

**CHARGE FOR THE ECOLOGICAL RISK ASSESSMENT
PEER REVIEW FOR THE REST OF THE HOUSATONIC RIVER**

Background

In October 2000, the U.S. District Court approved and entered a Consent Decree agreed to by the General Electric Company (GE), the U.S. Department of Justice, the U.S. Environmental Protection Agency (EPA), the Commonwealth of Massachusetts, the State of Connecticut, the U.S. Department of the Interior, the National Oceanic and Atmospheric Administration, the City of Pittsfield, and the Pittsfield Economic Development Authority for the remediation and restoration of the GE facility in Pittsfield, MA, and other properties and areas affected by releases of polychlorinated biphenyls (PCBs) and other contaminants of potential concern (COPCs) from that facility, including the Housatonic River.

Under the Consent Decree, EPA is to conduct an Ecological Risk Assessment (ERA) for the portion of the Housatonic River and its floodplain beginning at the confluence of the East and West Branches of the river (approximately two miles downstream of GE's facility in Pittsfield) and continuing downstream. That stretch of the river and floodplain is known in the Consent Decree as the Rest of River. EPA has completed the ERA for the Rest of River. The Consent Decree provides that this ERA will be subject to Peer Review by a Peer Review Panel. This document provides the charge for the Peer Review of the ERA for the Rest of River.

Objective and Scope of ERA

The objective of the ERA is to characterize and, where appropriate, quantify the risks to biota in the absence of remediation from exposure to PCBs and other contaminants from the GE facility that are found in the sediment, surface water, riverbank and floodplain soil, and tissue in the Rest of River area.

To achieve this objective, EPA performed an ecological characterization of the Rest of River and surrounding areas and, subsequently, the ERA. The ERA has four major components: (1)

Problem Formulation; (2) Exposure Assessment; 3) Effects Assessment; and (4) Risk Characterization. Assessment endpoints and supporting measurement endpoints were identified in the Problem Formulation for the following receptors: benthic invertebrates, amphibians, fish, birds (including insectivorous and piscivorous birds), mammals (including piscivorous and omnivorous/carnivorous mammals), and threatened and endangered species. Where possible and/or appropriate, three lines of evidence were evaluated for each endpoint; field studies, site-specific toxicity studies, and a comparison of exposure and effects. A weight-of-evidence approach (Menzie et al. 1996) was used to evaluate the lines of evidence for each assessment endpoint.

Summary of Charge to Peer Review Panel

The Consent Decree specifies that the Peer Review Panel is to review EPA's ERA to evaluate: "(1) consistency with EPA policy and guidance; (2) the protocols applied in the studies used in the risk assessment; (3) interpretation of information generated from the studies included in the risk assessment; and (4) the report conclusions." In addition, Appendix J to the Consent Decree specifies that an opportunity will be provided to GE and other members of the public to submit written comments and make oral presentations to the Peer Review Panel on issues relevant to the Peer Review charge for the Panel members' consideration.

Questions to be Addressed by the Peer Review Panel

In evaluating the general items specified in the Consent Decree listed above, the Peer Review Panel members shall give specific consideration to the questions listed below. In considering these questions, the Panel members shall evaluate the following (hereinafter the "evaluation criteria"): the objectivity, consistency, and reasonableness of both the procedures and inputs used by EPA in the application of existing EPA guidelines, guidance, and policy; and those used by EPA in the absence of Agency guidelines, guidance, or policy (see Attachment A for the list of relevant EPA guidelines, guidance, and policy documents). If significant errors are observed in the application of the appropriate methodologies, the Panel members shall provide specific comments, describing the error(s) and suggested improvements. The suggested improvements must be specific, clear, and consistent with existing EPA methodologies and guidelines.

It is not expected or intended that the Peer Review Panel members will reach consensus on all issues. For those issues for which consensus is not reached, the range of opinions of the Panel members should be stated and summarized. The Panel members should identify any major data or methodological gaps that may impact the use of this risk assessment for decision-making. However, it must be realized that, while additional long-term research may be desirable to address some questions, it is outside the purview of both the Risk Assessment and this Peer Review.

In evaluating the general items specified in the Consent Decree listed above, the Peer Review Panel members shall give specific consideration to the following questions:

1. Was the ecosystem of the Housatonic River watershed properly characterized, and was this information appropriately applied in the Problem Formulation and subsequently in the ERA?
2. Was the screening of contaminants of potential concern (COPCs), selection of assessment and measurement endpoints, and the study designs for these endpoints appropriate under the evaluation criteria?
3. For each of the 8 assessment endpoints evaluated in the ERA (listed in Attachment B, and for which a specific Section and Appendix was prepared), address the following questions (discuss and label responses as 3.(*assessment endpoint number*).(question letter) for consistency):
 - (a) Were the EPA studies and analyses performed (e.g., field studies, site-specific toxicity studies, comparison of exposure and effects) appropriate under the evaluation criteria, and based on accepted scientific practices?
 - (b) Were the GE studies and analyses performed outside of the framework of the ERA and EPA review (e.g., field studies) appropriate under the evaluation criteria, based on accepted scientific practices, and incorporated appropriately in the ERA?

- (c) Were the estimates of exposure appropriate under the evaluation criteria, and was the refinement of analyses for the contaminants of concern (COCs) for each assessment appropriate?
 - (d) Were the effects metrics that were identified and used appropriate under the evaluation criteria?
 - (e) Were the statistical techniques used clearly described, appropriate, and properly applied for the objectives of the analysis?
 - (f) Was the characterization of risk supported by the available information, and was the characterization appropriate under the evaluation criteria?
 - (g) Were the significant uncertainties in the analysis of the assessment endpoints identified and adequately addressed? If not, summarize what improvements could be made.
 - (h) Was the weight of evidence analysis appropriate under the evaluation criteria? If not, how could it be improved?
 - (i) Were the risk estimates objectively and appropriately derived for reaches of the river where site-specific studies were not conducted?
 - (j) In the Panel members' opinion, based upon the information provided in the ERA, does the evaluation support the conclusions regarding risk to local populations of ecological receptors?
4. Are the summary discussions and conclusions in the ERA supported by the information provided in the report, and did the conclusions describe the risks in an objective, reasonable, and appropriate manner?
5. To the best of the Panel's knowledge, is there other pertinent information available that was not considered in the ERA? If so, identify the studies or data that could have been considered, the relevance of such studies or data, and how they could have been used in the ERA.

ATTACHMENT A

List of Relevant Ecological Risk Assessment Guidelines, Guidance, and Policy Documents

- Menzie, C., M.H. Henning, J. Cura, K. Finkelstein, J. Gentile, J. Maughan, D. Mitchell, S., Petron, B. Potocki, S. Svirsky, and P. Tyler. 1996. Special report of the Massachusetts Weight-of-Evidence Workgroup: A weight-of-evidence approach for evaluating ecological risks. *Human Ecol. Risk Assess.* 2(2): 277–304.
- U.S. Environmental Protection Agency (EPA). 1991. *Ecological Assessment of Superfund Sites: An Overview, ECO Update*, Volume 1, Number 2. Washington, DC. U.S. Environmental Protection Agency (EPA).
- U.S. Environmental Protection Agency (EPA). 1992. *The Role of Natural Resource Trustees in the Superfund Process, ECO Update*, Volume 1, Number 3. Washington, DC: Risk Assessment Forum.
- U.S. Environmental Protection Agency (EPA). 1992. *Framework for Ecological Risk Assessment*. EPA/630/R-92/001. Washington, DC: Risk Assessment Forum. February.
- U.S. Environmental Protection Agency (EPA). 1993. *Wildlife Exposure Factors Handbook*, Volumes I and II. EPA 600/R-93/187a and 187b. Washington, DC: Office of Research and Development. December.
- U.S. Environmental Protection Agency (EPA). 1994. *Using Toxicity Tests in Ecological Risk Assessment, ECO Update*, Volume 2, Number 1. Washington, DC: Office of Solid Waste and Emergency Response.
- U.S. Environmental Protection Agency (EPA). 1994. *Catalogue of Standard Toxicity Tests for Ecological Risk Assessment, ECO Update*, Volume 2, Number 2. Washington, DC: Office of Solid Waste and Emergency Response.
- U.S. Environmental Protection Agency (EPA). 1994. *Field Studies for Ecological Risk Assessment, ECO Update*, Volume 2, Number 3. Washington, DC: Office of Solid Waste and Emergency Response.
- U.S. Environmental Protection Agency (EPA). 1994. *Selecting and Using Reference Information in Superfund Ecological Risk Assessments, ECO Update*, Volume 2, Number 4. Washington, DC: Office of Solid Waste and Emergency Response.
- U.S. Environmental Protection Agency (EPA). 1994. *Ecological Risk Assessment Issue Papers*. EPA/630/R-94/009. Washington, DC: Office of Solid Waste and Emergency Response. November.
- U.S. Environmental Protection Agency (EPA). 1996. *Ecotox Thresholds, ECO Update*, Volume

- 3, Number 2. Washington, DC: Office of Solid Waste and Emergency Response.
- U.S. Environmental Protection Agency (EPA). 1997. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. Interim Final*. EPA 540-R-97-006. OSWER 9285.7-25. Washington, DC: Office of Solid Waste and Emergency Response. June.
- U.S. Environmental Protection Agency (EPA). 1997. *Guiding Principles for Monte Carlo Analysis*. EPA/63C/R-97/001. Washington, DC: Risk Assessment Forum. March.
- U.S. Environmental Protection Agency (EPA). 1998. *Guidelines for Ecological Risk Assessment*. EPA-630-R-95-002F. Washington, DC: Risk Assessment Forum. April.
- U.S. Environmental Protection Agency (EPA). 1999. Memorandum to Superfund National Policy Managers re: *Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles at Superfund Sites*. OSWER Directive 9285.7-28 P. Washington, DC: Office of Solid Waste and Emergency Response. October.
- U.S. Environmental Protection Agency (EPA). 2001. *RAGS, Volume 3, Part A: Process for Conducting Probabilistic Risk Assessment*. EPA 540-R-02-002. Washington, DC: Office of Solid Waste and Emergency Response. December.
- U.S. Environmental Protection Agency (EPA). 2002. *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency*. EPA/260R-02-008. Washington, D.C. Office of Environmental Information. December.

ATTACHMENT B

Assessment Endpoints for the Housatonic “Rest of River” ERA

1. Survival, growth, reproduction and structure of the benthic invertebrate community.
2. Reproductive success, development, maturation, and condition of the amphibian community.
3. Survival, growth and reproduction of fish.
4. Survival, growth, and reproduction of insectivorous birds.
5. Survival, growth, and reproduction of piscivorous/carnivorous birds.
6. Survival, growth, and reproduction of omnivorous/carnivorous mammals.
7. Survival, growth, and reproduction of piscivorous mammals.
8. Survival, growth, and reproduction of threatened and endangered species.