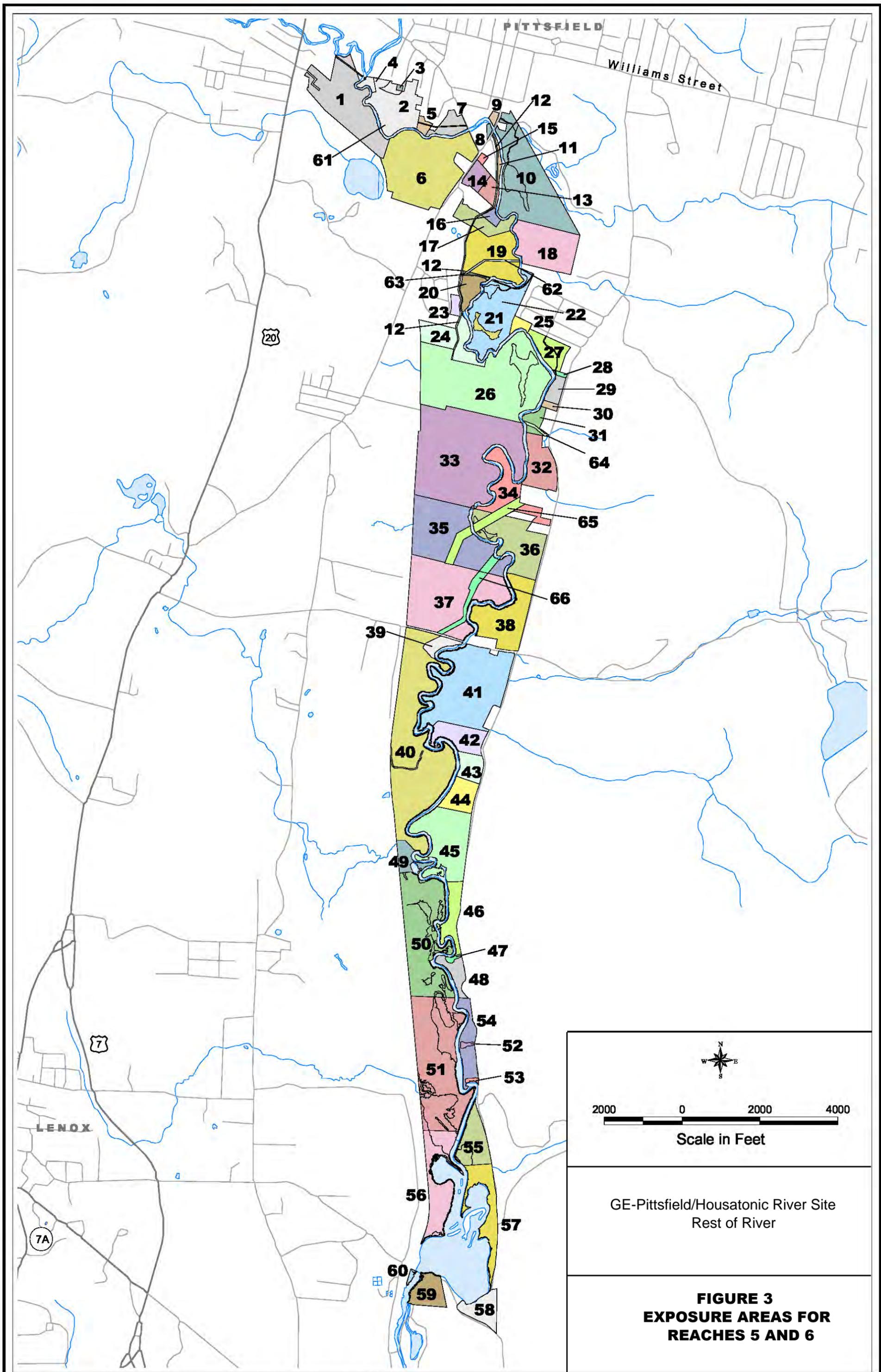
LEGEND:

- Town/City
- Roads
- Reach Division Line
- Housatonic River
- State Park
- Municipal Boundary
- 10-Year Floodplain



GE- Pittsfield/Housatonic River Site
Rest of River

FIGURE 2
HOUSATONIC RIVER,
PRIMARY STUDY AREA
(REACHES 5 AND 6) AND
REACHES 7 AND 8




 2000 0 2000 4000
 Scale in Feet

GE-Pittsfield/Housatonic River Site
 Rest of River

**FIGURE 3
EXPOSURE AREAS FOR
REACHES 5 AND 6**

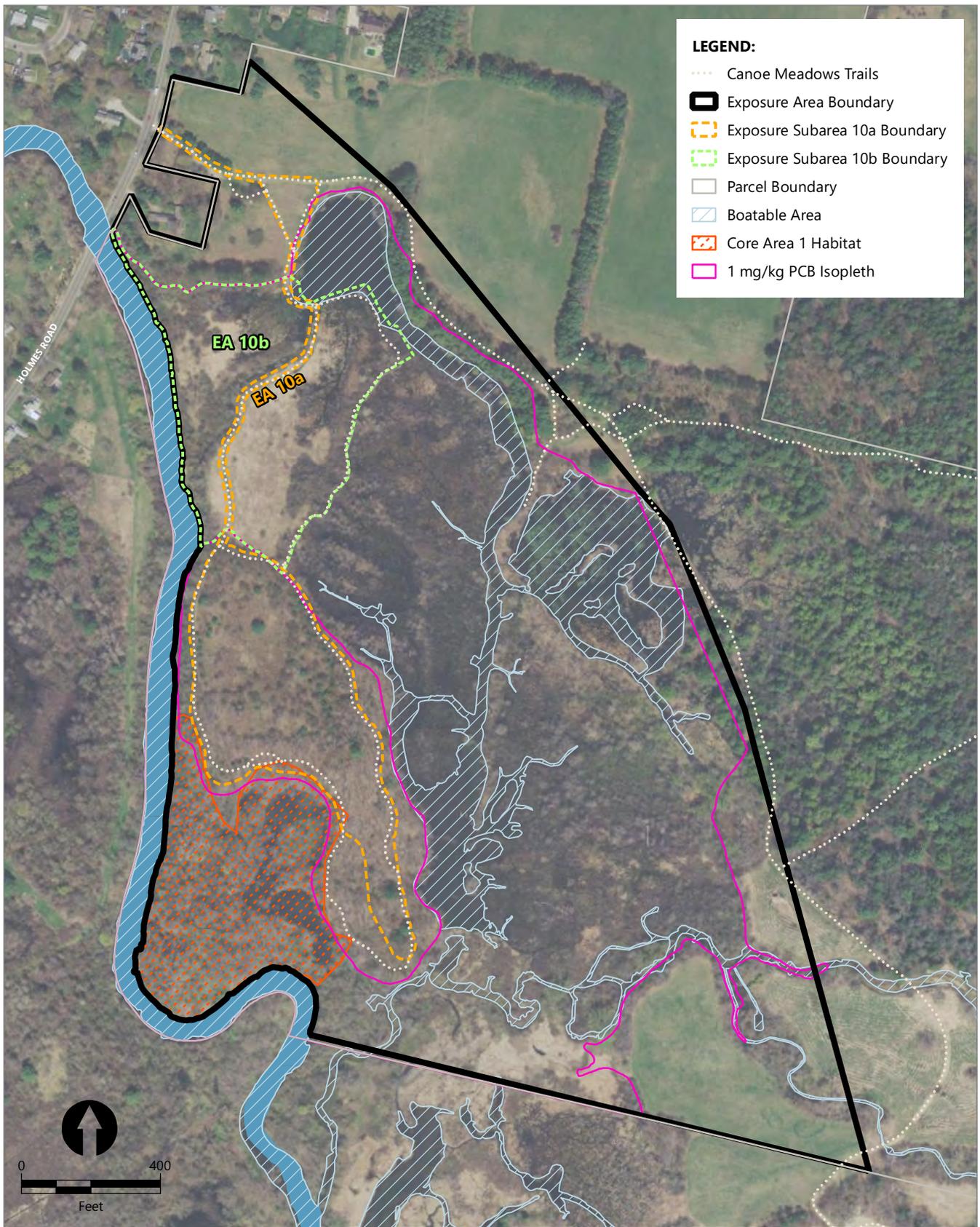
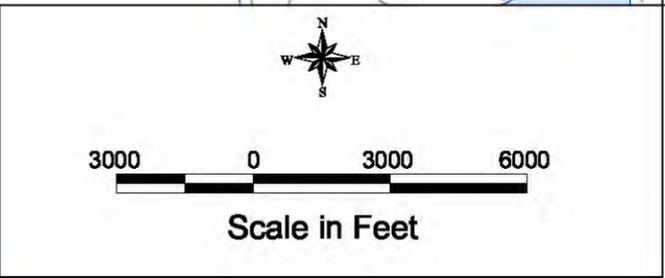
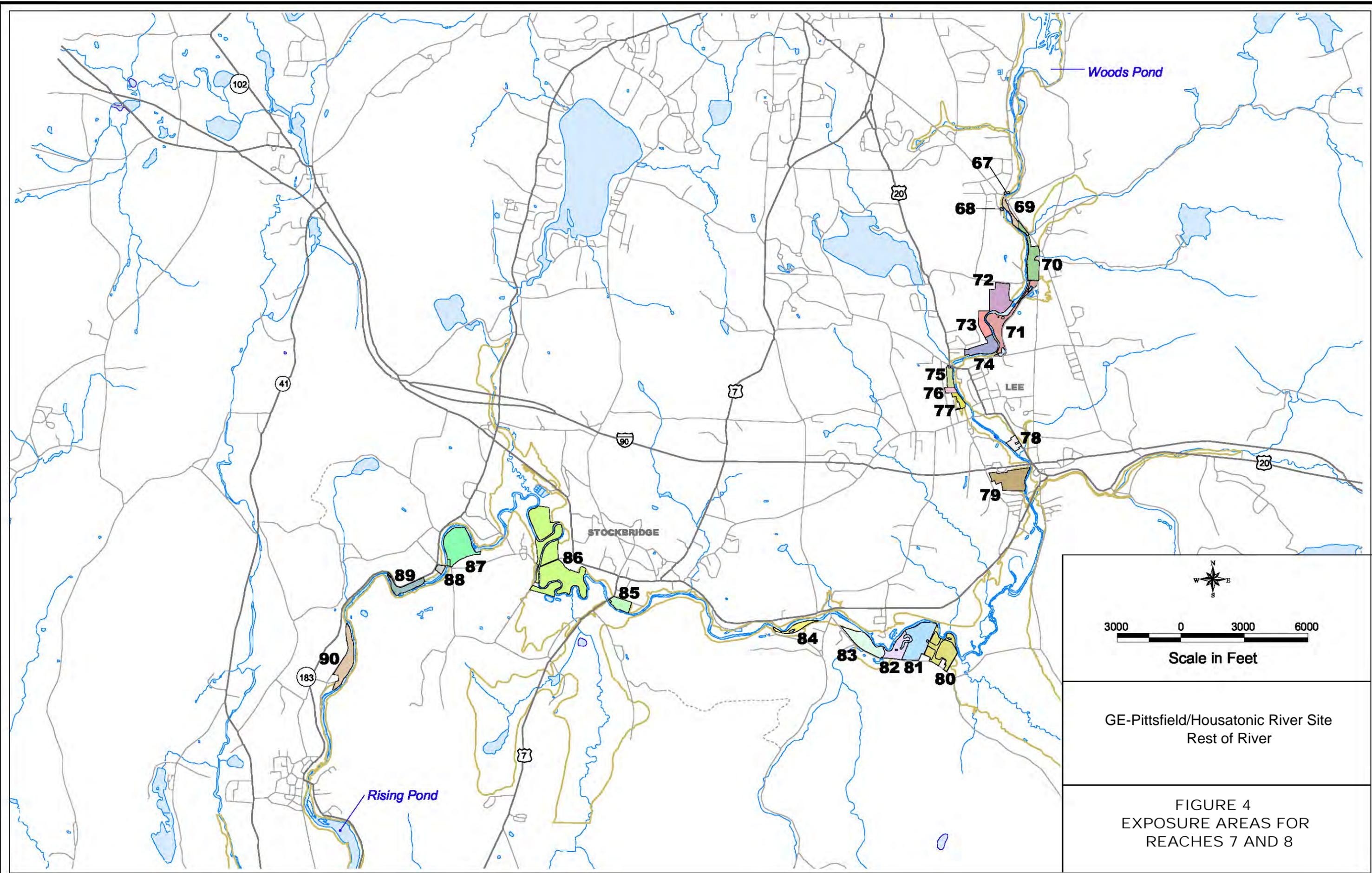
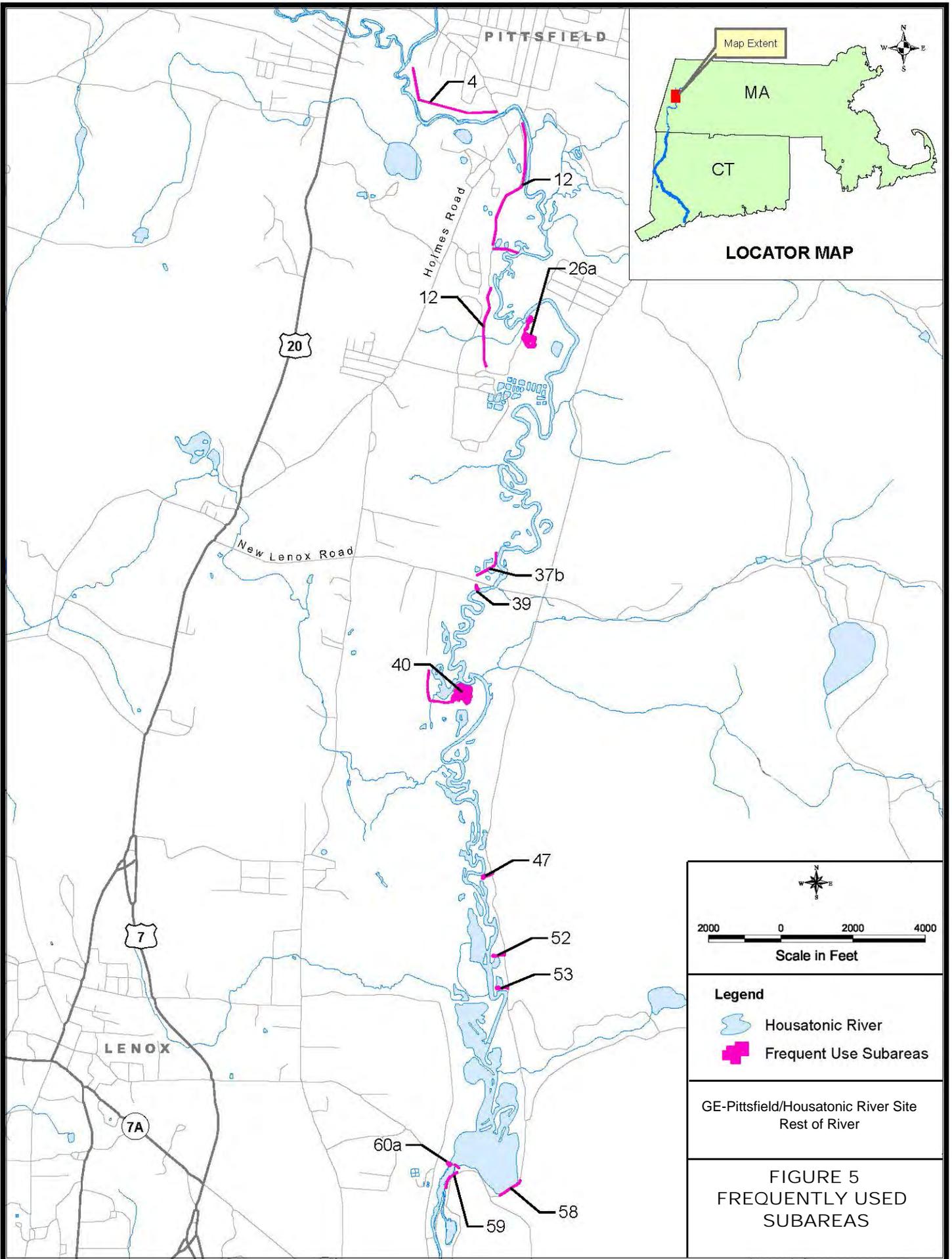


Figure 3A
Exposure Area 10
 GE-Pittsfield/Housatonic River
 Rest of River



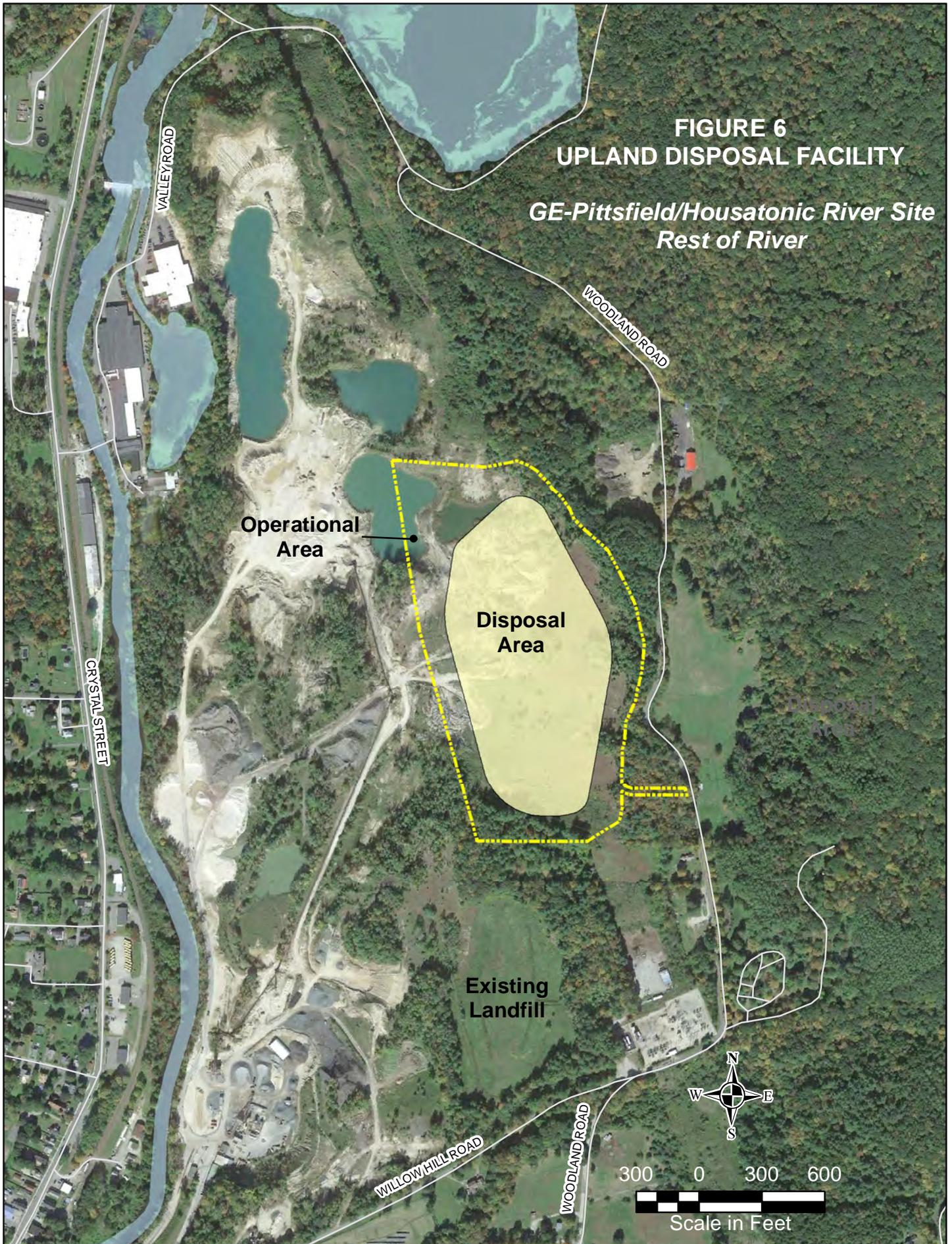
GE-Pittsfield/Housatonic River Site
Rest of River

FIGURE 4
EXPOSURE AREAS FOR
REACHES 7 AND 8

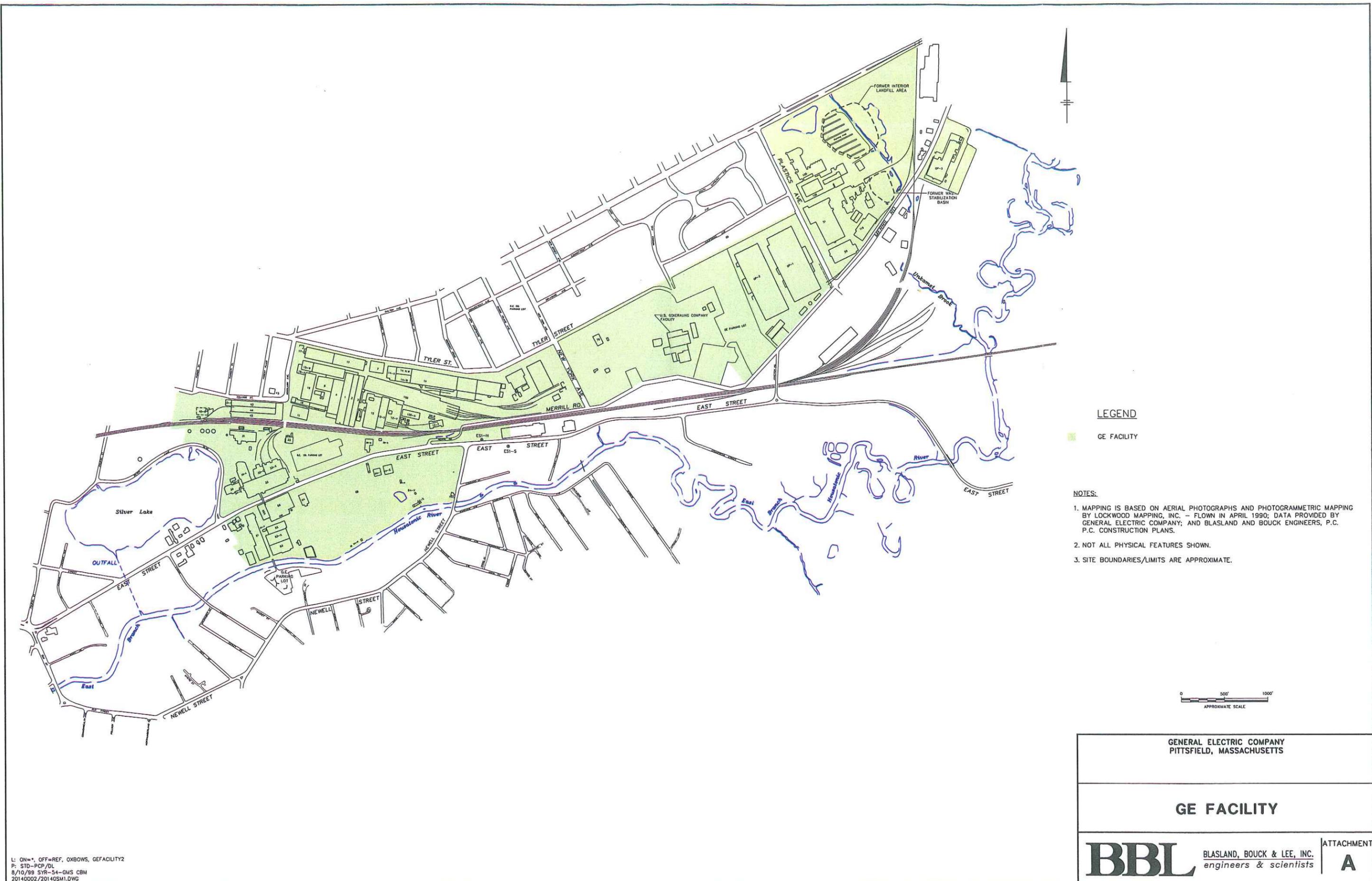


**FIGURE 6
UPLAND DISPOSAL FACILITY**

*GE-Pittsfield/Housatonic River Site
Rest of River*

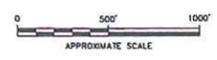


**ATTACHMENT A
GE FACILITY MAP**



LEGEND
 GE FACILITY

- NOTES:**
1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY; AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 2. NOT ALL PHYSICAL FEATURES SHOWN.
 3. SITE BOUNDARIES/LIMITS ARE APPROXIMATE.



GENERAL ELECTRIC COMPANY PITTSFIELD, MASSACHUSETTS	
GE FACILITY	
BBL	BLASLAND, BOUCK & LEE, INC. engineers & scientists
ATTACHMENT A	

L: ON=*, OFF=REF, OXBOWS, GEFACILITY2
 P: STD-PCP/DL
 8/10/99 SYR-54-GUS CBM
 20140002/20140SM1.DWG

ATTACHMENT B
MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE CORE
HABITAT AREA FIGURES, HOUSATONIC RIVER PRIMARY STUDY
AREA (PSA), AND JULY 31, 2012 LETTER FROM MASSACHUSETTS
DIVISION OF FISHERIES AND WILDLIFE



MassWildlife

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

July 31, 2012

Robert G. Cianciarulo, Chief
Massachusetts Superfund Section
Office of Site Remediation and Restoration
EPA New England (OSRR-07-01)
5 Post Office Square
Boston, MA 02109-3912

Re: Housatonic River, Core Habitat Areas in the Primary Study Area

Dear Mr. Cianciarulo:

As you are aware, the states of Massachusetts and Connecticut have been working cooperatively for the last several months to discuss potential approaches to clean up the Rest of River portion of the GE Housatonic site. These discussions have focused, in part, on the need to address the risks from polychlorinated biphenyls (PCBs) to humans, fish, and wildlife while avoiding, mitigating or minimizing the impacts of the cleanup on the unique ecological character of the Housatonic River. Minimizing impacts to habitat and, in particular, species listed pursuant to the Massachusetts Endangered Species Act, M.G.L. c. 131A ("MESA"), and 321 CMR 10.00 (the "MESA Regulations") presents unique challenges as almost the entire Primary Study Area (PSA) is mapped as Priority Habitat for state-listed species (for a description of Priority Habitat and its regulatory function please see:

http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/priority_habitat/priority_habitat_home.htm. Therefore, in order to help identify the most important areas for habitat protection, as well as habitats and species that might be particularly sensitive to impacts from PCB remediation activities, the Massachusetts Division of Fisheries and Wildlife ("DFW") developed maps of "Core Habitat Areas." The purpose of this letter is to provide an overview of the approach we used to identify the Core Areas.

As part of our Priority Habitat mapping process, taxonomic experts from DFW's Natural Heritage & Endangered Species Program ("NHESP") routinely delineate habitat for each state-listed species, based on actual field-documented records, or "occurrences." There are four types of Housatonic Core Areas. Core Areas 1, 2, and 3 represent subsets of the delineated state-listed species habitat found in the PSA. Core Area 4 represents a subset of the documented and potential vernal pool habitat in the PSA. Please refer to the enclosed maps dated May 21, 2012 which depict the locations of these Core Areas, entitled "Core Habitat Areas, Housatonic River Primary Study Area (PSA)", "Core Habitat Areas (Core Area 2), Housatonic River Primary Study Area (PSA)", and "Part of the Housatonic River Showing Primary Study Area, High Species Richness, and Vernal Pools".

Core Area 1 includes the highest quality habitat for species that are most likely to be adversely impacted by PCB remediation activities (Table 1). As can be seen in Table 1, most of these species are plants that are not mobile, and are very sensitive to the expected effects of soil remediation

www.masswildlife.org

Division of Fisheries and Wildlife

Field Headquarters, North Drive, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7891

An Agency of the Department of Fish and Game

activities. Core Area 1 also includes habitat for one state-listed moth species that inhabits mature floodplain forest, one habitat area for the Jefferson's Salamander, and Triangle Floater mussel beds. Some of the plant species found in Core Area 1 are located in floodplain forest, which is not readily restorable and would take decades to return to its current state, if ever. Finally, Core 1 includes areas that are excellent examples of two rare natural communities—High Terrace Floodplain Forest and Black Ash Bur Oak Hemlock Swamp.

Core Area 2 includes the highest quality habitat for more mobile species that may be less vulnerable to remediation impacts, species where the habitat is likely to be somewhat more easily restored, and listed species that may be of a somewhat lower conservation concern, given their state-wide distribution (e.g. American Bittern; see Table 2). For example, the Mustard White is a Threatened butterfly species of significant conservation concern that uses a mix of natural areas along the river and old field habitat. It may be possible to remediate its habitat in phases, restoring and replacing host plants as the work is completed.

Core Area 3 includes those areas with dense concentrations of state-listed species. Specifically, Core Area 3 includes areas where Division biologists have delineated overlapping habitat for eight (8) or more state-listed species.

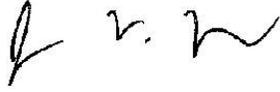
Core Area 4 includes all certified vernal pools in the PSA as well as additional potential vernal pool habitat areas which, based on information provided by GE and EPA, are likely to meet the Massachusetts criteria for vernal pool certification based on the presence of "obligate" vernal pool breeding amphibians see:

http://www.mass.gov/dfwele/dfw/nhosp/vernal_pools/vernal_pool_cert.htm.

These Core Areas played an important role during recent discussions between the EPA and the states of Massachusetts and Connecticut regarding potential remediation approaches to Rest of River. Consistent with the requirements of MESA and the MESA Regulations, the Core Areas are helping to guide efforts to avoid, minimize and mitigate impacts to state-listed species. Although a final MESA evaluation will not be completed until the remedy design phase, by focusing on the Core Areas, EPA and the Commonwealth believe that a framework has been established to achieve MESA permitting standards of assessing alternatives to both temporary and permanent impacts to state-listed species, and of limiting the impact to an insignificant portion of the local populations of affected species. See 321 CMR 10.23. For example, the parties focused on avoidance of some of the most important and sensitive rare species habitats in Core Area 1. Similarly, in Core Areas 2 and 3, avoidance of impacts when practical, careful consideration of PCB remediation methods and the sequence and timing of remediation activities, as well as after-the-fact habitat mitigation are all approaches that will assist in achieving the substantive requirements of MESA. Although the Core Areas play an important role in guiding avoidance and minimization of impacts to state-listed species, in some cases the "take" of state-listed species is likely to be unavoidable. In those cases, consistent with MESA's status as a location-specific applicable or relevant and appropriate requirement ("ARAR"), the Commonwealth will work with GE and the EPA to minimize impacts and to ensure that an adequate long-term net-benefit mitigation plan for the affected state-listed species is designed and implemented, as required by 321 CMR 10.23(2)(c).

If you have any questions about this letter, please don't hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. R. W.', with a stylized flourish at the end.

Jon Regosin, Ph.D.
Chief of Conservation Science
Natural Heritage & Endangered Species Program

Encl.: Table 1. Species and Natural Communities Included in Core Area 1 Delineation
Table 2. Species and Natural Communities Included in Core Area 2 Delineation

cc: Mark Tisa, MA Division of Fisheries & Wildlife
Richard Lehan, MA Department of Fish & Game
Mike Gorski, MA Dept. of Environmental Protection
Eva Tor, MA Dept. of Environmental Protection
Traci Iott, CT Dept. of Energy & Environmental Protection

TABLE 1. Species and Natural Communities Included in Core Area 1 Delineation

Common Name	Scientific Name	Taxonomic Group	MESA Status
Triangle Floater	<i>Alasmidonta undulata</i>	Mussel	No Longer Listed
Crooked-Stem Aster	<i>Symphotrichum prenanthoides</i>	Plant	Special Concern
Wapato	<i>Sagittaria cuneata</i>	Plant	Threatened
Bristly Buttercup	<i>Ranunculus pensylvanicus</i>	Plant	Special Concern
Bur Oak	<i>Quercus macrocarpa</i>	Plant	Special Concern
Ostrich Fern Borer	<i>Papaipema sp. 2 nr. pterisii</i>	Butterflies & Moths	Special Concern
High-terrace floodplain forest		Natural Community	
Red Maple - Black Ash - Hemlock - Bur Oak Swamp		Natural Community	
Hairy Wild Rye	<i>Elymus villosus</i>	Plant	Endangered
Intermediate Spike Sedge	<i>Eleocharis intermedia</i>	Plant	Threatened
Narrow Leaved Spring Beauty	<i>Claytonia virginica</i>	Plant	Endangered
Tuckerman's Sedge	<i>Carex tuckermanii</i>	Plant	Endangered
Gray's Sedge	<i>Carex grayi</i>	Plant	Threatened
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Amphibian	Special Concern

TABLE 2. Species and Natural Communities Included in Core Area 2 Delineation

Common Name	Scientific Name	Taxonomic Group	MESA Status
American Bittern	<i>Botaurus lentiginosus</i>	Bird	Endangered
Mustard White	<i>Pieris oleracea</i>	Butterfiles & Moths	Threatened
Wood Turtle	<i>Glyptemys insculpta</i>	Turtle	Special Concern
Common Moorhen	<i>Gallinula chloropus</i>	Bird	Special Concern



Legend

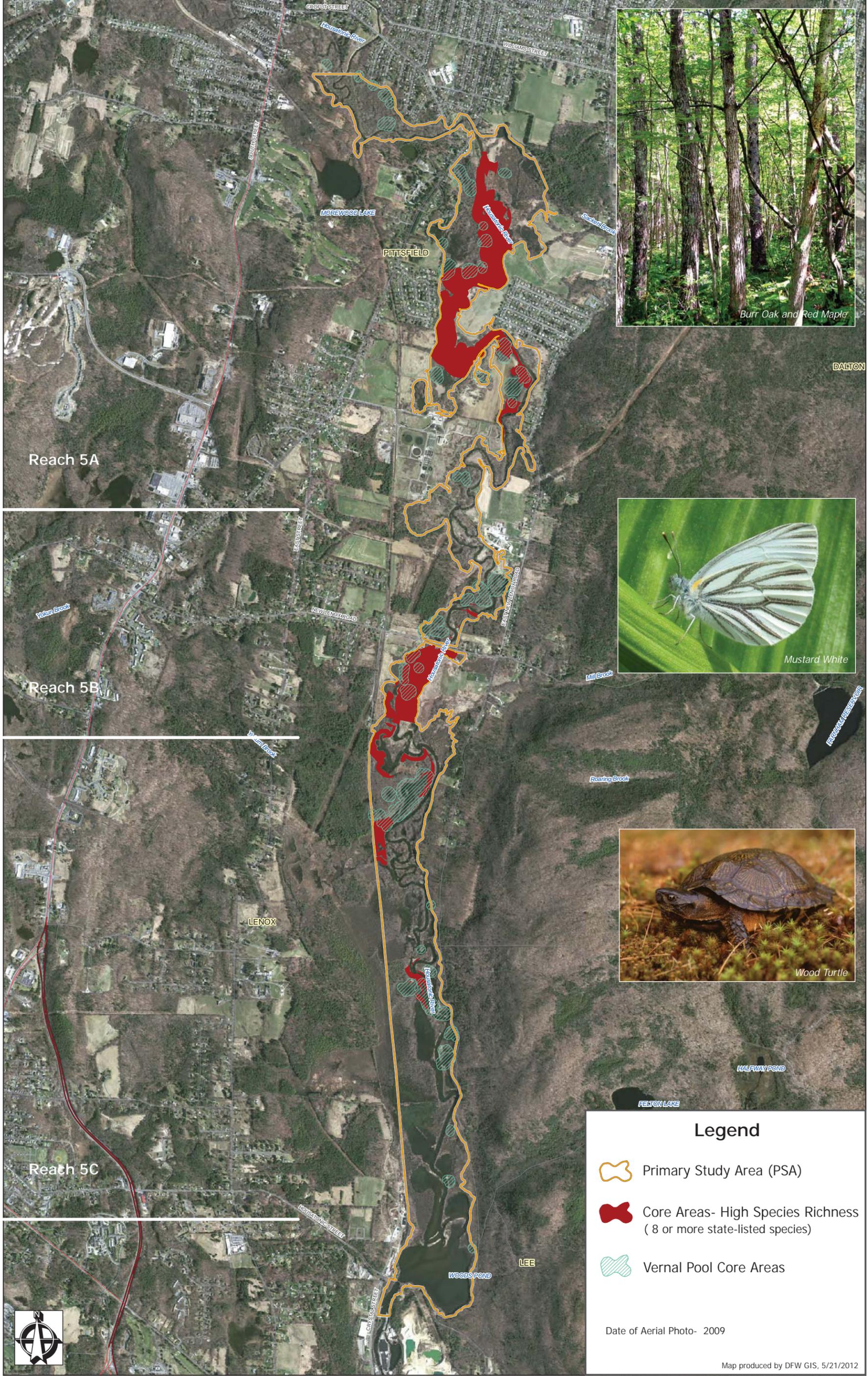
- Primary Study Area (PSA)
- Core Area 1-
These areas show the most important/disturbance-sensitive habitat areas for state-listed species

Date of Aerial Photo- 2009

Map produced by DFW GIS, 5/21/2012

Core Habitat Areas Housatonic River Primary Study Area (PSA)





Legend

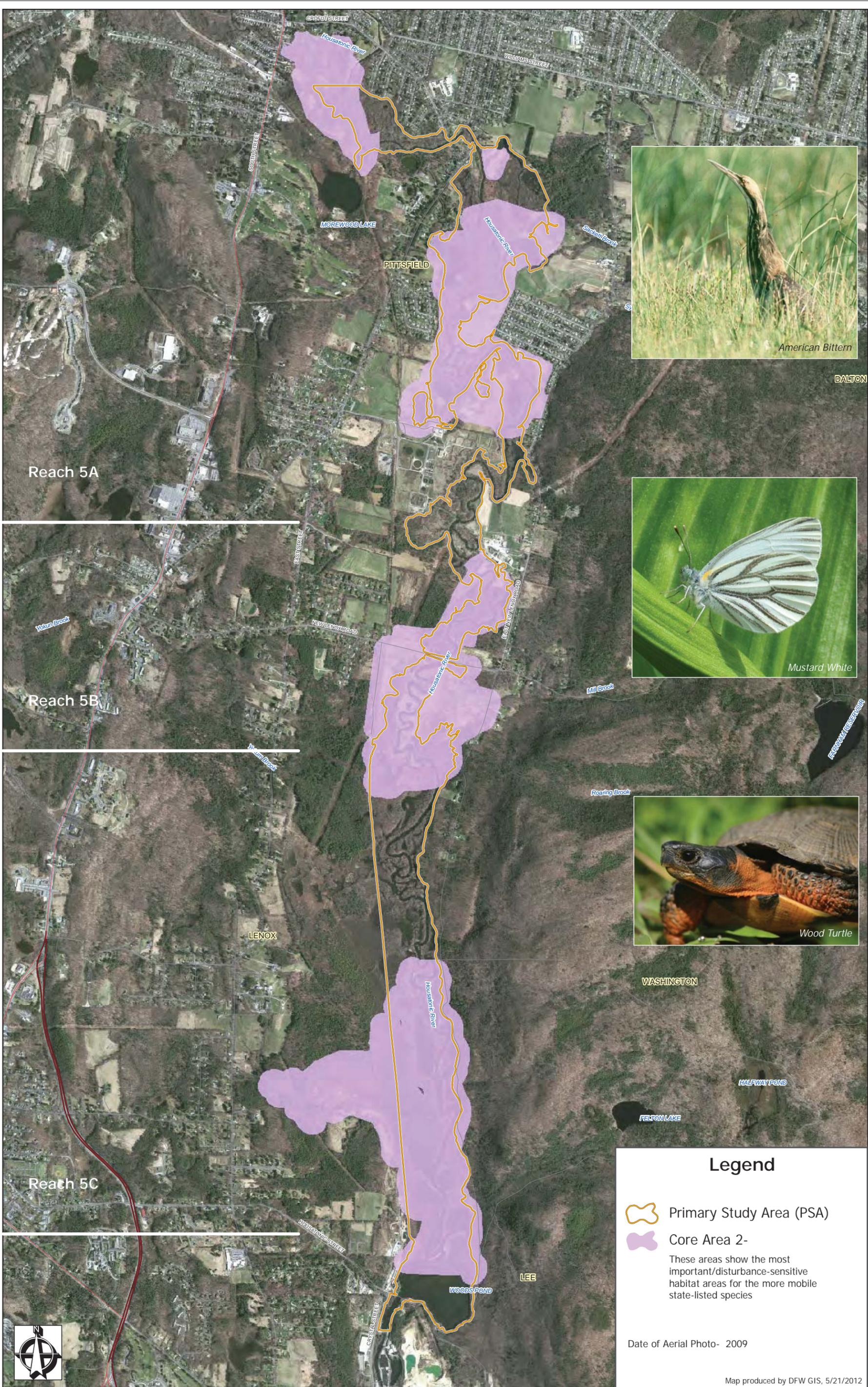
-  Primary Study Area (PSA)
-  Core Areas- High Species Richness (8 or more state-listed species)
-  Vernal Pool Core Areas

Date of Aerial Photo- 2009

Map produced by DFW GIS, 5/21/2012

**Part of the Housatonic River
Showing Primary Study Area, High Species Richness, and Vernal Pools**





Legend

- Primary Study Area (PSA)
- Core Area 2-
These areas show the most important/disturbance-sensitive habitat areas for the more mobile state-listed species

Date of Aerial Photo- 2009

Map produced by DFW GIS, 5/21/2012

Core Habitat Areas (Core Area 2) Housatonic River Primary Study Area (PSA)



ATTACHMENT C
SUMMARY OF APPLICABLE OR RELEVANT AND APPROPRIATE
REQUIREMENTS (ARARs)

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Statute/Regulation	Citation ^a	Synopsis of Requirements	Status	Action(s) to be Taken to Achieve ARARs ^b
CHEMICAL-SPECIFIC ARARs				
Federal ARARs				
None				
State ARARs				
Connecticut Remediation Standards Regulations, Direct Exposure Criteria for Soil	Conn. Gen. Stat. 22a-133k-1 through k-3 Appendix A	Establishes soil cleanup standards, including those for residential use.	Potentially applicable	<p>The Rest of River includes Reaches 10-16 in Connecticut. This Permit provides that under certain circumstances, response actions may be required to address risks posed by PCB-contaminated soil in Connecticut. The remedy^c includes Performance Standards for residential use in Connecticut that are based upon the Residential Direct Exposure Criteria, including the Alternative Soil Criteria.</p> <p>Based on a site-specific risk evaluation consistent with the CT Remediation Standards Regulations, EPA has established a standard of 2 ppm as the Performance Standard for residential properties in Rest of River, including Connecticut.</p>
To Be Considered				
Cancer Slope Factors (CSFs)	EPA Integrated Risk Information System	Guidance values used to evaluate the potential carcinogenic hazard caused by exposure to PCBs.	To be considered	CSFs have been used to compute the individual cancer risk resulting from exposure to carcinogens in site media.
Reference Doses (RfDs)	EPA Integrated Risk Information System	Guidance values used to evaluate the non-cancer hazards associated with exposure to PCBs.	To be considered	RfDs have been used to characterize human health risks due to non-carcinogens in site media.

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PCBs: Cancer Dose Response Assessment and Application in Environmental Mixtures (EPA, 1996).	EPA/600/P-96/001F (National Center for Environmental Assessment, Office of Research and Development, September 1996)	Guidance describing EPA's reassessment regarding the carcinogenicity of PCBs.	To be considered	The guidance has been used in characterization of site risks.
Guidelines for Carcinogenic Risk Assessment (EPA, 2005)	EPA/630/P-03/001F (EPA Risk Assessment Forum, March 2005)	Framework and guidelines for assessing potential cancer risks from exposure to pollutants and other environmental agents.	To be considered	Guidelines have been used in assessing risks.
Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens	EPA/630/R-03/003F (EPA Risk Assessment Forum, March 2005)	Guidance on issues related to assessing cancer risks associated with early-life exposures, including an adjustment for carcinogens acting through a mutagenic mode of action.	To be considered	Guidance has been used in assessing risks.
Massachusetts Fish Consumption Advisory	Massachusetts Department of Public Health, Freshwater Fish Consumption Advisory List (2007)	Advises that the public should not consume any fish from the Housatonic River from Dalton to Sheffield due to PCBs; also includes frogs and turtles.	To be considered	This advisory will be considered in reference to biota consumption and actions to reduce fish consumption risks, including institutional controls.
Massachusetts Waterfowl Consumption Advisory	Massachusetts Department of Public Health, Provisional Waterfowl Consumption Advisory (1999)	Advises that the public should avoid eating all mallards and wood ducks from the Housatonic River and its impoundments from Pittsfield to Rising Pond.	To be considered	This advisory will be considered in reference to waterfowl consumption and actions to reduce waterfowl consumption risks, including institutional controls.

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Statute/Regulation	Citation ^a	Synopsis of Requirements	Status	Action(s) to be Taken to Achieve ARARs ^b
Connecticut Fish Consumption Advisory	Connecticut Department of Public Health (CDPH), 2010 Advisory for Eating Fish from Connecticut Water bodies	Establishes advisories on consuming fish from the Housatonic River in Connecticut (above Derby Dam), including Lakes Lillinonah, Zoar and Housatonic, due to PCBs in fish. Advisories vary by species, location and group of consumers, ranging from “do not eat” to “one meal per week.”	To be considered	This advisory will be considered in reference to fish consumption and actions to reduce fish consumption risks, including institutional controls.
LOCATION-SPECIFIC ARARs				
Federal ARARs				
Clean Water Act – Section 404 and implementing regulations	33 USC 1344 33 CFR Parts 320-323, 325, 332 (ACOE) 40 CFR Part 230 (EPA)	Under these requirements, no activity that adversely affects a wetland, including vernal pools, shall be permitted if a practicable alternative with less adverse effect on the aquatic ecosystem is available; a discharge cannot cause or contribute, after consideration of disposal site dilution and dispersion, to violation of any applicable water quality standard, violate an applicable toxic effluent standard, jeopardize existence of endangered or threatened species; contribute to significant degradation of waters of the U.S. Discharger must take appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem. Mitigation/restoration required for unavoidable impacts to resources.	Applicable	The remedy is designed to reduce human health and environmental risks posed by PCBs, and includes actions to excavate riverbed sediments, bank soils and Floodplain soils, with backfilling and capping. The remedy will include excavation technology and multiple engineering controls to minimize resuspension of any PCB-contaminated water, including any from wetlands. The remedy will proceed generally from upstream to downstream, with capping to follow in parts of the River. Any remedy activities that will alter wetlands, including excavation of contaminated wetland soils and sediments, backfilling and capping, will be conducted in accordance with these standards. (For purposes of this Attachment C, compliance with ARARs or standards refers to compliance with the substantive requirements, criteria, or limitations of each provision). There is no practicable alternative with lesser effects on the aquatic ecosystem. The remedy will not cause or contribute to violation of any applicable water quality standard, violate an applicable toxic effluent standard, jeopardize existence of endangered or threatened species; or contribute to significant degradation of waters of the U.S.

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				Implementation of the remedy will include appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem. Mitigation/restoration will be conducted consistent with these regulations.
Floodplain Management and Protection of Wetlands	44 CFR Part 9	Regulation sets forth policy, procedure and responsibilities to implement and enforce Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands.	Relevant and appropriate	The remedy includes actions, including excavation and capping activities, to reduce human health and environmental risks in wetlands and the floodplain. Executive Orders will be implemented and enforced consistent with the policy, procedure and responsibilities stated in these regulations.
Rivers and Harbors Act of 1899, Section 10	33 USC 403	U.S. Army Corps of Engineers approval is generally required to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of the channel of any navigable water in the U.S.	Applicable	The remedy includes excavation and filling of the Housatonic River, and so may alter or modify navigable waters as provided under the Act. Any remedy activities subject to this Act will comply with any substantive requirements of this provision. Remedy will be coordinated with the U.S. Army Corps of Engineers.
Fish and Wildlife Coordination Act	16 U.S.C. 662 et seq.	Sets forth requirements related to federal actions that may modify a water body.	Applicable	This remedy may modify a water body as provided under the Act. Any remedy activities subject to this Act will comply with any substantive requirements.
Resource Conservation and Recovery Act (RCRA) requirements for hazardous waste facilities in floodplains	40 CFR 264.1(j)(7) 40 CFR 264.18(b)	Remediation waste management sites must be designed, constructed, operated and maintained to prevent washout of any hazardous waste by a 100-year flood, unless procedures are in effect to have waste removed safely before flood waters reach the facility or no adverse effects on human health or the environment will result if washout occurs.	Potentially relevant and appropriate	The remedy does not include disposal pursuant to these regulations, but to the extent that these materials are removed from the Area of Contamination and temporary movement of waste (stockpiling) during remediation occurs, measures will be taken to prevent washout.

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National Historic Preservation Act and regulations	54 USC 300101 et seq. 36 CFR Part 800	A federal agency must take into account the project's effect on properties included or eligible for inclusion in the National Register of Historic Places.	Applicable	If this remedy affects historic properties/structures subject to these requirements, activities will be coordinated with the state, tribal and federal authorities and conducted in accordance with the substantive requirements of these regulations.
Archaeological and Historic Preservation Act	54 U.S.C. 312501 et seq.	When a Federal agency finds, or is notified, that its activities in connection with a Federal construction project may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archeological data, such agency shall notify state, tribal or federal authorities. Such agency may request state, tribal or federal authorities to undertake the preservation of such data or it may undertake such activities. If the state, tribal or federal authorities determine that such data is significant and is being or may be irrevocably lost or destroyed, it is to conduct a survey and other investigation of the areas which are or may be affected and recover and preserve such data which are not being, but should be, recovered and preserved in the public interest.	Applicable	If during remedial design or remedial action, it is determined that this remedy may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archaeological data, EPA will notify state, tribal or federal authorities and comply with the substantive requirements in this statute.
Executive Order 11988 (Floodplain Management)	Executive Order	Federal agencies are required to avoid impacts associated with the occupancy and modification of a floodplain and avoid support of a floodplain development whenever there is a practicable alternative.	To be considered	In the remedy, activities will be performed in the floodplain. All activities will be conducted to ensure that they do not result in occupancy and modification of the floodplain. There is no practicable alternative to remedial activities in the floodplain; the remedy is designed to minimize harm to or within the floodplain.

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Executive Order 11990 (Protection of Wetlands)	Executive Order	Federal agencies are required to avoid adversely impacting wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	To be considered	Activities subject to this Executive Order will be conducted in accordance with the substantive requirements of these standards. There is no practicable alternative to remediation activities in the wetlands; the remedy is designed to minimize harm to wetlands.
Endangered Species Act and Regulations	16 USC 1536(a)-(d) 50 CFR Part 402, Subparts A&B 50 CFR 17.	Must identify whether threatened or endangered (T&E) species or critical habitat is affected by proposed action, or take mitigation measures so that action does not affect species/habitat.	Applicable	These provisions will be complied with in regard to federally-listed threatened or endangered species and their critical habitat.
State ARARs				
Massachusetts Waterways Law and Regulations	MGL Ch. 91 310 CMR 9.00, including 9.40.	Regulates construction, placement, excavation, alteration, removal or use of fill or structures in waterways. Among the requirements is 310 CMR 9.40, Standards for Dredging and Dredged Material Disposal, which includes restrictions on improvement dredging.	Applicable	This remedy includes construction, placement, excavation, alteration, removal and use activities in the Housatonic River. Except as otherwise provided herein, measures undertaken will meet the substantive environmental standards and limit impacts. Portions of the remedy in the River will take place within the ACEC. If the dredging in the ACEC is governed by 310 CMR 9.40, the dredging is permitted as an Ecological Restoration Project. If it is deemed to not be an Ecological Restoration Project, EPA reiterates the waiver in the 2016 Permit in which EPA, in consultation with the Commonwealth, waived pursuant to CERCLA 121(d)(4)(C), the requirements of 310 CMR 9.40 that prohibit dredging in an ACEC.

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Massachusetts Clean Water Act – Water Quality Certification Regulations	314 CMR 9.00 et seq., including 9.06-9.07	For discharge of dredged or fill material, criteria at 9.06 include, without limitation, the following: (a) no discharge is permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences; (b) no discharge is permitted unless appropriate and practicable steps have been taken which will avoid and minimize potential adverse impacts to bordering or isolated vegetated wetlands or land under water; (c) no discharge is permitted to Outstanding Resource Waters, except as specified in 9.06(3); (d) discharge to certified Vernal Pools requires a demonstration per 9.08; (e) no discharge is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation; (f) stormwater is to be controlled with best management practices; and (g) no discharge shall be permitted in rare circumstances where the activity will result in substantial adverse impacts to the physical, chemical, or biological integrity of surface waters.	Applicable	<p>The remedy includes placement of clean fill in the River, riverbank and floodplain, following excavation/dredging, as well as the application of a sediment amendment, such as activated carbon, to Vernal Pools, or in the alternative, excavation of Vernal Pools. All activities will be conducted in accordance with these regulations, in particular, without limitation:</p> <p>There is no practicable alternative to the remedy which would have less adverse impact on the aquatic ecosystem;</p> <p>The remedy includes activities to avoid and minimize potential adverse impacts to bordering or isolated vegetated wetlands or land under water;</p> <p>Any discharge to Outstanding Resource Waters (certified Vernal Pool) would satisfy the substantive requirements of 9.08 because all reasonable measures will be taken to avoid, minimize and mitigate adverse effect on the environment and the remedy is justified by an overriding public interest.</p> <p>Remedial work that may affect specified habitat sites of Rare Species will be carried out in accordance with the MESA ARAR requirement for a Conservation and Management Plan. Therefore, the remedy will not necessitate a waiver from the prohibition of 9.06(2).</p> <p>There will not be any discharge of dredged or fill material for impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation within Waters of the United States or the Commonwealth. The remedy will use best management practices to control stormwater. The remedy will not include activities that result in substantial adverse impacts to the physical, chemical or biological integrity of surface waters.</p>

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Statute/Regulation	Citation ^a	Synopsis of Requirements	Status	Action(s) to be Taken to Achieve ARARs ^b
		<p>For dredging and dredged material management, criteria at 9.07 include, without limitation, the following: (a) no dredging is allowed if there is a practicable alternative that would have less impact on the aquatic ecosystem, no dredging is permitted unless appropriate and practicable steps have been taken to avoid, minimize or mitigate adverse effects on land under water, and no dredging is allowed which will have adverse effect on specified habitat sites of rare species except under certain conditions; (b) dredging and dredged material management must be conducted to ensure protection of human health, public safety, public welfare and the environment; (c) dredged material shall not be disposed if a feasible alternative exists that involves the reuse, recycling, or contaminant destruction and/or detoxification; (d) all dredged material management activities must comply with 314 CMR 9.00 and other statutes and regulations; (e) dredged material placed on or in the land at upland locations are subject to release notification requirements and thresholds; (f) dredging not permitted for impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation, or in Outstanding</p>		<p>The remedy includes excavation/dredging of river sediments, and excavation of bank and floodplain soils. The remedy also includes the application of a sediment amendment, such as activated carbon, to Vernal Pools, or in the alternative, excavation of Vernal Pools. All activities will be conducted in accordance with these regulations, in particular, without limitation:</p> <p>There is no practicable alternative to the remedy which would have less adverse impact on the aquatic ecosystem.</p> <p>The remedy includes appropriate and practicable steps to avoid, minimize or mitigate adverse effects on land under water.</p> <p>Remedial work that may affect specified habitat sites of Rare Species will be carried out in accordance with the MESA ARAR requirement for a Conservation and Management Plan. Therefore, the remedy will not necessitate a waiver from the prohibition of 9.07(1)(a).</p> <p>Dredging in the remedy will be conducted in a manner that ensures protection of human health, public safety, public welfare and the environment.</p> <p>There is no feasible alternative to the disposal of dredged material involving reuse, recycling, or contaminant destruction and/or detoxification.</p> <p>All dredged material management activities will comply with 314 CMR 9.00 and other pertinent statutes and regulations. Dredged material placed on the land at upland locations will comply with pertinent thresholds and requirements. Implementation of the remedy will meet the requirements for an Intermediate Facility in 314 CMR 9.07(4) because the</p>

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		<p>Resource Waters; dredging may be permitted to manage stormwater for flood control purposes if there is no practicable alternative and best management practices are implemented; (g) no dredging is permitted in rare circumstances where the activity will result in substantial adverse impacts to the physical, chemical, or biological integrity of waters; (h) no dredging is permitted in Outstanding Resource Waters.</p>		<p>remedy will be designed and implemented so there are no permanent adverse impacts on the ACEC.</p> <p>Any dredging for stormwater detention or management purposes would be conducted per the requirements.</p> <p>Any dredging in Outstanding Resource Waters (certified Vernal Pool) would satisfy the substantive requirements of 9.08 because all reasonable measures will be taken to avoid, minimize and mitigate adverse effect on the environment and the remedy is justified by an overriding public interest.</p> <p>The remedy does not include dredging where the activity will result in substantial adverse impacts to the physical, chemical, or biological integrity of waters.</p>
<p>Massachusetts Wetlands Protection Act and Regulations</p>	<p>MGL c. 131, section 40 310 CMR 10.00, including 10.53</p>	<p>These requirements govern removal, dredging, filling or altering of banks, riverfront areas, inland wetlands, land subject to flooding and other areas, including provisions on limited projects.</p> <p>Provisions include 10.53(3), which authorizes certain projects as “limited projects”, including, in 10.53(3)(q), responses to a release or threat of release of oil and/or hazardous materials in accordance with the Massachusetts Contingency Plan (MCP), where there is no practicable alternative consistent with the MCP and that would be less damaging to resource areas, and which avoids or minimizes impacts to resources, including meeting specific standards to the maximum extent practicable.</p>	<p>Applicable</p>	<p>Any remedy activities that remove, dredge, fill, or alter such areas will be conducted in accordance with these standards.</p> <p>The remedy, to be implemented as a CERCLA response action, is in accordance with the MCP, has no practicable alternative consistent with the MCP that would be less damaging to resource areas, and avoids or minimizes impacts to resource areas, including meeting specific standards to the maximum extent practicable, and thus meets the standards for a “limited project” under 10.53(3)(q).</p> <p>Remedial work that may affect specified habitat sites of Rare Species will be carried out in accordance with the MESA ARAR requirement for a Conservation and Management Plan. Therefore, the remedy will not necessitate a waiver from the prohibition in 10.53(3).</p>

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Statute/Regulation	Citation ^a	Synopsis of Requirements	Status	Action(s) to be Taken to Achieve ARARs ^b
Massachusetts Dam Safety Standards	302 CMR 10.00	Regulations govern design and construction of new and existing dams, and removal of existing dams, and inspection of dams.	Applicable	The remedy includes provisions for inspection, operation and maintenance of dams, removal of dams, and management of materials generated during work on, or removal of, a dam. Additionally, the remedy will comply with these regulations for Massachusetts dams in the area of remedy activity.
Massachusetts Site Suitability Criteria	310 CMR 16.40(3),(4)	Site suitability criteria for solid waste facilities, including facility-specific and general site suitability criteria.	Potentially applicable to the temporary management of excavated materials; potentially applicable or relevant and appropriate for Upland Disposal Facility.	<p>The remedy includes, among other components, the excavation of PCB-contaminated soil and sediment and the off-site disposal of at least 100,000 cubic yards of the PCB-contaminated material, including all PCB material that averages greater than or equal to 50 ppm (as determined by Attachment E to the Permit) at existing licensed facilities approved to receive such material, and the on-site disposal at the Upland Disposal Facility of material averaging less than 50 ppm PCBs. Portions of the remedy will be implemented in the ACEC, or in a Resource Area or Riverfront Area.</p> <p>As provided in Attachment D to the Permit, PCB-contaminated sediments and soils in the Rest of River are regulated for cleanup and disposal as PCB-remediation waste under 40 C.F.R. Part 761. For the portion of the remedy involving sediments and soils with PCB concentrations that average less than 50 ppm (see Attachment E to the Permit), siting standards in 310 CMR 16 are potentially relevant and appropriate.</p> <p>EPA believes that the remedy can comply with all substantive provisions of 310 CMR 16 except for the provisions of 310 CMR 16.40(4)(d). For any provision of 310 CMR 16, to the extent that they are deemed to be an ARAR but cannot be met at the Upland Disposal Facility, EPA determines that compliance would pose a greater risk to human health and the environment and accordingly, EPA waives the provisions pursuant to CERCLA 121(d)(4)(B) (in this Attachment C, references to CERCLA 121(d)(4) include 40 C.F.R. 300.430(f)(1)(ii)(C)).</p>

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				<p>For each area in which solid waste may be disposed of on-site during remedy implementation, including those within the ACEC or Resource Area or Riverfront Area, the remedy includes provisions for restoration of the disposal facility.</p> <p>To the extent: 1. The materials disposed of on-site during implementation of the remedy constitute solid waste under this regulation; and 2. The locations for disposal of the materials are within the ACEC (or, the locations are outside but adjacent to the ACEC and such locations fail to protect the outstanding resources of the ACEC) or in a Resource Area or Riverfront Area; the requirements are not appropriate for the Upland Disposal Facility because compliance will create greater risk to human health and the environment than implementation of the remedy set forth in this Permit given the already damaged and altered area surrounding the Upland Disposal Facility location, the existing contamination from current industrial uses at or near the Upland Disposal Facility location, the multiple protectiveness safeguards built in to the design of the Upland Disposal Facility, the risks inherent to the disposal alternatives besides the Upland Disposal Facility, and the benefits of the proposed remedy. However, if the provisions of 310 CMR 16.40(4)(d) are deemed to be ARARs, EPA considers as waived, pursuant to CERCLA 121(d)(4)(B), the requirements of 16.40 that prohibit or restrict such disposal locations during implementation of the remedy.</p> <p>For the provisions at 16.40(4)(d), the remedy portions in the ACEC (or, at locations outside but adjacent to the ACEC) or at a Resource Area or Riverfront Area may necessarily include temporary management of material excavated during implementation prior to disposal. Such temporary</p>

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				<p>management includes, without limitation, temporary stockpiling or storage of materials, and the potential inclusion of locations related to railroad transport of materials excavated during implementation of the remedy.</p> <p>To the extent: 1. the provisions of 16.40 apply to the temporary management of materials during implementation of the remedy after excavation and prior to disposal; 2. the materials temporarily managed on-site during implementation of the remedy constitute solid waste under this regulation; and 3. the locations for management of the materials are within the ACEC (or, the locations are outside but adjacent to the ACEC and such locations fail to protect the outstanding resources of the ACEC) or in a Resource Area or Riverfront Area: EPA, in consultation with the Commonwealth, considers as waived, pursuant to CERCLA 121(d)(4)(C), the requirements of 16.40 that prohibit or restrict such temporary solid waste management locations during implementation of the remedy.</p>
Massachusetts Facility Location Standards	310 CMR 30	<p>Location standards for hazardous waste management facilities, including, but not limited to, Land Subject to Flooding and Areas of Critical Environmental Concern (ACEC).</p> <p>Criteria for proposed projects that name specific sites, including restrictions on projects in an ACEC or in wetlands.</p>	Potentially applicable for the temporary management of excavated materials; not an ARAR for the Upland Disposal Facility.	<p>The remedy does not include disposal of hazardous waste on-site so this provision does not apply to disposal of materials at the Upland Disposal Facility. The remedy includes, among other components, the excavation of PCB-contaminated soil and sediment and the off-site disposal of at least 100,000 cubic yards of the PCB-contaminated material, including all PCB material that averages greater than or equal to 50 ppm (as determined by Attachment E to the Permit) at existing licensed facilities approved to receive such material, and the on-site disposal of material averaging less than 50 ppm PCBs at the Upland Disposal Facility. Both the on-site and off-site disposal of PCBs are addressed pursuant to 40 C.F.R. 761.61(c) and EPA’s revised risk-based determination in Attachment D of this Permit.</p>

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				<p>For disposal of material on-site, to the extent any material averaging less than 50 ppm is deemed to be Massachusetts hazardous waste solely because of the presence of PCBs, EPA has determined that the requirements are not appropriate. However, if any provision of 310 CMR 30 is deemed to be an ARAR, EPA waives it pursuant to CERCLA 121(d)(4)(B) because compliance with the prohibition of disposal at the Upland Disposal Facility would pose a greater risk to human health and the environment than the proposed remedy, given the already damaged and altered area surrounding the Upland Disposal Facility location, the existing contamination from current industrial uses at or near the Upland Disposal Facility location, the multiple protectiveness safeguards built in to the design of the Upland Disposal Facility, the risks inherent to the disposal alternatives besides the Upland Disposal Facility, and the benefits of the proposed remedy.</p> <p>The remedy portions in the ACEC may necessarily include temporary management of material excavated during implementation prior to disposal. Such temporary management includes, without limitation, temporary stockpiling or accumulation of materials, and the potential inclusion of locations related to railroad transport of materials excavated during implementation of the remedy.</p> <p>For each area in which hazardous waste is temporarily managed during remedy implementation, including those within the ACEC, the remedy includes provisions for restoration of what is disturbed by the temporary management of materials, and for final disposition of materials through disposal.</p>

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				To the extent: 1. The provisions of 310 CMR 30 apply to the temporary management of materials during implementation of the remedy after excavation and prior to disposal; 2. The materials temporarily managed on-site during implementation of the remedy constitute hazardous waste under this regulation, and are not subject to any regulatory exemption such as 310 CMR 30.104(3)(f) exempting dredged materials; and 3. The locations for temporary management of the materials are within the ACEC (or, the locations are outside but adjacent to or in close proximity to the ACEC and such locations are not protective of the outstanding resources of the ACEC); EPA, in consultation with the Commonwealth, considers as waived, pursuant to CERCLA 121(d)(4)(C), the requirements of 310 CMR 30 that prohibit such temporary hazardous waste management locations during implementation of the remedy.
Massachusetts Historical Commission Act and Regulations	MGL c. 9, section 27C 950 CMR 71.07	If a project has an area of potential impact that could cause a change in the historical, architectural, archaeological, or cultural qualities of a property on the State Register of Historic Places, these provisions establish a process for notification, determination of adverse impact, and evaluation of alternatives to avoid, minimize or mitigate such impacts.	Relevant and appropriate	If such properties are present in the area of remedy activities, the remedy will comply with these requirements.

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Massachusetts Endangered Species Act (MESA) and Regulations	MGL c. 131A 321 CMR 10.00, Parts I, II, and V. 321 CMR 10.00, Part IV	<p>A proposed activity in mapped Priority Habitat for a state-listed rare, threatened, endangered species or species of special concern, or other area where such a species has occurred may not result in a “take” of such species, unless it has been authorized for conservation and management purposes that provide a long-term net benefit to the conservation of the affected state-listed species.</p> <p>A conservation and management permit may be issued provided an adequate assessment of alternatives to both temporary and permanent impacts to State-listed species has taken place, an insignificant portion of the local population would be impacted by the project or activity, and an approved conservation and management plan is carried out that provides a long-term Net Benefit to the conservation of the State-listed species.</p> <p>Projects that will alter a designated Significant Habitat must be reviewed to ensure that they will not reduce the viability of the habitat to sustain an endangered or threatened species.</p>	Applicable	<p>The remedy will take place in priority habitat for one or more state-listed species. In implementing the remedy, impacts to state-listed species and their habitats will be avoided or minimized wherever possible. The processes outlined as part of the remedy for work in Core Habitat areas were developed in consultation with the Commonwealth and will satisfy these requirements.</p> <p>To the extent that unavoidable impacts result in a take of state-listed species, EPA would follow the regulatory requirements with respect to implementing a conservation and management plan providing for a long-term net benefit to the affected state-listed species.</p> <p>In a July 31, 2012 letter to EPA, the MA National Heritage and Endangered Species Program identified those state-listed species potentially affected in the project area. Note that since that date, Massachusetts has delisted particular species; in design and implementation of the remedy, EPA, in consultation with MA, will use the then-current listing of State-listed species.</p> <p>There are no designated Significant Habitats in the remedy area. To the extent that a Significant Habitat is designated in the remedy area, this provision will be complied with.</p>

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Massachusetts Area of Critical Environmental Concern (ACEC)	301 CMR 12.11(1)(c)	Provides for establishment of Areas of Critical Environmental Concern in the State. ACEC designation affects other state laws and regulations.	Relevant and appropriate	The ACEC regulations pertain to State agency actions, and are not applicable to the federal EPA action. However, the remedy complies with the substantive requirements of 301 CMR 12.11(1)(c), which may be relevant and appropriate, by advancing the values of 301 CMR 12.11(1)(c), while avoiding adverse effects on identified values in section 12.11(1)(c).
Connecticut Dam Safety Regulations	CGS 22a-401 to 22a-411 Conn. Agencies Regs. Section 22a-409-2.	Regulations govern design and construction of new and existing dams, and removal of existing dams, and inspection of dams.	Potentially applicable	The remedy includes provisions for management of materials generated during work on, or removal of, a dam. To the extent that these regulations are applicable to a Connecticut dam in the area of remedy activity, the remedy will comply with these regulations.
Connecticut Inland Wetlands and Watercourses Act and regulations	CGS 22a-36 et seq. Conn. Agencies Regs. Sec. 22a-39-4	Permit required for activities that remove material from inland wetlands or watercourses; Connecticut Department of Energy and Environmental Protection (CT DEEP) is allowed to issue general permit for minor activities with minimal environmental impacts, defined to include monitoring and sampling.	Potentially applicable	To the extent that the remedy includes activity in Connecticut that removes material from inland wetlands or watercourses, the remedy will comply with this provision.

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Connecticut Endangered Species Act	Conn. Gen. Stat. 26-303 through 26-316	Requires state agency to: (a) ensure that any action authorized or performed by it does not threaten the continued existence of a listed endangered or threatened species or result in destruction or adverse modification of habitat essential to such species, unless an exemption is granted; and (b) take all reasonable measures to mitigate any adverse impacts of the proposed action on such species or habitat. Prohibits “taking” of endangered or threatened species, except where State determines that a proposed action would not appreciably reduce likelihood of survival or recovery of the species.	Potentially applicable	To the extent that any remedy activity takes place that is subject to this statute, EPA will ensure that the remedy will comply with these regulations.
To Be Considered				
MassDEP Guidance	Dam Removal and the Wetland Regulations, 2007	Provides guidance on permitting issues and review considerations associated with dam removal projects, especially as it relates to the Massachusetts Wetlands Protection Act.	To be considered	The remedy now includes dam removal requirements. To the extent that this guidance is pertinent to a Massachusetts dam that is in the area of remedy activity, the remedy will consider this guidance.
Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) Guidance	Dam Removal in Massachusetts: A Basic Guide for Project Proponents, 2007	Provides guidance through the initial conceptualization of a project, the feasibility studies, and the permitting process.	To be considered	The remedy now includes dam removal requirements. To the extent that this guidance is pertinent to a Massachusetts dam that is in the area of remedy activity, the remedy will consider this guidance.

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Massachusetts Department of Fish and Game Guidance	Impounded Sediment and Dam Removal in Massachusetts: 2003	Provides guidance on a decision-making framework regarding dam removal and in-stream management options for impounded sediment.	To be considered	The remedy now includes dam removal requirements. To the extent that this guidance is pertinent to a Massachusetts dam in the area of remedy activity, the remedy will consider this guidance.
ACTION-SPECIFIC ARARs				
Federal ARARs				
Toxic Substances Control Act (TSCA) Regulations on Cleanup of PCB Remediation Waste	40 CFR 761.61(c)	Risk-based approval through a TSCA determination issued by EPA is pursuant to 40 CFR 761.61(c) and requires demonstration that cleanup method will not pose an unreasonable risk of injury to health or the environment.	Applicable	This Permit includes a revised TSCA risk-based determination issued by EPA as Attachment D (“TSCA Determination”). Both the on-site and off-site disposal of PCBs are addressed pursuant to the TSCA Determination. The TSCA Determination finds that the remedy will not pose an unreasonable risk of injury to health or the environment as long as the remedy complies with all of the conditions set out in the TSCA Determination.
TSCA Regulations on Storage of PCB Remediation Waste	40 CFR 761.50 40 CFR 761.65 40 CFR 761.61(c)	General and specific requirements for storage of PCB Remediation Waste. Regulations include specific provisions for storage of PCB Remediation Waste in piles at the cleanup site or site of generation for up to 180 days (761.65(c)(9)). Also allows for risk-based approval by EPA of alternate storage method (761.61(c)), based on demonstration that it will not pose an unreasonable risk of injury to health or the environment.	Applicable	The remedy will comply with these provisions.

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TSCA Regulations on Discharge of PCB-containing Water	40 CFR 761.50(a)(3)	Prohibits discharge of water containing PCBs to navigable waters unless PCB concentration is <3 mg/L or discharge is in accordance with NPDES discharge limits.	Applicable	Any discharge to navigable waters will comply with this provision.
TSCA Regulations on Decontamination	40 CFR 761.79	Establishes decontamination standards and procedures for removing PCBs from water, organic liquids, and various types of surfaces.	Applicable	To the extent the remedy involves decontamination activities, this provision will be complied with.
Clean Water Act and National Pollutant Discharge Elimination System (NPDES) Regulations	33 USC 1342 40 CFR 122 including, but not limited to 122.3(d) and 122.44(a) & (e) 40 CFR 125.1-125.3	These standards include that point source discharge must meet technology-based effluent limitations (including those based on best available technology for toxic and non-conventional pollutants and those based on best conventional technology for conventional pollutants) and effluent limitations and conditions necessary to meet state water quality standards.	Applicable	The remedy will include dewatering of sediments excavated from the River and wetland soils. However, at this stage, it has not been determined if water from the remedy, such as from dewatering or other processing of sediment and wetland soils will be then discharged into the River, or if the water will be transported to Permittee's water treatment plant in Pittsfield for treatment, or if another technique will be used. Additionally, under 40 CFR 122.3(d), EPA, consistent with its remediation in the 1.5 Mile Reach of the River, can establish discharge standards. If the remedy includes discharge into the River, the remedy will comply with these standards.
Clean Water Act – NPDES Regulations (stormwater discharges)	40 CFR 122.26(c)(1)(ii)(C) 40 CFR 122.44(k)	Best management practices (BMPs) must be employed to control pollutants in stormwater discharges during construction activities.	Applicable	These standards will be complied with during construction activities.
RCRA regulations on identification of Hazardous Waste	40 CFR 261	Establishes standards for identifying and listing hazardous waste under RCRA.	Potentially applicable	Under the remedy, testing of wastes subject to removal will take place consistent with these requirements during design/implementation of the remedy.

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RCRA regulations for Generators of Hazardous Waste	40 CFR 262.30-33	Pre-transportation requirements for generators of hazardous waste.	Potentially applicable	If RCRA hazardous wastes are identified, and these materials are removed from the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with these requirements.
RCRA regulations on less-than-90-day Accumulation of Hazardous Waste	40 CFR 262.34	Provides for on-site accumulation of hazardous waste in certain circumstances, provided compliance with other specified requirements.	Potentially applicable	If RCRA hazardous wastes are identified, and these materials are removed from the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with these requirements.
RCRA Hazardous Waste Management Facilities –General requirements.	40 CFR 264.1(j)	General requirements for hazardous waste management facilities (waste analysis, security, precautions regarding ignition or reaction of wastes, preventing washout of units).	Potentially applicable	If RCRA hazardous wastes are identified, and these materials are removed from the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with these requirements.
State ARARs				
Massachusetts Clean Waters Act – Water Quality Certification Regulations	314 CMR 9.01 -9.08	See Synopsis of Requirements in the Location-specific entry for this ARAR	Applicable	See Action(s) to be Taken to Achieve ARARs in the Location-specific entry for this ARAR.

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Massachusetts Clean Water Act and Wetlands Protection Act – stormwater management standards	310 CMR 10.05(6)(k) 314 CMR 9.06(6)(a)	Projects subject to regulation under the Wetlands Protection Act or that involve discharge of dredged or fill material must incorporate stormwater BMPs to attenuate pollutants in stormwater discharges, as well as to provide a setback from receiving waters and wetlands, in accordance with 10 specified stormwater management standards.	Applicable	The remedy will comply with stormwater requirements.
Numeric Massachusetts Water Quality Criteria for PCBs – Massachusetts Surface Water Quality Standards	314 CMR 4.05(5)(e)	Freshwater chronic aquatic life criterion (based on protection of mink): 0.014 µg/L. Human Health criterion based on human consumption of water and organisms: 0.000064 µg/L.	Relevant and appropriate	<p>The remedy activities to be conducted are designed to reduce human health and environmental risks posed by PCBs including not contributing to any exceedances of the Water Quality Criteria. The remedy includes, among other components, excavation and capping of PCB contamination from the riverbed, riverbanks, Floodplains and Backwaters. The remedy will include excavation technology and multiple engineering controls to minimize resuspension of any PCB-contaminated water.</p> <p>The freshwater chronic aquatic life criterion of 0.014 µg/L will be met by the remedy.</p> <p>Regarding the human health criterion based on human consumption of water and organisms of 0.000064 µg/L: in the 2016 Permit, EPA, in consultation with the Commonwealth, waived this criterion on the grounds that achievement of this ARAR is technically impracticable, given that based on current data, it is not predicted to be met by this or any sediment alternative in Massachusetts. To be protective of human health and the environment, as specified in this Permit, EPA is establishing alternative criteria (that are not ARARs) for this waived criterion.</p>

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Massachusetts Hazardous Waste Regulations on Identification and Listing of Hazardous Waste	310 CMR 30.100	Establishes criteria and lists for determining whether a waste is a hazardous waste under state law.	Applicable	Wastes subject to removal will be tested consistent with these requirements during design/implementation of the remedy.
Massachusetts hazardous waste regulations for generators	310 CMR 30.321-324	Pre-transport requirements for generators of hazardous waste	Potentially applicable	To the extent that non-PCB hazardous wastes are identified, and these materials are removed from the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with these pre-transport requirements.
Massachusetts hazardous waste management – general requirements	310 CMR 30.513, 514, 524, 560	General requirements for hazardous waste management facilities	Potentially applicable	To the extent that non-PCB hazardous wastes are identified, and these materials are removed from the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with these general requirements.
Massachusetts Hazardous Waste regulations - technical requirements for storage	310 CMR 602, 640, 580, 660.	Requirements related to storage of hazardous waste.	Potentially applicable	To the extent that non-PCB hazardous wastes are identified, and are moved out of the Area of Contamination during remedy implementation but remain on-site during remedy implementation, the remedy will comply with the substantive requirements of these regulations.
Massachusetts Air Pollution Control Regulations	310 CMR 7.00	These provisions regulate air emissions, dust, odor, and noise, among other things.	Applicable	Remedy will comply with these provisions.

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Connecticut Water Quality Standards for PCBs	Connecticut Water Quality Standards, Section 22a-426-1 to 22a-426-9	Freshwater chronic aquatic life criterion (based on protection of mink): 0.014 µg/L. Human health criterion based on human consumption of water and organisms: 0.000064 µg/L.	Relevant and appropriate	<p>To the extent that remedy activities take place in a Connecticut waterway, such remedy activities will be conducted so as to not contribute to an exceedance of Water Quality Criteria. Remedy activities will contribute to the achievement of the State Water Quality Standards.</p> <p>Regarding the human health criterion based on human consumption of water and organisms of 0.000064 µg/L: In Connecticut, the remedy is intended to meet the standard. Current modeling shows the remedy will achieve attainment in at least 3 of the 4 impoundments. However, the results from the Connecticut model are very uncertain due to the empirical, semi-quantitative nature of the analyses. As such it is not possible to predict with certainty attainment or lack of attainment of the human health criterion based on human consumption of water and organisms of 0.000064 µg/L in Connecticut (Reaches 10-16). Thus, EPA, in consultation with Connecticut, does not believe that there is a basis to establish alternative standards at this time.</p> <p>In addition, this concentration (0.000064 µg/L) cannot be reliably measured using available analytical techniques. Monitoring, using appropriate analytical techniques and reporting levels, will be conducted to measure progress toward this standard over time throughout the Housatonic River in Connecticut.</p>

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To Be Considered				
TSCA PCB Spill Cleanup Policy	40 CFR Part 761, Subpart G	Policy used to determine adequacy of cleanup of spills resulting from the release of materials containing PCBs at concentration of 50 mg/kg or greater.	To be considered	To the extent that such a spill occurs in the remedy, this policy will be considered in the response.
EPA Contaminated Sediment Remediation Guidance	EPA-540-R-05-012 OSWER 9355.0-85 December 2005	Provides guidance on remediation of contaminated sediment sites.	To be considered	The guidance has been considered in remedy selection and will be considered in remedy implementation and operation and maintenance.
Clean Water Act, National Recommended Water Quality Criteria for PCBs	National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047, USEPA, Office of Water, Office of Science and Technology (Nov. 2002).	Freshwater chronic aquatic life criterion (based on protection of mink): 0.014 µg/L. Human health criterion based on human consumption of water and organisms: 0.000064 µg/L.	To be Considered	To be considered with respect to Action(s) to be Taken to Achieve ARARs in connection with Massachusetts and Connecticut Water Quality Standards.

a. The substantive requirements, including environmental performance standards, contained in the statutes, regulations, and other documents referenced in the column captioned “Citation” shall control to determine the requirements that must be met and the actions to achieve such requirements. Other references in the table that summarize the requirements of or action necessary to achieve ARARs are summary in nature, may not be all-inclusive, and are not controlling.

b. For purposes of this Attachment C, compliance with ARARs or standards refers to compliance with the substantive requirements, criteria, or limitations of each provision.

c. For purposes of this Attachment C, “remedy” includes the corrective measures, remedial design and remedial action activities, and operation and maintenance activities undertaken pursuant to this Permit.

ATTACHMENT D
TSCA 40 C.F.R. SECTION 761.61(C) DETERMINATION

ATTACHMENT D

TSCA 40 C.F.R. SECTION 761.61(C) DETERMINATION

PCB-contaminated sediments and soils in the Rest of River likely meet the definition of PCB remediation waste as defined under 40 C.F.R. Section 761.3 and thus are regulated for cleanup and disposal under 40 C.F.R. Part 761.

EPA's Rest of River administrative record available for public review includes extensive information on the nature of the contamination, location and extent of the contamination, the procedures used relative to sampling, and Human Health and Ecological Risk Assessments. The Rest of River cleanup plan is specified in the Permit. In accordance with the requirements under the Toxic Substances Control Act (TSCA) and 40 C.F.R. Section 761.61(c), and as supported by the Administrative Record for this matter, EPA has made a finding that the manner of sampling, storage, cleanup, and disposal of PCB-contaminated sediment and soil as set out in this Permit, including attainment of the Performance Standards and associated Corrective Measures to meet the Performance Standards, including Tables 1-4, will not result in an unreasonable risk of injury to human health or the environment as long as the following conditions are met:

- A combination of off-site disposal and disposal in an on-site Upland Disposal Facility will be used to manage contaminated sediment and floodplain soil removed as part of the cleanup.
- At least 100,000 cubic yards of contaminated sediment and Floodplain soil that is removed will be disposed of off-site at an existing TSCA-approved disposal facility or RCRA hazardous waste landfill or a landfill permitted by the receiving state to accept PCB remediation wastes, depending on the contaminant levels and waste classifications.
- The average concentrations of PCBs to be placed in the Upland Disposal Facility are estimated to be 20 to 25 milligrams per kilogram (or parts-per-million (ppm)). Segregation of the material will be based on sampling protocols that are also outlined in the Permit, including Attachment E.
- The Upland Disposal Facility design criteria outlined in the Permit include a double bottom liner (at least 15 feet above the seasonal high groundwater elevation), leachate collection and management, a groundwater monitoring network, and a multi-layer low permeability engineered cap/cover. The bottom liners and the cap material shall have a permeability equal or less than 1×10^{-7} cm/sec, a minimum thickness of 30 mils and be chemically compatible with PCBs. The Upland Disposal Facility will only accept materials that are part of the Rest of River cleanup.
- Several components of the Permit require construction of an Engineered Cap following sediment removal. Such Engineered Caps will be constructed in accordance with the Engineered Cap Performance Standards and design protocols identified in the Permit.

- Protocols, developed in accordance with TSCA, will be developed and maintained for the decontamination of all equipment used when handling TSCA-regulated material to ensure proper decontamination of equipment and to avoid mixing of TSCA-regulated material with non-TSCA material.
- The use of activated carbon or another amendment as part of Rest of River remediation will be implemented in accordance with the Permit to reduce the bioavailability of PCBs following remediation.
- Institutional Controls, O&M, and Periodic Reviews will be carried out as a component of the cleanup, both in the areas of sediment and Floodplain removal, in areas subject to Monitored Natural Recovery, and at the Upland Disposal Facility.
- Air monitoring and dust suppression measures for PCBs will be maintained until excavation and transport of PCB-contaminated soil and sediment, and capping and disposal of PCB-contaminated soil and sediment is complete.
- Temporarily stockpiled TSCA-regulated material will be bermed and properly covered to capture runoff in accordance with the requirements of §761.65. Runoff shall be collected and disposed of, as appropriate, in accordance with § 761.60 or § 761.79(b)(1), or as otherwise approved by EPA pursuant to the process outlined in this Permit.
- A financial assurance provision is incorporated into the remedy via the Consent Decree.

ATTACHMENT E
CRITERIA/METHODS APPLICABLE TO DISPOSAL OF MATERIAL
EXCAVATED IN REST OF RIVER REMEDIAL ACTION

ATTACHMENT E

Criteria/Methods Applicable to Disposal of Material Excavated in Rest of River Remedial Action

1. For floodplains in each of the 90 Exposure Areas shown in Figure 4, to the extent that remediation is required in any given Exposure Area, GE will segregate and dispose of off-site (out-of-state) soils containing high concentrations so that the remaining floodplain soil to be disposed of in the Upland Disposal Facility averages less than 50 mg/kg PCBs. The process is further described as follows:
 - After additional data collection required by the 2016 Permit, the horizontal footprint and vertical removal depth (the volume) of soil that needs to be removed in each Exposure Area will be determined.
 - The volume-weighted average PCB concentration of all soil to be removed from each Exposure Area will be calculated (using the same PCB data set used to delineate the soil to be removed).
 - If the volume-weighted average PCB concentration in the soil to be removed equals or exceeds 50 mg/kg in an Exposure Area, the soil with the highest PCB concentrations (e.g., “hot spots”) in the Exposure Area will be segregated, or separated out, for out-of-state disposal until the average concentration of the remainder of the soil to be removed in the Exposure Area decreases to less than 50 mg/kg for disposal at the Upland Disposal Facility.
2. For Reach 5A banks, GE will segregate and dispose of off-site (out-of-state) soils containing high concentrations so that the remaining Reach 5A bank soil to be disposed of in the Upland Disposal Facility has a volume-weighted average of less than 50 mg/kg PCBs. In calculating the volume-weighted average concentration of PCBs in Reach 5A riverbank soils for disposal purposes, the only soils that will be considered are soils to be removed from Reach 5A riverbanks.
3. GE will dispose of all riverbank and sediment from Reach 5B off-site (out-of-state), except in the following circumstances: If, pursuant to Section II.C. of the agreement, GE removes additional riverbank soil with PCB concentrations less than 50 mg/kg, this material may be disposed of in the Upland Disposal Facility.
4. For all sediment except for Reach 5B, GE will segregate and dispose of off-site (out-of-state) sediments containing high concentrations so that the remaining sediment to be disposed of in the Upland Disposal Facility averages 25 mg/kg PCBs or less on a reach or subreach basis as described below.
 - The 25 mg/kg average applies individually to: Reach 5A, Reach 5C, Woods Pond, Backwaters, Reach 7 Subreaches (Subreach 7B [Columbia Mill Impoundment], Subreach 7C [Eagle Mill Impoundment], Subreach 7E [Willow Mill Impoundment], Subreach 7G [Glendale Impoundment]), and Rising Pond. These reaches/subreaches are depicted in Figures 3 and 4. The segregation of sediment for Reach 5B is

described in item 3 above, which provides that all sediment removed from Reach 5B shall be disposed of off-site (out-of-state).

- As described in the 2016 Permit, each subreach, and in some cases each reach, has its own Performance Standards to be achieved through sediment removal and capping or backfill. Following additional data collection, the area and amount of sediment to be removed to meet the Performance Standard will be determined. After the horizontal footprint and vertical removal depth are determined, the volume-weighted average PCB concentration of the sediment within that footprint will be calculated.
 - If the volume-weighted average PCB concentration within a reach or subreach removal footprint exceeds 25 mg/kg, sediment with the highest PCB concentrations (e.g., “hot spots”) will be segregated for out-of-state disposal until the average concentration of the remaining sediment to be removed from the reach or subreach decreases to 25 mg/kg or less for disposal at the Upland Disposal Facility.
 - Relevant data from the RCRA Facility Investigation (RFI) and data collected pursuant to the 2016 Permit or Revised Final Permit will be used in determining average concentrations for comparison to the 25-mg/kg criterion for placement in the Upland Disposal Facility.
 - EPA agrees to work with GE to design an appropriate transition and hybrid disposal averaging area in the Woods Pond Headwaters area between Reach 5C and Woods Pond.
5. In addition, for all sediment in reaches and subreaches, including backwaters, except for Reach 5B, GE will segregate and dispose of off-site (out-of-state) sediment that is represented by a 3-dimensional polygon associated with a single vertical core that has an average concentration greater than or equal to 100 mg/kg PCBs, as further described below:
- GE will compare the 100 mg/kg criterion to the average concentration in each individual vertical core.
 - Vertical core polygons will be generated by a Thiessen polygon method. Thiessen polygon mapping involves the use of computer software to draw perpendicular bisector lines between adjacent sample locations to create two-dimensional polygon areas. The two-dimensional Thiessen polygon will be extended vertically to the depth of sediment removal to create a three-dimensional polygon.
 - The data used in this evaluation will be limited to, and representative of, the depth intervals that correspond to depth of removal associated with the location where the core was collected.
 - If sampling data, at a given vertical core location, consist of data from different depth intervals, the vertical PCB average concentration will be calculated as a depth-weighted average at that location.

- Vertical sediment cores will be of sufficient depth to characterize sediment PCB concentrations throughout the full vertical interval required to comply with the Performance Standards for each reach, subreach and backwater under the 2016 Permit or Revised Final Permit.
 - If the vertical depth-weighted PCB average in a polygon is equal to or greater than 100 mg/kg, then all sediment associated with the vertical core polygon will be segregated and disposed of off-site (out-of-state).
 - For all reaches except Subreaches 5A and 5C, relevant data from the RFI and additional data collected by GE pursuant to the 2016 Permit or Revised Final Permit, as applicable, will be used in determining these vertical depth-weighted core averages.
 - Additional vertical core samples will be collected by GE pursuant to the 2016 Permit or Revised Final Permit, as applicable, in Reach 6 (Woods Pond) to supplement existing data and to fill in data gaps.
 - For Reaches 5A and 5C, only data collected pursuant to the 2016 Permit or Revised Final Permit shall be used in this evaluation. Vertical core samples will be collected in 6-inch increments. The sampling will consist of three vertical cores per transect (left, center and right of the channel) with transects performed at a linear spacing of 250 linear feet of the river channel.
 - Additional vertical sediment cores may be collected to further refine the areas where average sediment concentrations exceed 100 mg/kg and/or to assist in achieving the relevant Performance Standards in all reaches or subreaches.
 - GE will submit sediment sampling plans to EPA for review and approval. These plans shall detail, at a minimum, the approach for collection of vertical sediment cores and the data analysis approach to determine compliance with the 100 mg/kg criterion.
6. GE will not dispose of material classified as federal RCRA hazardous waste, or free liquids, free product, or any intact drums, capacitors or containers, into the Upland Disposal Facility. GE can use relevant data from the RFI and apply the 20 times rule (i.e., dividing the concentration in the sample by 20 and comparing the result to certain threshold values described in 40 C.F.R. 261) to determine if there are compounds that could potentially exceed the Toxicity Characteristic Leaching Procedure (TCLP) testing requirements. GE can also use relevant data from EPA's 1.5-Mile Reach Removal Action (e.g., TCLP data and other RCRA Characteristic requirements, including ignitability, corrosivity and reactivity). If existing data are not sufficient to demonstrate that material will not contain RCRA hazardous waste, then GE will propose additional sampling in the appropriate Work Plans. In any subreach where RCRA hazardous waste may be present, GE will collect a reasonable number of composite samples for analysis (for example, TCLP sampling for metals). If any composite sample demonstrates the

material is RCRA hazardous waste, then: a) the material can be treated until testing demonstrates that the material is non-hazardous, or b) the material can be disposed of at an off-site facility in compliance with EPA's off-site rule (40 C.F.R. § 300.440).

7. Any other materials to be disposed of not otherwise addressed above will be sampled prior to disposal and disposed of in the Upland Disposal Facility if they have less than 50 mg/kg PCBs. (This could apply to haul road materials, etc. that GE may need to dispose of as part of the overall remedy construction.)
8. GE will dispose of the segregated high concentration sediment, soil and waste materials, and any free liquids, free product, or intact drums, capacitors or containers, in any facility that is licensed/permitted to accept such waste and will accept it, including RCRA Subtitle C Landfills, so long as said facility is in compliance with EPA's off-site rule (40 C.F.R. § 300.440).