ATTACHMENT F

EPA'S COMMUNITY RELATIONS COMPONENTS/GUIDANCE

ATTACHMENT F.1

COMMUNITY RELATIONS GUIDANCE FOR SUPERFUND SITES

ATTACHMENT F.1
COMMUNITY RELATIONS GUIDANCE FOR SUPERFUND SITES

Community Relations in Superfund: A Handbook (U.S. Environmental Protection Agency, 1992) describes the following community relations components:

- **Community Interviews**—On-site discussions must be held with local officials and community members to assess their concerns and determine appropriate community involvement activities.

- **Community Relations Plan**—A complete Community Relations Plan based on community interviews must be developed and approved before remedial investigation field activities start.

- **Information Repository**—An information repository must be established which includes each item developed, received, published, or made available pursuant to the Superfund Amendments and Reauthorization Act (SARA). These items must be made available for public inspection and copying at or near the facility.

- **Technical Assistance Grant (TAG)**—The TAG program provides up to $50,000 to community groups for the purpose of hiring technical advisors to help citizens understand and interpret site-related technical information for themselves. Congress and EPA have established certain basic requirements concerning the proper use of TAG funds by a recipient group. For example, the group must provide 20% of the total costs of the project to be supported by TAG funds and must budget the expenditure of grant funds to cover the entire cleanup period. Congress has also stipulated that there may be only one TAG award per Superfund site at any one time (see Attachment E for more information).

- **Administrative Record**—EPA must establish an administrative record, which contains many of the documents, reports, correspondence, and other materials related to a Superfund project. In order for the public to review these documents, a copy of the administrative record is maintained in a public facility in the community or area of a Superfund site. EPA must inform the public of the administrative record's location.

- **Notice and Analysis of the Remedial Investigation/Feasibility Study and Proposed Plan**—A remedial investigation/feasibility

study (RI/FS) and proposed plan must be developed. Notice of the availability of the RI/FS and proposed plan, including a brief summary of the proposed plan, must be published in a major local newspaper of general circulation. The notice must also announce the public comment period.

- **Public Comment Period on RI/FS and Proposed Plan** – The RI/FS and proposed plan must be provided to the public for review and comment for a period of not fewer than 30 calendar days. Both oral and written comments must be considered.

- **Opportunity for Public Meeting** – Before adoption of any remedial action plan, an opportunity for a public meeting at or near the facility at issue must be provided. A meeting transcript must be prepared and made available to the public.

- **Responsiveness Summary** – A response to each of the significant comments, criticisms, and new data submitted on the proposed plan and RI/FS must be prepared and accompany the Record of Decision (ROD).

- **ROD Availability and Notification** – EPA must make the ROD available for public inspection and copying at or near the site prior to the commencement of any remedial action. Also, EPA must publish a notice of the ROD's availability in a major local newspaper of general circulation. The notice must state the basis and purpose of the selected action.

- **Revision of the Community Relations Plan** – Prior to remedial design, EPA should consider the need to revise the Community Relations Plan to reflect community concerns, as discovered during interviews and other activities, that pertain to the remedial design and remedial action phase.

- **Notice of Availability/Brief Description of Proposed ROD Amendment** – EPA must propose an amendment to the ROD and issue a notice of availability and a brief description of the proposed amendment in a major local newspaper of general circulation.

- **Public Comment Period, Public Meeting, Meeting Transcript, and Responsiveness Summary** – EPA must follow the same procedures as those required for completion of the feasibility study and proposed plan.

- **Notice and Availability of Amended ROD** – EPA must publish a notice of availability of the amended ROD in a major local newspaper and make the amended ROD and supporting

information available for public inspection and copying in the administrative record and information repository prior to commencement of the remedial action affected by the amendment.

- **Remedial Design Fact Sheet and Public Briefing**—Upon completion of the final engineering design, EPA must issue a fact sheet and provide a public meeting briefing, as appropriate, prior to beginning the remedial action.

ATTACHMENT F.2

PUBLIC PARTICIPATION GUIDANCE FOR RCRA SITES

SECTION VII

PUBLIC PARTICIPATION

In this section...

OVERVIEW

EPA is committed to involving the public in the development and implementation of the solid waste, hazardous waste, and UST environmental decision-making. One of the Agency's central goals is to provide equal access to information and an equal opportunity to participate. EPA regards public participation as an important activity that empowers communities to become involved in local RCRA-related activities.

Through RCRA, Congress gave EPA broad authority to provide for public participation in the regulatory program. RCRA §7004(b) directs EPA to provide for, encourage, and assist public participation in the development, revision, implementation, and enforcement of any regulation, guideline, information, or program under the Act.

The RCRA public participation requirements bring government, private industry, public interest groups, and citizens together to make important decisions about hazardous waste, solid waste, and UST facilities. Specifically, these groups and

individuals have a stake in RCRA's hazardous waste management program, such as TSDF permitting, corrective action, and state authorization. On a broader level, the public also has tremendous interest in EPA's rulemaking process and environmental justice.

Public involvement in the RCRA program presents unique needs and opportunities. While the Agency is firmly committed to promoting broad and equitable public participation, EPA also seeks to ensure the flexibility for individual permit writers, facilities, and communities to adopt the most appropriate, site-specific approach consistent with the principles of fairness and openness. As a result, in many instances, EPA references guidance, instead of codified regulatory language, to encourage all stakeholders, such as facilities, permitting agencies , and the public, to strive toward public involvement goals, while at the same time maintaining the flexibility consistent with a national regulatory approach.

EPA views public outreach as an essential element of public participation. Public outreach educates people about hazardous waste issues and the RCRA decision-making process. Public outreach also creates informal opportunities for public input and dialogue. To expand public participation, the Agency actively engages in extensive public outreach activities.

PERMITTING

A focus of RCRA public participation is the involvement of the public in the hazardous waste TSDF permitting process. (Permitting is fully discussed in Section III, Chapter 8.) TSDF owners and operators handle large quantities of waste that present potential risk to human health and the environment. Public participation informs the public of the types of wastes and management methods that the TSDF owner and operator intends to employ and allows the public an opportunity to discuss the facility's anticipated waste management activities with the owner and operator. Communities may provide information that facility owners and operators may not otherwise have access to, and which may impact some of the facility plans (e.g., information on day care locations that might impact transportation routes to and from the facility). Public participation also benefits the TSDF owner and operator because it fosters community relations and can help to avoid delays and future litigation by addressing public concerns up front.

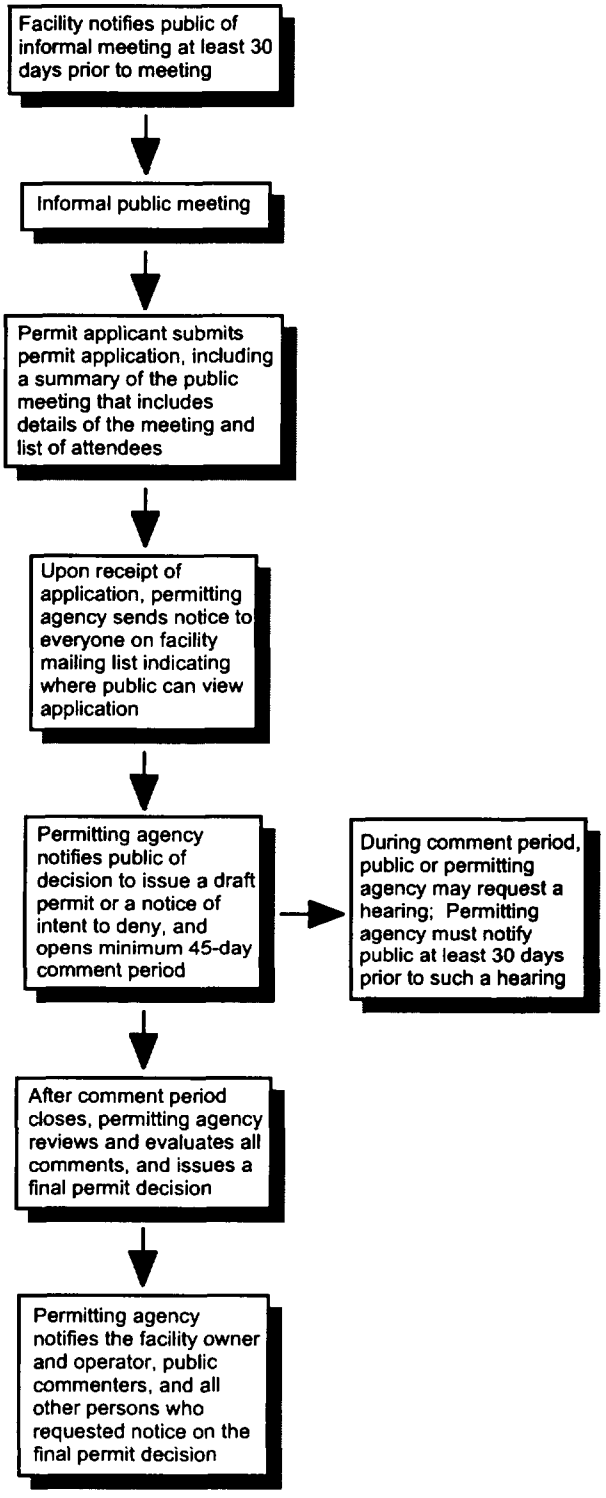
THE IMPORTANCE OF PUBLIC PARTICIPATION

Public participation informs the public of the types of wastes and management methods that a TSDF owner and operator intends to employ and allows the public an opportunity to voice its concerns about these risks. Public participation also benefits the TSDF owner and operator because it fosters community relations and can help to avoid delays and future litigation by addressing public concerns up front.

From the permitting agency's point of view, the public can contribute valuable information and ideas that can improve the quality of agency decisions and permit applications. With public input, permitting decisions are influenced by local circumstances that technical staff alone cannot provide.

The permitting process serves as an appropriate mechanism for public participation requirements because the permit serves as the set of requirements against which compliance will be measured. Public interaction in the process serves both to educate the public and to allow the public to express concerns to the facility and the permitting agency. Each step in the RCRA permit decision process is accompanied by public participation requirements (see Figure VII-1). EPA promulgated regulations in 40 CFR Parts 25, 124, and 270 to create opportunities for the public to learn about RCRA activities and provide input

Figure VII-1: PUBLIC INVOLVEMENT IN THE RCRA PERMITTING PROCESS



during the permitting process. These requirements may not be sufficient in all cases. Permitting agencies and facilities should consider going beyond the regulatory requirements, as necessary, to provide for meaningful and equitable public participation.

Public interaction occurs during pre-application meetings, public comment and response periods, and public hearings. Through all of these steps, the public can engage facility owners and operators and regulators in a dialogue. This dialogue is crucial because a successful public participation program requires the flow of information among all stakeholders.

EPA encourages public participation activities that occur outside the formal permitting process. Citizens can contact environmental, public interest, and civic and community groups that have an interest in the facility and become involved in their activities. The permit applicant may also create informal opportunities for public input and dialogue.

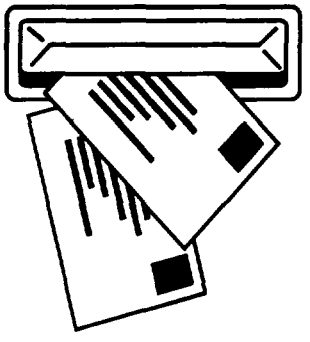
■ Pre-Application Meeting

The public participation provisions require prospective applicants to hold an informal public meeting before submitting an application for a RCRA permit. The permit applicant should select a meeting time, date, and place that are convenient to the public. The permit applicant must provide notice of the pre-application meeting at least 30 days prior to the meeting in a manner that is likely to reach all members of the affected community. The applicant must advertise the meeting in the newspaper, through a broadcast announcement, and on a sign posted at or near the property. The meeting will provide a chance for the community to interact with and provide input to an owner and operator before the submission of the permit application. At the meeting, the owner and operator should describe the facility in the level of detail that is practical at

the time of the meeting to give the public enough information to understand the facility operations and potential impacts to human health and the environment. The permit applicant must submit with the permit application a summary of the meeting and a list of all attendees. Upon receipt of the permit application, the permitting agency must send a notice to everyone on the facility mailing list specifying where the public can examine the application. Thus, the public may begin reviewing the application at the same time as the permitting agency.

■ The Draft Permit, Public Comment Period, and Public Hearing

Once the permit application is complete, the permitting agency will decide whether to issue a draft permit or a notice of intent to deny. In either case, the permitting agency notifies the public of its decision and announces the opening of a minimum 45-day public comment period. The permitting agency prints the notice in a local paper, broadcasts the notice over a local radio station, and sends a copy to the mailing list recipients and relevant agencies. The permitting agency also prepares a fact sheet or statement of basis regarding its decision. The fact sheet (or statement of basis) explains the factual, legal, methodological, and policy questions considered in making the decision to issue or deny the permit.



Any person may request a public hearing during the comment period. The permitting agency holds a hearing if someone submits a written notice of opposition to the draft permit and a request for a hearing, or if the permitting agency finds a significant degree of interest in the draft permit. The permitting agency may also hold a public hearing at its own discretion. The permitting agency must notify the public at least 30 days prior to the hearing.

The comment period on the draft permit allows public submission of written concerns and suggestions to the permitting agency in writing. The permitting agency describes and responds to all significant comments raised during the comment period.

After the public comment period closes, the permitting agency will review and evaluate all comments and issue a final permit decision. The agency sends a notice of decision to the facility and any person who submitted comments or requested notice on the final permit decision.

■ Permit Modification

As with the initial permit process, permit modifications can raise public concerns that must be addressed through public participation. Public participation responsibilities and activities vary depending on who initiated the modification and the degree to which the modification changes the facility permit. When a modification is proposed, only the permit conditions subject to modification are reopened for public comment.

Permitting agencies may initiate a permit modification if there are substantial alterations or additions to the facility, if new information is received by the permitting agency that was not available at the time of permit issuance, or if new regulations or judicial decisions affect the conditions of the permit. Agency-requested permit modifications are subject to the same public participation requirements that are required during the permitting process.

Permit modifications initiated by the facility owner and operator are categorized as Class 1, 2, or 3 according to how substantively they change the original permit. The only public involvement requirement for Class 1 modifications is that within 90 days of implementing a change the facility must send a notice to all parties on the mailing list compiled by the permitting agency.

The Class 2 modifications are more stringent than Class 1 modifications, and involve public notice in a local newspaper, a 60-day comment period, and a public meeting held no earlier than 15 days into the comment period and no later than 15 days before it ends. At any time during the Class 2 procedures, the permitting agency may reclassify the request as a Class 3 modification if there is significant public concern or if the agency determines the modification is too complex for the Class 2 procedures.

Class 3 modifications address changes that substantially alter a facility or its operations, and often raise significant public concern. While these modifications are subject to the same public participation provisions as Class 2 modifications, Class 3 modifications require the permitting agency to provide the public with additional opportunities to participate in the process. For example, the permitting agency must issue a public notice of the agency's draft permit decision, allow for a 45-day public comment period on the decision, develop a fact sheet or statement of basis, and hold a public meeting (if requested) with 30-day advance notice.

PUBLIC PARTICIPATION DURING PERMIT MODIFICATIONS

Public participation requirements during permit modifications vary depending on the extent of the modification. Class 1 permit modifications require that within 90 days of implementing a change, the facility must send a notice to all parties on the mailing list compiled by the permitting agency. Class 2 permit modifications involve public notice in a local newspaper, a 60-day comment period, and a public meeting held no earlier than 15 days into the comment period and no later than 15 days before it ends. While Class 3 modifications are subject to the same requirements as Class 2 modifcations, such modifications require the permitting agency to provide the public with additional opportunities to participate in the process.

■ Permit Renewals

A facility owner and operator who makes a significant change during the renewal of their permit is also subject to the pre-application meeting and notice requirements. A significant change in facility operations is a change that is equivalent to a Class 3 modification. This requirement ensures that if during permit renewal a facility makes significant changes to an already publicly reviewed and approved permit, the public will have an opportunity to participate in the permit review and approval process.

■ Trial Burn Notices

Owners and operators of new hazardous waste combustion facilities may not commence a trial burn until after the permitting agency has issued the required notice. EPA anticipates that permitting agencies will typically notify the public at least 30 days prior to the trial burn. The notice requirement applies only to the initial trial burn, and not to subsequent burns that may be conducted as part of a permit modification. For interim status combustion units, the permitting agency must also provide public notice of the intent to approve a trial burn plan.

■ Interim Status Facilities

In general, interim status facilities are not required to follow any standardized public participation procedures until the facility owner and operator applies for a permit. Implementing

agencies may need to use innovative techniques to communicate with the public about interim status facilities. EPA acknowledges that each situation will require a different type and level of community involvement in order to address public concerns.

■ Post-Closure Permits

Owners and operators who submit a permit application for the purpose of conducting post-closure activities are not subject to the pre-application meeting and notice requirements. EPA's experience is that the public has usually been concerned with permit decisions related to active hazardous waste management operations rather than closed facilities. Post-closure activities are subject to the public notice and comment period at the draft permit stage.

■ Information Repositories

In certain instances, RCRA permits can be the subject of intense debate. When public interest is strong, the demand for information increases. The public participation requirements allow the permitting agency to require a permit applicant to

set up an information repository at any time after submittal of the permit application and during the life of the permit. The repository will hold all information and documents that the permitting agency decides are necessary to adequately inform and educate the public. EPA intended for permitting agencies to use the information repository requirement sparingly on a case-by-case basis when a significant amount of public concern has surfaced or where the community has unique information needs.

CORRECTIVE ACTION

Corrective action investigations and remedial actions at hazardous waste facilities also create strong community interest because contamination can directly affect and impact communities. (Corrective action is fully discussed in Section III, Chapter 9.) The community may seek information related to current or potential contamination, including levels of contamination, the extent of health and environmental risks, and the potential for future risks. The public may also seek additional opportunities to provide input to the overseeing agency or the facility about the cleanup of the contamination.

More than 5,000 facilities are subject to RCRA corrective action. The necessary degree of cleanup at these sites varies significantly. Program implementors are granted latitude in structuring the corrective action process, developing cleanup objectives, and selecting remedies appropriate to site-specific circumstances. Similar latitude is allowed in determining the best approach to public participation, in order to provide opportunities appropriate for the level of interest of the community.

Public participation requirements during corrective action are established in regulations; further recommendations are set out in guidance. The regulations set requirements that facilities and implementing agencies must meet when a permit is issued or modified to incorporate corrective action provisions.

In the absence of final regulations specifically addressing public participation during corrective action, program implementors and facility owners

and operators should develop public participation strategies on a site-specific basis, consistent with existing public participation requirements and the program goal of full, fair, and equitable public participation. Permitting agencies and facilities should make all reasonable efforts to provide for early public participation because important corrective action decisions are made during the site investigation and characterization. At a minimum, information regarding corrective action activities should be available to the public and the public should be given an opportunity to review and comment on proposed corrective action remedies.

■ Corrective Action Permits

When corrective action is part of the RCRA permitting process, it follows the public participation requirements associated with permitting. Thus, the corrective action provisions in any permit application are available for public review throughout the permitting process and the public can comment on them at the draft permit stage.

■ Corrective Action Orders

EPA regulations do not require that corrective action activities that are imposed or overseen through an order include public participation. However, EPA's policy is that the same level of public participation requirements imposed under a permit should generally apply under a corrective action order. There may be limitations on the implementing agency's ability to release or discuss certain information when using an order, but if public interest in the facility is high, the agency should address concerns without breaching the confidentiality of the owner's and operator's case by at least discussing why limitations are necessary, and if and when they will be lifted.

PUBLIC PARTICIPATION DURING CORRECTIVE ACTION

When corrective action is part of the RCRA permitting process, it follows the public participation requirements associated with permitting. While EPA regulations do not require public participation for corrective action activities that are imposed or overseen through an order, EPA's policy is that the same level of public participation requirements imposed under a permit should generally apply under a corrective action order.

EPA has clarified various issues in reference to public participation activities during RCRA §7003 imminent hazard cleanups. Specifically, §7003 orders should involve public participation to the maximum extent possible. During these cleanups, EPA should provide public notice and an opportunity to comment when the Agency issues the order, during the remedy selection process, and upon Agency determination that the cleanup has been completed. When situations prevent public participation from occurring, the Agency should involve the public at the earliest opportunity. The Agency may also consider holding public meetings to address concerns if the site has attracted significant attention.

■ Voluntary Corrective Action

Although EPA typically has less control over public participation during voluntary corrective action, the Agency encourages the use of public participation and will generally take into account the level of public participation conducted by the facility owner and operator when evaluating the acceptability of voluntary actions.

STATE AUTHORIZATION

RCRA also requires public involvement when EPA authorizes states to implement the hazardous waste regulations. Such public involvement is intended to allow the public to voice their

concerns regarding the change in implementing agency. Specifically, during the state authorization process, a state must provide public notice and an opportunity for public hearing before submitting its application for final authorization. The Statute also requires that EPA provide opportunity for public hearing before it decides to grant or deny a state's authorization and before EPA withdraws a state's authorization. (State authorization is fully discussed in Section III, Chapter 11.)

THE RULEMAKING PROCESS

Besides facilitating public participation during hazardous waste TSDF permitting, corrective action, and state authorization under the RCRA Subtitle C program, EPA proactively initiates public involvement activities as part of all formal RCRA rulemakings. Congress, through the **Administrative Procedures Act** (APA) (5 U.S.C. Sections 551-559), established the legal requirement that federal agencies provide the public with notice and an opportunity to comment on rulemakings. The Act addresses rulemaking procedures as well as site-specific licensing procedures, access to agency information, and procedures and standards for judicial review of agency actions. All environmental rulemakings proposed and finalized by EPA include public participation throughout the process (see Figure VII-2).

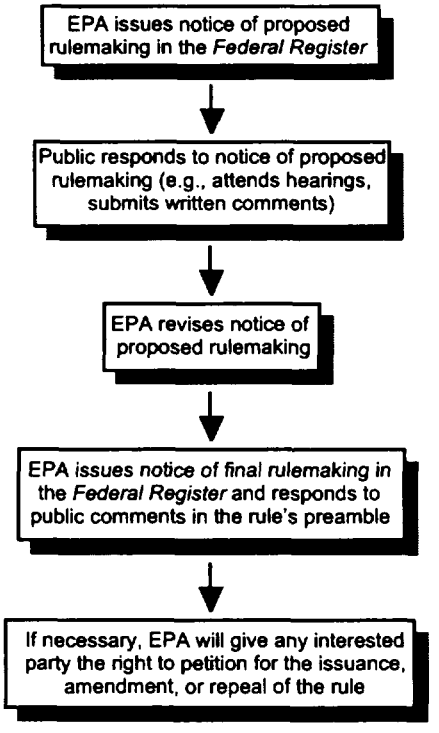
■ Proposed Rulemakings

The first step in the rulemaking process is the issuance of the notice of proposed rulemaking by EPA. The forum for providing the public with notice of a proposed rule is the *Federal Register*. The notice must include a statement of the time, place, and nature of the rulemaking, a reference to the legal authority under which the rule is proposed, and the terms of the proposed rule.

■ Public Comment

After notice is given, EPA must provide interested persons an opportunity to participate in the rulemaking through submission of written data, views, or arguments. This process not only educates the public, but also provides valuable information to EPA during the regulatory development process. Up-front participation reduces the likelihood of litigation challenging subsequent regulations. Public participation can take many forms, including opportunity for a hearing, opportunity for access to EPA materials, and opportunity for written comments on proposals.

Figure VII-2: THE RULEMAKING PROCESS



■ Final Rulemakings

Once public comments are considered, EPA will revise the proposed rulemaking. The rule will often change between its proposal and finalization as a result of public comments. The final rule is published in the *Federal Register*, and EPA will respond to public comments in the rule's preamble. After final promulgation, EPA must give any interested party the right to petition for the issuance, amendment, or repeal of the rule.

■ Rulemaking Information

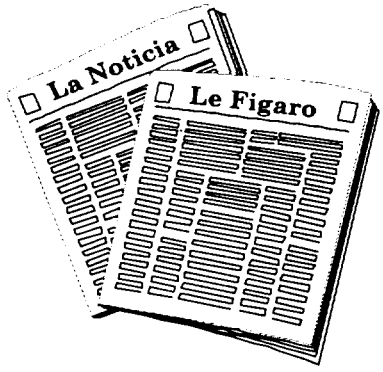
EPA evaluates a variety of background information, as well as public comments, in the development of a particular rulemaking. Each *Federal Register* lists a background docket that is available for public viewing. This docket contains all the background documents, including scientific studies, risk assessments, public comments, and EPA responses, that were used for that particular rulemaking.

In addition to the background docket, the *Federal Register* also contains regulatory impact analyses. These are analyses of a particular rulemaking's effects on other environmental regulations and economic impact on the regulated community.

In these analyses, EPA evaluates the effects this rule will have on other environmental regulations, such as CERCLA and CWA, and publishes the expected impacts in the *Federal Register*. In addition, EPA studies the economic effects of a particular rule on the regulated community to determine compliance costs. As required by the Regulatory Flexibility Act of 1980, the Agency also evaluates the impacts of the rulemaking on small businesses, small organizations, and small governmental jurisdictions.

ENVIRONMENTAL JUSTICE

Environmental justice refers to the fair distribution of environmental risks across socioeconomic and racial groups. On February 11, 1994, President Clinton issued Executive Order 12898, directing federal agencies to identify and address environmental concerns and issues of minority and low-income communities. EPA is committed to equal protection in the implementation and enforcement of the nation's environmental laws. EPA believes that environmental justice issues should be addressed on a local level and on a site-specific basis. EPA encourages permitting agencies and facilities to use all reasonable means to ensure that all segments of the population have an equal opportunity to participate in the permitting process and have equal access to information in the process. These means may include, but are not limited to, multilingual notices and fact sheets, as well as translators, in areas where the affected community contains significant numbers of people who do not speak English as a first language.



OUTREACH AND PUBLIC ASSISTANCE

A number of opportunities exist for the public to obtain RCRA program information and assistance. These include grants, the Freedom of Information Act, EPA Office of Ombudsman, the RCRA Information Center, and the RCRA, Superfund & EPCRA Hotline.

■ Grants

Under RCRA §7007, EPA has the authority to provide grants to states, municipalities, educational institutions, or any other organization to help these groups effectively implement training programs that demonstrate solid waste management and resource recovery operations. Such grants provide governments and nonprofit organizations with the opportunity to further the goals of Act through public outreach.

■ Freedom of Information Act

The **Freedom of Information Act** (FOIA) provides private parties with the right to obtain information in the possession of the government. Unless materials are promptly published and copies are offered for sale, each agency must make information available for public inspection and copying. FOIA requires each agency to establish procedures for handling requests regarding government statutes, regulations, standards, permit conditions, requirements, orders, and policies.

There are certain materials which are not subject to FOIA. These include:

- Draft materials
- Matters of national defense or foreign policy
- Material related solely to internal personnel rules and practices
- Trade secrets and privileged commercial or financial information
- Investigation material collected for enforcement purposes
- Geological and geophysical information and data.

EPA has pursued a policy of fully disclosing its records to the public, consistent with the rights of individuals to privacy, the rights of persons entitled to protection under confidential business information (CBI) provisions, and the need for EPA to promote internal policy deliberations. EPA will disclose information to any requester to the fullest extent possible without unjustifiable expense or unnecessary delay.

■ EPA's Office of Ombudsman

In order to create a central clearinghouse for public concerns on matters relating to the implementation and enforcement of RCRA, EPA established the Office of Ombudsman and appointed a Hazardous Waste Ombudsman at EPA Headquarters and each EPA Region. The primary responsibilities of the Ombudsman are to respond to questions and complaints regarding implementation of the RCRA program. Additionally, the Ombudsman makes recommendations to the EPA Administrator based on inquiries received. The EPA Headquarters Ombudsman may be reached by contacting:

Office of Ombudsman
U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
401 M Street, S.W.
Washington, DC 20460
(800) 262-7937

■ RCRA Information Center

The RCRA Information Center (RIC) houses the background dockets for all RCRA rulemakings, as well as additional EPA publications on RCRA. The public can view docket materials Monday through Friday from 9:00 a.m. to 4:00 p.m., EST. The public can make an appointment to review these materials by calling (703) 603-9230. A maximum of 100 pages may be copied from any regulatory document at no charge and additional

copies cost $0.15 per page. The RIC is located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, Virginia.

■ RCRA, Superfund & EPCRA Hotline

The RCRA, Superfund & EPCRA Hotline is a publicly accessible service which provides up-to-date regulatory information. The Hotline responds to factual questions on federal EPA regulations developed under RCRA, CERCLA, EPCRA, the Oil Pollution Act (OPA), and SPCC. The Hotline is staffed by professionals who are completely familiar with the latest issues and regulations affecting the hazardous waste program. The Hotline is open Monday through Friday from 9:00 a.m. to 6:00 p.m., EST, and may be contacted at either (703) 412-9810, or toll-free, (800) 424-9346.

SUMMARY

EPA is committed to involving the public in the development and implementation of the solid waste, hazardous waste, and UST regulations and seeks to empower communities to become involved in local RCRA-related activities. To achieve these goals, the RCRA public participation requirements bring government, private industry, public interest groups, and citizens together to make important decisions about hazardous waste management facilities.

A focus of RCRA public participation is the involvement of the public in the hazardous waste TSDF permitting process. The public interaction occurs during pre-application meetings, public comment and response periods, and public hearings. RCRA includes specific provisions to involve the public in all stages of the hazardous waste TSDF permitting process: prior to the initial permit application; after draft permit issuance; and during permit modifications, permit renewals, post-closure permits, and trial burns.

In addition, RCRA requires public involvement during Subtitle C corrective action, whether such cleanups are instituted through a permit or order, or conducted voluntarily. RCRA also requires public involvement when EPA authorizes states to implement the hazardous waste regulations.

While RCRA's initiatives to facilitate public participation during hazardous waste TSDF permitting, corrective action, and state authorization are limited to the RCRA Subtitle C program, EPA is required to comply with the public involvement provisions under APA for all formal rulemakings under all RCRA subtitles.

Consistent with Executive Order 12898, directing federal agencies to identify and address environmental concerns and issues of minority and low-income communities, EPA encourages allowing all segments of the population equal access to information pertaining to the RCRA program.

To assist in disseminating information and promoting public education about the RCRA program, EPA engages in several outreach and public assistance mechanisms. The Agency provides training grants, allows access to information through the Freedom of Information Act, and provides program information through the EPA Office of Ombudsman, the RCRA Information Center, and the RCRA, Superfund & EPCRA Hotline.

ATTACHMENT G

EPA SUMMARY OF AGREEMENT: GENERAL ELECTRIC/PITTSFIELD-HOUSATONIC RIVER SITE

October 7, 1999

EPA Summary of Agreement
General Electric/Pittsfield - Housatonic River Site

On October 7, 1999, representatives of U.S. Environmental Protection Agency; U.S. Department of Justice; the Commonwealth of Massachusetts Department of Environmental Protection, Office of the Attorney General and Executive Office of Environmental Affairs; the State of Connecticut Department of Environmental Protection and Office of the Attorney General; the U.S. Department of Interior; the National Oceanic and Atmospheric Administration; the City of Pittsfield; the Pittsfield Economic Development Authority and the General Electric Company (GE) reached a comprehensive agreement relating to the cleanup of GE's Pittsfield facility, certain off-site properties and the Housatonic River.

The detailed terms of this agreement are incorporated in a Consent Decree which was lodged on October 7, 1999, with the United States District Court of Massachusetts, Western Division, located in Springfield, Massachusetts.

The Consent Decree provides for cleanup of the Housatonic River and associated areas, cleanup of the General Electric Plant facility, environmental restoration of the Housatonic River, compensation for natural resource damages, and government recovery of past and future response costs. In addition, a Definitive Economic Development Agreement among GE, the City of Pittsfield, and the Pittsfield Economic Development Authority (PEDA) provides for economic redevelopment of the GE Plant facility. That agreement will become effective upon entry of the Consent Decree.

The major components of the combined agreements are:

I. Cleanup of Contaminated Areas
II. Restoration of Natural Resources
III. Recovery of Government Costs
IV. Effect and Form of the Consent Decree

Additional important actions include:

- Enhanced Public Participation
- Brownfields Redevelopment and Economic Aid

Below is EPA's summary of the Consent Decree. It should be noted that this is EPA's summary and has not been approved by the other parties to the agreement. In addition, this summary is not intended to be all-inclusive or binding in any respect, and is being provided for public informational purposes only. The Consent Decree and other ancillary documents represent the final, binding agreement between the parties and are being made available to the public at the following locations:

Lenox Public Library
18 Main Street
Lenox MA 01240
413-637-0197

Berkshire County Regional Planning Commission
10 Fenn Street
Pittsfield MA 01201
413-442-1521

Berkshire Athenaeum Public Library
Reference Department
1 Wendell Avenue
Pittsfield MA 01201
413-499-9488

Simon's Rock College of Bard
84 Alford Rd.
Great Barrington MA 01230
413-528-7274

A public comment period of 60 days will begin when the notice is published in the federal register.

I. Cleanup of Contaminated Areas

A. Scope of the Consent Decree

This agreement covers the GE Plant Site, including Silver Lake and Unkamet Brook, the former oxbows (including Newell Street commercial properties), the Housatonic River sediments, banks, and floodplain properties downstream of the GE Plant Site, and the Allendale School. With the exception of the residential properties within the former oxbows, this agreement does not cover cleanup of residential properties in Pittsfield or elsewhere that received GE wastes for use as fill. These properties are covered by a separate Administrative Consent Order between Massachusetts and GE. More than 100 residential fill properties will have been cleaned up by the end of the 1999 construction season. Residential fill properties remain a high priority and will continue on an expedited sampling and cleanup schedule.

B. Overall Principles for Management of the Cleanup

1. Extensive sampling on GE and non-GE owned properties. Agencies to oversee all GE work and reserve the right to conduct additional sampling if necessary.
2. GE to perform cleanups except on 1 ½ Mile Reach of Housatonic River. (See section C.8).
3. Material and debris excavated from areas subject to this Consent Decree, excluding the River below two miles, are to be consolidated on the GE facility subject to the following:
   a. No disposal of regulated TSCA waste or RCRA hazardous waste in the Hill 78 Consolidation Area.
   b. No on-site disposal of drums, capacitors, equipment, free product or asbestos required to be removed as part of the building demolition.
   c. Area and height limitations of the consolidation areas as follows: Hill 78- 5.6 acre footprint and 1,050 foot maximum elevation, Building 71- 4.4 acre footprint and 1,048 foot maximum elevation, Merrill Road/New York Ave- 1.6 acre footprint and 1,027 foot maximum elevation. Elevation is based on National Geodetic Vertical Datum (NGVD). For reference purposes, current elevation of the top of Hill 78 (including the material from the Allendale School, as described in Item I.C.3) is 1049 feet.
   d. Capping and long-term monitoring of consolidation units.
   e. Building demolition debris, following the removal of asbestos, may also be consolidated within the existing foundations of certain buildings.
4. Environmental Restrictions and Easements (EREs) are to be placed on all GE-owned properties to ensure that current uses will not change (i.e., commercial/industrial properties will continue to be used as commercial/industrial properties and recreational properties will continue to be used as recreational properties) and to protect the integrity of the cleanup.
5. Two options for non-GE owned properties: a) cleanup that is protective of current use with Environmental Restrictions and Easements (EREs) utilized, with consent of the owner,

to maintain current use, or b) a conditional solution which also provides a cleanup that is protective of current use but, instead of EREs, requires additional cleanup if the use of the property changes (see also C. 2.b).

6. Fully cooperative approach to management of cleanup activities.
7. The parties have established a management architecture for project implementation involving EPA, state regulatory agencies, GE, and, as appropriate, PEDA, the City and the Trustees to ensure that all aspects of the project are managed in a fully collaborative and cooperative manner, to plan work and to cooperatively head off problems and disputes before they arise.
8. Public to provide input throughout implementation of the work.

C. Specific Areas for Cleanup

1. **GE Plant Site**

GE will undertake the following:

a. Soil Remediation

Objective: to remediate surface soils to levels that allow for commercial/industrial or recreational use, and to minimize exposure to contaminants in deeper soils.

- Remediation required for PCBs greater than 25 parts per million (ppm) average in surficial soils (0-1 foot).
- An engineered barrier to minimize infiltration and prevent exposure will be implemented in areas where PCBs greater than 100 ppm average are within the top 15 feet.
- Remediation required for PCBs greater than 200 ppm average from 1-6 feet.
- New or repaired utility corridors will be backfilled with soils that contain no more than 25 ppm PCBs.
- No capping of unpaved soils in floodplain. Soil removal and replacement required instead in order to avoid loss of flood storage capacity.
- Removal of pavement in 200-foot-wide buffer zone on northern (plant) side of River between the location of the former Thermal Oxidizer and the downstream boundary of the GE facility to provide enhanced habitat resoration and to reduce storm water runoff.
- Future City of Pittsfield ballfield will include a one foot cap in addition to achieving the recreational standard of 15 ppm PCBs average in the next 2 feet.

b. Unkamet Brook and Floodplain Remediation

Objective: To provide protection for human recreational users and biological receptors in

the portions of the Brook and its floodplain from Dalton Avenue downstream to the Housatonic River.

- Reroute Unkamet Brook to its former channel and cap entire existing industrial landfill.
- Remove Brook sediments and remediate inundated wetland sediments to achieve 1 ppm PCBs average in surface sediments.
- Remove soils in Unkamet Brook recreational floodplain to achieve 10 ppm PCBs average in top foot and 15 ppm in 1-3 foot depth.

c. Hill 78 and Building 71 Consolidation Areas

Objective: To eliminate risk of exposure to materials in the consolidation units through a combination of engineering controls and long-term monitoring.

- Install a protective cap over Hill 78 and Building 71 Consolidation Areas.
- Establish an extensive groundwater monitoring system to monitor the groundwater surrounding the landfill.
- Install a liner and leachate collection system for Building 71 Consolidation Area.
- Design both areas with human health and environmental protection, as well as configuration limitations, in mind.
- An additional area at New York Ave/Merrill Road may be utilized and will be designed in a similar manner to the Building 71 Consolidation Area.

d. Non-GE Owned Property Within the GE Plant Site

Objective: To make properties safe for current use through a combination of clean-up and deed restrictions (with appropriate compensation to the property owner); and to provide flexibility (in the form of additional cleanup) for future use changes on properties where there is not agreement on deed restrictions. The property owner will decide which option to choose. Both options provide an initial cleanup that is protective of current uses.

- For current commercial/industrial and recreational areas, GE is to make best efforts, as defined in the Consent Decree, to obtain appropriate deed restrictions (i.e., EREs), including offering reasonable monetary compensation, and will clean up property consistent with the following:
  either: obtain EREs with owner's consent and clean property as follows:

  (i) at commercial/industrial properties, clean up consistent with GE Plant Site commercial/industrial standards, including remediation (via soil removal and/or pavement enhancement) for PCBs greater than 25 ppm average in surficial soils, achievement of 200 ppm PCB average for 1-6

foot depth, installation of engineered barrier where PCBs exceed 100 ppm average in top 15 feet, and backfilling in new or repaired utility corridors with soil less than 25 ppm PCB average; and

(ii) at recreational properties, achieve 10 ppm PCB average in top foot of soil and 15 ppm at 1-3 feet, install engineered barrier where PCBs exceed 100 ppm average in top 15 feet, and ensure backfill in new or repaired utility corridors is less than 10 ppm PCBs average;

or: if the owner's consent for an ERE is not obtained, GE will implement a conditional solution protective of current use, meeting the following requirements:

(i) same soil remediation as at properties with EREs except that GE will remove soils to achieve PCB averages of 25 ppm in the top 3 feet at commercial/industrial properties and 10 ppm in the top 3 feet at recreational properties; and

(ii) GE will conduct further remediation that is needed to be protective of any legally permissible future use for which the owner obtains governmental approval (if necessary) and provides appropriate evidence regarding the future use or activity.

e. Groundwater Remediation

Objective: to meet appropriate standards for protection of surface waters (i.e., Housatonic River, Silver Lake, Unkamet Brook) and to prevent risks from volatilization of contaminants into occupied buildings. The standards are based on the assumption that there is no current or reasonably foreseeable future use of groundwater for drinking water purposes.

- Install perimeter and sentinel (early warning) groundwater monitoring systems.
- Continue oil recovery and conduct groundwater treatment until groundwater standards are met.

Timetable:

- Active control of potential sources of contamination to the River has been ongoing for many years and is continuing. Upstream source control has been completed and remaining source control will be completed prior to river excavation in the relevant river reach.
- Overall facility cleanup will be coordinated with Brownfields Redevelopment.
- Unkamet Brook investigation process will begin 24 months after entry of the Consent Decree. After completion of the investigation, cleanup work will begin.
- All work in these areas is expected to be completed over a period of about 5 years after entry of the Consent Decree.

2. **Former Oxbow Areas**

GE will undertake the following:

a. Additional sampling of soils and groundwater

Objective: To identify the nature and extent of soil and groundwater contamination.

b. Soil Remediation

Objective: to achieve appropriate cleanup standards keyed to current uses and expected future uses (i.e., commercial, recreational, or residential standards referenced below) and to allow for changes in property uses.

- For the Lyman Street and Newell Street parking lots, remove surficial soils and replace with vegetative engineered barriers.
- For current commercial/industrial and recreational areas, GE to clean-up in accordance with Item C(1)(d) above.
- For residential properties, achieve 2 ppm PCB average.

c. Continue oil recovery operations and implement groundwater treatment or controls until groundwater standards are met.

Objective: to prevent floating and sinking oils from discharging to the River.

Timetable:

- As the cleanup of the Upper Two Mile Reach progresses from the Newell Street Bridge downstream, oxbow property cleanups will be coordinated with River work to the extent practicable. Cleanup of the River will begin at the Newell Street bridge in the Fall of 1999. GE will submit an investigation plan for the Newell Street commercial properties 5 months from the lodging of the Consent Decree. After entry of the Consent Decree and completion of the investigation, cleanup work will begin.

3. **Allendale School**

Objective: to remove contaminated fill (which had previously been capped) from the schoolyard and restore the schoolyard.

- GE removed all soils containing PCBs greater than 2 ppm (except in a small area

at depth near the foundation of the school building where concerns over foundation stability and safety only allowed for an average of 2 ppm to be met); GE replaced with clean soil and is restoring area.

Timetable:

- Soil remedial work has been completed and restoration work is on-going. The restoration is expected to be completed in the Fall of 1999.

4. **Housatonic River Floodplain - Current Residential Properties**

Objective: to clean all properties to unrestricted use standards.

GE will implement (or share in funding for 1 ½ Mile Reach Riverbanks) the following:

a. Residential properties in 1 ½ Mile Reach

- Remove non-riverbank soils to no more than 2 ppm PCBs average.
- Riverbanks to be addressed by EPA as part of Engineering Evaluation/Cost Analysis (EE/CA) for 1 ½ Mile Reach (Item C.8 below).
- Timetable: Clean-up coordinated with river work to the extent practicable.

Timetable:

- Investigation process to begin 16 months after entry. After completion of the investigation, cleanup work will begin and will be coordinated with the River work to the extent practicable.

b. Residential Properties Downstream of 2-Mile Reach

- Remove soils at actual or potential lawn areas to no more than 2 ppm PCBs average.
- Install short term measures (e.g., signs) for riverbanks with contamination levels exceeding state thresholds for short-term measures.
- Remediate riverbank portions as part of Rest of River (Item C.9 below).

Timetable:

- Investigation process to begin 16 months after entry. After completion of the investigation, cleanup work will begin.

5. **Housatonic River Floodplain - Non-Residential Areas**

Objective: to achieve appropriate cleanup standards keyed to current uses and expected future uses (i.e., commercial, recreational, or residential standards referenced below) and to allow for changes in property uses.

GE will undertake (or share in funding for 1 ½ Mile Reach Riverbanks) the following:

a. In 1 ½ Mile Reach, riverbanks are to be remediated by EPA as part of the 1 ½ Mile Reach Removal Action (Item C.8 below).

b. Recreational and commercial/industrial non-riverbank areas in 1 ½ Mile Reach will be addressed in accordance with Item C.1.d above.

c. In area below 1 ½ Mile Reach, address the non-residential floodplain properties in connection with the cleanup of the Rest of River (Item C.9 below).

Timetable:

- Cleanup of 1 ½ Mile Reach floodplain properties will be performed concurrently with River cleanup to the extent practicable.
- Non-residential floodplain properties below 2 miles will be on a timetable that is dependent on the Rest of River decision.

6. **Silver Lake**

Objective: to provide a clean-up that is protective of human and ecological use of the lake.

a. Remove bank soils at non-residential properties to achieve no more than 10 ppm PCBs average in top foot and 15 ppm PCBs average at 1-3 feet, assuming EREs are executed. If no ERE's, a conditional solution will be implemented for bank soils that will achieve 10 ppm PCBs average in top 3 feet and meet the other requirements for conditional solutions in Item C.1.d.(ii) above. On residential properties, GE will achieve a 2 ppm PCBs average.

b. Remove and replace hot spot sediments near the outfall.

c. Cap the entire 26 acre lake bottom and armor the entire perimeter of lake; specific design plans to be approved in the future by EPA.

d. Perform periodic review of effectiveness of cap. If performance standards for cap are not met, additional actions will be evaluated and implemented.

Timetable:

- Investigation process to begin 18 months from entry of the Consent Decree. After completion of the investigation, cleanup work will begin.

7. Housatonic River - Upper ½ Mile Reach

Objective: to achieve a clean-up that is protective of human health and the environment within the Upper ½ Mile Reach and to prevent further downstream migration of contaminants.

GE will undertake the following in the Upper ½ Mile Reach (Newell Street Bridge to the Lyman Street Bridge):

a. Remove and restore sediments per final design work plan already submitted by GE and approved by EPA.

b. Remove and restore bank soils to achieve 10 ppm average in top foot and 15 ppm average at 1-3 feet.

Timetable:

- To begin in the Fall of 1999. To be completed by May, 2001.

8. Housatonic River - Next 1 ½ Mile Reach from the Lyman Street Bridge to the Confluence of the East and West Branches (includes sediments and riverbanks)

Objective: to achieve a clean-up that is protective of human health and the environment within the 1 ½ Mile Reach and to prevent downstream migration of contaminants.

a. EPA is currently conducting and GE is funding an Engineering Evaluation/Cost Analysis (EE/CA) of the alternatives for cleanup of the 1 ½ Mile Reach.

b. EPA will select response actions for the1 ½ Mile Reach after the completion of the EE/CA and after consultation with GE, affected property owners in the 1 ½ Mile Reach floodplain, and the Citizens' Coordinating Council, and review by EPA's National Remedy Review Board.

c. EPA will implement the selected response action. The costs will be shared by GE and EPA with the amount of funding dependent on the overall costs:

- GE to pay 100% of costs up to $15 million.
- For incremental costs between $15 and $25 million, GE will pay 70% of costs and EPA will pay 30%.
- For incremental costs between $25 and $32.5 million, GE will pay 60 % of costs

and EPA will pay 40%.

- For incremental costs between $32.5 and $40 million, GE and EPA will each pay 50%.
- For incremental costs between $40 and $50 million, GE will pay 40% of costs and EPA will pay 60% of the costs.
- For incremental costs exceeding $50 million, GE will pay 30% of the costs and EPA will pay 70% of the costs.

e. Examples of allocations under cost share formula: if cost of response action is $32.5 million, EPA's cost share will be $6 million, or approximately 20% and GE's share will be $26.5 million. If the cost is $40 million, EPA's share will be $9.75 million, or approximately 24 %, and GE's share will be $30.25 million. If the cost is $50 million, EPA's share will be $15.75 million, or approximately 31.5%, and GE's share will be $34.25 million.

Timetable:

- Draft EE/CA to be available to the public in the Fall of the 1999. Work to begin in June 2001 and to be completed in 4 years.

9. **Housatonic River - 'Rest of River' -- contaminated river sediments, banks and floodplain areas (other than actual or potential lawns, which are covered in Item I.C.4.b) downstream of the confluence with the West Branch**

Objective: 1) Implement a process which is designed to result in a remedy decision for the downstream portions of the Housatonic River that is protective of human health and the environment; and 2) Performance by GE of the Rest of River cleanup.

a. EPA to conduct additional sampling, human health and ecological risk assessments and modeling.

b. A Peer Review Panel will review the human health risk assessment, ecological risk assessment and modeling performed by EPA.

c. GE to compile all data into an investigation report and evaluate remedial alternatives under a modified process which limits appeals until after a final remedy has been chosen.

d. At conclusion of studies, EPA will issue a Statement of Basis that selects a river remedy and modify GE's RCRA permit to obligate GE to perform the cleanup.

e. GE agrees to perform the selected cleanup after completion of any dispute resolution

under Consent Decree:

- Dispute resolution may include review by the EPA Environmental Appeals Board and the United States Court of Appeals for the First Circuit.
- During dispute, all work not subject to the dispute continues, and EPA can proceed with designing aspects of the Rest of River cleanup that GE has disputed, and under certain conditions may proceed with implementation of the work.

Timetable

- Decision on the Rest of River cleanup is expected to be made by EPA in 2002. Based on the assumptions that the clean up of the first two miles of river will not be completed until 2004 or 2005, EPA does not expect any delay in the implementation of the remedy for the Rest of River if GE invokes the dispute resolution referenced above.

II. Restoration of Natural Resources

A. Primary Restoration

Objective: to compensate the public for natural resource damages by cleaning up valuable resource areas to the extent practicable.

Primary restoration will be composed of the response actions agreed upon for the Housatonic River, Silver Lake, Unkamet Brook and associated wetlands and floodplains.

B. Compensatory Restoration

Objective: to compensate the public for natural resource damages that could not be addressed through the clean-up.

Compensatory restoration will be composed of the following elements:

1. GE will pay $15 million, plus interest, to be administered by the natural resource trustees (US Department of Interior, National Oceanic and Atmospheric Administration, Commonwealth of Massachusetts, State of Connecticut), with appropriate public input, for natural resource projects.

2. GE will perform or fund the following restoration/enhancement activities in connection with the cleanup:

a. Habitat enhancements in the first ½ Mile River Reach (enhancement of vegetation on banks) in conjunction with response action performed by GE.

b. Payment made (as part of cost share) for habitat improvements in the next 1 ½ Mile Reach (pool/riffle structure in riverbed, enhancement of vegetation on banks) in conjunction with response action to be performed by EPA.

c. Habitat and recreational enhancements at Silver Lake. Additional funding will also be provided for Trustee work on the lake.

d. Unkamet Brook Area habitat improvement, including rerouting of the brook to its original location and removal of certain nuisance plant species.

e. At the GE Plant Site south of East Street, in a 200-foot-wide strip along the river between the location of the former Thermal Oxidizer and the downstream boundary of the GE facility, enhance stormwater drainage and create vegetated buffer by removing the pavement and replacing it with clean soil and vegetation.

f. Herbaceous native grassland communities will be created at certain GE-owned properties along the Housatonic River and on the GE Plant, including the area described in item e above, the Newell Street Parking Lot, the Lyman Street Parking Lot, and the Hill 78 Consolidation Area.

g. Floodplain forest/wetland community will be created on approximately 12 acres of riparian land, which will be protected through a conservation easement.

h. Protection of 10 acres of wetland on GE Plant Site east of Unkamet Brook through a conservation easement.

i. Payment by GE of $600,000 for wetlands mitigation.

3. GE will conduct an assessment of the integrity of Woods Pond Dam and Rising Pond Dam, and implement interim measures needed, if any, to ensure the integrity of these dams.

4. GE will coordinate with the Trustees and EPA in the design, implementation and maintenance plans for the restoration/enhancement activities identified in II.B.2.

5. The Pittsfield Economic Development Authority (PEDA) will pay up to $ 4 milion dollars based on a revenue-sharing arrangement linking the anticipated success of the economic redevelopment in Pittsfield with the additional natural resource damage compensation. The $4 million will be administered by the natural resource trustees, with appropriate public input, for natural resource restoration projects.

III. Recovery of Government Costs

GE and governments have agreed on the amount GE will pay to reimburse response costs previously incurred and to be incurred by the governments in connection with the site. The details regarding the specific reimbursement amounts can found in Section XX of the Consent Decree.

IV. Form And Effect of The Consent Decree

A. The settlement agreement is in the form of a federal court Consent Decree. The Consent Decree includes, among other provisions:

1. EPA review and approval rights on all plans in the Consent Decree.
2. EPA ability to modify the scopes of work being implemented by GE under the Consent Decree; (see Paragraph 39 of the Consent Decree)
3. Periodic review by EPA of the cleanup; (see Section X of the Consent Decree)
4. Emergency response provision; (see Section XIX of the Consent Decree)
5. Dispute resolution processes; (see Section XXIV of the Consent Decree)
6. Stipulated penalties for inadequate or late work by GE; (see Section XXV of the Consent Decree)
7. Agreements by the governments and GE not to sue each other subject to certain reservations; (see Section XXVI and XXVII of the Consent Decree)
8. EPA to have the ability to take over work if GE is not performing adequately, or to order additional work by GE if new information or unknown conditions show the cleanup is not protecting human health or the environment (see Paragraph 178 of the Consent Decree); and
9. Protection for GE from certain 'contribution' claims by other parties (see Section XXIX of the Consent Decree).

B. EPA agrees to defer final decision making on listing the Site on the CERCLA National Priorities List (NPL) (see Paragraph 200 of the Consent Decree). EPA may finalize listing the Site, under certain conditions, including if EPA concludes that a situation exists where it needs to take over the cleanup work under the Consent Decree due to inadequate performance by GE, subject to GE's right to dispute resolution.

In addition to the provisions of the Consent Decree, the following other important components will be implemented at the Site.

Enhanced Public Participation

Objective: to implement this agreement in a manner that considers and utilizes the ideas of the citizens of Berkshire County.

A. A Citizen's Coordinating Council has been established to serve as a focal point for community participation in the cleanup. The Council includes leaders from Berkshire County's political, environmental, community, and business sectors. The Council has provided and will continue to provide an important mechanism to ensure that all of the settling parties fully honor their commitment to listen to, learn from, and incorporate the ideas and concerns of the community to the greatest extent possible. The governments intend to submit drafts of major technical documents to the Citizens Coordinating Council for review and discussion.

B. EPA will provide additional outreach to property owners affected by this agreement, including participating in and hosting public meetings, small neighborhood meetings and individual meetings.

Brownfields Redevelopment And Economic Aid

Objective- to utilize the former GE facility for new development thus preserving undisturbed "greenfields".

GE, the City of Pittsfield and the Pittsfield Economic Development Authority (PEDA) have entered into the Definitive Economic Development Agreement. Under this agreement, GE will clean up its Plant Site to agreed upon Consent Decree standards (Item I.C.1), demolish several buildings, provide some funding for building new buildings and transfer portions of the property to PEDA for economic redevelopment. In addition, GE will provide economic aid to the City of Pittsfield for 10 years and make upgrades to the Plant Site and Silver Lake that will have aesthetic value and enhance local habitat.

ATTACHMENT H

SELECTED EPA, MDEP, AND DPH FACT SHEETS

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Title

UPPER REACH OF THE HOUSATONIC RIVER ENGINEERING EVALUATION/COST ANALYSIS FACT SHEET (JULY 2000)

Upper Reach of the Housatonic River Engineering Evaluation/Cost Analysis Fact Sheet

General Electric Housatonic River Project Pittsfield, Massachusetts

July 2000

INTRODUCTION

This fact sheet provides an overview of the results and recommendations of the Engineering Evaluation/Cost Analysis (EE/CA). The EE/CA was performed to evaluate the potential removal actions for the Upper Reach of the Housatonic River from Lyman Street in Pittsfield, MA, to the confluence of the East and West Branches of the Housatonic River. This 1.5-mile stretch of river, referred to as the EE/CA Reach, is immediately downstream of the General Electric (GE) manufacturing facility in Pittsfield. EPA seeks public comment on this EE/CA and its supporting Administrative Record File.

CURRENT ENGINEERING EVALUATION AND COST ANALYSIS

An EE/CA is an evaluation involving a comparison of potential removal action alternatives using the criteria of effectiveness, implementability, and cost. Through the EE/CA process, EPA evaluates alternatives for mitigating the human health and environmental threats posed by the presence of polychlorinated biphenyls (PCBs) and other hazardous substances in river sediments and banks of the EE/CA Reach.

The EE/CA presents the following information:

- A site description including summaries of previous studies.
- Identification of the removal action and habitat restoration objectives for the EE/CA Reach.
- Identification of removal action costs.
- Comparative analysis of alternatives.

EPA INVITES PUBLIC COMMENT

EPA invites public comment upon EPA's recommendations and upon the alternatives evaluated in the EE/CA. EPA will select a final removal action after considering public comments in a document called an Action Memorandum. EPA will hold a 31-day public comment period, from **July 17, 2000, through August 16, 2000,** to provide an opportunity for the public to participate in the selection of the 1.5-Mile Reach cleanup plan. During the comment period, the public is invited to review the EE/CA and its supporting Administrative Record File, which are available at the Information Repositories listed below, and to offer written or verbal comments. Pursuant to 40 CFR §300.415(n)(4)(iii), upon timely receipt of a request sent to EPA, within 2 weeks of the initiation of the comment period, the comment period will be extended by a minimum of 15 additional days.

EPA and the Massachusetts Department of Environmental Protection will conduct a public informational meeting at **7:00 p.m.** on **Tuesday, July 25, 2000,** to summarize the results of the EE/CA, to update the community on the investigation progress, and to answer questions about the investigations and findings. EPA will conduct a public hearing at **7:00 p.m.** on **Tuesday, August 15, 2000**, to accept formal verbal comments on the preferred alternative as presented in the EPA fact sheet. Both events will be held at the **Berkshire Athenaeum Public Library Auditorium**, 1 Wendell Avenue, in Pittsfield. A public informational meeting will be held in Connecticut at the Kent Town Hall in Kent on **Tuesday, August 8, 2000, at 7:00 p.m**.

The hearing will be transcribed and a copy of the transcript will be available at the Information Repositories. Interested citizens may submit written comments or offer verbal comments on the EE/CA at the hearing on August 15. While EPA uses public comments throughout site cleanup, EPA will only respond in writing to written comments submitted during the comment period or verbal comments submitted at the formal public hearing.

If you would like to comment in writing on the EE/CA, please mail your written comments (postmarked no later than **August 16, 2000**) to: Chet Janowski, Remedial Project Manager, One Congress Street, Suite 1100 (HBO), Boston, Massachusetts 02114; 617-918-1324; fax 617-918-1291; or by e-mail to janowski.chet@epa.gov.

Any general questions concerning the GE Pittsfield/Housatonic River Site should be directed to Angela Bonarrigo, EPA's Community Involvement Coordinator, at 617-918-1034.

The EE/CA and its supporting Administrative Record File will be available for public review and comment at the following locations:

EPA Records Center
1 Congress St., Suite 1100
Boston MA 02114
617-918-1440

MA DEP
436 Dwight St., Suite 500
Springfield MA 01103
413-784-1100

Lenox Public Library
18 Main St.
Lenox MA 01240
413-637-0197

Simon's Rock College of Bard
84 Alford Rd.
Great Barrington MA 01230
413-528-7370

Berkshire Athenaeum Public Library
Reference Department
1 Wendell Ave.
Pittsfield MA 01201
413-499-9488

Berkshire County Regional Planning Commission
33 Dunham Mall
Pittsfield MA 01201
413-442-1521

CT DEP (Communications)
79 Elm St.
Hartford CT 06106
860-424-4100

Kent Library
32 North Main St.
Kent CT 06757
860-927-3761

REMOVAL OBJECTIVES

The following removal action objectives were established by EPA:

- Remove, treat, and/or manage PCB-contaminated river sediments and riverbank soils to prevent human and ecological exposures exceeding risk-based levels.
- Eliminate or mitigate existing riverbank soil and sediment sources of contamination to the EE/CA Reach, prevent recontamination of previously remediated areas, and prevent downstream migration of contaminated sediments and bank soils.
- Minimize long- and short-term impacts on wetland and floodplain areas and enhance habitat in a manner consistent with the above objectives.

Cleanup Criteria—To achieve these objectives, EPA has established cleanup criteria for total PCBs in the EE/CA Reach. These criteria are based on human and ecological exposures exceeding risk-based levels as presented in the EE/CA.

Habitat Restoration—Habitat restoration is necessary to meet applicable and relevant regulations as part of the response action and to meet the natural resource damage (NRD) objectives in accordance with the Consent Decree for the GE Pittsfield/Housatonic River Site, which was lodged in Federal District Court on October 7, 1999. Habitat restoration is also necessary to protect the regraded riverbed and riverbank from erosion.

Habitat restoration objectives will be met through a combination of regrading, revegetation, bioengineering, and potential installation of habitat improvements (e.g., low-stage dams, current deflectors, and boulders). The placement of habitat improvements and regrading will be conducted such that the flood elevations in the river are not significantly affected and flood storage is not reduced.

SITE DESCRIPTION

The Housatonic River flowed through the City of Pittsfield in its natural state until the late 1930s/ early 1940s when the U.S. Army Corps of Engineers (USACE) channelized the river within the City of Pittsfield, isolating oxbows from the main river channel. From the late 1940s until approximately the 1980s, these oxbows were backfilled with various materials, including materials from the GE facility. In addition, the Massachusetts Department of Public Works undertook flood control work based on reports by USACE.

In 1903, GE initiated operations at a site on the Housatonic River in Pittsfield. Three manufacturing divisions at the GE facility (Transformer, Ordnance, and Plastics) have used areas near the site. Although GE conducted many activities at the Pittsfield facility throughout the years, the activities of the Transformer Division were the likely primary source of PCB contamination. GE's Transformer Division activities included the construction and repair of electrical transformers, some of which contained PCBs. GE manufactured and serviced electrical transformers containing PCBs at this facility from approximately 1932 through 1977.

In the late 1960s, a PCB storage tank associated with GE Building 68 collapsed and released an estimated 1,000 gallons of liquid PCBs to the riverbank, surface water, and sediments. Visual contamination, including trap rock and sediments, was removed following the release; however, subsequent investigations in this area identified additional material, including dense nonaqueous phase liquid (DNAPL), that was not removed during the immediate response action or was the possible result of other spills.

Additional releases of PCBs to the environment included spills at the GE facility onto the ground resulting in contamination of soil (some of which was used as fill at the facility and at off-site areas throughout Pittsfield), surface water runoff to Silver Lake and the river, and groundwater.

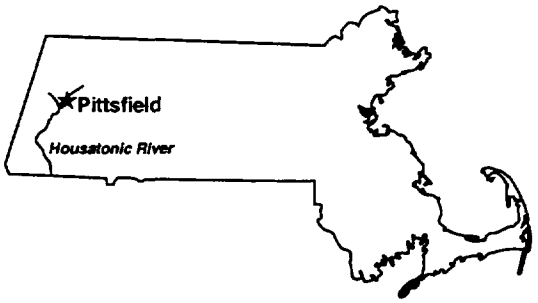

Figure 1: Location of Pittsfield and the Housatonic River

PREVIOUS SITE INVESTIGATIONS

Numerous studies have been conducted on the Housatonic River including studies of sediment, soil, fish tissue, and benthic organisms collected from the river. These studies indicate that PCB contamination exists in the river from the outfall of Unkamet Brook (upstream of the EE/CA Reach) to the Massachusetts-Connecticut state line and beyond. The sources of contamination include the GE facility; the 0.5-mile stretch of river immediately upstream of the EE/CA Reach (known as the Removal Reach); Silver Lake, which discharges into the river in the EE/CA Reach; and former oxbow areas A, B, and C, which abut the river in the EE/CA Reach.

The U.S. Environmental Protection Agency (EPA) has determined that a removal action is needed to address unacceptable risks or threats to human health and ecological receptors in the Upper Reach of the Housatonic River. This determination was documented in the 26 May 1998 Combined Action and EE/CA Approval Memorandum (Action Memorandum).

SCREENING OF TECHNOLOGIES

Numerous technologies to contain, remove, and/ or treat the PCB contamination were identified and screened in the EE/CA. Technologies were considered for the following response actions:

- River diversion.
- Sediment and riverbank soil removal.
- In situ treatment and containment.
- Ex situ treatment.
- Ex situ containment/disposal.

The technologies considered for each response action were evaluated with respect to the criteria of implementability, effectiveness, and cost, as identified in the *EPA Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA.*

REMOVAL ALTERNATIVES

Three base alternatives for the removal of contaminated soil and sediment were developed for detailed analysis:

- **Base Alternative 1, Wet Excavation**—This alternative involves the removal of contaminated material from the river without river diversion.

- **Base Alternative 2, Dry Excavation: Sheetpiling (except in cobble reaches where Pumping Bypass will be used)**—This alternative involves removal of contaminated material from dewatered (dry) portions of the river using river diversion.

- **Base Alternative 3, Dry Excavation: Pumping Bypass for the Entire EE/CA Reach**—This alternative is the same as Base Alternative 2, except that diversion of the river would occur by pumping river flow around removal areas.

DISPOSAL ALTERNATIVES

Four disposal alternatives for excavated soil and sediment (Disposal Options A through D) were developed and evaluated.

- **Disposal Option A (Consolidation at GE with Disposal of Excess at Off-Site Facilities)**—Excavated material will be staged, based on pre-construction sampling data, as either non-RCRA-regulated, TSCA-regulated, or RCRA-regulated waste. TSCA- and RCRA-regulated waste (approximately 14,900 yd^3) and approximately 35,100 yd^3 of non-RCRA/non-TSCA regulated waste will be disposed of at the GE On-Plant Consolidation Areas. The remaining waste soils, estimated at 43,400 yd^3, will be sent to an off-site disposal facility. The estimated cost of Disposal Option A is $13.1 million.

- **Disposal Option B (Off-Site Disposal of All Excavated Material)**—This alternative is effective and implementable. The estimated cost of Disposal Option B is $29.0 million.

- **Disposal Options C (Thermal Desorption Treatment with Off-Site Disposal) and D (Solvent Extraction Treatment with Off-Site Disposal)**—These disposal options would be conducted on GE's plant site. Both treatment processes are effective and implementable for the removal of organic constituents from soil. Potential hazards associated with these treatment processes (e.g., chemical exposure or air emissions) can be minimized by managerial and engineered controls. The estimated costs of Options C and D are respectively $55.3 million and $44.4 million.

RECOMMENDED ALTERNATIVE

The recommended alternative consists of a modified Base Alternative 2, Sheetpiling and Pumping Bypass, along with Disposal Option A. The recommended alternative was chosen based on what EPA believes to be the most effective and efficient approach to remediation in the EE/CA Reach.

In addition to the recommended alternative, it is proposed to allow the removal Contractor or EPA the flexibility to adjust field operations to take advantage of the Contractor's capabilities and experience as well as experience gained in observing the removal action in the Upper Reach 0.5-Mile Removal currently being performed by GE. One of the other excavation alternatives approved in the EE/CA could be implemented in instances where the Contractor can show, after EPA approval, that this alternative is a more effective and efficient approach to remediation.

The following subsections provide details on implementing the recommended alternative in specific subreaches of the EE/CA Reach.

Lyman Street to North of Elm Street (Transect 64 to Transect 96): Sheetpiling

Beginning at the Lyman Street Bridge, sheetpiling would be installed from Transect 64 downstream to Transect 96 (Figure 2). Because sheetpiling cannot be installed under the Lyman Street Bridge, wet excavation, with in-stream diversion, is proposed for under the bridge.

Sheetpiling is proposed for this section primarily because the river abuts Oxbows A, B, and C. These oxbows were filled in with material from the GE plant site and are contaminated with PCBs. GE is required under the Consent Decree to further characterize the extent of contamination in these oxbows. Based on conditions encountered during the removal activities in the Upper Reach 0.5-Mile Removal, an unexpected source of nonaqueous phase liquid (NAPL) could be encountered.

EPA believes that sheetpiling will provide better excavation control in the smaller cells if NAPL is

found. If further bank sampling, currently in progress, determines that encountering NAPL is unlikely, then pumping bypass will be an allowed alternative. However, if the additional sampling indicates the possible presence of NAPL, then additional excavation may be necessary. The need for additional excavation and associated costs will be addressed in the final Action Memorandum.

North of Elm Street to North of Pomeroy Avenue (Transect 96 to Transect 168): Pumping Bypass

Pumping bypass is recommended from Transect 96 to Transect 168 (Figure 2), because it is the alternative that best accommodates the difficult conditions of this portion of the EE/CA Reach. From Transect 96 to the Elm Street Bridge, the factors that make it difficult to install sheetpiling or to use wet excavation are the steep slopes, the water depth, and the location of homes and businesses in this area.

In the section of river below the Elm Street Bridge to about Transect 154 (the cobble reach), sheetpile installation would not be possible because of the steep slopes, rapid river flow, and shallow depth to bedrock.

From Transect 154 to Transect 168, the river consists of residential properties on both sides. Sheetpiling is not recommended between these transects because of the limited access. Access requirements for pumping bypass are less than for sheetpiling and, therefore, will result in slightly less impact to the residents. Although wet excavation is possible for this section, this option presents a greater risk of allowing sediments to migrate downstream.

North of Pomeroy Avenue to the Confluence of the East and West Branches (Transect 168 to Confluence): Sheetpiling

Sheetpiling is recommended from Transect 168 to the confluence with the West Branch, except under the Pomeroy Avenue Bridge where wet excavation will be used (Figure 2). Bypass pumping could also be used in this section, including under the Pomeroy Avenue Bridge. However, the discharge for the bypass pump operation will have to be constructed below the confluence with or in the West Branch of the Housatonic River.

Wet excavation is not recommended below Transect 168 because water depth begins to increase, making the depth of excavation and sediment movement more difficult to control. The proximity to the confluence also presents a potential problem in trying to contain any movement of fines within the EE/CA Reach during the removal activities.

Disposal Recommendation

Disposal Option A is recommended. In addition, to reduce the volume of material sent to an off-site disposal facility, EPA recommends that an evaluation be performed to determine whether the sediments removed from the cobble reach can be screened effectively and efficiently to remove the cobbles (stone larger than 2 inches in diameter). The cobbles then can be mechanically cleaned or power washed and returned to the river. This could reduce the volume of soils sent off-site by as much as 5,000 yd^3 or even more. The screening operation could also be used during excavation in other parts of the streambed if significant amounts of cobble are found.

Disposal Options B, C, and D are not recommended due mainly to higher costs and the availability of on-plant consolidation space at the GE facility.

The estimated cost for the recommended alternative is $40.7 million. This cost includes a base alternative cost of $27.6 million and an Option A disposal cost of $13.1 million. In accordance with the Action Memorandum Guidance Document (OSWER Directive 9360.3-01), these costs will be increased in the final Action Memorandum by 20% for contingency costs ($8.1 million) as well as an adjustment for EPA costs ($1.5 million). Costs in the final Action Memorandum may be further increased based on the results of the supplemental investigations and upon any NAPL response actions.

The recommended remedy will take approximately 3 to 5 years to complete based on observations of progress on the first 0.5-mile reach and depending on weather conditions and unanticipated field conditions. Work on the 1.5-mile reach cannot begin until GE has completed excavation in the 0.5-mile reach, which is currently projected for June 2001.

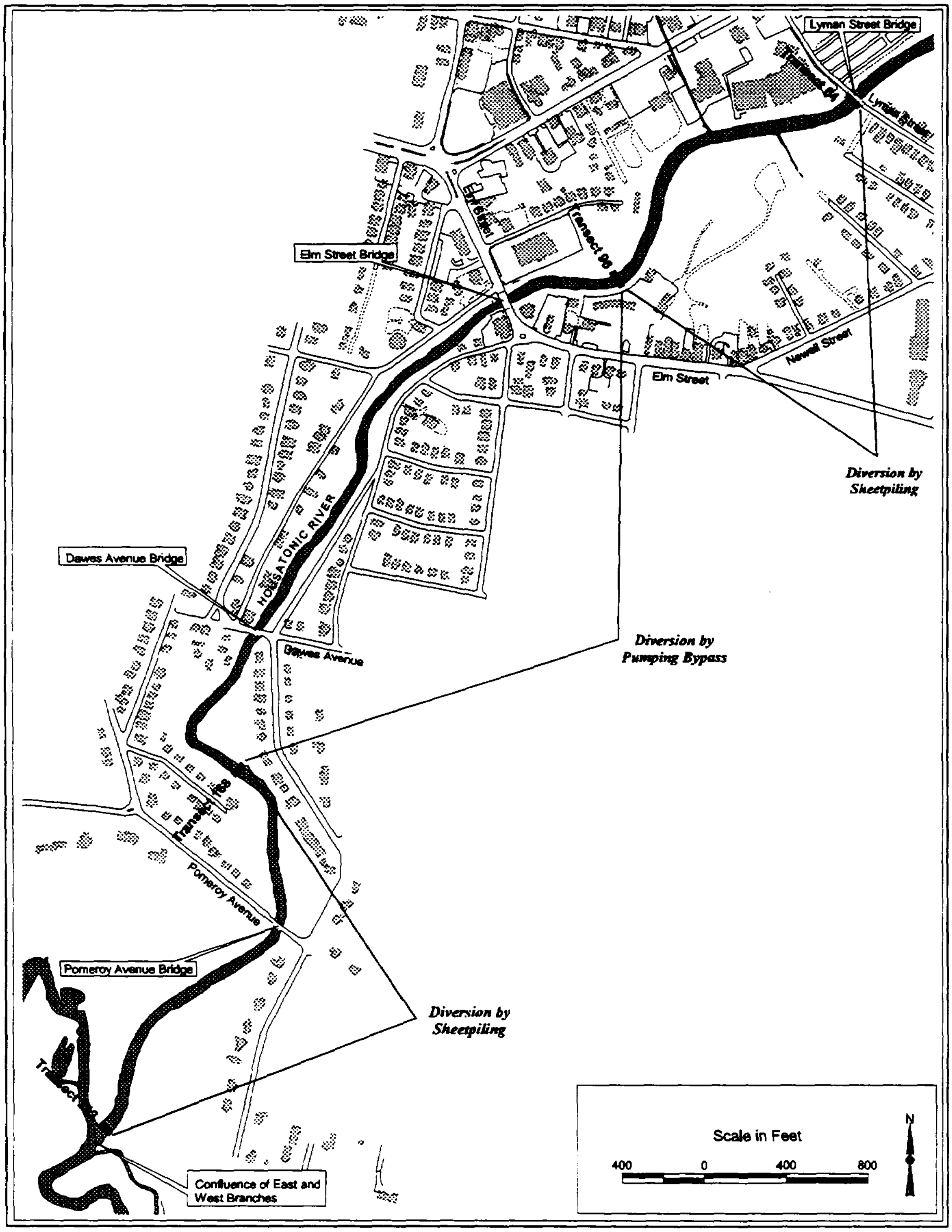

FIGURE 2 - RECOMMENDED REMOVAL ALTERNATIVE

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PROCESS FOR ADDRESSING RESIDENTIAL PROPERTIES WHICH MAY HAVE RECEIVED FILL MATERIALS FROM THE GENERAL ELECTRIC COMPANY (JULY 19, 2000)

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

Working Draft

Process for Addressing Residential Properties Which may have received Fill Materials From the General Electric Company

July 19, 2000

Introduction:

The Massachusetts Department of Environmental Protection (DEP) is clarifying and revising its process for communicating with and involving owners of properties in and around Pittsfield that may have received contaminated fill materials that originated at the General Electric (GE) facility. These revisions are not intended to change the requirements of any Administrative Consent Order or the Massachusetts Contingency Plan (MCP).

The purpose of this document is to outline the process that DEP will use for the GE/Pittsfield Residential Fill Property Project. By issuing this document, DEP intends to improve communications between property owners, GE, and DEP, and to clarify a property owner's opportunities to provide input to DEP and GE as his/her property moves through investigation/cleanup. The process outlined below is flexible; it may be modified on a case-by-case basis, as the relevant parties agree.

DEP does not address specific access agreement language or compensation issues in this document, as these are matters initially between the property owner and GE. In existing and proposed revised Administrative Consent Orders, GE is required to make a good faith effort to obtain access to perform response actions.

I. Determining Which Properties Get Sampled

A. Initial Notice

Upon initial notice to or from a property owner that his/her property may contain contaminated fill, DEP will provide the owner with general information about PCBs, a "Question and Answer" document regarding the GE/Residential Fill Property Project (Q&A), a summary of this "process" document, and a list of DEP, GE and local citizen group contacts. DEP will provide any or all of this information to any interested party upon request.

B. DEP Review

Upon being contacted, DEP reviews all available information regarding a property, and makes an initial decision as to whether there is credible information that fill from GE's Pittsfield facility ("GE fill") was brought to the property. If the initial caller is not the current property owner, DEP will contact the current owner to discuss the information. DEP will identify whether the property warrants sampling. Typically, the properties fall into one of three general categories:

	General Categories of Information	DEP Determination of Next Steps
1.	Credible information of GE fill on the property (including, but not limited to, first-hand knowledge, observation of certain types of GE-related debris in the soil, or other credible information).	For properties that have credible information of GE fill, DEP sends a "Request for Evaluation/Investigation" letter to GE indicating the need to evaluate the information and sample the property.
2.	Obvious or likely fill on the property, but not necessarily linked to the GE facility (including, but not limited to, observation of residential trash or coal/wood ash debris in soil, indication of fill by the lay of the land).	For these properties, DEP decides the likelihood that fill material came from the GE facility, and refers some properties with a likely GE connection to GE for evaluation/investigation. Some properties may not be immediately referred, as DEP gathers more information. Some properties are not referred to GE because of a lack of information (See 3 below).
3.	No knowledge of fill on the property, but caller is concerned and wants to have property sampled to be sure.	Most of these properties are not referred to GE, unless additional information is discovered. These remain in DEP's database, and DEP informs the owner that DEP will not require sampling at this time.

For any property not referred to GE (and not sampled by DEP or EPA), DEP will provide the property owner with information on contacting the Berkshire Environmental Fund (BEF) for sampling. BEF was established in 2000 as a result of a settlement agreement between the Commonwealth of Massachusetts and GE. BEF funding is available for Community Improvement Grants, Educational Grants, and Sampling Grants.

C. Upon DEP's referral to GE

1. Interview

GE will schedule a meeting at the property with DEP, GE, and the property owner (and the initial caller if not the property owner) to interview the property owner and inspect the property. GE provides, in writing, to DEP the information collected at the meeting, which typically includes a standardized interview form completed by GE, based on the interview, and reviewed and signed by the owner.

2. GE's Sampling Determination

After the interview meeting, GE will determine whether it believes there is sufficient credible evidence of GE fill on the property and, if so, will sample the property. For any property where GE questions the level of credible information of GE fill and declines to sample after the interview process and discussions with DEP, if DEP still believes there is credible information of GE fill on the property, DEP will either require GE to sample, request EPA to sample, and/or will perform the sampling itself. If PCBs are present at levels greater than 2 ppm, DEP will generally require GE to continue the investigation. DEP will inform the owner of these events.

II. Planning and Scheduling Sampling:

When GE samples a property:

A. GE will submit an initial sampling plan to DEP and the property owner for DEP's approval. DEP will provide the owner 10 days to submit his/her comments.[1] If sample locations or depths do not correspond with the owner's areas of concern, or the owner has any other comments, the owner should comment to DEP within the 10-day comment period. DEP will incorporate the comments, as appropriate, into DEP's approval of the initial sampling plan.

B. Upon receiving approval from DEP (such approval may be verbal), GE will schedule the sampling crew, call Dig Safe, and obtain Conservation Commission approval for sampling (if necessary). Also, it has been GE's practice to send the owner a proposed access agreement to allow GE and its contractor access to the property for sampling purposes only. GE will notify the property owners at least 24 hours in advance of the sampling crew arriving on the property. The property owner may request more advance notice if they so desire.

C. Sampling generally takes place within one month of DEP's approval of the sampling plan.

D. GE will provide at least seven (7) days notice to a property owner if the property is reasonably expected to be discussed at a Conservation Commission meeting or other municipal or public hearing. DEP will notify the property owner at least seven (7) days prior to any such meeting held by DEP.

[1] DEP will consider all comment periods (for property owners referenced in this document) to start on the day after the date of the relevant document.

III. Reporting and Review of Sampling Results

Sample results are reported as follows:

A. For all properties sampled, GE will generate a report and a map of the property with the PCB data and sample locations shown on the map, and a written description of the sampling event. This report is sent to DEP and the property owner, generally within 45 days of the samples being collected. GE will attach a cover letter with the sample results sent to the property owner, and a short description of what step(s) GE proposes to take next. DEP will provide the owner a 10-day comment period from the day the owner receives the plan in which to provide comments to DEP.[2]

B. Within the 10-day comment period, DEP will call the property owner to discuss the results. If additional sampling is necessary, DEP will discuss the proposed sample locations with the property owner.

C. DEP will incorporate the property owner's comments, as appropriate, into DEP's approval of the second sampling plan. DEP may verbally approve this plan, with or without modifications, and will do so as soon as possible after receipt of the property owner's input or the 10-day comment period, whichever comes first.

D. If PCBs are not detected over 2 ppm in any sample, DEP typically requires no further sampling. In that event, the owner will have a 10-day comment period to provide comments to DEP. Nonetheless, even if no additional sampling or other response actions are required, DEP would require additional sampling if and when new information is discovered which would indicate that an area of potential fill was not sampled adequately.

IV. Delineation of PCB Contamination

The above process of sampling and reporting may be repeated until DEP believes the extent of PCB contamination over 2 ppm is defined at the property. For an average-sized residential property, this may involve three (3) or four (4) separate sampling events, unless the initial sampling covers the entire property. If sampling shows contamination on adjacent properties, the sample reports and plans may be grouped together, so a property owner may continue to get sample reports showing results on these adjacent properties, even though sampling on his/her own property may be completed.

V. Evaluating PCB Data and Averaging

A. When the extent of PCB contamination has been delineated on a property, GE determines (subject to DEP approval) if the average PCB levels are above 2 ppm in two (2) depth intervals (the "exposure areas"): 1) the top 1' of soil; and, 2) depths greater than 1' below grade to the bottom of the contamination.

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[2] If PCBs are detected at over 10 ppm in a surficial soil sample (the sample closest to the surface within 0 –12" from grade), DEP and/or GE will call the property owner (prior to GE's written report) to explain the results and discuss what activities will follow (typically, generation of a written report and additional sampling).

B. If the average PCB level is below 2 ppm in each of the two exposure areas, and there are no "hot spots" as defined in the MCP, GE may submit a Class B Response Action Outcome (RAO) statement to DEP with a copy to the property owner (see the Q&A document for this project for a definition of a hot spot). A Class B RAO means the cleanup standard is already met without performing further response actions, and that the property is safe for unrestricted residential use. Prior to DEP's decision whether to approve the RAO, DEP will provide a 30-day comment period for the property owner to contact DEP with any comments. Upon request, DEP and GE would meet with the property owner to discuss the RAO. DEP will approve or deny the RAO submittal after the 30-day comment period. DEP will send a copy of its decision to the property owner.

C. If the average PCB level is above 2 ppm in either depth interval, or there is a hot spot, GE will submit a Remedial Action Work Plan (RAWP) for soil removal to meet DEP's cleanup standard. For PCBs, the cleanup standard is an average of 2 ppm PCBs in both exposure areas. DEP will provide the owner with 10 days to comment on the RAWP prior to any DEP decision to approve it. DEP will also call the property owner to ask if the owner has any comments or questions. The RAWP will have proposed sample locations for non-PCB contaminants, and DEP may verbally approve these sample locations, with or without modifications, as soon as possible after discussing the locations with the property owner. DEP will approve, conditionally approve, or disapprove the RAWP, as appropriate.

VI. Pre-mobilization Meeting(s)

After DEP approves a RAWP, but before any excavation work, GE will schedule a pre-mobilization meeting with the property owner and DEP to discuss the proposed remediation, logistics, restoration details, and to answer any questions. If significant issues remain unresolved after one pre-mobilization meeting and the subsequent documentation process, DEP may attend any additional meetings, answer questions, and/or take other appropriate steps to help resolve those issues.

The pre-mobilization meeting usually results in a list of restoration items to which GE and the property owner agree. GE typically confirms in writing the list of restorations, and the list may be referenced in any access agreement that the property owner and GE agree upon for the work on the property (this would be separate from a previous access agreement for GE to conduct sampling).

VII. Remediation/Restoration

A. Remediation work is scheduled and implemented after DEP approves the RAWP and GE obtains any necessary Conservation Commission permits. When the rough backfilling of excavated areas is completed, GE's contractor completes the final restoration work, including lawn replacement, plantings, trees, etc. DEP staff inspects the work regularly during remediation, restoration, and upon completion of restoration work. The property owner may request a meeting at the property at any time before, during and after the remediation and restoration work. DEP may temporarily halt work, if necessary, to address any serious matters. DEP encourages property owners to call DEP or GE immediately if a problem is perceived by the property owner at any point in the process.

B. GE will make a reasonable effort to determine the drainage characteristics of an owner's property prior to remediation work, and should assure that the drainage of the restored property is comparable to the conditions that existed prior to remediation. If drainage at the property was not adequate prior to remediation, the property owner may work with GE to decide on what improvements, if any, may be performed during restoration work, although GE is not obligated to improve the drainage characteristics on a property over pre-remediation conditions.

VIII. Final Inspections, Final Documentation/RAO

A. A final inspection/meeting will be scheduled soon after the majority of the restoration work has been completed. At a minimum, GE's representatives should be present, and DEP will attend if requested to do so by the property owner or GE. Any outstanding issues will be documented and followed up by the appropriate contact person.

B. After cleanup and restoration are complete, GE will submit a Class A RAO statement to the property owner and DEP, for DEP's approval. The Class A RAO is the comprehensive, final documentation required by DEP for a property that is cleaned up, and it documents that any GE fill-related contamination remaining after the cleanup presents no significant risk to human health or the environment. Prior to DEP's decision whether to approve the RAO, DEP will provide the owner with 30 days to comment. DEP will approve or deny the RAO submittal, as appropriate, after the 30-day comment period. DEP will send a copy of its approval letter to the property owner.

IX. Periodic Inspections of Restored Properties

GE will inspect all plantings, trees, lawns, driveways, sidewalks and any other restored items at least two (2) times per year (spring and fall) for two (2) years after the completion of the project. GE will notify the property owner prior to the inspection, and will schedule the inspection so that the property owner can be present, if the property owner so desires. If property owners observe problems with the restored items between inspections, they are encouraged to report these observations to GE or DEP, as soon as possible, and to request that a GE representative meet with the property owner and inspect the property. DEP will attend these meetings and inspections if requested by the property owner or GE.

X. Dispute Resolution

If GE invokes the Dispute Resolution provisions of the Administrative Consent Order (ACO) specific to a property owner's site, and the owner wants to participate in DEP's resolution of the dispute, DEP will accommodate the owner's input, as appropriate, on a case-by-case basis (e.g., the owner's submission of written comments to DEP and/or by verbal comments conveyed during a meeting with the owner) consistent with the ACO process. Also, if a property owner disagrees with a DEP decision or proposed decision after having commented and discussed the matter with DEP, and desires further DEP review, DEP will provide the owner with an opportunity to review such decision with DEP senior management.

CLEANUP OF BERKSHIRE COUNTY & HOUSATONIC RIVER OFF TO STRONG START (MARCH 1, 2000)

EPA New England

Cleanup of Berkshire County & Housatonic River off to Strong Start

Progress Update: March 1, 2000

After decades of unacceptable delay, the cleanup of PCB contamination in Berkshire County and the Housatonic River is well underway. Enormous progress has been made in the past two years on the cleanup of the river, the GE plant site and numerous other properties in Pittsfield. Most of these achievements are a direct result of two years of settlement negotiations and the subsequent lodging of a proposed Consent Decree in federal court last fall. Listed below are a few of the highlights:

* **Cleanup of First Half-Mile of the Housatonic:** Cleanup work in the first half-mile of the river began last October, just days after the Consent Decree was lodged in federal court for public comment. Slated for completion by May 2001, the cleanup is designed to remove PCB-contaminated sediments, prevent downstream transport of PCBs, improve the river as a habitat for fish and wildlife and allow for safe recreational use of the river. To date, GE has removed more than 1,500 cubic yards of river sediments, 400 cubic yards of contaminated bank soils and treated 10 million gallons of river water. Jump starting the cleanup before the court has even approved the Consent Decree is nearly unprecedented.

* **Source Control Work at GE Plant Site:** At EPA's direction, GE continues to move forward with work to investigate and eliminate all potential sources of contamination to the river from its Pittsfield property and other filled oxbow properties that abut the river. Extensive subsurface investigations and evaluations have been conducted along the section of river that abuts the GE property and the former oxbows. This new and improved source control program included the installation of more than 80 additional soils borings/monitoring wells, the construction and enhancement of several oil recovery systems and the installation of containment barriers to prevent any oil from entering the Housatonic. The Consent Decree includes provisions requiring GE to also address any new discoveries of oil that could potentially impact the river. In 1999 alone, this program resulted in 40,000 gallons of oil being removed and 50 million gallons of groundwater being treated. EPA will require GE to continue extracting and containing oil until we are satisfied that oil will not enter the river.

* **Cleanup of Next 1½ Miles of River:** At today's Citizens Coordinating Council meeting, EPA will present a draft report about cleanup alternatives for the next 1½ miles of the Housatonic between Lyman Street and the confluence of the river's East and West Branches. Actual work will begin after the first ½-mile is cleaned up. The report, known as an Engineering Evaluation/Cost Analysis (EE/CA), focuses on various engineering options for removing contaminants and the costs. EPA prepared the report after collecting and analyzing hundreds of water, sediment and banksoil samples in and along the river. Following extensive public input and review from EPA Headquarters and other government agencies, EPA will propose a preferred removal action this summer. The proposal will be subject to a formal 30-day public comment period before a final decision is made.

* **Allendale School Cleanup:** This unprecedented cleanup last summer resulted in the removal of 41,000 cubic yards of contaminated soils from the school's backyard and a restoration that has made the playground an attraction to both children and adults. Most importantly, all of the contaminated soil work was done through the summer school vacation and not one day of school was lost as a result.

* **Residential Property Cleanups:** In the past two years, more than 100 residential properties in Pittsfield have been cleaned up under MA-DEP supervision. GE is scheduled to clean up an additional 29 properties during the upcoming construction season. A GE-financed fund of more than $1 million will soon be available to property owners for additional sampling of properties. The fund, which is being administered by four community members that make up the Berkshire Environmental Trust, will be used in situations where GE would not otherwise be required to sample.

* **Redevelopment Work at GE Property:** GE has begun demolishing many of the property's most unsightly features, including several tanks along Silver Lake Boulevard, large smokestacks used by the old powerhouse and a utility bridge that extended over East Street. Large scale demolition is slated to take place through next year, after which time new modern business facilities will be built, much of it at GE's expense. The City of Pittsfield and the Pittsfield Economic Development Authority have already attracted some prospective tenants, including EV Worldwide, an electrical vehicle manufacturer that is expected to use the site and provide upwards of 1,000 jobs over the next five years.

* **Housatonic River Investigations and Risk Studies:** EPA continues to make progress on a massive effort to investigate the river below the confluence of the East and West Branches. This work will continue over the next year. The result will be a better understanding of potential health and ecological risks posed by PCB contamination, the ability to predict the river's recovery given certain cleanup scenarios and, ultimately, a decision on how to best clean up the rest of the river.

* **Public Participation:** Early in the settlement negotiations with GE, EPA insisted on forming a Citizens Coordinating Council so that the public would have a forum for assisting the agency in future cleanup decisions. The 36-member group that was formed in the fall of 1998 has been very valuable in providing a diverse range of community opinions, some of which resulted in substantive changes between the "agreement in principle" and the final agreement proposed last fall. EPA expects the CCC will continue to play a valuable role in helping to critique EPA and GE cleanup proposals over the next several years. EPA has worked long and hard to make sure the community's interests were well represented, as evidenced by the prompt cleanup of Allendale School and the jump-start of the half-mile river cleanup.

BUREAU OF ENVIRONMENTAL HEALTH ASSESSMENT: ACTIVITIES IN BERKSHIRE COUNTY (OCTOBER 1999)

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

ARGEO PAUL CELLUCCI
GOVERNOR

JANE SWIFT
LIEUTENANT GOVERNOR

WILLIAM D. O'LEARY
SECRETARY

HOWARD K. KOH, MD, MPH
COMMISSIONER

Bureau of Environmental Health Assessment: Activities in Berkshire County

(as of October 1999)

Housatonic River Area PCB Exposure Assessment Study (released September 1997)

This report is an exposure assessment survey of randomly selected South Berkshire County households located near the Housatonic River. The study included 800 households with 1,529 individuals. From this, 120 individuals, whose survey responses indicated greatest opportunity for exposure, were selected for serum PCB testing and 69 participated. Following this, the study was opened up to volunteers throughout Berkshire County. Sixty-five households, including 126 individuals participated in the survey, and of these, 79 had serum PCB testing. The exposure assessment and the volunteer studies found that the average PCB serum levels among participants was 4.49 ppb and 5.77 ppb, respectively. These results are generally within the normal background range for non-occupationally exposed individuals in the U.S. Older age, frequent fish consumption, and occupational exposure were factors that contributed to higher serum PCB levels.

Hotline Follow-Up Report: 1-800-240-4266

In the summer of 1997, residential properties, schools, playgrounds, and other properties were discovered to contain PCB contaminated fill. In response to health concerns, MDPH established a toll free hot line number. Through this hotline, MDPH provides an ongoing service to answer residents' questions about PCBs and provide exposure assessment interview and blood test to those who are interested in knowing their serum PCB level. To date, approximately 160 people have had blood tests performed. A report will be developed summarizing the results.

Public Health Assessments

Public health assessments are comprehensive tools to evaluate relevant environmental data, health outcome data, and community concerns associated with the site where hazardous substances (mainly PCBs for this site) have been released. The goal of a public health assessment is to identify populations for which more extensive pubic health actions or studies are indicated. MDPH, with funding support from the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), is developing public health assessment reports for ten separate areas of the GE site. These will be released for public comment during 2000.

Descriptive Cancer Analysis

MDPH is conducting a small area analysis of cancer incidence in the Housatonic River Area communities using information from the Massachusetts Cancer Registry. For this project, the cancers of greatest concern relative to PCB exposures as well as cancers found to have been elevated in the past will be evaluated (e.g. bladder cancer, liver cancer, breast cancer, and non-Hodgkin's lymphoma) for the towns of Pittsfield, Lenox, Lee, Stockbridge and Great Barrington. Mapping will be done, and observations of time and geographic area will be made including an analysis of temporal and geographic trends.

PCB Expert Panel Meeting

An independent panel of national experts convened by the Executive Office of Health and Human Services, which met in January 1999. The charge to the Panel was to review, assess, and summarize the most up-to-date published and ongoing research on PCBs and public health, with special emphasis on the latest information on typical levels in the U.S. of PCBs in blood serum and the public health significance of these levels; the adverse health outcomes (i.e., reproductive/developmental, cancer, neurotoxic and immunological effects) associated with exposure to PCBs; the relative importance of the human exposure pathways (such as air, water, soil, and food, including breast milk) and the interactions between PCBs and other chemicals. The final written report of the Expert Panel findings will be presented at a public meeting in Pittsfield.

Berkshire Environment and Breast Cancer Pilot Study

Known risk factors for breast cancer only account for approximately 40% of all breast cancer cases. Exposure to xenoestrogens (compounds that mimic estrogen or affect estrogen production and metabolism) such as PCBs and DDE has been raised as a concern in the development of breast cancer. In light of this, MDPH and others have focused attention on the possible role certain environmental exposures may play in the development of this disease. This pilot study of newly diagnosed breast cancer patients and a healthy comparison group aims to address questions about how breast cancer, its treatment and other factors can affect the levels of PCBs and DDE in serum over time.

Occupational Feasibility Study

MDPH is currently evaluating the feasibility of conducting follow-up health studies of workers at the General Electric facility at Pittsfield, MA. The feasibility study has involved review of the availability of records of active, retired, and former employees; availability of information on work histories for individual employees that would allow for an exposure metric to be reliably developed; and a full discussion of limitations to determine whether epidemiologically meaningful results can be achieved.

Education and Outreach

MDPH staff have participated in a variety of efforts to inform the community about these important environmental health concerns. Some of these activities include: Grand Rounds at the Berkshire Medical Center and North Adams Regional Hospital; establishment of an advisory committee; invited participation in topic-specific community forums; MDPH-sponsored community meetings to listen to residents' concerns.

For more information, call 1-800-240-4266

HUMAN HEALTH RISK EVALUATION AND ECOLOGICAL RISK ASSESSMENT REGARDING PCB CONTAMINATION IN PITTSFIELD: A FACT SHEET (JUNE 1998)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

June 1998

FACT SHEET

OFFICE OF THE
REGIONAL ADMINISTRATOR

Human Health Risk Evaluation and Ecological Risk Assessment Regarding PCB Contamination in Pittsfield

SUMMARY

The U.S. Environmental Protection Agency's New England Office recently completed risk evaluations on human health and ecological impacts on a two-mile section of the Housatonic River. The two evaluations document the widespread prevalence and high concentrations of PCBs in and along the two-mile section of river and the significant human health and environmental risks from exposure to those PCBs.

Among the findings:

* Young children and teenagers playing in and near portions of the river face noncancer risks that are 200 times greater than EPA considers safe. Noncancer effects from PCBs may include liver and nervous system damage and developmental abnormalities, including lower IQs.

* Teenagers growing up near portions of the river face a 1 in 1,000 cancer risk due to exposure to contaminated riverbank soils.

* Fish collected in the river had PCB concentrations of up to 206 parts per million, among the highest levels ever found in the United States and 100 times higher than the limits set by the U.S. Food and Drug Administration.

* 91 of 93 sediment samples taken in the Upper Reach of the river showed the presence of PCBs.

These risk evaluations, which were peer reviewed and endorsed by EPA Headquarters, support EPA's position that the entire two-mile section of river may present an imminent and substantial endangerment to human health and the environment. These evaluations justify removal actions for the Upper Reach section of the river. The actions also are based on data showing that previously cleaned-up floodplain areas are being recontaminated by PCBs from the river during routine flooding.

HUMAN HEALTH RISK EVALUATION

The Human Health Risk Evaluation, co-authored by the Massachusetts Department of Environmental Protection, examined cancer and noncancer risks to humans based on PCB contamination levels in river sediments, riverbank soils and backyard soils as well as consumption of fish caught in the river.

The risk evaluation focused primarily on health risks from short-term PCB exposures - less than 10 years of exposure. The study assumed exposure to PCB-contaminated sediments and soils when residents were walking, playing and sitting in and alongside the river. The exposure is primarily through skin contact with PCB-contaminated soil and sediments, and incidental ingestion of dust.

The health risk evaluation concludes that there are significant human health risks along the entire two-mile stretch

of river. Some of the highest human health risks are in the lower 1½ miles of the Upper Reach. This is due both to high PCB levels in this area - average PCB levels in shallow river sediments, for example, are nearly five times higher downstream than in the first 1/2-mile section - and higher exposure rates since portions of the lower section of river are more residential and more accessible than the top 1/2-mile section.

Among the highlights in the human health risk evaluation:

Noncancer Risks - Potential Effects such as Reproductive and Developmental Abnormalities (such as Lower IQs), Liver Damage, and Adverse Impacts on Nervous Systems

* Young children playing for just one summer in the river in portions of the lower section - specifically, a 1/2-mile area between the Elm Street and Dawes Avenue Bridges - face noncancer risks 200 times higher than the hazard-index level EPA considers safe. This estimated risk assumes exposure to PCB-contaminated surface sediments in the river. PCB levels in this area averaged 89 parts per million, nearly five times higher than the 19 ppm average in the top 1/2-mile section between Newell and Lyman Streets.

* Children, ages 5 to 12, who live or play alongside the river between the Elm Street and Dawes Avenue Bridges face noncancer risks 90 times higher than the hazard-index level EPA considers safe. This estimated risk assumes springtime and summertime exposure to PCB-contaminated riverbank soils and floodplain soils.

* Teenagers who live or play alongside the river face noncancer risks 200 times higher than the hazard-index level EPA considers safe. This estimated risk assumes springtime and summertime exposure to PCB-contaminated soils while walking and playing on the riverbanks in the vicinity of the GE plant between the Newell Street and Elm Street Bridges.

* A nine-year-old child who consumes one meal of fish from the Housatonic River each week for just one summer faces noncancer risks about 900 times higher than the hazard-index level EPA considers safe.

Cancer Risks

* Some sections of the two-mile stretch of river pose an increased cancer risk beyond levels that EPA considers acceptable. As an example, teenagers who grow up alongside the river - in the vicinity of the Newell Street and Elm Street Bridges - face a 1 in a 1,000 cancer risk due to their exposure to contaminated riverbank soils.

ECOLOGICAL RISK ASSESSMENT

The Ecological Risk Assessment evaluated the environmental impacts PCBs are having on water quality and aquatic species along the two-mile Upper Reach section of the river. The assessment was based on recent surface water, sediment and fish data collected by GE, EPA and the U.S. Geological Survey.

* Of 93 sediment samples taken from the two-mile section of river, 91 showed the presence of PCBs, with the highest concentration being 905 parts per million. Sixty-two of the 93 samples had PCB concentrations that would cause severe impacts on most aquatic species.

* Fish collected in the river had PCB concentrations of up to 206 parts per million. Based upon effects observed in other scientific studies, the ecological assessment concludes that the PCB levels would have adverse reproductive impacts on fish and on animals that rely heavily on fish in their diet such as heron and otter.

* The EPA's Ambient Water Quality Criteria (AWQC) for PCBs in the middle part of the two-mile river section was exceeded in nine out of 10 months during a recent sampling period in 1996 and 1997.

GE PITTSFIELD FACT SHEET: UPPER REACH OF HOUSATONIC RIVER (JUNE 4, 1998)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

June 4, 1998

OFFICE OF THE
REGIONAL ADMINISTRATOR

Dear Resident:

The U.S. Environmental Protection Agency's New England Office recently completed risk evaluations on human health and ecological impacts on a two-mile section of the Housatonic River from the GE facility in Pittsfield to the river's confluence with the West Branch. The two evaluations document the widespread prevalence and high concentrations of PCBs in and along the two-mile section of river and the significant human health and environmental risks from exposure to those PCBs.

Among the findings:

* Young children and teenagers playing in and near portions of the river face noncancer risks that are 200 times greater than EPA considers safe. Noncancer effects from PCBs may include liver and nervous system damage and developmental abnormalities, including lower IQs.

* Teenagers growing up near portions of the river face a 1 in 1,000 cancer risk due to exposure to contaminated riverbank soils.

* Fish collected in the river had PCB concentrations of up to 206 parts per million, among the highest levels ever found in the United States and 100 times higher than the limits set by the U.S. Food and Drug Administration.

* 91 of 93 sediment samples taken in the Upper Reach of the river showed the presence of PCBs.

The high levels of PCB contamination in the Upper Reach of the Housatonic are cause for prompt, thorough clean up action. They support EPA's position that the entire 2-mile section of river needs to be addressed. Nevertheless, they are not cause for widespread panic. Activities that present the most likely routes of exposure for Pittsfield residents to PCBs – touching or ingesting PCB-contaminated soil, or eating PCB-contaminated fish – can be avoided. The enclosed fact sheet will help you keep your families safe while the government and General Electric work on plans for cleaning up the contamination.

While precautionary measures can be taken in the short term, the hazard should be eliminated so that the community does not have to always be on guard. It is the EPA's concern for citizens' health that is driving the agency's actions to clean up the heavily contaminated 2-mile section of the Housatonic from the GE facility to the confluence of the East and West branches.

This is also why EPA has issued an order to GE to begin this work. We have issued the order with a delayed effective date of August 14, 1998, so that GE will have an opportunity to do the work voluntarily. We will not put the order into effect before the August 14 date as long as GE meets the

work deadlines set out in the order and as long as they return to the negotiating table and negotiate in good faith toward a comprehensive settlement that addresses the clean up of the river, clean up and redevelopment of the GE facility, and compensation for natural resource damages.

For more information on PCB health effects or the recent human health and ecological risk assessments or more information regarding steps to clean up PCB contamination in Pittsfield, please contact us at 413-499-9325.

We are dedicated to protecting the public health of the citizens of Pittsfield and remain committed to taking the steps necessary to achieve these goals. We appreciate your support and are happy to respond to any questions or comments you may have.

Sincerely,

John P. DeVillars
Regional Administrator

Enclosure

GE Pittsfield

FACT SHEET

EPA Region 1, New England

June 1998

The U.S. Environmental Protection Agency has completed an evaluation of the health risks posed to the public from exposure to high levels of PCBs in the Housatonic River sediments, bank soils and flood plain soils. PCB contamination is present in the sediments, bank soils and flood plain soils in the upper 2-mile reach of the river, which runs from the GE facility in Pittsfield to the river's confluence with the West Branch. The risk evaluation focuses on potential exposures of children and teenagers to PCBs while walking and playing in and alongside this section of the river and concludes that there are unacceptably high health risks associated with these exposures.

The EPA's River Order requires GE to remove the heavily contaminated sediments and bank soils in the first ½ mile of the Upper Reach. Removal of the PCB contamination in this stretch of the Housatonic River is an essential step for protecting public health. This fact sheet highlights some of the key routes of exposure to contaminated sediments and soils along the 2-mile river section and suggests measures that should be taken to limit contact especially during the upcoming summer months.

- *Children and teenagers walking, playing, climbing up and down the banks to the water's edge, fishing, swimming or wading in and along the 2-mile Upper Reach of the river may be exposed to PCB contaminated sediments and soils.*
- *PCB levels in fish from the Housatonic River are among the highest found in the country.*

There are three primary means through which people can be exposed to PCB contamination in and around the Housatonic River:

- ☐ Eating fish from the river.
- ☐ Children accidentally ingesting PCBs, for example by sticking hands covered with contaminated soils or sediments in their mouths.
- ☐ Skin contacting contaminated soils and sediments long enough to absorb contamination.

Precautions:

1. Obey the fish consumption advisory for the Housatonic River and Silver Lake. Do not eat other wildlife such as frogs or turtles caught in the Housatonic River or Silver Lake.
2. Minimize activity that could result in skin contact with PCB contaminated soil or sediments, for example, avoid climbing up and down the banks to the water's edge, swimming, wading, walking or playing in and alongside the river.
3. Minimize skin contact with soils and sediments by wearing long-sleeved shirts, long pants and shoes. Promptly wash exposed skin, especially hands, with soap.
4. Avoid tracking soil from this stretch of the river into your home. Clean your shoes thoroughly or leave them outside your house.

PCBs:

- PCBs (polychlorinated biphenyls) are man-made chemicals used since 1926 in electric transformers as coolants and insulators. GE used PCBs for manufacturing and servicing electrical transformers at the Pittsfield facility from the 1930's through 1977.
- PCBs were released by GE directly into the river and the ground at the facility. PCBs in the ground have seeped into the river.
- PCBs are extremely persistent in the environment because they break down very slowly.
- Congress banned the manufacture and distribution of PCBs in 1977 because of evidence that PCBs build up in the environment and in humans and cause harmful effects.

River Clean Up Actions:

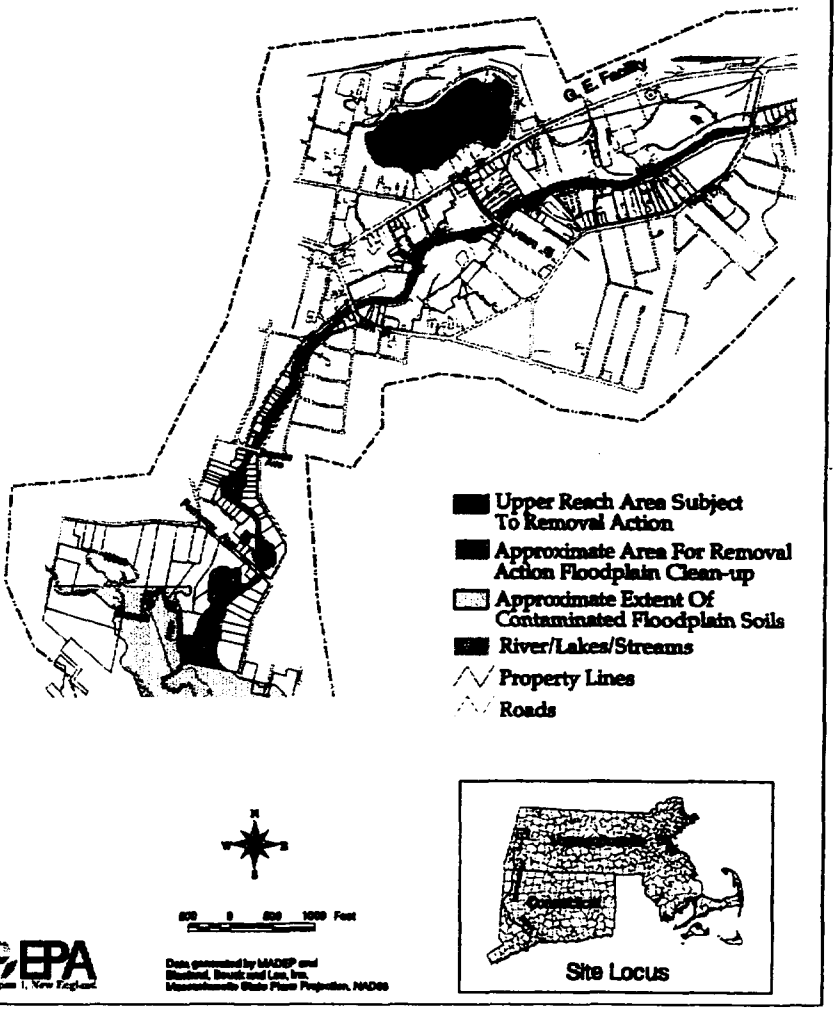
The following are the key elements of EPA's River Order, announced on June 3, 1998:

- ☐ GE must take measures to eliminate ongoing PCB contamination into the river from its Pittsfield facility. This order requires that this work begin by November 1, 1998.
- ☐ GE must take measures to limit public exposure to contaminated sediments and flood plain soils in the two-mile Upper Reach. The order requires work to begin by August 1, 1998.
- ☐ GE must remove PCB-contaminated river sediments and riverbank soils from the first ½ mile stretch of the Upper Reach, between Newell and Lyman Streets. The order requires that this work begin no later than June 1999.

All plans for the above activities will be presented to the community for public review and comment.

Even while these activities are taking place, EPA will begin an engineering study for addressing the remaining 1½ miles of the Upper Reach. The study will focus on the various options for remediating contaminated sediments, riverbank and flood plain soils in this portion of the river. In early 1999 EPA will propose an appropriate action which will be subject to public review and comment before a final decision is made.

Housatonic River Upper Reach Removal Action Site Location Map



For More Information:

U.S. Environmental Protection Agency (413) 499-9325

AN ACTION AGENDA FOR ECONOMIC AND ENVIRONMENTAL RECOVERY IN PITTSFIELD AND BERKSHIRE COUNTY (APRIL 6, 1998)

April 6, 1998

EPA
Region 1, New England

An Action Agenda for Economic and Environmental Recovery in Pittsfield and Berkshire County

This plan is a blueprint for an improved environment, short term construction jobs, and long term economic opportunity for Pittsfield and Berkshire County. To achieve success will require hard work, a sense of urgency and a spirit of cooperation by all parties. EPA is fully committed to bringing each of those values to our work.

John P. DeVillars, New England EPA Administrator

EPA's Action Plan has four critical elements:

-- Issuance of immediate enforcement orders necessary for public health protection. These orders -- backed by the full force of federal law and if necessary, federal funding -- will initiate critical clean up activities for the plant site, the first two miles of the Housatonic River downstream of the GE facility and ensure continued progress on the cleanup of contaminated residential and commercial properties.

-- The establishment of a Citizen Advisory Panel of citizens, area political, environmental and business leaders to inform and guide EPA's decision making throughout the clean-up and economic redevelopment process.

-- In partnership with the city's political and business leaders, the submittal of a proposal to GE for conducting clean-up and redevelopment activities at the GE site separate from the Superfund process.

-- Continuation of the Superfund listing process and other authorities to insure an expeditious clean-up of the river, a fast track for site redevelopment, and the comprehensive restoration of the natural resources damaged by PCB contamination.

IMMEDIATE ENFORCEMENT ORDERS

The first element of EPA's four part action plan is a series of immediate enforcement orders for the plant site and the river as well as the expectation of aggressive voluntary actions by GE. The details include:

Housatonic River

By May 15, EPA will order GE to immediately undertake the following activities:

-- Elimination or control of all actual or potential sources of contamination to the Housatonic River, including hot spot remediation at the plant site;

-- Excavation of contaminated river and river bank sediments in a two mile stretch of the Housatonic beginning at the GE facility (Newell Street bridge) to the confluence of the river (the confluence of the West and East branches of the Housatonic River); and,

-- Remediation of contaminated soils for the contaminated floodplain properties in that same two mile stretch.

If GE refuses to comply with this order, EPA is prepared to undertake these activities on its own and ask the Department of Justice to seek recovery of money EPA spends, plus up to three times that amount in damages from the company as well as impose penalties of up to $27,500 per day for failure to comply on GE's part.

The timetable for this set of activities is:

May, 1998	EPA issues GE order to submit work plan
July, 1998	GE is required to submit work plan
August, 1998	Public review and comment on GE's plan
Nov, 1998	Construction begins for source control at the plant site and, if necessary, elsewhere
Spring, 1999	Construction begins on river sediment excavation

The justification for the order requiring this work is based on recent EPA sampling data that indicates high levels of PCBs exist in flood deposited-soils in floodplain residential properties. Even higher levels have been found in riverbank sediments. This data also indicated that, even without recent flooding, a previously GE-remediated area has been recontaminated with PCBs.

Continued Aggressive Action to Identify and Remediate Residential Fill Properties

EPA has collected 700 soil and sediment samples in the past eight months. GE has committed to begin, on April 10, cleanup of nine contaminated properties on Longfellow Avenue, and has proposed cleanup of another 45-60 residences by the end of this construction season. Should the company fail to follow through on this commitment, EPA will issue enforcement orders to GE to clean up residential properties contaminated with PCBs that pose a public health risk or, if necessary, conduct the work itself and ask the Department of Justice to seek recovery of money EPA spends, plus up to three times that amount in damages from the company as well as impose penalties of up to $27,500 per day for failure to comply on GE's part.

Beginning in May 1998, EPA will sample, or order GE to sample, residential properties for the presence of PCBs. EPA and DEP are currently compiling information about past GE fill practices to prioritize properties for sampling.

Allendale School

Beginning April 20, under EPA and state supervision, GE has agreed to remove PCB-contaminated soil from the Allendale school playground where PCBs were found outside the temporary cap.

By the end of the summer, a feasibility study will be completed to identify long-term options for a permanent remedy at the Allendale School. Construction of the final solution will be completed during the 1999 summer school vacation, and will follow a public comment period in the fall of 1998.

If GE refuses to honor its commitment to clean up this property, EPA will undertake these activities on its own and ask the Department of Justice to seek recovery of money EPA spends for the cleanup.

The timetable for this set of activities is:

April, 1998	GE removes contaminated soil on playground
Summer, 1998	Complete feasibility study for permanent remedy at school
Summer, 1999	Construction of final remedy complete

Newell Street Commercial Properties

By May 15, EPA will complete a risk analysis of PCB contamination of the Newell Street properties. If necessary, EPA will order GE to perform short-term cleanup measures at those properties should it be determined they pose a risk to public health.

Silver Lake

EPA is currently analyzing results of March 30 sampling of Silver Lake to determine if bank soil and sediment excavation is necessary to protect public health. EPA will issue an order to GE to conduct cleanup at the lake should the outcome of the analysis so warrant.

CITIZEN ADVISORY PANEL

Based on the agency's community involvement model developed for the clean-up of the Massachusetts Military Reservation on Cape Cod, EPA will, in close coordination with Mayor Doyle and City Council President Hickey, within the next month, convene a Community Advisory Panel, comprised of knowledgeable, committed Berkshire County citizens to ensure that citizen concerns are fully incorporated into the key environmental decisions that will be made by the agency. The board will be comprised of business, environmental, community and political leaders from Pittsfield, South Berkshire County, and Connecticut.

REDEVELOPMENT OF THE GE PLANT SITE

EPA and the other government agencies share the city's goal for redevelopment of the GE site.

Within the next two weeks EPA, with full input from the city's political, business and community leaders, will submit to GE a proposed redevelopment plan and timetable for the future use of the GE Pittsfield site. It is likely that the plan will include:

-- Fair and responsible cleanup standards;

-- Identification of specific parcels of GE property that can be transferred to the city for redevelopment; and,

-- Liability protection sufficient to allow for property transfer and redevelopment.

SUPERFUND LISTING

EPA will proceed with the process for the listing of the Housatonic River and the General Electric facility in Pittsfield on the Superfund National Priorities List. Over the next several months, EPA will continue to solicit public comments on the listing, and consider and respond to those comments.

The timetable for this process is as follows:

May 1, 1998	Public comment period closes
May to November, 1998	EPA consideration of public comments and response preparation
November, 1998	EPA announcement of final decision on listing

There will be a 90 day period after the final decision date during which challenges to the final decision can be filed in the Court of Appeals in the District of Columbia.

ADDITIONAL INFORMATION

GE's 245 acre Pittsfield site and the Housatonic River from Pittsfield to the Long Island Sound are contaminated with PCBs from GE's Pittsfield facility. The twelve miles of river and flood plains immediately south of the Pittsfield plant site are the most heavily contaminated river and flood plain areas. It is anticipated that most of the river and flood plain remediation will take place in this twelve mile stretch. To date, nearly 100 residential and commercial properties in Pittsfield have also been identified as in need of environmental remediation. A fish consumption advisory for the Housatonic River is in effect for nearly 100 miles downriver of the Pittsfield site.

The work called for under the EPA Action Plan is estimated to result in several hundred million dollars of environmental and economic investment by GE in Pittsfield and Berkshire County and result in hundreds of construction and remediation jobs over the next few years.

PCBs, the production and distribution of which were banned by EPA in 1979, are a probable human carcinogen. PCBs pose special risks to pregnant women and have been linked to lower IQs in children and with problems with intellectual function, the nervous system, the immune system, the reproductive system and premature births.

USEPA AND MADEP ENVIRONMENTAL UPDATE FOR THE BERKSHIRES (MARCH 1998)

US EPA and MA DEP ENVIRONMENTAL UPDATE for the BERKSHIRES

Department of Environmental Protection

The US Environmental Protection Agency and MA Department of Environmental Protection are working to address PCB contamination in the Berkshires. This update is the first in a series to keep citizens informed of our progress. The focus of this update is the cleanup of residential properties.

Contacts Relative to Residential Fill Properties:

US EPA

Bryan Olson
617-573-5747
Project Manager

Stephanie Carr
617-223-5593
Project Manager

Angela Bonarrigo
617-565-2501
Community Involvement Coordinator

Toll Free: 1-888-EPA-7341

MA DEP

Anna Symington
413-784-1100 x243
Acting Section Chief

Adam Wright
413-784-1100 x 292
Project Manager

Al Weinberg
413-784-1100 x220
Deputy Regional Director

Toll Free 1-888-VIOLATE

Residential Fill Properties Investigative Process

What to Expect as a Homeowner

EPA and DEP recently discovered that some of the fill given away by General Electric in past years was contaminated with PCBs. We are now working to identify properties that received contaminated fill. If you have questions or concerns about a property, please call the contacts listed to the left. To learn what happens when you call with a concern about contaminated fill, read on:

Potential Fill Area is Identified

DEP and EPA learn about properties which may have received GE fill in the past through calls made directly to DEP or to DEP's hotline(1-888-VIOLATE), historical records, and conversations with residents.

Evaluation of the Property

The initial evaluation of a property typically includes an interview with the owner and a walk around the property. Based on what is learned in the interview, DEP determines if it is necessary to sample the property. In some cases, sampling is unnecessary and the interview is all that takes place. During the interview, DEP staff ask the following:

continued on p. 2

Soil removal at Longfellow

Properties, cont'd from p. 1

Why do you suspect that fill from GE is on the property? For example; Did you observe the actual "filling" of the property? Did you hear about it from a neighbor or previous owner? Is there something about the physical nature of the property that leads you to believe it has been filled?

When was the fill brought to the property and where did the fill come from? We can compare this information with information that we already have about when and how fill from GE was distributed.

What materials comprise the fill? Objects such as scrap metal, broken porcelain insulator parts, and wood block flooring often appear in fill from GE.

If the initial evaluation indicates that fill on the property may have originated from GE, we require GE to sample the property.

If the initial evaluation does not suggest that fill on the property originated from GE, we will not require GE to sample. However, we keep the information on file. If additional information is received at a later time which indicates that the fill may have originated from GE, we will then require GE to sample the property.

Sampling of the Property

Before conducting sampling on a property, GE obtains access permission from the property owner. A sampling crew then conducts soil sampling to define the extent of contamination. The sampling crew may have to return multiple times to adequately define the extent of the contamination. More detail on how soil sampling is conducted is provided in *"Questions About Soil Sampling"* on page 4 of this update.

Clean Up

Based on sample results, GE develops a cleanup plan. Because each property is unique, cleanup plans are specially designed for each property. The cleanup plan is submitted to the agencies and the property owner for comment. After all comments are made, the cleanup plan is finalized. GE, their contractors, and agency representatives work with property owners to finalize the details of the cleanup.

When cleanup begins, contaminated fill is removed and replaced with clean fill from local sources. The new fill is tested thoroughly to assure that it is clean. When excavation is completed, a landscape architect works with owners to restore the property.

During the past serveral months, sampling has been completed at several properties. With the start of the spring construction season, we plan to move as many properties as possible through the cleanup process.

For an example of how the cleanup of a residential property was completed, read *"Longfellow Avenue: Profile of a Residential Fill Property Cleanup"* on p. 3.

Community Involvement Corner

Pittsfield Office Hours: EPA & DEP staff are available in our Pittsfield office every Wednesday, 10 a.m. - 1 p.m. in the basement of the Pittsfield City Hall.

EPA & DEP Environmental Updates: We welcome suggestions for topics to be covered and questions to be answered in future updates. Contact Angela Bonarrigo with your suggestions:
telephone: 617-565-2501
or e-mail:
bonarrigo.angela@epamail.epa.gov

Additional information on EPA cleanup activities can be found on our website: www.epa.gov/region1

Information Repositories: To provide the community with site related information, Repositories exist at the following locations:

Berkshire County Regional Planning Commission
10 Fenn St., Pittsfield
Contact: Chrystal Shelley
413-442-1521
Hours: M-F 8-5

Berkshire Athenaeum Public Library
1 Wendell Ave., Pittsfield
Contact: Madeline Kelly
413-499-9488
Hours: M-H 9-9, F 9-5, SA 10-5; summer: M, W, F 9-5, T&H 9-9, SA 10-1

Lenox Public Library
18 Main St., Lenox
Contact: Sherry Gaherty
413-637-0197
Hours: T, W, F, SA 10-5; summer: M-SA 10-5

Simon's Rock College of Bard
84 Alford Rd., Great Barrington
Contact: Joan Goodkind
413-528-7274
Hours: M-F 8:30 - midnight, SA 10-12, SU 12-12; summer and semester breaks: M-F 9-4

Longfellow Avenue
Profile of a Residential Fill Property Cleanup

It can be difficult to envision how cleanup of a residential property will be accomplished. While every property is different, this article will trace the basic steps involved, from discovery of contamination on a property through restoration.

Initial Discovery of Contamination

EPA and DEP initially received information on the possibility that GE fill was placed on this property from an old record submitted by GE in 1997 in response to DEP's formal request for information. Based on this information, DEP and EPA required that GE collect soil samples from the property. The samples confirmed the presence of PCBs at concentrations at levels for which DEP and EPA require cleanup. In some portions of the property, contamination was as deep as 8 to 10 feet.

A Plan for Cleanup

GE took additional sample results to define the extent of contamination and prepared a plan for clean up which identified the areas from which soil would be removed. EPA and DEP approved the cleanup plan in October 1997.

Removal of Contaminated Soil

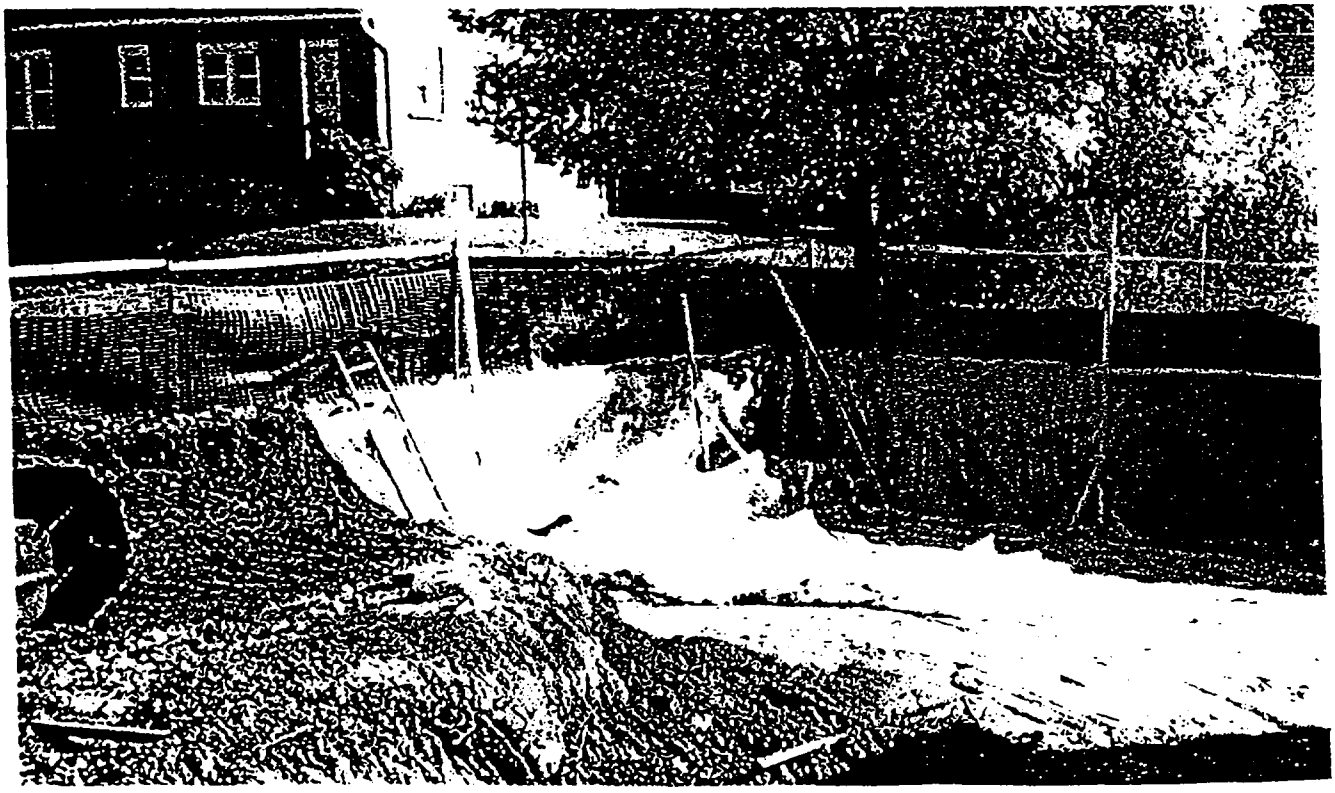
GE's contractor began removing contaminated soil in late October. A back-hoe scraped soil from the yard and deposited it shovel by shovel into a dump truck parked on the property. Trucks transported the fill to the GE facility where soil was temporarily stored prior to disposal.

Health and Safety Measures

As a safety precaution, continuous monitoring of particulates (dust) was conducted during work hours, immediately downwind of the work area. In addition, air monitoring for PCBs was conducted at three PCB air samplers stationed near the work site. This air monitoring was designed to ensure that contaminated soil was not becoming airborne and migrating from the work-site at unsafe levels.

Restoring the Yard

In November, following removal of contaminated soil, the property was backfilled with clean fill and topsoil. A new sod lawn was placed over the yard and the driveway was repaved.



QUESTIONS ABOUT SOIL SAMPLING?

Some residents have raised questions regarding soil sampling procedures on their properties. What follows are answers to some that are most often asked.

What is the purpose of a surface sample?
The purpose of collecting a sample in the surface is to determine whether or not contaminant levels exist in the area of highest exposure. Whereever a surface sample location is determined, two samples are collected from the top foot of soil. The first sample is taken from *within* the first of 0-6 inches. The sample can be collected from anywhere within the top 6 inches, including the top inch. The second sample is the near-surface sample and it is collected from within the next 6-12 inches.

What is the difference between a surface sample and a boring?
Surface samples are collected from the top foot of soil as described above.

In contrast, borings extend beyond the top foot of soil where the surface samples were obtained. Soil samples are collected at 2-foot intervals within the boring. Soil borings confirm whether fill material is present; how deep it extends; and, if contaminated, what the depth of the contamination is.

Why do borings vary in depth across a property or between properties?
The depth of a boring will depend on what is found as the boring is advanced. Borings are extended until no signs of fill material and / or contamination are detected. This is because when fill is brought to a property, it is not necessarily deposited in an even and consistent depth across the entire property.

How are sampling locations determined for each property?
Sampling locations are determined based on the information provided by the property owner or others who have knowledge or observations about the property. Other considerations include the physical characteristics of the property such as elevation and slope, different uses of the property such as gardens and childrens' play areas, and the location of a property relative to other contaminated properties..

Does the sampling grid provide an accurate picture of the property?
After determining the areas of a property which need sampling, we use the same very conservative and consistent grid pattern for each property. This grid pattern determines the location for the individual soil samples to be taken so that the data can be collected to fully characterize the nature, extent, severity and distribution of contaminants on a property. Sampling grid locations are based on the assumption that over time, a person's exposure or potential contact to the soil is the same throughout the property and the soil concentrations remain constant. However, in the areas of a property where more frequent activity is likely to occur, such as a garden, the grid is adjusted to ensure that samples are collected from these areas.

Using the samples gathered through the surface grid, coupled with the samples obtained from the deeper borings, we have the data necessary to determine whether or not contaminated material is present and if so, where it is located.

Are samples analyzed in the field?
No. Soil samples are only "screened" in the field as a preliminary step. PCB analysis is conducted in a laboratory.

I found fill material that appeared to have come from GE. How is it that the sample results indicate that my property is not contaminated or does not have elevated levels of PCBs?
Finding fill material that appears to have come from the GE Facility provides an indication that contamination *may* be present, not that it will be present.

The observed fill material itself may not be contaminated, but the soils or other associated materials that may have been brought to the property along with these may be. That is why so many questions are asked by the DEP and EPA regarding what is known about the fill material and the property before sampling begins. Some properties have pieces that were brought to the property for decorative or functional purposes, not for fill. And while these are present, they themselves are not contaminated.

An example is the ceramic covering used on the transformers which held PCB oil. Some of these ceramic cylinders or sheathes were recovered by

continued on p 5

Sampling continued from p. 4

folks and used as planters, borders and barrier walls. That's how some of the material came to be found on some properties. It's what was contained within these insulators that is of concern, but not the insulator itself. So there is the possibility that while there appears to be suspect material on a property, the culprit itself (PCB) may not be present in elevated concentrations.

My neighbor's property was found to be contaminated, yet my property is not being sampled. Why?

If soil samples collected near the boundaries of your neighbor's property indicate PCB levels less than 2 ppm at the surface, and there is no evidence of contaminated material at depth near or along the property boundaries, no further sampling is usually required as there is no indication that contaminated fill material was disposed of on your property.

Government Negotiations with General Electric

The EPA, MA DEP, MA and CT offices of the Attorney General, National Oceanic and Atmospheric Administration (NOAA), the Department of the Interior, MA Executive Office of Environmental Affairs, the U.S. Department of Justice and the City of Pittsfield are involved in negotiations with GE.

The negotiations are an opportunity to address environmental cleanup, redevelopment of the industrial facility and restoration of natural resources that have been damaged by the release of PCBs to the environment. Residential properties are not part of the negotiations.

We have made some progress and have set March 30, 1998 as a deadline for concluding negotiations.

Before any final plan is agreed to, the community will have an opportunity to examine and comment on any potential settlement.

Massachusetts Department of Public Health

The MA DPH is drafting responses to comments on their health study *"Housatonic River Area PCB Exposure Assessment Study"* which was released in September 1997.

If you have any questions or would like a copy of the study, call MA DPH at:

· 800-240-4266

EPA maintains a mailing list of people interested in receiving periodic updates, meeting announcements and relevant media releases. If you received this update in the mail, you are already on our mailing list. However, if you would like to be added, deleted or have a change made to your address, please fill out the following information and mail it back to EPA.

____ I would like my name placed on the mailing list

____ I would like my name deleted from the mailing list

____ Please make a correction to my address

NAME: _____

ADDRESS: _____

_____

Please place a check next to the appropriate action and mail this form to:

Angela Bonarrigo, US EPA, JFK Federal Building (RAA), Boston MA 02203

REPORT OF ATTORNEY GENERAL SCOTT HARSHBARGER RELATIVE TO THE WORKSHOP HELD ON FEBRUARY 5, 1998 REGARDING HEALTH CONCERNS RELATING TO PCB CONTAMINATION IN PITTSFIELD AND SOUTHERN BERKSHIRE COUNTY (MARCH 1998)

REPORT OF
ATTORNEY GENERAL SCOTT HARSHBARGER

Relative to the Workshop Held on February 5, 1998 Regarding Health Concerns Relating to PCB Contamination in Pittsfield and Southern Berkshire County

SCOTT HARSHBARGER
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March 1998

SCOTT HARSHBARGER
ATTORNEY GENERAL
(617) 727-2200

The Commonwealth of Massachusetts
Office of the Attorney General
One Ashburton Place
Boston, MA 02108-1698

March 5, 1998

Dear Interested Party:

Last October, I met with residents who live at or near PCB-contaminated property in Pittsfield. At this meeting, people told gripping stories about their health concerns. One man reported that he was scared to hug his newborn grandchild; another spoke movingly about having cancerous growths cut out of him by the age of thirty-seven. People voiced their common perception that the residents of the Lakewood area were experiencing a highly elevated incidence of cancer, although many raised other health problems as well.

Because I am not a trained scientist or health care professional, it was not possible for me to evaluate the powerful anecdotal evidence that people presented to determine what level of concern is warranted. At the same time, I feel strongly that the people deserve answers to their questions, to the extent possible. I therefore instructed my staff to do what they could to serve as a catalyst to ensure that appropriate answers were provided.

My office obtained copies of the three major health studies that have been undertaken and distributed them to a select group of outside experts, agency representatives, and concerned citizens in the Greater Pittsfield area. On February 5, 1998, we convened an all-day workshop for this group to examine these issues. The purpose of the workshop was to review the past studies, to discuss what additional information would be useful to address residents' concerns, and to brainstorm about ways that we might obtain such information. Attached is a report summarizing the day's discussions.

I believe the workshop was a success because it helped develop a shared understanding of the issues and it advanced the debate on how best to proceed. I want to extend my heartfelt thanks to all of the day's participants, including to the outside experts who generously donated their expertise, to the Lakewood residents and Housatonic River Initiative representatives who gave a day of their busy lives to participate, and to the agency personnel who despite their otherwise full schedules spent the day helping to make the workshop a success. Special appreciation goes to Elaine Krueger and Bob Knorr of the state Department of Public Health who presented the recent blood study and who accepted the group's comments with equanimity.

Sincerely,

Scott Harshbarger

Table of Contents

Introduction.

This report summarizes discussions that took place at a workshop that was held on February 5, 1998, to discuss health concerns relating to PCB contamination in Pittsfield and southern Berkshire County. This workshop was convened by Attorney General Scott Harshbarger as a follow-up to a meeting that he held with Pittsfield residents in October of 1997. Participants included a select group of outside experts, agency representatives, and concerned citizens in the Greater Pittsfield area. The workshop was held in Springfield so that people from both Boston and Pittsfield could attend. Despite sleet and freezing rain, 23 people participated. A list of these participants is included in Appendix A.

Part I of this report will review background issues discussed at the workshop, focusing on the issues of greatest concern and on the problems inherent in trying to use epidemiological studies to prove adverse health impacts from chemical exposures. Part II will detail the discussions of the three health studies that had been done to date, pointing out how the studies have been misconstrued. Part III will lay out specific action steps discussed, focusing especially on what can be accomplished with relatively limited public and private resources. In summarizing the discussions, we have tried to avoid technical jargon where possible in order to make the report accessible to the lay public. We hope that this report helps advance the debate on these critically important issues.

I. Background Issues.

A. The difficulty of uncovering health effects through epidemiological studies:

One thing that came out of the workshop was a greater appreciation among the lay participants of the difficulties of undertaking epidemiological studies. For example, the experts in attendance explained why it is so difficult to design such studies, and why they take so much time and money to perform. The lay participants also gained a greater appreciation for why epidemiological studies so seldom demonstrate adverse health effects even when such effects are strongly suspected. There are many reasons for this, including the following:

- limitations on resources available to do the necessary data collection and analysis;
- the inherent difficulties of obtaining the necessary data even if unlimited time and money were available (e.g., little historical information on worker exposures, the invasiveness of medical procedures such as tissue biopsies, problems presented by multiple exposures, etc.);
- the difficulties of applying the rigors of scientific proof to complicated, uncontrolled "real world" situations;

- imprecise exposure data commonly resulting in a "bias toward the null hypothesis"; and

- the fact that epidemiologists are trained to be "critical of everything," coupled with the fact that, because there is no such thing as a "perfect study," they have ample leeway for their critical dispositions.

In light of the fact that epidemiological studies are notoriously "insensitive," one outside expert noted after the workshop that he is most often quoted for his only-half-in-jest comment that a "health catastrophe" should be defined as "a health effect so powerful even an epidemiological study can detect it."

Epidemiological studies are done for many reasons. These include seeking to advance our knowledge of health risks generally. They also include seeking to aid populations placed at special risk through, for example, helping potentially injured parties and medical professionals better address particular health risks they are facing, and securing "the truth" for its own sake (be it "good news" or "bad news"). The problems listed above obviously limit our ability to make use of epidemiological studies to serve their intended purposes. There is another impact as well, however. Because the public does not generally understand the difficulty of proving that exposure to particular chemicals causes adverse human health impacts, this often means that inconclusive epidemiological studies are taken to mean that no problem exists even when it well may.

One hotly debated issue at the workshop was whether public health officials are institutionally biased against uncovering major health problems. One outside expert made this assertion, mainly based on his view of the pressures that such officials face given that agencies do not have the resources to address any major health problems that they uncovered. Agency representatives strongly denied feeling such pressures.

B. The relationship between health studies and decision making regarding clean up standards:

On one point, everyone who attended the workshop was of a single mind: in light of the inherent difficulty of proving human health effects through epidemiological studies, agency officials should use ultra-conservative assumptions in setting risk-based clean up standards. One attendee pointed out that from this perspective, the governmental response to the contamination at Wells G and H in Woburn can be viewed as a success story. State and federal regulators shut down the wells upon learning of the contamination, notwithstanding the fact that most experts at the time doubted that a cancer link could be proven and the fact that such a link was not shown until many years later.

C. What health impacts do people care most about?

For understandable reasons, most of the health fears to date have focused on cancer risks. Cancer simultaneously presents significant opportunities and obstacles for epidemiological research. On one hand, cancer incidence data are now readily available (through the state cancer registry) and generally considered reliable (given standardized laboratory procedures to diagnose malignancies). This is one of the reasons cancer is relatively well-studied, even though other health effects may hold greater significance. One outside expert attending the workshop analogized this situation to "the drunk who searched for his keys under the streetlight: he knows he didn't leave them there, but it was the only place he could look."

On the other hand, cancer presents a great challenge to researchers because, except for a small number of "sentinel cancers," it has many different possible causes. In addition, the fact that cancer is so prevalent in society (approximately one out of three people statistically is expected to develop cancer) presents major proof hurdles.

People's focus on cancer risks has obscured the fact that there are many other significant health risks potentially posed by PCBs. Studies have found associations between exposure to PCBs and at least the following serious conditions:

- non-malignant liver damage;
- chloracne and other skin problems;
- adverse reproductive effects;
- a variety of endocrine disorders; and
- infant and child development issues.

Moreover, researchers both at the workshop and elsewhere have emphasized how little is known about environmental health risks in general and exposure to PCBs in particular. One outside expert explained that this is why doing only a pure "exposure driven" study (i.e., one that examined a target group for known PCB-related health risks) would be shortsighted. In his words, "such a study might well miss the most interesting stuff." In addition to the problems listed above, residents expressed concerns regarding a variety of other health issues. For example, some residents noted their perception that Berkshire County was experiencing a raft of cases of multiple sclerosis. The researchers in attendance emphasized that an epidemiological study of multiple sclerosis would be extraordinarily difficult to carry out in light of difficulties of diagnosis and inaccessibility of incidence data.

D. What "exposure pathways" do people care most about?

PCBs can be ingested, inhaled, or absorbed through the skin. Studies of workers have focused mainly on skin contact in light of stories that workers most heavily exposed to PCBs effectively "bathed" in pyranol, the oily fluid that contained the PCBs. Studies of residents have focused mainly on ingestion, mostly through eating fish. Some workshop attendees expressed their view that more attention should be paid to skin contact by residents in light of the fact that PCB-contaminated soils have been buried throughout the community and in light of a new study referred to by an agency representative that reportedly found that skin contact may result in higher "uptake" than previously thought. In addition, some attendees expressed puzzlement as to why the breathing pathway had not been examined more, given the fact that a PCB incinerator operated at the GE site for many years.

E. What chemical exposures do people care most about?

Not surprisingly, most public attention has focused on the PCB contamination itself. In addition, there may be other chemicals of potential concern, even in the residential setting. For example, the pyranol in which the PCBs were contained also contained trichlorobenzene. (An agency representative noted that trichlorobenzene had not all volatilized into the air but is still being found in the environment.) In the workplace setting, there were many substances that are of potential concern. Indeed, a report prepared for GE by Dr. David Wegman (discussed further below) itself found associations between elevated cancer deaths and various substances to which GE workers had been exposed, including: resins, solvents, machining fluids, and benzene. Finally, obviously dioxins and dibenzofurans potentially raise significant health concerns for both workers and residents. These substances can result from incomplete combustion of PCBs, and, according to the report prepared by Dr. Wegman, dibenzofurans are found in trace amounts in pyranol. It is at least worth considering whether future studies should examine the health effects of these other chemicals in addition to, or instead of, those of PCBs.

II. What We Have Learned from the Three Major Studies.

A. Wegman Worker Study:

In the late 1970s, a state study (described as preliminary) found an excess of mortality from leukemia and cancer of the large intestine among people who had been employed at the GE facility. In the 1980s, General Electric commissioned a follow-up study under the direction of the eminent epidemiologist, Dr. David Wegman. This was a "case control study of cancer mortality risk" among GE workers. In lay terms, the study looked at a population of GE workers who had died of cancer over a 15-year period and asked what was different about their exposure compared to those GE workers who died of some other cause. The report of the study is dated January 24, 1990.

One of the most interesting points to come out at the meeting was that notwithstanding the fact that the Wegman study has achieved an almost mythological significance in GE's efforts to downplay the health risks, few people had had the opportunity to actually read the study. In fact, virtually all of the participants in the workshop -- most of whom have been intimately involved in GE-Pittsfield issues for years -- saw the report for the first time when it was distributed to them in preparation for the workshop.

The candid nature of Dr. Wegman's conclusions may help explain why GE has not itself distributed the report more widely. First, the study did find associations between increased cancer risks and worker exposure to various substances other than pyranol. Second, even though the Wegman study did not find an association between worker exposure to pyranol and excess cancer mortality risk, it listed numerous problems that seriously undercut the value of such a finding. Most of these problems involved questionable data on which the study had to rely, including, for example:

- incomplete company records;
- the difficulty of determining "real" cause of death;
- inclusion only of cancers that resulted in death; and
- very limited data on historical workplace exposures.

At several points, Dr. Wegman noted that these problems limited the statistical value of the study, known as "power." In fact, in discussing the limited historical workplace exposure data available to him, Dr. Wegman himself concluded:

> There is a high probability, therefore, that even if elevated cancer risks exist in this environment they might not be found.

A Case-Control Study of Cancer Mortality at the General Electric Pittsfield Facility, Vol. I, p. 6.

Given the thoroughness of Dr. Wegman's analysis of the obstacles to his study, the outside experts had little to add. They all spoke highly of Dr. Wegman and complimented the state-of-the-art methods he used. They emphasized, however, that ultimately the study's findings were limited by its input. In light of the kinds of problems that Dr. Wegman identified even with the considerable resources otherwise available to him, many participants expressed great skepticism at further formal worker health studies.

B. DPH Bladder Cancer Study:

The Wegman study examined cancer mortality (i.e., deaths caused by cancer) as opposed to the incidence of cancer, whether or not it was the cause of death. This was presumably because at the time the Wegman study was begun, there was no systematic way of tracking information regarding the incidence of cancer in Massachusetts. This changed with the creation of the state cancer registry in 1982. Routine analysis of the first four years of cancer registry data (1982-1985) uncovered an excess incidence of bladder cancer among males in the city of Pittsfield. The state Department of Public Health analyzed the data available through the registry, including looking at possible "confounding" impacts of smoking, and found:

> There is a notable, statistically significant excess of bladder cancer among GE workers as a whole (SMOR=202; 95% CI=135-302) and among the sub-population of smokers (SMOR=217; 95% CI=136-346). [SMOR stands for "standardized morbidity odds ratio" and CI stands for "confidence interval."]

Relying on currently available cancer registry information, this study was styled a "preliminary investigation." It recommended follow-up investigation to obtain "more detailed exposure information."

Workshop attendees who spearheaded the bladder cancer study described to the others what follow-up occurred. DPH made various efforts to uncover whether GE had utilized various known or suspected bladder carcinogens in Pittsfield, including extensive interviews of bladder cancer victims. Although it initially denied such use, GE apparently admitted some use of the chemical known as "MBOCA" -- a known bladder carcinogen -- after an employee produced a "material safety data sheet" for that chemical. Beyond this, however, follow-up efforts hit something of a standstill. In short, with the Wegman study then still ongoing and with DPH researchers encountering problems of obtaining necessary data from GE, further follow-up by DPH was shelved. While DPH urged GE to conduct follow-up on its own, it was not known by any of the attendees whether any such follow-up was done.

C. DPH Blood Study:

In 1995, the DPH began a study that looked at PCB blood levels in Pittsfield area residents. Beginning with a random selection of households that resided within one-half mile of the Housatonic River (adjusted to have balanced representation from Pittsfield and "South County" residents), DPH selected a target population of 120 individuals whom the agency concluded were the most likely to have been exposed to PCBs. The selection relied heavily on assumptions regarding PCB exposure that grew out of a DPH study of PCB exposures in New Bedford. Of the 120 selected individuals, 69 individuals (including 35 from Pittsfield) agreed to have their blood tested. DPH also sampled the blood of 79 self-selecting volunteers.

DPH issued a report of its findings in September of 1997. The report demonstrated through actual blood sampling that the amount of PCBs found in people's blood was associated not only with age (given that PCBs accumulate in the body over time) but with fish consumption and with opportunities for occupational exposure. The report also called for a continuation of strict remedial measures in order to protect the public health, noting in fact that the blood levels found may have been lower than otherwise because of regulatory actions such as the now-longstanding ban on eating fish caught in the Housatonic River. The most noted and controversial conclusion of the DPH report, however, was that:

> The serum PCB levels found among participants with the highest risk of exposure to PCBs in this study were generally within the background range reported for the non-occupationally exposed population in the U.S.

Housatonic River Area PCB Exposure Assessment Study, Final Report, p. 31. This finding, listed first among the report's conclusions, has been read by GE and many others as concluding that PCBs do not pose a major health threat.

The assembled group spent over two hours discussing the DPH study in a frank and open atmosphere. Attendees raised the following concerns regarding the study's primary conclusion:

- sample size: Some expressed concern about the sample size used. For example, in the selected target population, only 35 people from Pittsfield had their blood sampled. Although these people by definition lived within one-half mile of the Housatonic River, they otherwise were presumably distributed throughout Pittsfield. Therefore, it is likely that only a small number of them actually came from the Lakewood area where people have voiced the strongest health concerns. Read in this light, the blood level results obtained through the study may not be as comforting. When questioned about such issues, DPH personnel stated that they did not have the resources available to produce the statistical "power" they would have liked.

- the limited nature of the study's aims: As the DPH representatives explained, the blood study had relatively modest goals: to take an initial look at various pathways of exposure to PCBs and to examine correlations between these pathways and actual blood levels. In other words, as the official title of the study makes clear, this was a study of "exposure" to PCBs. While the level of PCBs in people's blood presumably correlates somehow with the degree of health risks presented, this relationship was not a subject of study here nor is it generally well understood. Strictly speaking, therefore, the blood study did not itself examine health risks at all. Somewhere between the original design of the study and the message that people heard when the report was announced, this point got lost. Citizens who attended the meeting expressed their frustration that DPH did not do more to clarify the limited nature of the study after it was announced;

- different congeners: The inability of the blood study to examine health risks is compounded by the fact that PCBs come in many different forms, known as congeners, that vary considerably in their toxicity. Workshop attendees stated that because of their high chlorine content, the congeners at issue in Pittsfield are more toxic than those generally confronted. The DPH blood tests were not "congener-specific," however, because such blood tests are technically quite challenging and presumably quite expensive;

- comparison to national background: The study ultimately compared its sample results against the range of PCBs in blood that would be expected in a randomly selected nationwide population among people who had not been occupationally exposed. The latter figure was taken from a report published by the Agency for Toxic Substances and Disease Registry, a federal health agency. While conceding that the ATSDR data might constitute the "best available evidence" of an expected national average, many people criticized the worth of that number. For example, average PCB blood levels are thought to be declining over time now that PCB manufacturing has been banned, PCB disposal has been regulated, and PCB-contaminated sites are being cleaned up. The ATSDR figure is based on data that is at least a decade old, and therefore it may well no longer be accurate. In addition, neither the ATSDR figure, nor the DPH results, were "congener-specific." Because the PCBs at issue in Pittsfield are of the relatively toxic variety, while the ATSDR figure is for all varieties (including the much more prevalent congeners of lesser toxicity), the comparison to the ATSDR figures may not be "apples to oranges," but it may be "apples to mixed fruit salad." Finally, one workshop attendee pointed out that the ATSDR figure may not be that useful for comparison purposes in light of the fact that, but for the contamination caused by GE, Southern Berkshire County is a rural, relatively pristine area where one would expect less opportunity for exposure to PCBs than on average nationally. In light of such problems, many workshop attendees questioned why the blood study did not include for comparison purposes a "control group" of people in

Berkshire County who had likely not been exposed to PCBs. The DPH response was again that the agency did not have the resources available to it to do what it would have liked.

- downplaying "adverse" findings: Some felt that DPH de-emphasized findings that did not fit neatly into its overall "background levels" conclusion. For example, the report emphasized that only 6% of the volunteer study had blood levels of over 20 parts per billion (as compared to an expected 5%), but failed to highlight that some of those readings were significantly higher than 20 ppb, including one of 114 ppb. In addition, although the report's focus on non-occupational exposures is consistent with the study's overall purpose, the fact that those volunteer participants with an opportunity for occupational exposure had blood levels of two to four times the expected national average for non-occupationally exposed population struck some as a significant finding that was downplayed.

- what do blood levels mean? Ironically, the chemical stability of PCBs -- one characteristic that made them useful as a product -- is one reason PCBs are thought to cause a health threat. PCBs are known to accumulate over time in fatty tissues within the body. Ideally, one would want to measure the PCB levels in such tissues. Measuring PCB content in fatty tissues involves invasive biopsies, however. Drawing blood is a much less invasive procedure. Moreover, having people fast before their blood is drawn releases some of the PCBs stored in fatty tissues back into the blood. For these reasons, blood sampling is typically used instead of tissue biopsies. But it is not entirely clear what PCB blood levels tell us. For example, how do PCB blood levels change over time and how constant is the relationship between PCB levels in blood compared to those in fatty tissues? The lack of answers to such questions may explain why some of the workshop participants sensed contradictory suggestions in the study: blood levels used as a surrogate for levels in fatty tissues vs. blood levels used as an measure of recent exposures. Finally, but most importantly, while blood levels may well correlate with the degree of health risk presented, the nature of this relationship is unknown. In other words, the amount of PCBs in blood says next to nothing about the particular level of risk presented.

- residential fill properties: According to the DPH representatives, the blood study generally assumed that the exposure factors shown to be of concern in the New Bedford study would be the ones of most concern in Pittsfield as well. This central assumption is subject to question, however, in light of the fact that the factual context of the Pittsfield problem is different in some respects from that of New Bedford Harbor. In Pittsfield, unlike New Bedford, for example, there are PCB wastes buried throughout the community. The blood study was undertaken prior to DPH's learning about the large amounts of PCB-contaminated fill that were disposed of at schools and in residential areas, especially in the Lakewood area. In fact, additional fill sites are still being discovered and many more such sites are

expected to be found. Because DPH had no knowledge of these sites, it did not design its study around them. Given that the fill areas generally fall within one-half mile of the Housatonic, some number of residents at or near these properties may well have been included in the blood sampling of the targeted population. Nevertheless, for at least a couple of reasons, the blood study likely did not adequately address the exposure issues posed by the "residential fill" properties. First, the point system used to determine whose blood would be tested from the target group was set up based on the assumption that the river and floodplain posed the greatest opportunities for exposure. While activities that would have put people in contact with soils in their own yard (such as gardening) did count for points (including a doubling of the designated points if these activities were performed in Pittsfield or Lenox), their point value was still relatively low compared to other activities. For example, under the DPH scoring system, a resident who lived nowhere near the residential fill properties who ate freshwater fish from somewhere other than the Housatonic River could easily "outscore" (i.e., be assumed to be more at risk) a residential fill owner who gardened seven days a week. The likely undervaluing of the residential fill problem is underscored by a new study reported by one agency official that PCB uptake through skin contact may be greater than previously thought. Because the blood sampling of the target group was done only among those who -- based on the point system -- were assumed to be most at risk, it is quite possible that people who were exposed to PCBs through activities such as gardening never made it to the blood testing stage. In addition, the inclusion of people who may not have been at relatively great risk in the blood sampling could obviously "water down" the overall average of people who had been exposed.

- air pathway: Meeting attendees expressed concern that the blood study did not adequately examine the possibility of intake of PCBs through inhalation. In particular, residents expressed fear about possible impacts from the PCB incinerator that GE operated for many years, especially in light of the periodic "downdrafts" that they observed. Highly dangerous dioxins and dibenzofurans can be produced when PCBs are incinerated if a problem with the incinerator resulted in incomplete combustion. Agency personnel expressed their view that the incinerator at GE was well designed and that it was well run during the period they were actively monitoring it, although they could not vouch for operations in a prior period. DPH did not explain in its report or at the workshop why it did not factor the presence of the incinerator into its analysis. The potential skewing effect on DPH's findings is similar to that discussed above for the residential fill properties: the down-draft area appears to fall within the one-half mile study area, but because no points were assigned to living downwind of the incinerator, people who may have been exposed through this means may not have been included in the blood sampling, even though they perhaps should have been.

- testing of children: Both at the workshop and in other forums, residents have over and over stated that their biggest health concerns are for their children. Nevertheless, children were excluded from the blood sampling. The explanation for this seeming paradox appears to be that because the study was designed to focus on those who DPH expected to have the highest blood levels and because PCBs accumulate in the body over time and therefore generally increase with the age of the person tested, it did not make sense to test children. Some workshop attendees felt that the fact that one would not expect PCBs in children's blood is precisely why it might be useful to look there. While not finding appreciable levels in children may not say much, finding them would be significant.

In sum, two conclusions can be made regarding the blood study. First, it is clear that this study has been misperceived by the press and many members of the general public as addressing health effects issues that DPH never even purported to examine (many citizens who attended the workshop expressed anger at their view that DPH allowed these misinterpretations to lie uncontroverted) Second, many serious questions have been raised about the validity and significance of the central conclusion that the report did reach that blood levels in the people most at risk of exposure did not exceed national background levels.

III. What Next Steps Should We Take?

The last hour-and-a-half of the workshop was devoted to the question of what to do next. Particular attention was paid to how to conserve limited public and private resources, whether there are low resource ways of obtaining additional information that would better inform our thinking, and how better to coordinate various ongoing efforts.

Representatives from DPH briefly discussed two efforts it was conducting (in addition to some additional blood sampling). The first is a pilot study of whether there are correlations between the incidence of breast cancer in Berkshire County and blood levels of PCBs and DDE (a by-product of the pesticide DDT) in the cancer patients. DPH explained that this was a very preliminary, "quick and dirty" study aimed at determining whether to seek funding to conduct a fuller study. Many participants expressed concern that given the limited purpose of this pilot study and the fact that it was something of a "shot in the dark," inconclusive results could be misinterpreted as demonstrating that exposures to PCBs and DDE are not harmful.

DPH also stated that it was conducting a comprehensive health assessment of the GE-Pittsfield site pursuant to funding obtained through ATSDR. This assessment will gather and analyze existing health-related information; it will not otherwise collect new data.

DPH mentioned that it was considering undertaking a further worker study and that it was engaged in preliminary discussions with GE regarding access to worker records. The other participants to the workshop expressed skepticism about the value of such a study in light of the problems that the well-funded Wegman study and DPH's own bladder cancer study uncovered. Some recommended that rather than pursue such a formal study, DPH should investigate less formal ways to obtain worker exposure information through seeking to obtain and follow up on union rosters. One participant made reference to published reports that 62% of people who worked in Building 12 at the GE plant developed cancer and recommended that someone follow up on what data lay behind such reports.

Residents of the Lakewood area and members of the Housatonic River Initiative discussed their efforts to put together a health survey designed to uncover whether there was an elevated incidence of various health problems in the Lakewood area. The experts who attended the workshop pledged their assistance in reviewing the proposed survey questionnaire once it was drafted. Some of them were skeptical about such a survey being able to prove a link between PCB exposure and adverse problems observed, while at the same time noting that the Woburn study and initial smoking studies began in a similar citizen-driven manner. The residents in attendance at the workshop emphasized the value of conducting such a survey regardless of its "scientific" value in proving direct causal links.

Some of the attendees expressed their view that future studies should focus on children. One expressed his view that "trans-generational effects" (i.e., those effects passed down to a subsequent generation from exposures to a current one) should be

studied. While expressing empathy for the concern regarding trans-generational effects, one outside expert pointed out the technical difficulty of doing so. As he put it, "we're having problems getting a handle on studying current health effects [because of the problems discussed above]; the problems would be even worse for studying effects across generations."

Much of the discussion focused on whether there was any readily available data that lay unplumbed. Some participants stated their view that DPH could and should do more to review currently available data from the cancer registry. For example, given the level of concern in the Lakewood area and given the fact that cancer registry data is available by census tract, some felt that DPH should immediately determine how closely the available census tracts "fit" the neighborhood, with follow-up analysis of the registry data as appropriate.

One participant mentioned that the Berkshire Medical Center had a repository of tissue samples from cancer patients that could theoretically be tested for PCB levels. While some of the outside experts were intrigued by this potential source of information, they also expressed great skepticism for two reasons. One is the fact that complicated legal issues may prevent access. The other is that the presence or absence of PCBs may not reveal anything useful. For example, there is no reason to believe that carcinogens would be concentrated in tissues taken from fast-growing tumors that they may have caused. One expert identified hospital discharge data as a potentially more promising source of information that may be reasonably accessible and that might be useful to study non-cancer related illnesses.

All participants emphasized the need for better coordination and increased opportunities for public input. With reference to its upcoming health assessment, DPH indicated that it would consider many of the workshop participants for membership on a DPH advisory committee.

Conclusion.

The people who live at or near PCB-contaminated property in the Greater Pittsfield area, and former GE workers who may have been exposed to PCBs and other potentially dangerous chemicals in the workplace, have serious concerns about the health impacts they face. These concerns involve cancer risks and many other issues as well. Trying to address these concerns through epidemiological studies is extremely challenging, because such studies are typically inconclusive. There is no better example of this than the Wegman study itself. Despite the expertise of the researchers, the state-of-the-art research methods used, and a budget reported to be $700,000, the study ultimately concluded that, because of inherent limitations in the data available, "[t]here is a high probability, therefore, that even if elevated cancer risks exist in this environment they might not be found."

Without the resources available to Dr. Wegman, DPH sought to design a study that would assess the extent to which people in Pittsfield and southern Berkshire County had been exposed to the PCBs. Serious concerns have been raised regarding the validity and significance of the study's conclusion that the blood levels in the "participants with the highest risk of exposure to PCBs" generally fell within national background levels. In addition, the study did not assess the health risks presented by the blood levels found, and the study's conclusions have clearly been misperceived by many members of the public.

The health concerns held by many people, especially in the Lakewood area, have not sufficiently been addressed by the studies that have been done to date. While there are no easy answers to addressing these concerns, the workshop helped focus people's thinking on specific avenues to pursue. In the interim, everyone agreed that in order to protect the public health with an adequate margin of safety, clean up decisions should be made using ultra-conservative risk-based assumptions.

Appendix A: Workshop Attendees

Ann Marie Adams, Pittsfield

Mary Ballew, U.S. Environmental Protection Agency

Stephanie Carr, U.S. Environmental Protection Agency

Barbara Cianfarini, Pittsfield

Dr. Richard Clapp, Boston University

Tish Davis, Department of Public Health

Benno Friedman, Housatonic River Initiative

Mickey Friedman, Housatonic River Initiative

Tim Gray, Housatonic River Initiative

Terry Greene, John Snow Institute

Dr. David Gute, Tufts University

Betsy Harper, Office of the Attorney General

Meg Harvey, Department of Environmental Protection

Dr. Robert Knorr, Department of Public Health

Elaine Krueger, Department of Public Health

Jim Milkey, Office of the Attorney General

Bryan Olsen, U.S. Environmental Protection Agency

Roberta Orsi, Pittsfield

Dr. David Ozonoff, Boston University

Joan Parker, Office of the Attorney General

Wendy Phillips, Mt. Holyoke College

Rob Quinn, counsel for Roman Catholic Bishop of Springfield

Susan Steenstrup, Department of Environmental Protection

INFORMATION BOOKLET FOR THE FINAL REPORT ON THE HOUSATONIC RIVER AREA PCB EXPOSURE ASSESSMENT AND RELATED HEALTH ISSUES (SEPTEMBER 1997)

INFORMATION BOOKLET

for

THE FINAL REPORT ON THE HOUSATONIC RIVER AREA PCB EXPOSURE ASSESSMENT

and

RELATED HEALTH ISSUES

prepared by
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
BUREAU OF ENVIRONMENTAL HEALTH ASSESSMENT

September 1997

QUESTIONS AND ANSWERS

1. **Q. Why was the "Housatonic River Area PCB Exposure Assessment" conducted?**

   A. The assessment was conducted to identify the frequency of different activities that might lead to opportunities for PCB exposure, and to determine, through the use of blood testing, how various activities may have contributed to higher serum PCB levels among HRA residents.

2. **Q. What is meant by the "Housatonic River Area" (or "HRA")?**

   A. The Housatonic River Area or HRA comprises eight communities in Berkshire County, Massachusetts: Dalton, Great Barrington, Lanesborough, Lee, Lenox, Pittsfield, Sheffield, and Stockbridge.

3. **Q. What are PCBs?**

   A. PCBs or polychlorinated biphenyls are man-made, odorless chemicals. They do not evaporate and do not dissolve easily in water. In the HRA, PCBs were largely used in the manufacture of electrical transformers.

4. **Q. How did PCBs get into the Housatonic River and the surrounding communities?**

   A. PCBs were used in the manufacture of electrical and associated products in Pittsfield from 1932 to 1972, and they reached the Housatonic River in large quantities. This contamination was first discovered in the 1970s, in fish and sediments in lakes along the Housatonic. Extensive environmental sampling has revealed widespread contamination of Housatonic River sediments, floodplain soil, fish and other biota. Very recently, some residential properties were found to be contaminated with PCBs due to contaminated fills.

5. **Q. Who conducted the study?**

   A. The Housatonic River Area PCB Exposure Assessment was conducted by the Massachusetts Department of Public Health (MDPH), Bureau of Environmental Health Assessment, with support from the Massachusetts Department of Environmental Protection and the federal Agency for Toxic Substances and Disease Registry. The MDPH received input from local citizens or citizens' groups (e.g. Housatonic River Initiative), especially during the study design and protocol development. The MDPH also formed the Housatonic River Area Advisory Committee for Health Studies and MDPH staff held periodic meetings with committee members to report status and get feed back on the conduct of the study.

6. **Q. How were participants chosen for the Exposure Prevalence Study?**

   A. In the Exposure Prevalence Study, 800 households were randomly chosen from among all those located within one-half mile of the Housatonic River in the following eight communities: Dalton, Great Barrington, Lanesborough, Lee, Lenox, Pittsfield, Sheffield, and Stockbridge. Four hundred of those households were from Pittsfield, and four hundred were from the other seven communities.

7. **Q. How were participants chosen for the Volunteer Study?**

   A. In the Volunteer Study, subjects were recruited by means of a Public Service Announcement in local newspapers and radio stations, and through a mass mailing to interested parties. The Volunteer Study allowed those residents who were concerned about PCB exposure, but who were not selected to participate in the Exposure Prevalence Study, to be scheduled for a blood test. MDPH arranged to administer questionnaires to the volunteers in person at three walk-in sites: the Great Barrington Senior Center, the Tri-town Health Department in Lee, and the Berkshire Athenaeum in Pittsfield. The questionnaire administered to the volunteers was the same as the one used in the Exposure Prevalence Study.

8. **Q. How were opportunities for exposure to PCBs assessed?**

   A. A household screening questionnaire was administered to the 800 households. A representative of each household answered questions for all the members of his or her family. After the questionnaires were completed, the responses of every household member were weighted, with those activities more likely to lead to greater potential for PCB exposure weighted more heavily. Thus, those with the greatest potential for PCB exposure would receive the highest weights or scores.

9. **Q. How were respondents selected to participate in blood testing?**

   A. In the Exposure Prevalence Study, individuals with the highest potential exposure to PCBs based on screening questionnaire scores were offered the opportunity for a blood test. Results of blood tests allowed MDPH to determine whether those individuals who were suspected to have had greater opportunities for exposure to PCBs did in fact have higher levels than those with lesser opportunities for exposure. All respondents in the Volunteer Study were offered blood testing.

10. **Q. What was the range of serum PCB levels found in the Exposure Prevalence and Volunteer Studies?**

    A. Sixty-nine residents who participated in the Exposure Prevalence Study had serum PCB levels as follows:

Concentrations of PCBs in Parts Per Billion (ppb)	Number of Individuals
0-4	43
5-9	18
10-14	6
15-20	1
over 20	1

Seventy-nine residents who participated in the Volunteer Study had serum PCB levels shown as follows:

Concentrations of PCBs in Parts Per Billion (ppb)	Number of Individuals
0-4	32
5-9	25
10-14	15
15-20	2
over 20	5

The average serum PCB level in the Exposure Prevalence Study among non-occupationally exposed participants was 4.49 ppb. and in the Volunteer Study, the average was 5.77 ppb. These levels were generally within the normal background range for non-occupationally exposed individuals.

11. Q. Was occupational exposure related to serum PCB levels?

A. Yes. Among all participants who had blood testing, those who had had opportunities for occupational exposure had higher serum PCB levels than the rest.

12. Q. Was age related to serum PCB levels?

A. Yes. Age was found to be the prominent predictor of serum PCB level.

13. Q. Do most people in the United States have PCBs in their bodies?

A. PCBs have been measured in human blood, fatty tissue, and breast milk throughout the country. Ninety-five percent of the U.S. population have serum levels of less than 20 ppb. Ninety-nine percent of the U.S. population have serum levels of less than 30 ppb. The national average for serum PCB level in persons non-occupationally exposed is between 4 and 8 ppb. The greatest on-going source of public exposure to PCBs is from food, particularly fish.

14. Q. Is there anything I can do to reduce PCB levels in my blood?

A. Currently, there is no treatment available to lower PCB blood levels. However, if an individual was exposed, PCB levels will decrease over time once exposure to PCBs has been reduced.

15. Q. Is it safe to eat fish from the Housatonic River and its tributaries?

A. No. In 1982, the MDPH restricted fish, frog, and turtle consumption in the Housatonic River and its tributaries. Because of continued evidence of PCB contamination, it is expected that PCB levels in these species still remain elevated.

Both the Exposure Prevalence Study and the Volunteer Study showed that study participants who had higher frequency and duration of contaminated fish consumption had higher serum PCB levels. Due to health effects that have been suggested as potentially related to PCB exposure, the MDPH maintains that the current ban on these activities in or near the river remain in effect.

16. Q. Is it safe to eat fish from restaurants, supermarkets, and local markets in the Housatonic River Area?

A. Yes. In general, fish caught in marine open and bay waters is the source of most commercial catches in New England and is not affected by PCB contamination from local and freshwater areas. State and federal health regulatory officials regulate fish sold for the commercial markets.

17. Q. Was consumption of fiddlehead ferns associated with higher serum PCB levels?

A. Individuals who reported greater frequency and duration of fiddlehead fern consumption had slightly higher serum PCB levels.

18. Q. If my only exposure to PCBs is through soil contact, should I be concerned?

A. Previous studies conducted by MDPH have not shown that exposure through soil contact alone has resulted in appreciable increases in serum PCB levels. MDPH continues to consider consumption of contaminated fish to be the most significant non-occupational exposure concern. However, due to the recent discovery of widespread residential PCB contamination, MDPH is coordinating a separate study of residents who may be concerned about exposure.

19. Q. If PCBs have been discovered in soils on my property, what can I do about getting my health concerns addressed or my blood tested?

A. MDPH has established a toll free hot-line to advise local area residents about any health related concerns or questions they may have. The exposure assessment questionnaire will be provided to all residents who wish to have their opportunities for exposure evaluated and a blood test taken. The hot-line number is 1-800-240-4266.

20. Q. What health effects are caused by exposure to PCBs?

A. PCBs are not very acutely toxic. Large amounts of PCBs are necessary to produce acute effects. These effects can include skin lesions or irritations, fatigue, and hyperpigmentation (increased pigmentation) of the skin and nails. Chronic effects occur after weeks or years of exposure or long after initial exposure to PCBs. A number of studies have suggested that these effects include immune system suppression, liver damage, neurological effects, and possibly cancer.

21. Q. What happens to PCBs in your body?

A. Once PCBs enter the body they are first distributed in the liver and muscles and then are stored in fatty tissues. PCBs can be stored in fat tissue for years. Also, breast milk may concentrate PCBs because of its fat content. The PCBs can then be transferred to children through breastfeeding.

22. Q. Are cancer rates elevated in the HRA?

A. According to the most recent data from the Massachusetts Cancer Registry, cancer rates during 1982-1986 and 1987-1992 for the eight communities (i.e., Dalton, Great Barrington, Lanesborough, Lee, Lenox, Pittsfield, Sheffield, and Stockbridge) showed that, with the exception of bladder cancer in Pittsfield males during the 1982-1986 period, no statistically significant elevation was noted.

23. Q. Do PCBs cause reproductive effects?

A. Studies have reported that infants born to mothers who were environmentally or occupationally exposed to PCBs had decreases in birth weight, gestational age, and neonatal performance. However, the strength of the association with PCBs is unclear. PCBs have been shown to cause these and other reproductive effects in a variety of mammalian species.

24. Q. Are there any problems with reproductive outcomes for the HRA?

A. According to 1990-1994 birth data from the MDPH Registry of Vital Records and Statistics, infant mortality and the proportion of low birth weight in the HRA were similar to those of the state averages.

POLYCHLORINATED BIPHENYLS (PCBs): A FACT SHEET (AUGUST 1997)

POLYCHLORINATED BIPHENYLS (PCBs)

A FACT SHEET

Providing Answers to Commonly Asked Questions Regarding PCB Exposure at the Hazardous Waste Sites Associated with the General Electric Pittsfield Facility and the Housatonic River

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
AND
United States Environmental Protection Agency
Office of Site Remediation and Restoration

August 1997

WHY THIS FACT SHEET?

The Massachusetts Department of Environmental Protection (DEP) and the United States Environmental Protection Agency (EPA) receive many questions from interested Berkshire County residents about polychlorinated biphenyls (PCBs) and how PCBs can affect the health of people who come into contact with them. This fact sheet has been prepared by DEP and EPA to provide answers to commonly asked questions about:

- PCBs and their harmful health effects;
- how PCBs entered the environment from the GE facility;
- how exposure to PCBs can occur and how to tell if you have been exposed;
- ways to reduce your potential for PCB exposure, and;
- what is being done to protect public health from PCB exposure.

WHAT ARE PCBs?

Polychlorinated biphenyls (PCBs) are a family of man-made chemicals that contain 209 different variations, or ***congeners***. PCBs are typically found in the environment as mixtures of different congeners. These mixtures are also known as Aroclors®, a trade name of the Monsanto Corporation.

There are no known natural sources of PCBs. PCBs are typically oily liquids, ranging from colorless to light yellow in color. They have no smell or taste. Because they do not burn easily and are a good insulating material, PCBs have been widely used as coolants and lubricants in transformers, capacitors, and other electrical equipment. Consumer products that may contain PCBs include old fluorescent lighting fixtures, hydraulic fluids and electrical devices or appliances containing PCB capacitors made before PCB use was stopped. The manufacture of PCBs was stopped in the United States in 1977 because of evidence that PCBs build up in the environment and cause harmful effects.

HOW DID PCBs GET FROM GE INTO THE ENVIRONMENT?

PCBs are present in Housatonic River sediments, in soil, and in fill. There are also ***plumes*** of PCB-contaminated oil underneath the General Electric (GE) facility in Pittsfield. The plumes underneath the GE facility are masses of PCB-contaminated oil, several feet thick, that are present as a separate layer and do not mix with the groundwater.

There are four major ways in which PCBs entered the environment from the GE facility in Pittsfield.

- **PCBs were released from the GE facility directly into the river.**
- **PCBs seeped into the river from plumes underneath the GE facility.**
- **During floods, PCBs attached to river sediments were carried by river water up onto the floodplain.**
- **Trucks carried PCB-contaminated fill from the GE facility and placed it in low-lying, marshy areas in and around Pittsfield.**

PCB releases from GE into the Housatonic River

In years past, PCBs were directly released from the GE facility into the Housatonic River. Once in the river, PCBs attach to river sediments. PCBs do not dissolve easily in water and they do not become separated from sediments or soil easily.

PCB releases to the river via the plumes

The plumes of PCBs underneath the GE facility flow toward the Housatonic River. In the past, PCBs seeped into the river from the plumes. PCBs are no longer seeping into the river

from the plumes because GE installed containment systems which pump PCBs out of the ground before they reach the river.

Contamination of floodplain during floods

During floods, PCB-contaminated river sediments are carried by river water up over the riverbank and onto the floodplain. When the floodwaters recede, the river sediments and attached PCBs are left behind on the floodplain.

Placement of PCB-contaminated fill

Primarily in the 1940s and 1950s, trucks delivered fill from the GE facility (often at the request of the property owner) to many low-lying, marshy areas in and around Pittsfield. Some of these marshy areas are former oxbows. Other areas are just low-lying or uneven properties where the owner asked GE to deliver fill so the property would be level. Some, but not all, of the fill that GE provided was contaminated with PCBs. PCBs are bound tightly to the fill and do not move from the fill into groundwater or into other clean areas of soil or fill. Fill also may have been received from sources other than GE. Non-GE fill may or may not be contaminated.

Oxbows **are natural bends (or meanders) in a river.**

Former oxbows **are oxbows that became separated from the main stem of the Housatonic River (after the Army Corps of Engineers straightened portions of the river in the 1940s) and then were subsequently filled.**

HOW DO PCBs MOVE IN THE ENVIRONMENT?

Once in the environment, PCBs do not break down easily. They tend to remain attached to particles of soil or sediment. Any process that moves soil or sediment can also move the attached PCBs.

Examples of how PCBs move in the Environment:

- River sediments (with PCBs attached) can be carried by river water further down river or up onto the floodplain during floods.

- Fine dry soil (with PCBs attached) can be blown by the wind or stirred up during lawn mowing or dirt biking.

- In very hot weather, PCBs (if they are present at high levels) can also evaporate in small amounts from the soil into the air.

HOW MIGHT I BE EXPOSED TO PCBs?

For people in Pittsfield and the Housatonic River area, there are two main ways (routes) that exposure to PCBs can occur.

- ***Touching soil contaminated with PCBs.***

  Touching PCB-contaminated soil leads to exposure by **incidental ingestion** (ingestion of PCBs via hand-to-mouth contact) and **dermal absorption** (absorption of PCBs through the skin).

- ***Eating PCB-contaminated fish or other animals (such as frogs or turtles) from the Housatonic River.***

OBSERVE THE CONSUMPTION ADVISORY!

Fish, frogs and turtles from the Housatonic River and Silver Lake are contaminated with PCBs and should not be eaten!

There are also the following less important exposure routes.

PCBs in air measured to date in residential and recreational areas do not pose a short- or long-term health risk.

Air: Breathing air containing PCBs is another source of exposure. However, in the Housatonic River area, levels of PCBs in air in the floodplain are low. None of the levels of PCBs in air measured to date in residential and recreational areas would pose a short-or long-term health risk. The amount of PCB exposure people could receive from the air is much less than the amount of exposure people could receive from touching soil or eating fish.

Drinking Water: In Pittsfield and the Housatonic River area, drinking water is ***NOT*** contaminated with PCBs so this is not a route of exposure to PCBs.

Workplace Exposure: Workplace exposures to PCBs can occur during repair, maintenance and removal of PCB-containing materials (such as transformers). Since PCBs are no longer manufactured in the United States, workplace exposures are limited.

HOW DO I FIND OUT IF I HAVE BEEN EXPOSED TO PCBs?

There are tests to find out if PCBs are in your blood, body fat, and breastmilk. Because PCBs are found throughout the environment, nearly everyone is likely to have some measurable amounts of PCBs in their body. In the United States, average PCB levels in blood among people who have not had exposure in the workplace range from 4 to 8 ng/mL (parts per billion)[1]. Elevated levels of PCBs in comparison to the general population will show that you have been exposed to high levels of PCBs. The tests do not determine the source of your exposure, the exact amount or type of PCBs you have been exposed to, how long you have been exposed, or predict

whether you will develop harmful health effects. Elevated levels of PCBs in your body can suggest that you may have an increased risk of developing harmful health effects compared with the general population.

Blood tests are the easiest and safest method for detecting recent exposures to large amounts of PCBs. If you are concerned and want to find out whether you have been exposed to PCBs, you should contact your doctor.

HOW CAN PCBs AFFECT MY HEALTH?

The potential for adverse health effects following exposure to any chemical depends upon a number of factors, including how much exposure occurred, the concentration to which the person was exposed and the toxicity of the chemical in question.

PCBs have been shown to produce a wide variety of effects in many animals, including severe skin problems, liver cancer, liver damage and reproductive and developmental effects. Monkeys, which are physiologically more similar to humans than other animals, have developed adverse immunological and neurological effects, as well as skin and eye irritations after ingesting PCBs.

Studies of U.S. workers exposed to PCBs in the workplace show that PCBs can cause skin problems such as acne and rashes and irritation to the nose and lungs. Levels of PCBs in workplaces where PCBs were used are generally much higher than levels found in the environment. There are studies which have reported neurological and behavioral abnormalities in infants born to mothers who ate PCB-contaminated Great Lakes fish, and adverse effects on intellectual function in young children whose mothers ate PCB-contaminated Great Lakes fish. In these studies, the mothers' exposures to PCBs were estimated and not measured directly so these studies do

not provide information about the amount of PCB exposure that leads to adverse health effects.

PCBs may also be potential endocrine disruptors. The term endocrine disruptors applies to any number of a broad class of chemical compounds with the ability to interfere with the normal functioning of hormones. Concern about endocrine disruptors stems from a collection of evidence (primarily in wildlife) on a variety of compounds which indicates that exposure to some chemical agents in the environment which interfere with hormones can potentially lead to adverse health effects, including effects on reproductive function, development, neurotoxicity and immunofunction. At this time, the available information is not sufficient to determine whether PCBs are likely to affect human endocrine systems or to measure potential effects.

The U.S. Environmental Protection Agency has determined PCBs to be probable human carcinogens. This classification is based upon animal studies in which rats that ingested certain mixtures of PCBs throughout their lives developed cancer in their livers. Studies of people exposed to PCBs do not provide enough information to definitively determine if PCBs cause cancer in humans.

WHAT ACTIONS HAVE BEEN TAKEN TO ENSURE PROTECTION OF PUBLIC HEALTH FROM PCBs?

DEP and EPA have taken immediate actions (also called short-term cleanup measures or Immediate Response Actions) to ensure protection of public health until a permanent cleanup is completed. DEP and EPA have taken short-term cleanup measures in residential and recreational areas where PCBs exceed the appropriate DEP Short-Term Action Level in surface soil (top six inches).

Short-term measures DEP and EPA have taken to address exceedances of these action levels include soil removal,

placement of vegetative barriers and placement of warning signs and fences.

DEP SHORT-TERM ACTION LEVELS FOR PCBs

- **In residential lawns, the Agencies have taken short-term measures when PCBs in surface soil exceed 10 ppm (parts-per-million, mg/kg).**
- **In recreational areas, the Agencies have taken short-term measures when PCBs in surface soil exceed 30 ppm.**
- **In walking pathways, the Agencies have taken short-term measures when PCBs in surface soil exceed 50 ppm.**

Many residents and river users already may have been exposed to PCBs for a long period of time. DEP accounted for this in determining the action levels. DEP and EPA are confident that the short-term measures taken will protect people. However, DEP and EPA recognize that it is impossible to know every person's particular activity patterns and chance of exposure from either previous or future activities. Since PCBs accumulate in body fat, every exposure to PCBs adds a little bit to a person's body burden of PCBs. Many people may not know whether they have been exposed, or to what extent, and may want to avoid or minimize further exposure until final cleanups are completed.

DEP and EPA recognize this concern and offer the following recommendations on ways to reduce PCB exposure and potential risks in residential and recreational areas. These recommendations are especially applicable to people who may contact soil and sediment in the floodplain between GE's facility in Pittsfield and the Woods Pond Dam in Lenox. This is the area where sampling shows the highest PCB soil and sediment levels. People who could contact soil or sediment

in areas of lower PCB concentration may also follow these recommendations if they wish to further minimize their potential for exposure until final cleanups are completed. These recommendations also apply to people who may contact soil in areas that have PCB-contaminated fill.

RECOMMENDED WAYS TO REDUCE PCB EXPOSURE IN RESIDENTIAL AREAS

The following are actions you can take if you wish to further reduce your possibility of PCB exposure in potentially contaminated residential areas, until final cleanups are completed.

- ***Minimize skin contact with soil during activities such as gardening and wash soil from your skin whenever possible.***
- ***If you have your own garden, consider reducing or eliminating your consumption of homegrown vegetables. As an alternative, consider growing your vegetables in a raised garden bed filled with clean soil.***
- ***Avoid tracking soil from potentially contaminated areas into your home.***
- ***Minimize activities likely to produce high levels of dust in areas where soil may be contaminated with PCBs. For example, avoid running your mower over areas of sparse lawn during periods of dry weather.***
- ***Limit the amount of time that children might play in potentially contaminated soil to a few days per week.***

RECOMMENDED WAYS TO REDUCE PCB EXPOSURE IN RECREATIONAL AREAS

The following are actions you can take if you wish to further reduce your possibility of PCB exposure in potentially contaminated recreational areas, until final cleanups are completed.

- *Obey the fish, frog and turtle consumption advisory for the Housatonic River and Silver Lake. Do not eat other food such as shellfish or ducks caught in the Housatonic River or Silver Lake.*
- *Minimize skin contact with soil and sediment and wash soil and sediment from your skin whenever possible.*
- *Avoid tracking excess soil into your car or home.*
- *Minimize inhalation of dust from soils by avoiding activities which generate excessive dust (dirt biking, for example).*
- *Limit recreational visits and access to the river to about once per week for children who might play in potentially contaminated soil and sediment.*

In response to specific questions from concerned citizens, DEP also evaluated risks from the following three activities.

- ***River Cleanup Work***: cleanup of trash and other debris by community members to help preserve the river.
- ***Competitive Canoeing***: use of canoe launch areas by recreational and competitive canoeists.
- ***Fiddlehead Fern Consumption***

DEP's conclusions and recommendations about these three activities are summarized in the following table.

Activity	DEP Conclusions	DEP Recommendations
River Cleanup	Risks from PCB exposure to volunteers participating in Housatonic River cleanup days are very low.	- Wear protective boots and long-sleeved clothing to minimize contact with sediments. - Wash these items or place in a plastic bag before entering your car or home.
Canoeing	Risks from PCB exposure to canoeists who use canoe launch areas on a frequent basis are very low.	- Minimize skin contact with sediment. - Wash sediment from your skin as promptly as possible (especially competitive canoeists who may have more frequent and intense contact with sediment than recreational canoeists).
Fiddlehead Fern Consumption	- DEP sampled fiddleheads growing in PCB-contaminated soil along the Housatonic River. DEP found only **extremely low** levels of PCBs in the fiddleheads themselves. - Fiddlehead ferns are safe for consumption.	- Minimize skin contact with soil while harvesting fiddleheads (use protective gloves or wash soil from your skin as promptly as possible). - Avoid tracking excess soil into your car or home. - Wash fiddleheads thoroughly to remove all traces of soil before eating.

WHAT IF I HAVE QUESTIONS?

For additional information, or to learn more about the short- and long-term cleanup plans or the risk assessment work, contact:

J. Lyn Cutler, DEP, (413) 755-2116
OR
Bryan Olson, EPA, (617) 918-1365

INFORMATION REPOSITORIES

To provide Berkshire County residents with easy access to information relevant to the investigation and cleanup of the Housatonic River and GE Pittsfield sites, EPA and DEP have established Information Repositories at the following locations:

- **Berkshire Athenaeum Public Library, Pittsfield, (413) 499-9480**
- **Berkshire County Regional Planning Commission, Pittsfield, (413) 442-1521**
- **Lenox Public Library, Lenox, (413) 637-0197**
- **Simon's Rock College of Bard, Great Barrington, (413) 528-7274**

All repositories contain official correspondence; Scopes of Work, and reports and documents regarding the sites. Information is sent to the repositories as it becomes available. Information is also available for review at DEP's Western Regional Office, 436 Dwight Street, Springfield, Massachusetts 01103.

DEP and EPA have established a mailing list containing the names and addresses of individuals who express an interest in receiving information about the disposal sites. Notifications announcing the placement of major new documents in the repositories and notifications of public meetings are sent to people on this mailing list. If you are not already receiving information about the Housatonic River and GE Pittsfield Disposal Sites and would like to be added to the Sites' mailing list, please write to:

Susan Steenstrup, Regional Public Involvement Coordinator
DEP Bureau of Waste Site Cleanup
436 Dwight Street
Springfield, Massachusetts, 01103

or call Susan Steenstrup at (413) 784-1100, extension 264.

Notes:

[1] *Toxicological Profile for Polychlorinated Biphenyls*, draft for Public Comment, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, February 1996.

RESIDENTIAL PROPERTIES WHICH MAY CONTAIN CONTAMINATED FILL FROM THE GENERAL ELECTRIC COMPANY (GE): QUESTIONS AND ANSWERS (AUGUST 7, 1997)

Residential Properties which may contain Contaminated Fill from the General Electric Company (GE)

Questions & Answers

Prepared by:

The Massachusetts Department of Environmental Protection (DEP)
in conjunction with
The United States Environmental Protection Agency (EPA),
together, "the Agencies"

August 7, 1997

Sampling

If I request that my property be tested because I suspect GE fill to be present, what exactly happens next? What is the process that is put into motion?

If the Agencies find that there is credible information indicating that GE fill may be present on your property, the Agencies will require GE to approach you to request access for testing. GE will meet with you to gather information to develop an initial investigation plan. GE will ask that you sign an access agreement to allow GE to perform the required work. GE will submit a plan to the Agencies that details their planned investigation for your property. The Agencies will review the plan and approve it (possibly with conditions) and you will be notified by GE before sampling begins. In approximately 45 days from the Agencies' approval of the sampling plan, you and the Agencies will receive a report from GE that discusses the results and proposes next steps, if necessary.

Who determines which properties are tested, and how is this determined?

The Agencies determine which properties are tested and have established criteria for screening. These criteria include information on the source of fill, physical evidence of fill, anecdotal information regarding GE fill, etc. Additionally, for each property where PCBs are detected, a complete property survey is conducted by GE to determine the extent of fill. If there is any evidence that the fill may extend beyond the property boundaries, neighboring properties are subsequently tested (under the process described above) and continue to be tested until the extent of fill in the area is defined.

Who decides where the sampling locations are and how many samples are taken?

GE proposes a plan containing proposed sampling locations based on the information available about a specific property. The property owner and the Agencies each receive a copy of the proposal. The Agencies review, comment and approve the plan before work begins. Typically, the Agencies initially require a minimum of three borings in areas of suspected fill. If contamination is found, a sampling "grid" is established which dictates the locations of surface soil samples and additional borings. Typically, the sampling grid results in a sampling location every 25 feet.

If GE tests my property and finds no PCBs, but finds other contaminants not related to GE, what happens then?

The problem may still need to be addressed. Whether the contamination is addressed and who is responsible for addressing it is dependent on many facts, such as origin, type, quantity, concentration and location of contamination.

Why are monitoring wells required on some of the properties?

An extensive investigation of a contaminated property includes an evaluation of possible impacts to ground water. The Agencies requires use of monitoring wells on all properties with extensive contamination. Some of the contaminants that have been found on some properties may impact ground water, if present in sufficient concentration.

My neighbor knows he has GE fill on his property, but is afraid to come forward. He says he doesn't want to know whether the property is contaminated. Can the Agencies investigate this without disclosing how the information was obtained? If the Agencies say that someone provided the information anonymously, he'll know it came from me.

The Agencies have received several anonymous tips that have led to sampling. No sampling has occurred without a property owner allowing access. We will work with the homeowner to allow access to GE to compete sampling. If there is fill on a property, several people may have knowledge about it: the source(s) of the fill, the property owner at the time of filling, neighbors in the area at the time of fill, the truck drivers and personnel who hauled, loaded and unloaded the fill and other people in the neighborhood may have spoken about it. If you choose to remain anonymous, the Agencies will honor your request.

How do I obtain a copy of the test results for my neighbor's property?

While we respect the privacy of the homeowners to the degree allowed by law, the sampling results and related information is public. Currently, the data and reports are not in the local information repositories. However, the data are presently available for public review at the DEP office in Springfield, as it is with all hazardous waste sites, every Wednesday from 9 - 12, and 1 - 4. You should call ahead (413-784-1100) to ensure that that there have been no changes in schedule. The residential fill properties are filed under their tax parcel identification numbers. However, the repositories will contain information regarding the residential fill properties on or before September 1, 1997. The repositories are listed at the end of this document.

Additionally, if contamination on your neighbor's property extends to your property boundary, you will be notified directly and requested to allow access to your property to determine if the contamination extends beyond the parcel boundary onto your property.

What about those of us that live within the neighborhoods where there are properties which contain fill from GE; will sampling of our properties be performed so we don't have to convince future buyers (of our properties) that our properties are not contaminated? Will we have something in writing from the DEP or EPA explaining why our properties aren't sampled?

No wide-scale sampling is planned at this time. We are investigating and will investigate properties where, based on credible information, GE fill may be located.
For each property where PCBs are detected, a complete property survey is conducted by GE to determine the extent of fill. If there is any evidence that the fill may extend beyond the property boundaries, the neighboring properties are subsequently tested and continue to be tested until the extent of fill in the area is defined. However, if there is no sampling performed at a property, there will not be something in writing from the Agencies, but we are always available to answer questions from homeowners and prospective homeowners.

Why doesn't GE just sample the entire neighborhood where PCB-contaminated fill has been found?

Sampling must be based on reasonable basis and credible information suggestive that there may be a problem related to GE fill.

**(From children's daycare facilities within neighborhoods containing GE fill)
What assurances can I give to parents that it's safe for their children to be here unless some soil testing is done?**

The contamination we are encountering in fill does not move from the soil of one property to the soil of another. PCBs and related contamination from GE is associated with certain conditions, such as fill on a property, or property location within the 5-year floodplain. You may want to determine who owned your property in the past and inquire whether they have any information about fill or other relevant conditions.

Even if you have fill on your property, it may not be PCB-contaminated fill. If you have questions, you should consult with the Agencies to determine if the situation warrants sampling.

How long does it take to obtain the sampling results?

Sampling results are typically obtained within four (4) weeks of sampling. The process involves collection of the sample and subsequent laboratory analysis, preliminary reporting of results, and then the incorporation of the final laboratory results into a report that interprets the importance of the data and proposes additional work. All of this work is being conducted as quickly as possible. The Agencies consider four (4) weeks to be fast for this type of work. Additionally, given that several properties are being investigated all at once, the Agencies and GE have agreed to prioritize investigations based on the likely exposures and extent of contamination.

If I change my mind about having my property tested now, can I expect GE to sample it sometime in the future, when I decide I want to sell my property?

Not necessarily. From the Agencies' perspective, now is the best time to determine if your property is contaminated, if you have reason to believe that it may be. If you have reason to believe that there may be contamination on your property, the Agencies encourage you to come forward now. There are no assurances that the Agencies will require GE to investigate your property in the future unless there is credible evidence indicating that GE fill is located on your property. Also, once you are aware that there may be contaminated fill on your property, your awareness may initiate the "statute of limitations," which gives you a set period of time to pursue any legal claims you may have.

If I decide that I don't want my property tested, am I responsible and/or liable for what may be on the property? Would I have an obligation to a future buyer to disclose that I had originally requested that my property be tested, but then changed my mind?

Whether you are liable for any contamination on your property depends on the type, concentration, quantity and location of contamination, as well as when the property became contaminated, when the release occurred, and who caused the contamination.

You may have an obligation to disclose known conditions on your property if asked, but you should talk to an attorney or real estate agent for advice.

Remediation

Will all the contaminated fill be removed from the property?

The remedial action that the Agencies will approve is dependent upon site-specific circumstances, including whether the home is placed on fill, the structural integrity of the home, the depth of contaminated fill and the type and concentration of contamination at depth. In some cases, not all contaminated fill will be removed. The Agencies must ensure that the contamination on a property poses no significant risk to human health or the environment. The Agencies also require an evaluation of the feasibility of achieving background levels at a property.

How deep will GE be forced to dig in order to remove contaminated fill? And will this depth vary depending upon whether I decide to keep my property or sell it to GE? If there is a difference, why is there a difference?

Remedial actions may be different for each contaminated property, depending on the extent and type of contamination and structural constraints on removal. A site-specific evaluation will be conducted for each property. The extent of removal may also differ if an "activity and use limitation" (such as, a deed restriction that limits uses that occur on the property) is placed by the property owner. Any activity and use limitations which a property owner proposes as part of a cleanup would require approval by the Agencies. GE's purchase of a residential property could affect the depth of removal if GE places an appropriate activity and use limitation on the property, but would not change the requirement to achieve no significant risk.

GE has asked to buy my home. If I decide to stay at my property, can I be assured that GE will remove any contaminated fill from beneath my house?

No. If there is contaminated fill beneath your home, depending on the risk, location, structural feasibility and cost, the Agencies may not require, and it may not be possible for, removal of contamination from beneath your home. However, the Agencies will require GE to investigate whether, and to what extent, there is any health or environmental risk (if any) posed from contamination beneath a building.

When will GE start the cleanup? How long will the cleanup take once started?

Each property is at a different stage of investigation and not all properties that will be investigated will require cleanup. For those properties that are highly contaminated and furthest along in the investigation process, it is the Agencies expectation that the cleanup will begin this construction season. The duration of the cleanup will depend on the size and difficulty of the cleanup (the areal extent of contamination, the depth of the soil to be removed and any structural constraints that may affect the process, such as moving the home, placement of reinforced sheeting to allow removal, etc.)

Will my family and I have to move during the cleanup? If so, would someone pay for that?

The need to move during remediation may be necessary or preferable during the remediation of some properties. This is dependent upon many site-specific factors such as the extent of remediation, types of contamination, location of any necessary removal action in relation to your home, and many other factors. GE has expressed a willingness to work with the homeowner involved to handle any temporary relocation issues, if necessary.

If GE buys all these residential properties, does that mean they can just put up a fence and leave these properties as such, and not have to clean them? What does GE plan on doing with the properties they purchase?

If GE purchases the property, it has expressed its intention to remediate the property to allow intensive recreational use consistent with the residential character of the neighborhood, without the need for fences. This would include remediation of the surface soil (where the most intense exposures occur), as necessary, to allow for safe use. However, as with any property owner, GE would have the right to fence any or all portions of its property; but, any such fence would not be necessary for restricting exposures, nor would it be required by the Agencies. GE has stated its intentions that other than as temporary measures, it does not intend to fence or pave properties in residential neighborhoods.

If GE makes these properties into parks or recreational areas, is this okay with DEP and EPA?

If there is a sufficient cleanup, this would be acceptable to the Agencies. If the plan is to make these properties into parks or recreational areas in order to have a more limited removal effort, this is an option, but not one that has been accepted or rejected by the Agencies. The Agencies would consider GE's proposal and feasibility evaluation in such a case. The feasibility evaluation must include an evaluation of the feasibility of achieving background.

Nature of Contamination

What does GE fill look like?

The look of GE fill is highly variable. However, the presence of non-native soil objects, such things as scrap metal, broken porcelain insulator parts, wood block flooring, etc., often appears in fill from GE. Additionally, some people have reported problems with the growth of vegetation. However, we have no reason to believe that poor vegetative growth alone indicates the presence of GE fill. Materials that are solely consistent with residential garbage (cans, bottles, etc.) or construction debris (nails, bricks); when present alone, are not strong indicators of the potential for contamination.

How can you explain finding 20,000 ppm on one property, and not find anything on another property just 10 feet away?

The contaminants in the fill are not evenly distributed on a property. Such high levels, like 20,000 ppm may be indicative of formerly-saturated materials that have bonded to soils or fullers earth. Fullers earth is an absorbent clay-like material that was used in filtering Pyranol and used in absorbing spills. The contamination is bound to the soil it has contaminated and the soil does not travel across a property, or from one property to another.

What other kinds of contamination are being found besides PCBs?

Contaminants other than PCBs, detected at some properties, at levels of concern include semi-volatile organic compounds, metals, dioxins and furans.

When the streams/creeks near the contaminated properties overflow/flood, does that cause the PCBs to get to my property?

It may. It is dependent on the amount of sediment in the creek or stream, the presence of PCB contamination in the sediment and the level of that PCB contamination. The Agencies are currently requiring GE to investigate the extent of contamination in sediment and adjacent bank soils.

Why are the Agencies not concerned about PCB concentrations below 2 ppm?

Statewide, DEP has established a generic or general default cleanup level of 2 ppm for PCBs for residential use. Average PCB levels below 2 ppm are not considered to pose significant risk for residential use. A site-specific risk assessment may be conducted for a site which may result in slightly different cleanup value.

Do PCBs move through the soil?

PCBs, by and large, do not migrate through subsurface soil. Two important physical characteristics of PCBs are that they tend to cling to soil particles and that they do not dissolve easily in water. This means that PCBs are not moving around underground, but will remain where they were placed.

Health Concerns

(From a property owner with high levels of contamination on property)
I've worked at GE for over 20 years, and have lived on this property without exhibiting any adverse health effects; so why should I consider leaving or selling my property, or changing my daily outdoor routines?

While we cannot predict whether someone who has been exposed to PCBs will experience an adverse health effect, we do know that every exposure can increase the body's burden of PCBs. DEP and EPA have recommended several actions you may take if you would like to reduce your exposures to PCBs - until the time a final cleanup is complete. These are listed in the PCB Fact Sheet.

A few people in my family who lived on this contaminated property have died from cancer; is their death from cancer related to the fill on the property?

It is difficult to determine whether a person's cancer was caused by PCB exposure because there are so many people who get cancer and so many causes of cancer. The risk that a person will develop cancer in his or her lifetime from any cause is about 1 in 3. We do know that laboratory animals that were fed PCBs developed liver cancer. However, studies of people exposed to PCBs, including workers exposed to high levels of PCBs, have not provided definitive evidence that PCBs cause cancer in humans. The PCB Fact Sheet provides more information about the potential health effects from PCB exposures and provides recommendations about ways to minimize potential exposure.

How do I know if I've been exposed to PCBs?

There are tests to find out if PCBs are in your blood, body fat, and breastmilk. Because PCBs are found throughout the environment, nearly everyone is likely to have some measurable amounts of PCBs in their body, whether or not they live in Pittsfield. In the United States, average PCB levels in blood among people who have not had exposure in the workplace range from 4 to 8 ng/mL (parts per billion). Elevated levels of PCBs in comparison to the general population will show that you have been exposed to PCBs. The tests do not determine the source of your exposure, the exact amount or type of PCBs you have been exposed to, how long you have been exposed, or predict whether you will develop harmful health effects. If you do not have elevated levels of PCBs in your body, it is very unlikely that you have an increased risk of developing harmful health effects compared with the general population.

Blood tests are the easiest and safest method for detecting recent exposures to large amounts of PCBs. If you are concerned and want to find out whether you have been exposed to PCBs, you should contact your doctor.

For additional information, contact:

J. Lyn Cutler
Massachusetts Department of Environmental Protection
436 Dwight Street
Springfield, Massachusetts 01103
(413) 784-1100

OR

Anna Symington
Massachusetts Department of Environmental Protection
436 Dwight Street
Springfield, Massachusetts 01103
(413) 784-1100

OR

Bryan Olson
United States Environmental Protection Agency
JFK Federal Building Boston, Massachusetts 02203
(617) 573-5747

INFORMATION REPOSITORIES

To provide Berkshire County residents with easy access to information relevant to the investigation and cleanup of the Housatonic River and GE Pittsfield sites, EPA and DEP have established Information Repositories at the following locations:

- **Berkshire Athenaeum Public Library, Pittsfield, (413) 499-9488**
- **Berkshire County Regional Planning Commission, Pittsfield, (413) 442-1521**
- **Lenox Public Library, Lenox, (413) 637-0197**
- **Simon's Rock College of Bard, Great Barrington, (413) 528-7274**

All repositories contain official correspondence; Scopes of Work, and reports and documents regarding the sites. Information is sent to the repositories as it becomes available. Information on fill properties is currently not in the repositories. It is presently available only at DEP's Western Regional Office, 436 Dwight Street, Springfield, Massachusetts 01103. Information on fill properties will be placed in the repositories on or before September 1, 1997.

WHAT DEP IS DOING TO CLEAN UP CONTAMINATION IN THE HOUSATONIC RIVER (1993)

What DEP is Doing to Clean Up Contamination in the Housatonic River

Q&A

BACKGROUND

The General Electric (GE) facility in Pittsfield was a major user of Polychlorinated Biphenyls (PCBs) for many years, and waste disposal practices as well as spills and leaks of PCB oil have resulted in the contamination of soils, sediments, and groundwater in the vicinity of the GE plant and the Housatonic River downstream of the plant.

The Massachusetts Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA) have been involved since the early 1980s in efforts to identify areas associated with the GE plant in Pittsfield which are contaminated with PCBs, to eliminate and control continuing sources of PCB releases, to assess and reduce the risk of human exposure, and to determine the best and most effective long-term cleanup strategy.

WHAT HAS BEEN ACCOMPLISHED?

At the GE facility in Pittsfield, major efforts over the past several years have included recovery of PCB oil from groundwater, treatment of contaminated groundwater, removal and/or temporary capping of contaminated soils to prevent human exposure, and continuing sampling of soil, air, and water.

In the Housatonic River, major problems identified are the presence of PCB contaminated sediments in Woods Pond and other areas of the river, and elevated levels of PCBs in fish. The Massachusetts Department of Public Health (DPH) issued an updated advisory in 1992 against the human consumption of fish, frogs and turtles taken from the Housatonic River. In addition, the Woods Pond Dam has been reconstructed to minimize downstream migration of PCBs.

In 1990, GE signed agreements with DEP for completion of assessment and cleanup work at the Pittsfield facility and the Housatonic River under the state's waste site cleanup program. Also in 1990, the EPA issued a corrective action permit under federal law which established a process and implementation schedule for assessment and cleanup work. EPA and DEP have signed a Memorandum of Understanding to coordinate regulatory activities and oversight of the cleanup work.

Recently, the EPA and DEP have begun to work together in review of technical documents and have met with representatives of the Housatonic River Initiative (HRI), an umbrella organization of citizens and watershed groups. DEP has also met with floodplain property owners.

WHAT IS HAPPENING AT THIS TIME?

Based on results of PCB testing of floodplain soils along the Housatonic River downstream of the GE facility in Pittsfield, DEP is requiring action at 16 properties (out of 39 tested) to reduce potential exposures to PCBs. Fifteen of the affected properties are located in Pittsfield and one in Lenox. DEP refers to these actions as "short term measures".

Short term actions could include covering or removal of contaminated soils or restricting access to contaminated soils. When completed, these actions will ensure that residents and visitors can use the river and floodplain safely. DEP is also providing interim guidance to assist river users and visitors who wish to minimize any potential exposure to PCBs.

A public meeting is scheduled for Thursday, July 15 at 7:00 p.m. at Berkshire Community College (room 111 in the Koussevitzky Building) in Pittsfield to discuss DEP's conclusions and the short term measures being required.

DEP has also requested assistance from Suzanne Condon of DPH's Bureau of Environmental Health Assessment (BEHA) at (617) 727-7170 about addressing possible health effects related to past, present, and/or future exposures to PCBs. BEHA staff will be coordinating efforts with the local health departments and will hold a public meeting to discuss citizen concerns in late July or early August 1993.

HOW CAN I BE OR BECOME INVOLVED AND INFORMED?

A series of public meetings conducted by DEP recently in Pittsfield and Lenox highlighted the increased level of public concern in the progress of studies and cleanup efforts, as well as public interest in becoming more involved in the cleanup process. This information sheet has been prepared as part of an on-going effort to provide information and to respond to the questions and concerns raised at previous meetings. DEP is also currently revising the existing Public Involvement Plan to provide increased opportunities for public participation and information.

You may also wish to contact the Housatonic River Initiative through the following individuals: George Wislocki at Berkshire Natural Resources Council (499-0596); state Rep. Christopher J. Hodgkins (243-0289); or Tom Stokes at the Housatonic Valley Association (637-3188). DEP will continue to meet with HRI, property owners, local officials and other interested parties.

WHAT WORK IS PLANNED FOR THE FUTURE?

GE has submitted a proposal to DEP and EPA to complete necessary site investigation activities on the Housatonic River, including the floodplain. By October 1993, DEP and EPA expect to complete a review, with public input, of the proposal and to set timetables for completion of sampling, assessment, and evaluation of remedial alternatives. It is expected to take a few more years to reach a final determination on how best to achieve an acceptable level of cleanup of the river, and it will probably take several years to complete the necessary action. DEP will be working with EPA, citizens groups such as HRI, and GE to achieve these goals as quickly as possible.

WHAT IF I HAVE QUESTIONS?

Contact DEP's Western Regional Office at (413) 784-1100 to speak to Alan Weinberg at extension 220 or Cathy Wanat at extension 241, if you have questions concerning the short- or long-term cleanup plans or the risk assessment work.

PCBs IN THE HOUSATONIC RIVER AND FLOODPLAIN SOIL: WAYS TO REDUCE EXPOSURE (JUNE 1993)

June 1993

PCBs in the Housatonic River & Floodplain Soil: Ways to Reduce Exposure

Q&A

BACKGROUND

The Massachusetts Department of Environmental Protection (DEP) has announced, with concurrence from the Massachusetts Department of Public Health (DPH), the need for actions to ensure protection of public health as a result of PCB contamination in the Housatonic River and surrounding floodplain areas. DEP refers to these actions as "short term measures". Short term measures could include covering or removing contaminated soils or restricting access to contaminated soils.

PCB contamination of the Housatonic River (between the GE facility in Pittsfield and Woods Pond Dam in Lenox) and surrounding floodplain areas is of particular concern because of the potential for people to be exposed. This is the most contaminated area of the river. In deciding to require short term measures, DEP asked its Office of Research and Standards (ORS) to assess the possible risk to area residents, considering all the possible ways people might come in contact with the contamination. A risk assessment is a process used to estimate the likelihood for potential adverse health effects resulting from exposure to chemical hazards.

ORS identified four situations of concern due to contact with contaminated soils and sediments:

- Frequent exposure to residents of floodplain properties (people who live in highly contaminated areas have the highest possibility of exposure on a regular basis);
- Occasional exposure in recreational areas;
- Exposure during participation in Housatonic River cleanup days; and
- Exposure to people who regularly launch or land their canoes at specific locations in the river.

WHY ARE THESE GUIDELINES BEING ISSUED?

The potential for health effects from PCBs depends on the level of exposure. Although the chance of serious health effects from current or future exposures is low given the short term cleanup actions to be planned, there are ways to protect yourself and your family from PCB exposure.

Many residents and river users may have been exposed for a long period of time. ORS accounted for this in deciding the action levels that would protect health for the short term cleanup measures. However, it is impossible to know every person's particular activity patterns or situation, and chance of exposure from either previous or future activities.

DEP and DPH recognize the concern about human exposure to PCBs. Many people may not know whether they have been exposed — or if so, to what extent — and may want to avoid any further exposure.

DEP has recommended short term cleanup measures to protect public health until a permanent cleanup can be effected. Part of what needs to be done during this interim period is to collect additional environmental data. The action levels and short term cleanup measures should ensure that people are protected, but potential risks can be further minimized by reducing the opportunities for exposure through some of the recommendations offered here.

These recommendations apply specifically to people who have the potential for soil and sediment exposure in the floodplain between GE's facility in Pittsfield and the Woods Pond Dam in Lenox. These are the areas where sampling shows the most elevated PCB soil and sediment concentrations.

WHAT CAN I DO TO REDUCE MY EXPOSURE?

Residential Areas

Even in floodplain areas where contamination is below the action level, you may still want to avoid any unnecessary contact with the soil until permanent cleanups are completed. The following actions are recommended to further reduce the possibility of PCB exposure:

- Minimize activities likely to produce high levels of dust in areas where soil may be contaminated with PCBs. For example, mow your lawn only when the soil is damp, and avoid running your mower over areas of sparse lawn.
- Minimize skin contact with soil during activities such as gardening.
- Limit the amount of time that children might play in potentially contaminated areas to a few days a week.
- Wash soil sediment from your skin whenever possible.
- Avoid tracking soil from contaminated areas into your home.
- If you have a private garden in floodplain soil, you might want to consider reducing or eliminating your consumption of homegrown vegetables and fruits.

Recreational Areas

People use the river and surrounding floodplains for recreational purposes in many different ways, making it difficult to offer specific guidance to everyone. Considering the exposures evaluated in the risk assessment, you may want to:

- Limit recreational visits and access to the river by young children who might play in river soils and sediments to approximately one or two days a week.

- Minimize skin contact with soil and wash your hands and feet after contact with sediments.

- Minimize inhalation of dust from soils by avoiding activities which generate excessive dust (dirt biking, for example).

- Avoid tracking excess soil from contaminated areas into your car or home.

River Cleanup Activities

Members of the community have participated in various events to clean up the river. These activities are focused on cleaning up trash and other debris to help preserve the river as a resource that the public can enjoy. In doing its health risk assessment, ORS was aware that two river cleanup events were scheduled for this year. One occurred in early June and another is planned for September. People who participate in these events might have two separate one day exposures over a three month period, and therefore, the health risk would be negligible. However, volunteers and other river visitors could wear protective boots and gloves and longsleeved clothing to minimize exposure to sediments. These items should be washed off and/or placed in a plastic bag before you get into your car or enter your home.

Competitive Canoeists

The Decker launch area is used regularly by canoeists, including competitive canoeists who use the launch area for intensive training periods. Because of the possibility of frequent exposure, ORS is recommending that canoeists minimize direct contact with contaminated river sediments as much as possible. Since it's reasonable to assume that canoeists might have some contact, any soil or sediment that gets on exposed skin areas should be rinsed clean. Further sampling of sediments in this area will be conducted. This information will help determine if any further short term cleanup measures are needed.

WHAT IF I HAVE QUESTIONS?

For additional information, call DEP's Western Regional Office at (413) 784-1100 to speak to Alan Weinberg at extension 220 or J. Lyn Cutler at extension 316 to learn more about the short- and long-term cleanup plans or the risk assessment work. DEP has also requested assistance from Suzanne Condon of DPH's Bureau of Environmental Health Assessment (BEHA) at (617) 727-7170 about addressing possible health effects related to past, present, and/or future exposures to PCBs. BEHA staff will be coordinating efforts with local health departments and will hold a public meeting to discuss citizen concerns in late July or early August 1993.

HAZARDOUS CONTAMINATION AND CLEANUP GENERAL ELECTRIC FACILITY PITTSFIELD, MASSACHUSETTS AND THE HOUSATONIC RIVER (SUMMER 1989)

U. S. EPA Region I

Update #1

Hazardous Contamination and Cleanup

General Electric Facility,
Pittsfield, Massachusetts
and the
Housatonic River

Summer 1989

EPA Enters New Cleanup Phase at GE

The U.S. Environmental Protection Agency is in the second phase of a permitting process to clean up hazardous waste contamination at the General Electric Company in Pittsfield, Mass. and in the Housatonic River. This action comes in response to the 1976 Resource Conservation and Recovery Act (RCRA), as amended in 1984. Phase two involves issuing a permit requiring GE to investigate hazardous releases into the environment including the plant site and the Housatonic River. The first phase, completed last fall, assessed the potential for contamination. Subsequent phases will evaluate and implement methods for cleaning up the contamination.

EPA and Massachusetts Department of Environmental Protection are working closely to ensure coordination between EPA's Corrective Action Process and Massachusetts' Chapter 21E Process (the State's Superfund Program).

New EPA Project Manager

Mary Garren of EPA is heading up the RCRA permitting project for the General Electric facility. Garren has been with EPA Region I's Waste Management Division for three years, and has managed numerous RCRA sites in New England. A graduate in geological sciences from Brown University, Garren is eager for a rapid and efficient corrective action permitting process at the GE facility.

Public Comments Can Influence EPA Action

Give us your local perspective. That is the message EPA wants to convey as it invites the public to take part in the permitting of the GE facility. Opportunities for people to get informed about the project and give their input include:

- **Project Updates.** Written project updates will periodically inform the public on the progress of the project and the results of investigations. The updates will be sent to everyone on the mailing list and will be placed in the information repositories (see list of locations on reverse side). To get on the mailing list, contact Mary Garren.

- **Informational Meetings.** After the draft permit is issued this Fall, two public informational meetings will be held - one in Massachusetts and one in Connecticut - to discuss the permit before a formal public hearing is held. The public is urged to attend these meetings to learn more about the permit and the corrective action process.

- **Public Hearing.** Within the 45-day public comment period after the draft permit is issued, EPA will hold a public hearing. People are encouraged to attend and give EPA comments on the draft permit. Comments may also be submitted in writing within the 45-day comment period to Mary Garren.

- **Press Releases and Notices.** Press releases and public notices will announce to everyone on the mailing list, including the media, the issuance of the draft permit and the dates, times and locations of the informational meetings and the hearing. A legal notice of a public hearing on the issuance of the permit and the public review period will run in the *Berkshire Eagle*.

- **Information Repositories.** EPA has established six information repositories where the public can review all public records on the corrective action process for GE's Pittsfield facility. (See reverse side for locations.)

Coming Up...

EPA's draft RCRA permit for General Electric, Pittsfield is scheduled to be issued this Fall. Look for public notices announcing the date, the review and comment period, and the dates for information meetings and a public hearing. Notices will be sent to everyone on the mailing list.

Information Repositories

Public documents pertaining to the EPA/General Electric project can be reviewed at the following locations (the Woodbury Library has been dropped because of low usage; however, the Berkshire Athenaeum, Pittsfield, has been added to provide evening hours for public review):

Lenox Library
18 Main Street
Lenox, MA 01240
Attn: Dennis Lesieur
(413) 637-0197
Until Oct. 17: Mon.-Sat. 10 AM - 5 PM; After Oct. 17: Tues., Wed., Fri., Sat. 10 AM - 5 PM; Thurs. 10 AM - 8 PM

Berkshire County Regional Planning Authority
10 Fenn Street
Pittsfield, MA 01201
Attn: Karl Heckler
(413) 442-1521
Mon.-Fri. 9 AM - 5 PM

Berkshire Athenaeum
1 Wendell Avenue
Pittsfield, MA 01201
Attn: Phyllis Zack
(413) 499-9488
Mon.-Thurs. 10 AM-9 PM; Fri. 10 AM-5 PM; Sat. 10 AM-5 PM

Mass. Dept. of Environmental Protection (formerly DEQE)
436 Dwight Street
Springfield, MA 01103
Attn: Richard Green
(413) 784-1100
Mon.-Fri. 9 AM - 5 PM

Connecticut Department of Environmental Protection
Water Compliance Division
122 Washington Street
Hartford, CT 06106
Attn: Charles Fredette
(203) 566-2588
Mon.-Fri. 8 AM-4:30 PM

Housatonic Valley Association
Box 28, Jct. 7/45
Cornwall Bridge, CT 06754
Attn: Lynn Werner
(203) 672-6678
Mon.-Fri. 9 AM - 5 PM

For More Information:

Mary Garren
U.S. EPA, Region I
Mass. Waste Regulation Section
JFK Federal Building, HRR-CAN3
Boston, MA 02203-2211
(617) 573-9613

**United States
Environmental Protection
Agency
Region I
John F. Kennedy Federal Building
Room 2203
Boston, MA 02203-2211**

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Hazardous Contamination and Cleanup
at General Electric, Pittsfield, Mass. and the Housatonic River
Update #1

HAZARDOUS CONTAMINATION AND CLEANUP (FALL 1988)

U. S. EPA Region I

Fact Sheet 1

Hazardous Contamination and Cleanup

General Electric Facility, Pittsfield, Massachusetts and the Housatonic River

Fall 1988

EPA Investigates Hazardous Waste at General Electric

For the past year, the U.S. Environmental Protection Agency (EPA) Region I has been investigating the General Electric Company facility in Pittsfield, Massachusetts for hazardous waste contamination resulting from past disposal and management practices. The investigation is the first stage of EPA's process of cleaning up hazardous waste from and preventing future releases to the environment - including air, soil, groundwater and surface water - at facilities which currently treat, store and dispose of hazardous wastes. The permitting process is required by the federal Hazardous and Solid Waste Amendments (HSWA, 1984) of the Resource Conservation and Recovery Act (RCRA, 1976) and is known as the "corrective action process."

In the coming months, the EPA will make available to the public the results of the year-long investigation and will hold informational meetings on the project and the cleanup process (see schedule later in this fact sheet). A draft permit will be issued during this time to General Electric (GE) requiring the company to further investigate and clean up specified sites and areas contaminated with hazardous wastes, including the Housatonic River.

Efforts to examine the extent of hazardous waste disposal practices at the GE facility and the resulting effects on human health and the environment have been made throughout the past decade.

General Electric Facility, Pittsfield, Massachusetts

The scope of the current investigation has been limited to identifying areas where hazardous wastes have been and are being handled, and where documented or suspected releases to the environment have occurred. EPA's current activities, however, build upon information from previous federal and state efforts, as well as from GE-prepared reports, including information on PCB concentrations in the Housatonic River.

The purpose of this fact sheet is to provide the public with an overview of EPA's corrective action process at the GE facility and to describe how the process will lead to cleanup efforts. The fact sheet also summarizes previous work which will be used by EPA, to the extent possible, during this process.

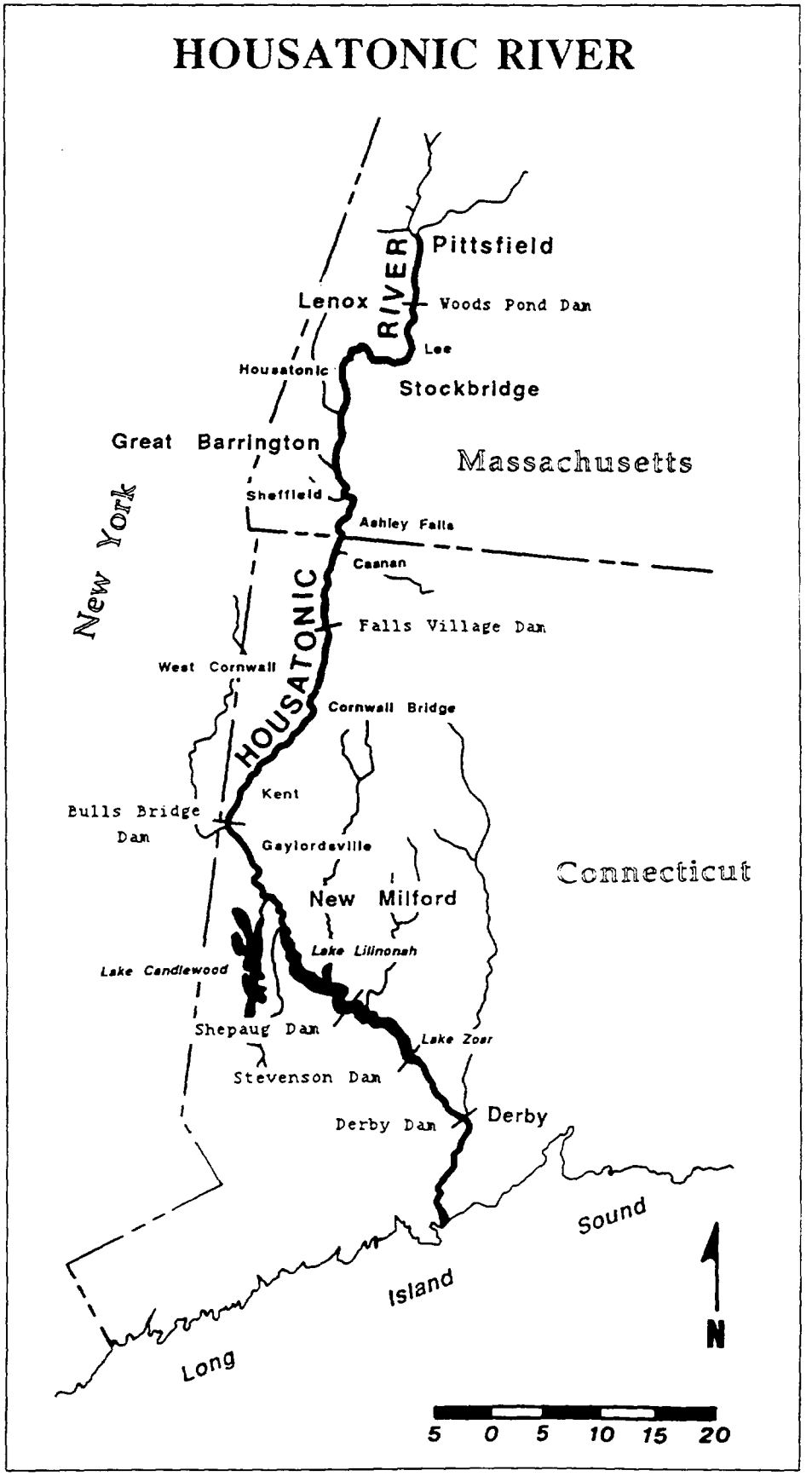
The General Electric Facility

General Electric's Pittsfield facility encompasses approximately 250 acres with five million square feet of covered buildings. The site is adjacent to the Housatonic River. GE has owned the property since 1903 when it acquired the site from Stanley Electric which, in turn, had purchased a portion of it from the Berkshire Gasification Plant. Evidence of coal tar wastes from the gasification plant remain today. The property slopes towards the Housatonic River and includes portions of the river's and Unkamet Brook's 100-year floodplains. The brook flows through the facility and empties into the Housatonic River.

The facility is divided into three major production areas: Transformer Division, Ordnance Division and Plastics Division. Among the products manufactured are: electrical transformers, capacitors, regulators, synthetic resins, molding compounds, missile-guidance systems and other ordnance (military weapon)-related systems. From 1932 to 1977, GE used polychlorinated biphenyls (PCBs) extensively in the operation of its transformer plant to make pyranol, an insulating oil. (Note: EPA banned the manufacture of PCBs in 1979 because of the substances suspected carcinogenic effects and environmental persistence.) Hazardous wastes, including PCBs, were generated as a result of these manufacturing processes and were disposed of in a variety of ways both on and off site, including in the Housatonic River.

What Are PCBs?

Pyranol, the insulating oil produced at General Electric, is approximately 60% PCBs by weight. PCBs are dense and stable organic compounds, approximately two times heavier than water. The stability of the substance, viewed by industry as its most desirable property, is now considered to be the reason for its persistence in the environment. PCBs bind to soil and river sediments. Resuspension of sediments,



due to water turbulence, can cause mixing and transport of PCBs in the water column. Studies of the Housatonic River (see below) have found high concentrations of PCBs accumulated in the tissue of fish, frogs and other animals. The potential routes of exposure to humans include inhalation of dust particles in the air, ingestion of contaminated water and food, and absorption through the skin.

Historical Perspective

Housatonic River Studies

Since the late 1970s, EPA and the states of Massachusetts and Connecticut have been conducting studies and monitoring programs to detect PCBs in the sediments, fish and waters of the Housatonic River. Mean levels of PCBs in fish from the river were found to exceed the Federal tolerance level of 2 parts per million (ppm). As a result, both states have warned against consumption of fish from the Housatonic River between Pittsfield and the Stevenson Dam at Lake Zoar in Connecticut.

In 1981, EPA and the Massachusetts Department of Environmental Engineering (DEQE) issued a Consent Order requiring General Electric to conduct the following three major studies: 1) documentation of the facility's hazardous waste disposal practices; 2) examination of the extent of existing contamination on site; and 3) investigation of contamination of the Housatonic River and corrective action alternatives.

To monitor the progress of the studies an interagency group was formed, known as SEA (State and EPA Agreement). Four public meetings were held where progress of the studies was presented and discussed. Local information repositories were established in both Massachusetts and Connecticut to enable the interested public to review the reports. Periodic updates on the studies were prepared by EPA and mailed to approximately 120 interested citizens and organizations.

The outcome of the studies is a series of reports which include, among other issues, descriptions of alternative cleanup and disposal options. The studies revealed the presence of approximately 39,000 pounds of PCBs in the sediments of the Housatonic River. Of this amount, 90% are contained in the twelve mile stretch between the GE facility and the Woods Pond Dam in Lenox, Massachusetts, indicating that the facility is the major source of PCB contamination in the river.

In the mid-1980s, DEQE issued an Order to GE, under the Massachusetts Superfund Law Chapter 21E, requiring the installation on site of groundwater pumps to remove oil containing PCBs from the top of the groundwater. PCBs collected from the pumping are burned in a high temperature, thermal-oxidizer incinerator on site. (The incinerator, the only one in Massachusetts, is permitted by the Federal Toxics Substances Control Act.) In 1987, GE also installed a slurry wall (a vertical wall of low permeable clay) to minimize migration of PCBs towards the river.

In the spring of 1988, DEQE issued another Consent Order, signed by GE as well as Kimberly - Clark and Thomas Garrity (former and current owners of the Woods Pond Dam, respectively), requiring the company to install a new closure structure for the Woods Pond raceway canal and to make the necessary repairs at the Dam to ameliorate future transport of PCBs downstream. GE has stated that the Dam has since been purchased and construction of a new dam is underway.

Soil/Groundwater Contamination: Lakewood Area

In 1980, General Electric discovered PCBs in soils and basement cellars in the Lakewood area of Pittsfield, the residential community closest to the main plant. Wells were drilled and PCB-laden oil was found. GE purchased a number of the properties, and subsequently demolished the houses. The properties remain undeveloped.

Health Studies

At the same time Housatonic River studies were being conducted, potential health effects on GE employees from PCB exposure were being examined by the company. Former employees who had worked in the Transformer Division where PCBs were used, and their families, have expressed concern repeatedly about the unusually high rate of cancer, particularly bladder, among fellow workers.

In 1981, GE commissioned a study of workers' mortality. The results of the study, known as the Wegman Report, were expected to be available to the public in the following year. The report is still not complete, although it is expected to be released by the end of 1988. PCBs are suspected to be carcinogens. There is no conclusive evidence, however, that PCB exposure causes cancer in humans. Because PCBs remain in the body for a long time, there is a latency period before any potential effects are evidenced. The potential causes of cancer in a person are many, both genetic and environmental, making it even more difficult to know with certainty the exact cause.

In addition to the Wegman Study, the Massachusetts Department of Public Health (DPW) has been investigating the high rate of bladder cancer in Pittsfield. The study has focused on GE employees. Results from this study are expected to be made public this winter.

What are HSWA and RCRA?

As previously mentioned, EPA's current efforts to clean up the General Electric site in Pittsfield and the Housatonic River are authorized under the Hazardous and Solid Waste Amendments (HSWA) of the Resource Conservation and Recovery Act (RCRA). In order for General Electric to be able to store, treat and/or dispose of hazardous wastes in the future, the company is required to clean up after past practices. The company is required to obtain two permits: one from DEQE to store, treat and dispose of hazardous wastes currently generated, and one from EPA to take corrective action regarding past disposal. If General Electric fails to comply with the conditions in their HSWA permit, a variety of enforcement options exist, including the revocation of the facility's RCRA operating permit.

The corrective action process consists of several components:

- a **RCRA Facility Assessment (RFA)** - *available in designated information repositories for the public to review*
- a **Draft HSWA Permit**, *including facility-specific conditions*
- a **45-day Public Comment Period** - *during which time a public hearing is held, and a responsiveness summary to the comments is prepared by EPA*
- a **Final HSWA Permit** - *issued after all comments have been reviewed by EPA*
- a **RCRA Facility Investigation (RFI)** - *prepared by the responsible party according to the permit's conditions and approved by EPA. The investigation covers hazardous waste areas identified by EPA as needing further study*
- **Media Protection Standards (MPS)** - *establishment of standards which are site and constituent specific and compared to the results of the RFI to evaluate remedial measures*
- a **Corrective Measures Study** - *examination, in-depth, of the cleanup alternatives and technologies*
- **Permit Modification** - *modification of permit to include the chosen cleanup technology(ies) and alternative(s)*
- **Implementation of Corrective Measures**

It is important to emphasize that the EPA will not re-do studies that have already been done, but rather fill in data gaps so that the most appropriate remedial action can be chosen for the site as well as the Housatonic River.

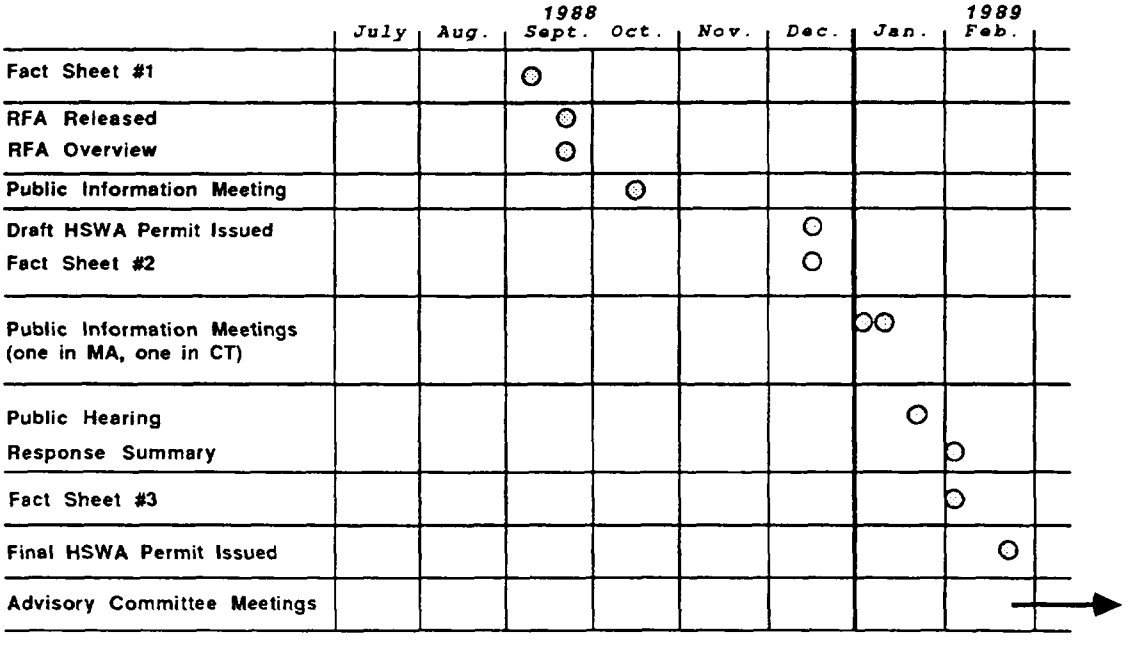
Why is EPA Including the Housatonic River in the Permit?

After thoroughly investigating hazardous waste contamination at the GE facility, EPA concluded that cleanup of the site must include cleanup of the Housatonic River. Because it is an interstate issue, EPA is the appropriate agency to direct the dual cleanup of the facility site and the river, with cooperation and support from Massachusetts DEQE and the Connecticut Department of Environmental Protection (DEP).

Although General Electric no longer uses PCBs in its manufacturing processes, there continues to be permitted as well as non-permitted releases of PCBs into the Housatonic River because surface water and groundwater, containing PCBs, flows from the site into the river. (Some of these releases are difficult to control; others are permitted under GE's National

Public Involvement Activities Schedule for HSWA Permit for

General Electric Company, Pittsfield, MA



Pollutant Discharge Elimination System Permit at low PCB concentrations.) Unless the source of PCBs to the Housatonic River is addressed and eliminated, the river can never be clean.

It is EPA's belief that the best means of addressing the pollution of the Housatonic River is by coordinating the investigations and cleanup of the river with those of the GE facility in one HSWA permit. EPA has considered addressing the Housatonic River contamination separately through Superfund, but to do so would require a wait of at least three years before being considered for potential listing on the National Priorities List (NPL) of sites. If the Housatonic River were listed, more years of study would follow before cleanup could begin. Thus, EPA believes that the current approach of including the river in the HSWA permit is the most effective and expedient means of addressing the situation.

How Can I Get More Information?

Public information and input will be very important steps in EPA's permitting of the GE facility. In addition to the required **public hearing** on the draft permit (the official forum for public comments) and subsequent **responsiveness summary**, EPA will provide several opportunities for the public to remain involved and informed. These include:

- **RFA Overview:** An overview of the RCRA Facility Assessment will be sent to all on the mailing list and to anyone requesting a copy. The mailing list consists of individuals and organizations who have expressed an interest in the project. It will be expanded throughout the course of the study.
- **Fact Sheets:** EPA will prepare fact sheets, such as this one, periodically throughout the corrective action process to inform the public of progress and findings.
- **Informational Meetings:** Informational meetings will be held before and after the Draft HSWA Permit is issued. Following the release of the RCRA Facility Assessment, a meeting will be held in Massachusetts, tentatively scheduled for mid-October, to discuss the investigation and overall process. After the Draft Permit is issued, two additional informational meetings will be held - one in Massachusetts and one in Connecticut - to discuss the contents of the permit prior to the public hearing. Additional meetings will be arranged after the Final Permit has been issued. The public is encouraged to attend these meetings.
- **Press Releases/Public and Legal Notices:** At each critical stage in the corrective action process, press releases and public notices will be prepared announcing the issuance of a document or permit and the location of public meetings. A legal notice on the public hearing following the issuance of the Draft Permit will be prepared. All major media will be sent the notices.
- **Advisory Committee:** Once the final permit has been issued, EPA will consider forming an advisory committee representing the various interests in the project. The committee will meet routinely with EPA and GE officials and provide recommendations on specific courses of action.
- **Information Repositories:** The following six information repositories have been established by EPA to contain all public records on the HSWA permitting process of General Electric's Pittsfield facility. The public is encouraged to use the repositories throughout the process. (See box)
- **Contact Person:**
  George Furst
  U.S. EPA, Region I
  Mass. Waste Programs Section
  JFK Federal Building, HRR-3
  Boston, MA 02203
  (617)573-5746 *or*
  Dorothy Allen
  (617)573-5766

Information Repositories

MA Dept. of Environmental Quality Engineering
436 Dwight Street
Springfield, MA 01103
Attn: Kevin Sheehan
(413) 784-1100
Mon. - Fri. 9 AM - 5 PM

CT Dept. of Environmental Protection
Water Compliance Division
122 Washington Street
Hartford, CT 06106
Attn: Charles Fredette
(203) 566-2588
Mon. - Fri. 9 AM - 5 PM

Berkshire County Regional Planning Authority
10 Fenn Street
Pittsfield, MA 01201
Attn: Karl Heckler
(413) 442-1521
Mon. - Fri. 9 AM - 5 PM

Housatonic Valley Association
Box 28, Jct. 7/45
Cornwall Bridge, CT 06754
Attn: Lynn Werner
(203) 672-6678
Mon. - Fri. 9 AM - 5 PM

Woodbury Town Library
Main Street
Woodbury. CT 06798
Attn: Jill Smith
(203) 263-3502
Mon., Weds., Fri., Sat. 10 AM-5 PM
Tues., Thurs. 10 AM-9 PM
Oct. - May; Sun. 1 PM-5 PM

Lenox Library
18 Main Street
Lenox, MA 01240
Attn: Mr. Denis Lesieur
(413) 637-0197
Mon. - Sat. 10 AM-5 PM
Oct. - June; Tues., Weds., Fri., Sat. 10 AM-5 PM; Thurs. 10 AM-8 PM

PCB CONTAMINATION IN THE HOUSATONIC RIVER (OCTOBER 1987)

WHERE WOULD THE DISPOSAL SITES BE?

If dredging is the selected clean-up method, a report prepared for the EPA concluded the two most suitable locations for a PCB sediment disposal landfill are old gravel pits located in Lee, Massachusetts. The sites were evaluated for their accessibility, soil components, and environmental impact. The sites share some strong points; they have good soil components, and they are connected to an adequate transportation network. The sites also share weak points; they are near houses, cultural resources and are close to the water table.

DREDGING QUESTIONS AND ISSUES

1. **If the river were to be dredged, would there still be a PCB problem?**
   Some PCB's would remain in the river system, as the proposed dredging project only applies to sediments with a 50 ppm and greater PCB content. Also there is PCB contamination is surrounding wetlands, and possibly in floodplains downstream.

2. **Could a PCB landfill leak and contaminate the disposal site area?**
   There is a possibility that eventually there will be leakage, but with proper monitoring leakage will be controllable.

3. **What is the potential danger to those living along the truck route to the disposal site?**
   Other than an unlikely major accident, there may be an increase in truck traffic and there might be PCB dust leaking from improperly sealed trucks.

4. **How long would the river be disrupted by dredging?**
   According to Blasland and Bouck Engineers, the river would be disrupted for 3-5 years.

OTHER QUESTIONS AND ISSUES

- Which costs more; removing the PCB's from the river now, or leaving them there for future generations? Which choice is right?
- If we want the Housatonic to be a swimmable and fishable river, what kinds of inconvenience, unpleasantness and risk are we willing to put up with?
- How much should be spent for clean-up?
- Should GE be responsible for all costs or should the public share the expense?

For more information contact:

Berkshire County Regional Planning Commission	413/442-1521
Mass. Department of Environmental Quality Engineering	413/785-5327
U.S. Environmental Protection Agency	617/223-4925

Funds for this fact sheet and accompanying radio spots were provided by the Massachusetts Department of Environmental Quality Engineering through the Berkshire County Regional Planning Commission and Galileo Studios. October 1987.

FACT SHEET

PCB CONTAMINATION IN THE HOUSATONIC RIVER

Berkshire County Regional
Planning Commission and
Galileo Studios

October 1987

Here are some important facts about the PCB contamination in the Housatonic River. Radio announcements and programs may have referred you to this additional information.

INTRODUCTION

The estimated 39,400 pounds of PCB's clinging to the bottom and backwater sediment of the Housatonic River accumulated over a 40 year period. The PCB's came primarily from the General Electric Company, Pittsfield plant, which discharged the chemicals into the river thinking them harmless — the accepted opinion until about 20 years ago. PCB's were banned from virtually every use in 1977.

PCB's are a sythetic chemical. Those that escape into the environment are resistant to natural breakdown. Unless there is remedial action, PCB's willremain in the Housatonic River for years to come.

Federal, state and local agencies, as well as commercial and industrial companies are studying the effect of PCB's on humans and the environment. General Electric has in recent years invested millions of dollars in PCB cleanup at its Pittsfield plant, and in studying river contamination and cleanup options.

HEALTH CONCERNS

Experts have yet to establish a direct link between PCB's and human cancer. Long-term health effects are not fully known. Studies have shown that PCB's:

- cause adverse health effects in laboratory animals, including cancer and reproductive disorders.
- accumulate in the fatty tissues of fish, animals, and people who eat them;
- affect the metabolism of fatty compounds and provoke enzyme changes in the liver and other organs;
- are connected with Chloracne, a skin disease associated with occupational exposure to PCB's.
- create a long-lasting environmental concern since they decompose slowly.

WHERE ARE THE PCB's?

Because PCB's bind to river sediments, they move when sediments are washed downstream. It is estimated that less than ten pounds of PCB's per year are flushed out of Woods Pond, a small lake created by the first dam downstream of G.E., in Lee and Lenox.

TABLE 1

LOCATION AND ESTIMATED WEIGHT OF HOUSATONIC RIVER PCB's IN MASSACHUSETTS

Location	Length of River Mile	Amount
G.E. facility to New Lenox Road Bridge	7.81	8,510 lbs.
New Lenox Road Bridge to headwaters of Woods Pond	4.4	19,500 lbs.
Woods Pond including holding pond	.38	7,400 lbs.
	Total	35,410 lbs.

Samples from Woods Pond sediments range as high as 100 ppm PCB, with average concentrations of 24 ppm. The top foot of sediment contains 80 percent of the PCB's. Concentrations up to 2 ppm PCB have also been found in Housatonic River fish and sediments in Connecticut, particularly in Lakes Zoar and Lillinoah.

WHAT ARE THE REGULATIONS?

In 1973 the Federal Food and Drug Administration (FDA) established a limit of five parts per million of PCB's for the edible portion of fish and shellfish. Parts per million (ppm) is the common measurement for PCB's. One ppm is equivalent to one drop of dye in sixty-four quarts of water. The FDA set the tolerance level at 5 ppm in 1973 upon discovery that PCB's were a widespread contaminant in foodstuffs. The FDA, knowing little about PCB toxicity set the 5 ppm limit because the DDT limit was 5 ppm, and the FDA perceived PCB's and DDT to be similar.

In 1984 the FDA reduced the tolerance level in fish and shellfish to 2 ppm. This change resulted as the FDA evaluated studies on PCB's. Only the perceived adverse effect upon the fishing industry prevented the FDA Commissioner from reducing the tolerance level to 1 ppm.

A 1980 study of PCB levels in Housatonic River fish from a 62 mile area found trout to have the highest concentration of PCB's. Their levels ranged from 3.3 ppm to 240 ppm depending on their location. That means that those fish contained up to 120 times the federal limit for PCB's. Even sunfish, the least contaminated species studied, had an average 2.9 ppm level of PCB's.

WHAT CAN WE DO?

General Electric, under a consent order from the Massachusetts Department of Environmental Quality Engineering (DEQE) and the United States Environmental Protection Agency (EPA), contracted an engineering firm to evaluate different methods of clean-up for the Housatonic River. The three major types of proposed solutions are:

METHOD	BENEFIT	DISADVANTAGE	RISK
DREDGING:			
Removing sediments from river and storing at local site.	Will remove much of polluted sediments	Expensive, need disposal site.	Might send sediments downstream.
BIODEGRADATION:			
Breakdown of PCB's by introducing "PCB eating" bacteria to river system.	Performed without dredging.	New and undeveloped method, could take years to research.	Unknown byproducts of the biodegradation, the spread of bacteria.
STOP LOG STABILIZATION:			
A temporary solution of blocking sediments from moving downstream.	Low cost and easily implemented.	Temporary solution which leaves PCB's in river.	Possible weakening of the dam.

PCB STUDIES AND FINDINGS (NOVEMBER 1982)

PCB studies and findings

Over a quarter million dollars has been spent by the State of Connecticut to study PCBs in Housatonic River sediment, to analyze PCB levels in Housatonic River fish, and to study blood samples and the health of people who consumed Housatonic River fish. The results of these studies have provided some of the most useful information on the Housatonic PCB problem, and are of particular local interest. Now the PCB study effort has shifted to General Electric, in cooperation with the U.S. Environmental Protection Agency and Massachusetts Department of Environmental Quality Engineering.

Question: Where are the highest concentrations of PCBs in the Housatonic River?

Findings: Of the estimated 22,200 total pounds of PCBs in the river sediments, roughly 60% are in the Massachusetts portion, and are located primarily in Woods Pond. About 40% of the PCB total is found in Connecticut, with roughly 30% in Lake Lillinonah and 10% in Lake Zoar. Samples from Woods Pond sediments range from 20-75 ppm, with up to 2 ppm in Zoar and Lillinonah. Downstream movement of PCBs occurs primarily during high flow periods of the river.

Source: Connecticut Agricultural Experiment Station, the U.S. Geological Survey and the Connecticut Department of Environmental Protection, 1982.

Question: What concentrations of PCBs are found in Housatonic River fish?

Findings: Fish from the Housatonic River in Connecticut contain high levels of PCBs, with the largest values at 25 ppm in a smallmouth bass, 28 ppm in a carp, and 28 ppm in a white sucker. Of the fourteen different species caught and analyzed for PCBs, all but largemouth bass, black crappie, pickerel and sunfish had PCB levels which exceed the Federal standard of 5.0 ppm. Species with higher levels of PCBs include smallmouth bass, carp, white catfish, American eel, white perch, brown trout and rainbow trout. Fish caught further upstream in Connecticut tend to have higher levels of PCBs, although carp exhibited high levels in all locations. In tests conducted in 1977 and 1979 by the State of Connecticut, PCB levels were found as high as 43 ppm and 38 ppm respectively. In the trout sampled, average levels in the 15-20 ppm range were common.

Source: "PCBs In Housatonic River Fish—Statistical Analysis," Connecticut Department of Health Services, 1982.

Question: What is the danger of eating fish caught in the Housatonic River?

Findings: Persons who consumed Housatonic River fish are likely to have higher PCB levels in their blood than those who do not consume the fish. No acute health effects were discovered in the persons who had eaten fish from the Housatonic, although long-term effects remain unknown. The Connecticut Department of Health Services and Massachusetts DEQE recommend that Housatonic fish not be eaten.

Source: "Housatonic River PCB Study—Statistical Analysis," Connecticut Department of Health Services, 1981.

Question: Have the PCBs in the sediments of Woods Pond moved into nearby groundwater as the result of well pumping?

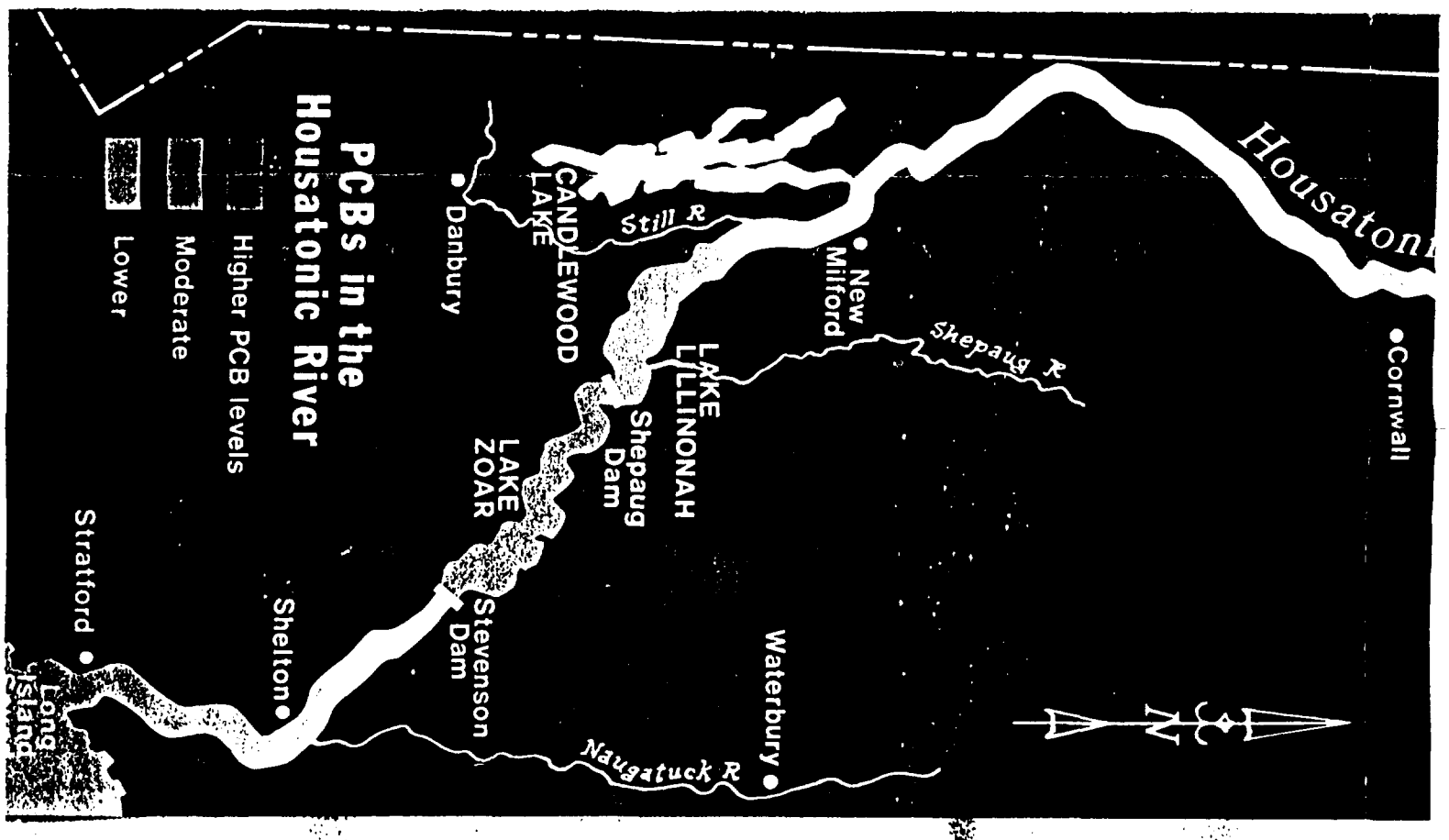
Findings: An industrial well located within 50 feet of Woods Pond has been used since the late 1960s. Eleven monitoring wells were installed between the well and Woods Pond to withdraw water at depths ranging from 6 to 63 feet below the surface of Woods Pond.

No PCBs were detected in any of the groundwater or sediment samples. However, according to the Final Evironmental Impact Statement for the Washington Mountain Brook Watershed Project (1981), tests conducted in 1977 detected the presence of PCBs in some wells close to Woods Pond, and the Massachusetts Department of Environmental Quality Engineering has, accordingly, noted the possibility of PCB contamination of groundwater in this area. Because of the wide range of test results, the conclusions are in question and further tests will be made. Of further importance, USGS has determined that if the groundwater were pumped for over 180 days, water would eventually be drawn from Woods Pond, an area with contaminated sediments.

Source: U.S. Geological Survey in cooperation with Mass. Division of Water Pollution Control, 1981.

Question: What effect has exposure to PCBs had on industrial workers?

Findings: Studies of three groups of workers occupationally exposed to PCBs showed significantly higher levels of PCBs in the blood than the general population. No adverse human health effects or



clinically detectable diseases were found in the workers, though high PCB blood levels in these workers correlates significantly with symptoms suggestive of mucous membrane and skin irritation, of systemic malaise, and of altered peripheral sensation. The liver was shown to be affected by PCB exposure, with long-term health significance unknown. Also, the study emphasized that changes in cholesterol levels in PCB-exposed workers may have adverse long-term cardiovascular significance.

Source: "*Metabolic and Health Consequences of* Occupational Exposure to PCBs," National Institute of Occupational Safety and Health, 1981.

Question: What is the effect on reproduction and the *newborn in rhesus monkeys exposed to low levels* of PCB?

Findings: The monkeys were fed a diet consisting of 2.5 ppm and 5.0 ppm PCB for seven months, and their health monitored.

Female rhesus monkeys were far more adversely affected by low level PCB exposure than male monkeys. The study shows a dramatic impact on reproductive health of the females, as well as severe effects on the newborn.

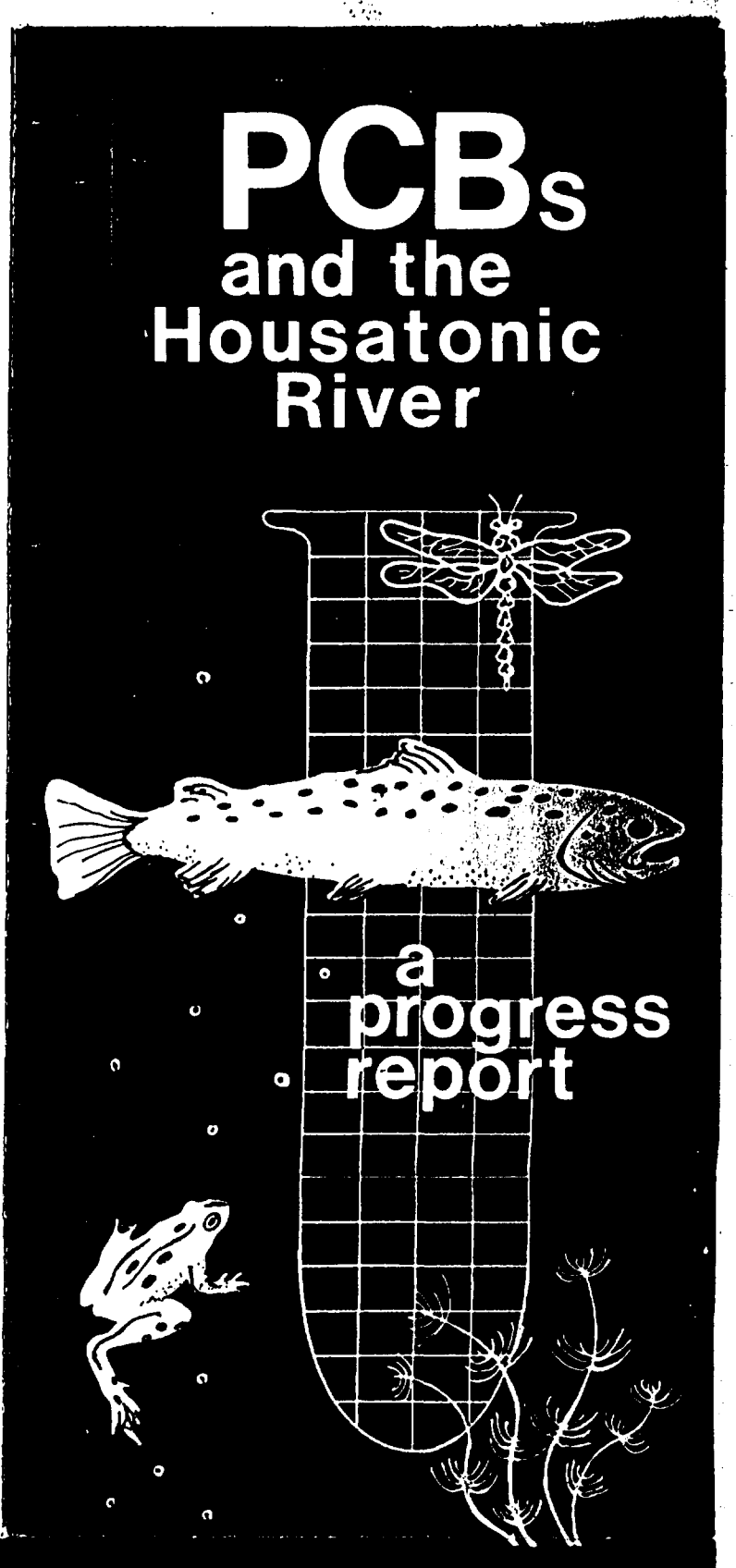
Source: "Reproductive Dysfunction in Rhesus Monkeys Exposed to Low Levels of PCBs," University of Wisconsin, 1975.

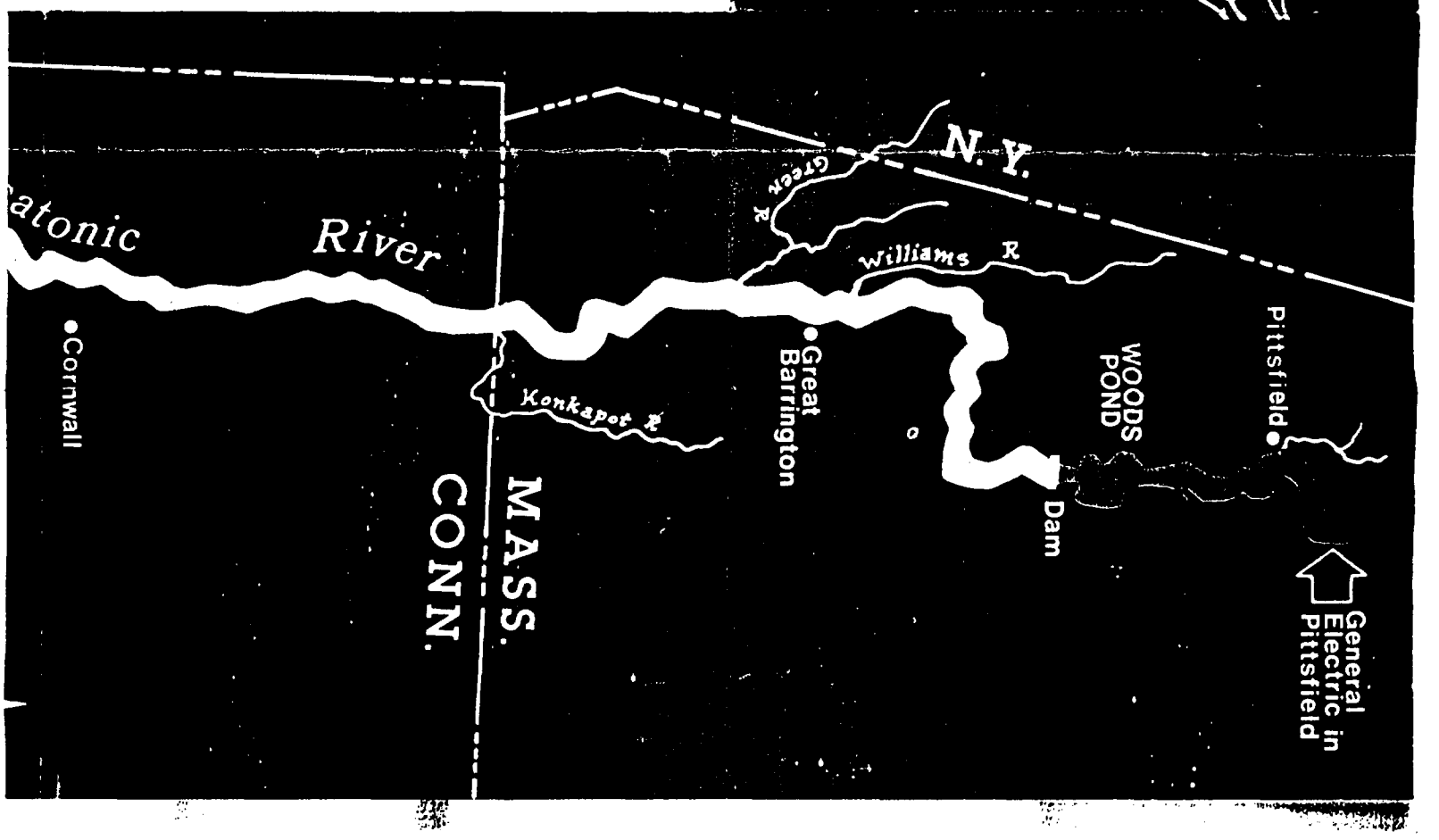
Question: What is General Electric doing about the Housatonic PCB situation?

Study: In 1981, General Electric signed an agreement with the Massachusetts Department of Environmental Quality Engineering and the U.S. Environmental Protection Agency. General Electric agreed to report on major PCB problems: past and present hazardous waste disposal practices, including estimates of the amount of PCBs stored on-site or disposed off-site, and amounts of PCBs discharged into the Housatonic River; future plans for PCB storage, treatment, and disposal; a study of the distribution of PCBs in the Housatonic River; an analysis of PCB transport; a sampling and testing program of PCB levels in fish, frogs, and other aquatic life normally consumed by humans; and an analysis of PCDF concentrations in three sediment and four fish samples from Massachusetts.

Based on the results of these studies, General Electric will submit a proposal of alternative courses of remedial action for Woods Pond. These alternatives include dredging, in-place containment, treatment, or no action.

PCBs and the Housatonic River





Introduction

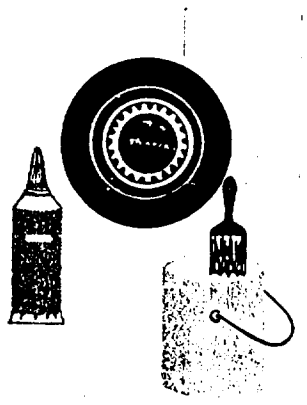
Increasingly, PCBs make news: What are they? Are they a health hazard? What is being done about them? How is the government addressing the concerns of Housatonic valley residents? What studies are being made, and what do these studies show?

PCBs, which are listed in the U.S. Toxic Substances Control Act of 1976, are currently found throughout the Housatonic River ecosystem in the river sediment, and in river fish and wildlife. The PCBs were discharged into the Housatonic for over 40 years by the General Electric Company, Pittsfield plant, as well as other industries along the river in both Massachusetts and Connecticut.

The State of Connecticut, along with the U.S. Geological Survey and the Connecticut Agricultural Experiment Station, has worked for many years to determine the extent and significance of PCB contamination. These studies have analyzed river sediment, fish, and blood of people who consume Housatonic River fish.

General Electric Company has, in recent years, invested millions of dollars in cleaning up PCBs at its Pittsfield site, and in studying river contamination. The company has also agreed to study and report on two major local PCB problem areas: hazardous waste disposal practices and Housatonic River contamination.

Many other agencies—federal, state, local, private, industrial—are also studying the possible effects of PCBs on animals and humans. A few of the most recent studies are summarized later in this brochure, particularly those concerning the Housatonic valley.



This brochure is a progress report regarding PCB investigations and potential future action. While the concerns about PCBs are extensive, we are encouraged to find that cooperation in resolving the problem is evident and we note that this brochure was written through the mutual interest and cooperation of government agencies and citizen-suppported water-shed associations.

As the PCB issue continues to be evaluated, Housatonic valley residents have a right to be kept informed of any study results and action, or inaction, which may affect us and our use of the river.

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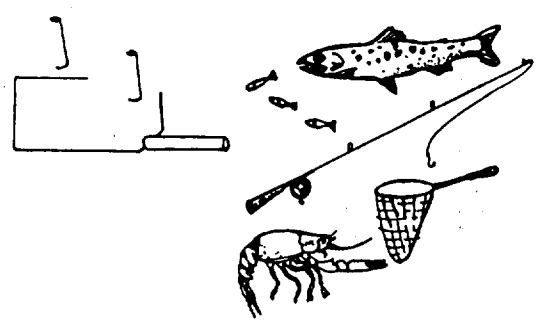

Where did PCBs come from?

PCBs, or polychlorinated biphenyls, are a family of stable and persistent chemical compounds manufactured in the United States from 1929 to 1977. They were used chiefly as a coolant in electrical transformers, capacitors, and heat exchangers. Other uses included the production of paints, adhesives, auto parts, carbonless copy paper, rubber products, printing ink, and plastic wrappers. It is also known that waste oil containing PCBs was used as a road covering to control dust.

The manufacture and use of PCBs, other than in certain electrical equipment, has been banned in the United States since 1977. Other than some possible leaching from landfill disposal sites, there is currently little flow of PCBs into the river.

Why are PCBs a concern?

Long-term health implications of PCBs are not yet known, though recent studies have shown no direct link between PCBs and cancer in humans. However, additional concerns include:

- *PCBs at elevated levels in the blood have been linked to two health effects,* chloracne and liver enzyme changes, particularly among industrially exposed workers.
- *PCBs have been shown to cause adverse health effects in laboratory animals,* including cancer, skin disorders, gastric disorders, and serious reproductive complications.
- *PCBs decompose slowly* in the environment, creating a long-lasting concern.
- *PCBs build up in the food chain.* As PCB-contaminated fish and insects are eaten by other fish, fowl, turtles or frogs, concentrations increase and, at the end of the food chain, man may consume significant amounts of PCBs.
- *PCBs are difficult and expensive to dispose of safely.* One method of destroying virtually all PCBs is by incinerating them at temperatures of at least 2200 degrees F. Another safe disposal method is burial in specially designed landfills. In the past, a major disposal method was burial in town dumps, which is now illegal. G.E. has been incinerating low concentrations (less than 500 ppm) of PCBs in Pittsfield for several years, and has recently started incinerating higher concentrations (up to 200,000 ppm) of PCBs, one of only three high-concentration PCB incinerators in the United States.

PCDFs—a new concern

As more sophisticated technology is used to study PCBs and their occurence in the environment, scientists now believe that very toxic impurities associated with PCBs, particularly PCDFs (polychlorinated dibenzofurans), are a major concern. Since traces of PCDFs have been found in fish caught in Woods Pond, it is important that the health hazards of these even more toxic chemicals be evaluated.

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The following is known about PCDFs:

- PCDFs can form when PCBs are burned at temperatures too low to destroy them.
- PCDFs are up to 1000 times more toxic than PCBs.
- PCDFs probably entered the Housatonic River in PCB mixtures discharged by General Electric.
- PCDFs are found in minute concentrations in Housatonic River fish.

Where are PCBs found in the Housatonic River?

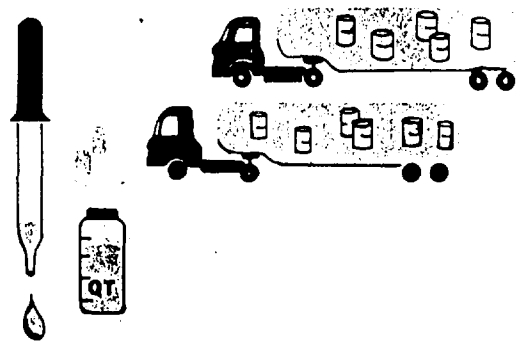
PCBs in the Housatonic are found in aquatic life (particularly fish and aquatic insects on the bottom), water, and sediments. PCBs are essentially insoluble in water, are heavier than water, and tend to accumulate in river sediments. PCB levels in the river are high among sediment samples and show a strong relation to the distribution of fine sediments. The State of Connecticut has found that the concentration of PCBs in river sediments increases gradually with increasing distance upstream in Connecticut, and then increases sharply in Woods Pond in Massachusetts, the first impoundment below Pittsfield.

- The principal source of continued flow of PCBs in the Housatonic River into Connecticut appears to be from the sediments in Woods Pond in Massachusetts.
- Although PCBs are found mainly in the Massachusetts portion of the river, particularly Woods Pond, they are also found in the downstream river impoundments, including Lakes Zoar and Lillinonah in Connecticut.
- In the New Milford Bay area of Candlewood Lake, where water is pumped into the lake from the Housatonic River, PCBs have been detected in fish and sediment at levels quite low compared to Lakes Zoar and Lillinonah.

How are PCB concentrations measured?

PCBs are commonly measured in parts per million (ppm) or parts per billion (ppb). One ppm is the equivalent of one drop of dye in 64 quarts of Housatonic River water, and one ppb is the equivalent of one drop of dye in 400 barrels of river water.

Current allowable human exposure levels for PCB consumption are set by the Federal Food and Drug Administration at five parts of PCBs per million (5ppm) parts of fish, shellfish, and the fat portion of poultry, and 2.5 ppm in the fat portion of milk and dairy products.



How are Housatonic valley residents directly affected by PCBs?

- Persons who consume Housatonic River fish have shown above-average PCB levels in their bodies. Many fish in the river are contaminated with PCBs at levels which exceed federal standards for human consumption.
- Fishing, frog hunting and waterfowl hunting are popular sports in many areas of the Housatonic. PCBs concentrate in the food chain, with fish having higher PCB levels than their water environment. Fish accumulate PCBs through their gills and while feeding; as other fish, birds and mammals consume PCB-contaminated aquatic life, each acquires a higher level of PCB concentration, finally ending up in the bodies of persons consuming such fish and wildlife.
- Frog hunting and the sale of frog legs is a minor industry in the Woods Pond area. While tests show high PCB concentrations in frogs, PCB levels have not been studied in people who have consumed the frogs.
- The states of Massachusetts and Connecticut continue to recommend that Housatonic River fish not be eaten (except at Candlewood Lake and below Stevenson Dam).
- Industrial workers exposed daily to high levels of PCBs generally have higher PCB concentrations in their bodies than those exposed to low level PCBs by eating fish. The health effects of occupationally exposed workers range from virtually no apparent ill effects to skin eruptions and internal disorders.
- PCBs disposed of in the ground and in landfills have the potential to contaminate groundwater and wells.

Conclusion

PCBs may or may not be dangerous to your health; the jury is still out. The only well-documented adverse health disorder is chloracne, a skin ailment associated with occupational exposure. Both industrially exposed workers and persons who consumed PCB-laden fish have higher than average levels of PCBs in their bodies, but have not shown a higher rate of cancer and other serious illnesses.

PCBs and PCDFs may be a substantial danger to health and the environment, and are currently being studied in the Housatonic. Clearly, progress is being made on determining the effect of PCBs and PCDFs on the Housatonic River and its watershed. When the studies are completed, we will know more about the extent of PCB contamination in the river, what to do about it, and what additional studies are needed.

More than 1000 studies on various aspects of PCBs have been made worldwide, nationally, and locally since PCBs were first recognized to be a public health hazard in the 1960s. Government agencies on all levels, industry, health commissions, and private groups are studying the problems. The major findings of a few of the most important Housatonic River basin studies and other pertinent studies follow on the reverse side.

This brochure was prepared by the Berkshire County Regional Planning Commission, the Housatonic River Watershed Association, and the Housatonic Valley Association, in Cooperation with the U.S. Environmental Protection Agency, the Connecticut Department of Environmental Protection, and the Massachusetts Department of Environmental Quality Engineering.

Although this report has been funded in part by the U.S. EPA through grant #P00105201-8 to the Berkshire County Regional Planning Commission, it has not been subjected to EPA's required peer and policy review, and it does not necessarily reflect the views of the agency and no official endorsement should be inferred.
November, 1982

ATTACHMENT I

PROJECT CHRONOLOGY

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GE/HOUSATONIC RIVER PROJECT CHRONOLOGY

- 1903 - General Electric Company (GE) purchases Stanley Electric's transformer manufacturing facilities located in Pittsfield along East Street.
- 1932 - GE begins to use polychlorinated biphenyl (PCB) transformer oils at the Pittsfield, Massachusetts plant.
- 1952 - PCB-contaminated oil is discovered on East Street residential property.
- 1968 - Collapse of a storage tank at Building 68 releases PCB oil into the Housatonic River.
- 1972 - GE installs a thermal oxidizer to destroy PCB-containing liquids.
- 1974 - GE was first issued a National Pollutant Discharge Elimination System (NPDES) permit. To satisfy permit requirements, GE begins the installation of oil/water separators to reduce oil discharge to Silver Lake, Unkamet Brook, and the Housatonic River.
- 1977 - The GE Pittsfield facility discontinued PCB use in the manufacture of transformers.
- August 1980 to June 1981 - GE removes contaminated sludge from the former waste stabilization basin at Unkamet Brook. The basin is filled and capped.
- May 27, 1981 - GE and Massachusetts Department of Environmental Quality Engineering (DEQE) (currently Massachusetts Department of Environmental Protection [MDEP]) sign Administrative Consent Order. PCBs and other contaminants in the Housatonic River, Silver Lake, Unkamet Brook, and at the GE facility are to be evaluated. GE is required to propose a sampling and monitoring program for the Housatonic River and for contamination and disposal practices at the facility.
- December 1982 - GE issues Housatonic River Study (prepared by Stewart Laboratories) covering 1980 and 1982 investigations.
- 1982 - Signs warning against consumption of fish, frogs, and turtles are posted along the Housatonic River.

- December 1982 - Frink Study documents PCB transport and distribution in Housatonic River.
- February 1983 - Harza prepares report documenting September 1982 inspection of dam during repairs by Kimberly Clark Corporation.
- 1984 - Gay & Frimpter U.S. Geological Survey (USGS) issue report demonstrating no impact of Woods Pond sediments on adjacent aquifer.
- March 1984 - GE issues report entitled "Report on Initial Screening of Housatonic River Remedial Alternatives."
- April 1984 - Stewart Laboratories issues report documenting additional investigations performed during 1983.
- May 1984 - GE issues report entitled "Report on Proposed Engineering Evaluation of Selected Housatonic River Remedial Alternatives."
- October 1984 - GE issues 45-Day Interim Report evaluating potential sediment disposal sites.
- February 1985 - GE submits 90-Day Interim Report evaluating river channelization, in situ impoundment, and flow and sedimentation control.
- April 1985 - GE issues Notice of Intent Permit Applications to Towns of Lee and Lenox to allow for Velocity and Sedimentation Control Pilot Study activities.
- May 1985 - GE submits 135-Day Interim Report evaluating sediment removal and local disposal, river channelization, in situ impoundment, flow and sedimentation control, and biodegradation.
- May 1985 - GE accepts bids for construction of stop log baffle system at location of existing slots in raceway channel at Woods Pond.
- June 12, 1985 - Town of Lee Conservation Commission issues Order of Conditions providing local approval of Velocity and Sedimentation Control Pilot Study. Town of Lenox does not respond.
- July 1, 1985 - DEQE authorizes GE to proceed with Velocity and Sedimentation Control Pilot Study.
- July 1, 1985 - GE prepares to initiate Velocity and Sedimentation Control Pilot Study; however, access issues prevent study from beginning.

- September 1985 - Berkshire County Regional Planning Commission retains Malcolm Pirnie to evaluate wet dredging techniques.
- October 1985 - GE submits Revised Notice of Intent document incorporating comments from DEQE regarding possible air emissions.
- 1985 to 1986 - Feasibility study of river remediation alternatives - dredging tabled; biodegradation and dam reconstruction studies proceed.
- May 23, 1986 - EPA and DEQE issue Conditional Approval of 135-Day Interim Report.
- June 1986 - GE responds to DEQE Conditional Approval with conceptual descriptions of monitoring plan.
- August 1986 - GE prepares contract for construction of stop log baffle system at existing sluice gate structure in raceway channel at Woods Pond.
- August 1986 - EPA requests additional details on monitoring plan for Velocity and Sedimentation Control Pilot Study at Woods Pond.
- August 1986 - GE issues 135-Day Interim Report Addendum responding to EPA 5/23/86 comments (more details on dredging, biodegradation, and resampling plan).
- September 1986 - GE issues letter indicating schedule delay due to possible dam stability concerns at Woods Pond and failure to reach agreement with pipeline owners and property owner.
- October 1986 - GE retains diver to evaluate timber crib dam abutment.
- October 1986 - GE issues report which documents dam stability concerns.
- October 1986 - GE proposes relocation of stop logs to sluice gate structure.
- November 1986 - EPA commissions U.S. Army Corps of Engineers (USACE) to perform Dam Stability review.
- February 1987 - GE collects additional sediment cores for cesium (CS)-137 dating and biodegradation assessment.
- March 1987 - GE transmits to EPA revised report "Velocity Control and Sediment Control Alternatives - Stop Log Baffle System Monitoring Study Overview."

- April 1987 - EPA issues PRC report which identifies potential local sediment disposal sites.
- April 1987 - EPA issues letter outlining comments on draft monitoring plan for Velocity and Sedimentation Control Pilot Study.
- June 1987 - GE issues Work Plan for Housatonic River - Velocity and Sedimentation Control Pilot Study.
- September 1987 - USACE issues Woods Ponds Dam, Phase I Inspection Report.
- October 23, 1987 - EPA authorizes GE to proceed with Velocity and Sedimentation Control Pilot Study baseline activities.
- October 1987 - GE collects preliminary baseline data for Velocity and Sedimentation Control Pilot Study.
- March 1988 - GE issues Housatonic River Remedial Action Selection and Scope of Work for Woods Pond dam rehabilitation.
- June 1988 - GE collects second round of baseline data.
- June 1 to 3, 1988 - GE issues Woods Pond Dam, Phase II Inspection Report.
- June 9, 1988 – GE, Kimberly Clark Corporation, L.B. Corporation, and Valley Mill Corporation sign an Administrative Consent Order (ACO) with MDEP to perform an investigation and rehabilitate and/or replace the dam and raceway structures associated with a former power generating facility at the Valley Mill Dam at Woods Pond. MDEP requires the parties signing the ACO to perform this work to prevent future downstream migration of PCB-contaminated sediments that have accumulated behind the dam at Woods Pond.
- August 1988 - Velocity and Sedimentation Control Pilot Study First Status Report is issued.
- September 1988 - GE collects third round of baseline data, initiates "Controlled Flow" and water column monitoring.
- October to December 1988 – A closure structure is constructed across the existing raceway channel located east and downstream of the existing Valley Mill Dam at Woods Pond. The work entails the construction of a closed-box sheetpile structure and a mid-channel structure with concrete stoplogs, and placement of dumped and grouted riprap in selected areas to stabilize an embankment between the headrace canal and the river channel. The new closure structure will provide a means of emergency release or reservoir drawdown.

- October 12, 1988 - GE issues Operation and Maintenance Manual for Woods Pond Dam.
- October 12, 1988 - GE issues Dam Safety Plan and Emergency Action Plan for Woods Pond Dam.
- March 1989 - Issuing of Velocity and Sedimentation Control Pilot Study Second Status Report.
- June to December 1989 - GE initiates and performs extended water column monitoring program in accordance with replacement activities for Woods Pond Dam.
- August 1989 - GE collects fourth round of velocity data.
- September to December 1989 – Construction of a replacement dam at Woods Pond approximately 100 feet downstream of the existing old structure and adjacent to the closure structure constructed the previous year. A crest spillway is constructed in the main river channel in conjunction with a non-overflow section between the headrace channel and the river channel. Construction of the new dam is required to ensure dam safety and integrity over the long term to prevent further downstream migration of PCB-contaminated sediments.
- March 16, 1990 - MDEP establishes GE sites as Public Involvement Plan sites under the Massachusetts Contingency Plan, thereby establishing a formal plan for the public to be informed of and involved in response actions.
- April 24, 1990 - Public meeting to present MDEP Draft Public Involvement Plan, site updates, regulatory history, and MDEP Consent Orders.
- May and July 1990 – Massachusetts Department of Environmental Protection (MDEP) executes two Administrative Consent Orders with GE to evaluate the nature and extent of contamination in the Housatonic River, Newell Street I, East Street Area I, East Street Area II, Hill 78 Landfill Area, the GE facility, and related sites, in order to evaluate and select remedial alternatives. The Administrative Consent Orders are executed on May 22 and July 2.
- June 1990 - Final Public Involvement Plan is issued.
- 1990 to 1991 - Discovery and capping of PCB-contaminated soils at Allendale School as a Short-Term Measure under the Massachusetts Contingency Plan.

- February 8, 1991 – EPA issues Resource Conservation and Recovery Act (RCRA) Corrective Action Permit to GE facilities.

- Summer 1991 – GE caps Hill 78 Landfill to prevent stormwater infiltration. The cap is inspected semi-annually. In addition, perimeter wells are installed. They are monitored to track leachate migration.

- October 1991 - GE constructs wastewater treatment facilities to improve the quality of the groundwater and stormwater at the GE facility before its discharge to the Housatonic River.

- 1991 to 1994 - EPA and the MDEP negotiate a Memorandum of Understanding to coordinate regulatory activities and oversight of cleanup work. The MOU is signed in 1994.

- 1992 to 1999 - Under the Massachusetts Contingency Plan, GE samples and evaluates potential imminent hazards on 69 recreational and residential properties in six communities along the Housatonic River's 10-year floodplain. Short-Term Measures are implemented on 19 properties. The measures include removal of PCB-contaminated surficial soils, posting of warning signs, and planting of vegetative barriers to restrict access to wooded areas.

- March 24, 1993 - Public meeting is held by representatives of MDEP, EPA, and GE at the Lenox Town Hall to discuss the status of remedial investigations of the Housatonic River Site.

- March 24, 1993 - Informational meeting is held by MDEP at the Berkshire Athenaeum (Pittsfield) to address concerns and answer questions from property owners who have recently had their floodplain properties tested by GE for PCB contamination.

- April 7, 1993 - Representatives of MDEP hold an informational meeting with owners of affected residential floodplain properties.

- April 14, 1993 - Representatives of EPA and MDEP hold a public meeting at the Berkshire Athenaeum to provide an update on the status of remedial investigations at the GE Pittsfield and Housatonic River sites to explain differences between MDEP's and EPA's regulatory authority (i.e., the Massachusetts Contingency Plan and the RCRA Corrective Action Permit, respectively) and to gather input regarding proposed modifications to the existing Public Involvement Plan.

- July 15, 1993 - Representatives of MDEP and EPA conduct a public meeting at Berkshire Community College to discuss the status of sampling and short-term measures at the floodplain residential properties in Pittsfield and Lenox.

- July 29, 1993 - Representatives of MDEP and EPA meet with Housatonic River Initiative (HRI) members in Lenox to discuss the status of remediation at the GE/Pittsfield and Housatonic River sites and to introduce new project managers at EPA and MDEP.

- September 23, 1993 - A public meeting is held in Lee, MA, with representatives of MDEP and EPA to discuss PCB toxicity and associated health risks and initiate the environmental health assessment process.

- October 12, 1993 - Representatives of MDEP and EPA hold a public meeting at the Reid Middle School in Pittsfield to discuss the proposed RCRA Corrective Action Permit.

- 1994 – GE invokes dispute resolution proceedings under the MDEP Administrative Consent Order disputing MDEP's requirements for Short-Term Measures on the residential floodplain properties.

- 1994 - EPA RCRA Corrective Action permit becomes final.

- 1994 - The Massachusetts Department of Public Health (MDPH) initiates studies on exposure to and health effects of PCBs on residents of Berkshire County.

- January 13, 1994 - MDPH presents a health forum at the Berkshire Medical Center. The focus of the forum is the subject of breast cancer in women as related to PCB exposure.

- April 26, 1994 - Meeting held at Reid Middle School to present MDEP's Draft Revised Public Involvement Plan and to provide an update on remedial actions at the GE/Pittsfield and Housatonic River sites.

- April 30, 1994 - MDEP and EPA participate in two public involvement activities concerning the GE/Pittsfield and Housatonic River sites. The first activity is the "Great River Mapping Project," which is sponsored by HRI and attended by schoolchildren and county residents. Participants use a large map of the river as a canvas for portraying their dreams for future use of the river. The second activity is a GE Open House. Tours are conducted of the wastewater treatment plant, the groundwater treatment plant, and the thermal oxidizer.

- May 4, 1994 - Representatives of MDEP and EPA hold a meeting with the Pittsfield City Council to present status updates of the GE/Pittsfield and Housatonic River sites, including the Draft Revised Public Involvement Plan.

- June 16, 1994 - MDEP, EPA, and GE hold a public meeting in Springfield to present to the public a proposal for the Preliminary Investigation of Corrective Measures which outlines a variety of remedial strategies under consideration for cleanup of the river.

- July 8, 1994 - HRI sponsors a meeting and canoe trip on Woods Pond. Senator John Kerry and representatives of MDEP, EPA, and the National Oceanic and Atmospheric Administration (NOAA) participate.

- August 4, 1994 - HRI sponsors an educational forum for local officials from the towns that border the Housatonic River. This meeting is held to inform local officials about the cleanup process and to enable them to ask questions concerning the remediation process. Representatives of MDEP and EPA participate.

- 1994 through 1995 - Formation of state and federal interagency workgroup to coordinate remediation and restoration and Natural Resource Damages (NRD) issues and concerns.

- 1994 through 1997 - EPA and MDEP provide HRI with monthly written status reports concerning remedial investigations and activities at the GE/Pittsfield and Housatonic River sites.

- 1994 to 1997 - Agencies participate in numerous workshops, public meetings, and forums to update citizens, property owners, officials and environmental groups and to engage public discussions of assessment work, remedial alternatives, and treatment/disposal options for facility, river sediments, and floodplain soils.

- May 1994 to Present - MDEP awards Technical Assistance Grant and other account funds to HRI. These funds are used by HRI for technical outreach and education projects, including publishing newsletters and sponsoring educational forums, and working with local citizens to disseminate information about the cleanup process and risks associated with the sites. The technical assistance funding is used to hire a technical consultant to review reports, attend technical meetings, monitor the remediation process, and provide and coordinate review comments on technical site-related reports.

- 1994 to Present - Several meetings are held with the Pittsfield City Council, HRI, and the Tri-Town Board of Health.

- April 13, 1995 - EPA, MDEP, and GE hold an informal poster and question and answer session at the Lenox Town Hall to present data collected to date for the Housatonic River Site (including GE split samples) and to present GE's revised Proposal on the Preliminary Investigation of Corrective Measures for the Housatonic River. Status

updates for the remaining sites are presented in the form of written summaries.

- 1995 to 1996 - Attempt to engage GE in "global" negotiations fails.
- 1995 to 1996 - HRI, MDEP, and EPA hold several PCB global focus group meetings. The purposes of these meetings are to discuss strategies for expediting certain PCB remediation projects for the GE Pittsfield and Housatonic River sites, to foster cooperation between the agencies and GE, and to solicit public input and commitment in achieving long-range solutions to the problems associated with the sites.
- December 1995 to July 1996 - GE closes the thermal oxidizer.
- 1996 - Discovery of high levels of PCB soil contamination in Deming Street neighborhood at site of former impoundment; residential backyards and riverbank removal work is undertaken.
- January 1996 - Attorney General holds public meeting in Pittsfield to hear community concerns regarding the site. MDEP and EPA participate in the panel.
- March 1996 - During the investigation of the East Street Area 2 site at the GE facility, discovery of a "hot spot" of PCB contamination in Housatonic riverbank soils and sediments adjacent to Building 68. MDEP/EPA order GE to remove PCB-contaminated sediments and bank soils.
- June 11, 1996 - Representatives of EPA and MDEP meet with HRI representatives.
- June 16, 1996 - A public meeting is held at the Northeast Utilities headquarters in Pittsfield by GE, EPA, and MDEP to present GE's revised Proposal on the Preliminary Investigation of Corrective Measures for the Housatonic River.
- December 18, 1996 - EPA and MDEP order GE to clean up contaminated riverbank soils and sediments adjacent to Building 68. EPA issues a CERCLA order to regulate the work.
- 1997 - EPA proposes listing the GE facility/Housatonic River on the National Priorities List (NPL) under CERCLA (Superfund).
- 1997 - Discovery of contaminated fill on non-floodplain residential properties, city playground, and other properties in several areas of Pittsfield; other properties identified in Pittsfield and other Berkshire

towns (Richmond, Cheshire) as suspected of receiving fill from GE are under investigation.

- March 27, 1997 - MDEP Housatonic Watershed Outreach Meeting held in Pittsfield City Council chambers.

- April 2, 1997 - MDEP Housatonic Watershed Outreach Meeting held in Great Barrington.

- April 2, 1997 - EPA and MDEP representatives are panel participants at the HRI's Community Meeting held at the Berkshire Athenaeum. MDEP and EPA provide updates on current issues. Meeting includes Tufts University Computer Simulation, EcoLogic presentation on various technologies for PCB remediation.

- May 7, 1997 - Representatives of MDEP, EPA, and GE hold a public meeting at the Northeast Utilities headquarters in Pittsfield to present updates on the Pittsfield Brownfields Pilot Project (a project to facilitate the cleanup and reuse of the GE facility), remediation activities at Building 68, computer mapping of contamination in the Housatonic River, and status updates on remedial investigations at the GE Pittsfield sites. The purpose of the meeting was also to discuss citizens' concerns over PCB-contaminated fill at residential properties in Pittsfield. MDEP announces a toll free number '1-888-VIOLATE' that citizens can call to provide information to MDEP about potential PCB fill properties.

- June 17, 1997 – A public meeting held by MDEP, EPA, and GE at the Pittsfield City Council chambers to discuss residential fill issues.

- June 1997 to July 1999 – GE performs Building 68 removal action under CERCLA Order. Approximately 5,000 cubic yards (yd^3) of PCB-contaminated sediments and 2,330 yd^3 of PCB-contaminated bank soils are removed. The river channel is armored and restored and the riverbanks are revegetated and stabilized.

- July to August 1997 – EPA conducts community interviews in the Pittsfield area.

- July 1997 - EPA Regional Administrator and MDEP Commissioner meet with constituent groups about PCB contamination at the site. The constituent groups include environmental leaders, community activists, and business leaders.

- August 1997 - EPA Regional Administrator issues a press statement announcing that EPA will start the process for including the site on EPA's NPL and will also start negotiating with GE.

- August 7, 1997 – EPA, MDEP, and GE hold a public meeting at the City Council Chambers to discuss issues related to properties contaminated by PCBs in fill material received from GE ("residential fill" properties).

- August 7, 1997 – EPA and MDEP publish two fact sheets – one about PCBs and one about questions and answers on residential fill issues.

- August 1997 - MDEP establishes a toll-free telephone hotline for the public to relay information about GE-related fill material to the agencies.

- Fall 1997 - EPA opens a satellite office in Pittsfield and begins Wednesday morning office hours to address the public's concerns regarding contaminated residential fill. The weekly office hours continue through 1998.

- October 1997 – EPA, MDEP, and GE agree to renew discussions toward overall settlement of remediation, restoration, and redevelopment issues with the assistance of mediator.

- October 1997 - EPA issues a letter and fact sheet from EPA's Regional Administrator and MDEP Commissioner to residents of Pittsfield regarding the PCB issues.

- October 23, 1997 - The League of Women Voters sponsors a panel discussion related to the toxicological and health effects associated with exposure to PCBs. The meeting is held in Lee, and various health experts participate, including those from DPH and MDEP.

- December 8 and 9, 1997 – Focus Group Meetings are held in Pittsfield, MA, with groups of residents affected by the GE Pittsfield site. The purposes of the Focus Groups are to gather information from residents about their concerns, needs, expectations, and perceptions of EPA; to learn the measures for evaluating EPA's success in communications and outreach; and to obtain feedback on the written questionnaire currently being tested.

- Winter 1997/1998 - EPA conducts telephone surveys with local residents.

- 1997 through 2001 – GE samples 315 residential properties in Pittsfield for PCB contamination. GE removes PCB-contaminated fill from 164 residential properties.

  - Prior to the commencement of remediation activities, MDEP and EPA provide fact sheets describing the proposed remedial activities to most of the affected neighborhoods. Fact sheets are

distributed by door-to-door hand delivery and by mail. (August 1997)

- MDEP provides to public interest groups geographic information system (GIS)-generated maps that indicate the locations of the properties that have been sampled.

- Upon request, MDEP provides public interest groups with updated status lists for residential fill properties that have been sampled and/or remediated to date.

- In fall 1997, representatives of MDEP and EPA begin holding office hours 1 day per week for residents dealing with the contaminated fill issue. These office hours are established to enable the public easy access to MDEP's and EPA's representatives regarding residential fill-related issues. The office hours continue through mid-October 1998.

- 1997 to Present - Meetings among GE, property owners of the affected residential fill properties, and MDEP are held. Owners of properties designated for sampling are interviewed and premobilization discussions take place prior to remediation. In addition, MDEP's representatives oversee the cleanup activities on all affected parcels by making visits to each site two or three times per week.

- January 1998 – The EPA Regional Administrator meets with Connecticut environmental and river recreational groups to discuss the proposed NPL listing of the site.

- January 1998 - EPA and MDEP staff meet with representatives of South Berkshire County communities to discuss the proposed NPL listing of the site.

- January 1998 - EPA and MDEP conduct a public meeting to discuss the residential fill property issue, and to provide information and a general update on GE/PCB-contaminated sites in the Pittsfield area.

- February 5, 1998 - The MA Attorney General's Office sponsors a public health workshop at MDEP's regional headquarters in Springfield. The purpose of the workshop is to review past major health studies which are connected with the GE Pittsfield and Housatonic River sites and to discuss the types of additional studies or information that would be useful to address Berkshire County residents' health concerns. Experts in the public health field, members of HRI, homeowners of affected residential properties, and representatives of the MDPH, EPA, and MDEP participate.

- March 1998 - EPA and MDEP issue an *Environmental Update* for the Berkshires which updates the community on cleanup activities and highlights the process for residential property cleanups.

- March 2, 1998 - EPA and MDEP hold a public meeting at the Pittsfield High School auditorium to provide an update on activities at all the GE/Pittsfield and Housatonic River sites while focusing on investigation and cleanup activities at the residential fill properties.

- March 1998 - The EPA Regional Administrator conducts a series of community meetings with Pittsfield groups to discuss issues related to the site.

- April 6, 1998 - EPA releases "An Action Agenda for Environmental and Economic Recovery in Pittsfield and Berkshire County." The Action Agenda announces EPA's plans for remediation of contamination, restoration of natural resources, and redevelopment of property. In conjunction with releasing the Action Agenda, the EPA Regional Administrator and the MDEP Commissioner conduct community meetings regarding the Action Agenda.

- April 21, 1998 – EPA conducts interviews with residents in neighborhoods where PCB contamination has been found.

- April 29, 1998 - EPA and GE hold a public meeting at Pittsfield High School to discuss GE's request for a modification to the RCRA Corrective Action Permit. The proposed permit modification will allow inclusion within the permit's scope of certain areas near the facility (such as the Allendale School property and certain former oxbows) that were not previously covered under the permit.

- June 3, 1998 - EPA announces Enforcement Order and other steps for PCB cleanup of Housatonic River in Pittsfield; reissues invitation to resume negotiations.

- June 1998 - The EPA Regional Administrator conducts a town meeting to discuss the cleanup of PCBs in Berkshire County.

- June 1998 - The EPA Regional Administrator and the MDEP Commissioner conduct additional community meetings regarding the "Action Agenda for Environmental and Economic Recovery of Pittsfield and Berkshire County."

- June 1998 - EPA issues a letter from the Regional Administrator and an accompanying fact sheet to Pittsfield residents along the Housatonic River on the health risks associated with exposure to PCBs in Housatonic River sediments.

- July 1998 - EPA, MDEP, GE and the other government agencies involved in the government/GE negotiations host a community session to receive input on the issues being negotiated by GE and the governing bodies.

- August 1998 - EPA begins second round of residential sampling in Pittsfield.

- September 24, 1998 – The EPA Administrator issues statement concerning EPA/GE negotiations.

- September 24, 1998 - After a year of mediated negotiations, an Agreement in Principle is signed among GE, EPA, MDEP, Connecticut Department of Environmental Protection (CTDEP), MA Office of the Attorney General, CT Office of the Attorney General, U.S. Department of Justice (U.S. DOJ), NOAA, U.S. Department of the Interior (U.S. DOI), MA Executive Office of Environmental Affairs, and the City of Pittsfield. The Agreement in Principle formalized the decisions reached during negotiations and established the framework for the Consent Decree.

- October 7, 1998 - EPA releases to the public a Summary of the Agreement (Agreement in Principle) relating to preliminary agreements among the parties, which provides details on Cleanup of Specific Areas, Brownfields Redevelopment and Economic Aid, Restoration of Natural Resources, Recovery of Government Costs, Effect and Form of the Consent Decree, and Enhanced Public Participation.

- October 21, 1998 - The Natural Resource Damage (NRD) Trustees hold a public meeting in Lee, MA, to present an overview of the natural resource damage assessment and restoration process. Representatives of EPA and MDEP attend.

- October 1998 - EPA and MDEP staff meet with community groups to explain the Agreement in Principle regarding remediation, restoration, and redevelopment between the governments and GE for the site.

- November 4, 1998 - EPA and MDEP initiate the Citizens Coordinating Council (CCC) to provide a focus for the community to receive information and provide feedback to the agencies and GE on the various cleanup and restoration activities at the site. The CCC is comprised of over 30 environmental, business, and community leaders, representatives of the regulatory agencies, local municipalities, and GE. The CCC meetings are open to the public. The CCC has met monthly since November 1998 on a range of different cleanup and site-related issues.

- November 1998 - Representatives of EPA and MDEP meet with interested parties from southern Berkshire County at the Stockbridge Town Hall to obtain input on proposed locations for sampling floodplain soils and river sediments for the portion of the river south of Woods Pond.

- November 1998 - EPA staff meets with environmental groups from New York State to explain the Agreement in Principle for the site.

- December 1998 - EPA and MDEP staff meet with selectmen from southern Berkshire County towns to explain the Agreement in Principle.

- December 2, 1998 - A CCC meeting is held to present and discuss GE's Conceptual Work Plan for the Upper Reach of the Housatonic River (½-Mile) and GE's Source Control Work Plan for the Upper Reach of the Housatonic River (½-Mile).

- December 3, 1998 - Representatives of EPA and MDEP hold a meeting at the Lenox Town Hall to brief southern Berkshire County officials on the specifics of the Agreement in Principle that was signed in September 1998 by the federal and state agencies, the City of Pittsfield, and GE.

- 1998 through 1999 - MDEP and EPA participate in several informational meetings with members of public interest groups such as Citizens for PCB Removal and Get REAL. Representatives of MDEP and EPA also participate in informal neighborhood meetings with residents of impacted areas.

- 1998 to present - EPA conducts extensive studies south of the Confluence of the East and West Branches of the Housatonic River. The studies consist of sampling sediments and bank and floodplain soils, biological and ecological investigations, and modeling to provide data for human health and ecological risk assessments and to predict rates of river recovery under different cleanup scenarios.

- 1998 through 2000 - EPA undertakes an Engineering Evaluation/Cost Analysis (EE/CA) to evaluate remedial alternatives for cleanup of the 1 ½-mile stretch of the Housatonic River from Lyman Street Bridge to the Confluence of the East and West Branches.

- January 1999 - MDEP and EPA issue a "reach-out" letter to residential property owners who had requested sampling, but for which no credible information presently exists relative to GE-related fill. The letter advises the public that efforts are continuing toward evaluating new data and information in regard to their requests for sampling.

- January 6, 1999 - A CCC meeting is held to present and discuss the Restoration Planning Process for the Housatonic River. A presentation is given by the Natural Resource Damage (NRD) Trustees. An update on drum removal activities at the Pittsfield Landfill is also provided.

- January 21, 1999 - MDPH holds a public meeting to announce the composition of and mission statement for an expert panel that has been convened to study health effects related to exposure to PCBs. The public meeting is held to obtain input from Berkshire County residents on their health concerns related to contamination at the GE/ Pittsfield and the Housatonic River sites. Representatives of MDEP and EPA attend.

- February 3, 1999 - A CCC meeting is held to present and discuss the Removal Action Work Plan for the Upper ½-Mile Reach of the Housatonic River. GE's consultants make the presentation and respond to questions and comments.

- February 11, 1999 - A special CCC meeting is held to further discuss the Removal Action Work Plan for the Upper ½-Mile Reach and other aspects of the Agreement in Principle, including the on-site consolidation areas. EPA brings in an outside technical expert from USACE to respond to questions from CCC members concerning the use of a cap in the river.

- February 1999 - GE receives feedback from the CCC on its draft Work Plan for remediation of the Upper ½-Mile Reach of the Housatonic River, which has been submitted to the CCC members for review.

- March 1999 to Present – GE continues to implement additional source control measures at East Street Area II, Newell Street Parking Lot, and Lyman Street Parking Lot sites. Measures include adding borings to determine the extent of LNAPL and DNAPL plumes, installing wells to evaluate the efficacy of the source control measures and to recover oil, and installing Waterloo sheetpiling to prevent oil plumes from reaching the Housatonic River.

- March 3, 1999 - A CCC meeting is held to present and discuss the Supplemental Investigation Work Plan for the Lower Housatonic River. EPA presents information on ecological characterization, the human health risk assessment, the ecological risk assessment, the hydrodynamic modeling, and the peer review process.

- May 1999 - EPA announces a public comment period from May 5, 1999, to June 4, 1999, on a proposal for implementation of cleanup work, which GE agreed to implement prior to Consent Decree entry, at the Allendale School, the Upper ½-Mile Reach of the Housatonic

River, and the On-Plant Consolidation Areas. GE's work plans for these activities are made available to the public for comment. EPA responds to public comments received during the comment period in an October 1999 Responsiveness Summary.

- May 12, 1999 - A CCC meeting is held to present and discuss the proposal for implementation of work at the Allendale School and the Upper ½-Mile Reach of the Housatonic River in Pittsfield, MA. This proposal would allow some time-critical work to take place before the Consent Decree is actually lodged. The Consent Decree lodging and entry process are also explained. The CCC meeting also serves as a public meeting on the proposal and the meeting is advertised appropriately and public participation by non-CCC members is encouraged.

- May 17, 1999 - Public meeting is held to discuss work to be conducted during summer – pre-Consent Decree, ½-Mile Reach, Allendale School, and Consolidation Areas.

- June 2, 1999 - A CCC meeting is held to solicit the group's input on future agenda items and evaluate the CCC process.

- June 17, 1999 - MDEP hosts Residential Fill Properties Investigation and Cleanup project public meeting at the Pittsfield City Hall.

- June 23, 1999 - MDEP and EPA participate in a community meeting to discuss the proposed removal action for the Allendale School. The meeting is hosted by the Allendale School Council at the school.

- August 4, 1999 - A CCC meeting is held to present and discuss updates on the work at the Allendale School, preparation of the consolidation areas, work in the ½-Mile Reach, economic development plans for portions of the GE site, and cleanup on the residential fill properties.

- August 1999 - EPA mails to the public an update on the ongoing cleanup of the Allendale School.

- August 1999 - EPA's sampling shows highly elevated concentrations of PCBs in duck breast and liver tissue. The MA Department of Public Health issues a public health advisory for consumption of mallards and wood ducks in the Housatonic River from Pittsfield to Great Barrington (Rising Pond).

- Summer 1999 – GE removes Allendale School property cap and 41,000 cubic yards of contaminated subsurface soils. GE restores and enhances the playground facilities in the fall 1999.

- October 6, 1999 - A CCC meeting is held to present and discuss the following: a health forum being put on by one of the active citizens groups (Get REAL) with funding in part by MDEP; site updates for ongoing work at the on-site consolidation areas, Allendale School, ½-Mile Reach, and Newell Street Parking Lot; the Consent Decree, the settlement between the MA Attorney General's Office and GE; the excavation of a portion of one of the Newell Street commercial properties by the owner; and the status of testing for contamination in Pittsfield parks.

- October 7, 1999 - A Consent Decree among GE, U.S. EPA, U.S. DOJ, U.S. DOI and NOAA, the Commonwealth of Massachusetts, the State of Connecticut, the City of Pittsfield, and the Pittsfield Economic Development Authority is signed and lodged in District Court. The Consent Decree regulates the investigation and cleanup of the Housatonic River and other GE Pittsfield sites, provides a compensation package for natural resource damages, and provides a brownfields redevelopment project for portions of the GE facility.

- October 8, 1999 - EPA and GE finalize details of cleanup agreement.

- October 26, 1999 - A CCC meeting is held to present and discuss the following: the Consent Decree and Scope of Work overview, a Natural Resource Overview, and the Commonwealth of Massachusetts' issues concerning the Settlement of the Information Case and Administrative Consent Order (i.e., covenant not to sue, contribution protection). EPA, U.S. DOJ, NOAA, MDEP, and the MA Attorney General's Office attend this CCC meeting to explain the proposed Consent Decree.

- October 26, 1999 - Notice of the proposed settlement is published in the Federal Register, and the United States initiates a public comment period on the settlement and the reissued draft RCRA Permit. Public meetings are scheduled. The comment period is extended twice and closes on February 23, 2000.

- October 28, 1999 – Public comment period for GE/Housatonic River Consent Decree begins; public meetings are scheduled.

- October 30, 1999 – Representatives of EPA and MDEP participate in a forum entitled "Health Risks Associated with PCB Exposures." A panel of PCB experts from across the country give presentations on their research and answer questions.

- October 1999 through Present – GE is removing PCB-contaminated sediments and soils from the riverbanks and channel of the ½-Mile Reach from the Newell Street Bridge to the Lyman Street Bridge on the Housatonic River. The channel floor and lower portions of the

banks are capped and armored; upper banks are being revegetated. Habitat enhancements are being provided.

- November 3, 1999 - The Natural Resource Trustees present to the environmental community an overview of the natural resources restoration components of the Consent Decree. This meeting is held at the MDEP Watershed Team Office at the Conte Federal Building in Pittsfield and is attended by representatives of EPA and MDEP.

- November 3-4, 1999 - EPA and MDEP staff hold a 2-day office hours session, and meet informally with numerous individuals or groups to explain the proposed settlement.

- November 4, 1999 - An evening forum, sponsored by Get REAL, is held at the Berkshire Medical Center. The forum, entitled "An Update on PCBs in Pittsfield" includes representatives from the University of Massachusetts School of Nursing who present a review of current research on the health effects of PCBs. Representatives from MDEP, EPA, and DPH present updates on the residential fill properties, the GE plant site, and DPH's public health activities, respectively.

- November 17, 1999 - A CCC meeting is held to present and discuss how to address residential fill removal issues, to schedule upcoming CCC work resulting from the Consent Decree, and to discuss committee formation by CCC members.

- November 1999 to January 2000 - EPA holds formal public meetings regarding the Consent Decree in Pittsfield, MA; Stockbridge, MA; and Kent, CT. At these meetings, EPA explains the provisions of the Consent Decree, answers questions, and receives additional comments from the public.

- December 2, 1999 - EPA holds a public hearing on the proposed Consent Decree and the proposed reissued RCRA Permit.

- December 9, 1999 - The Natural Resource Damage Trustees hold a meeting in the Stockbridge Town Hall with representatives of the environmental community from Southern Berkshire County.

- 1999 to 2000 - EPA enhances public participation in relation to the Consent Decree by using many additional mechanisms, including the following:

  - Mails a summary of the Consent Decree to the active EPA mailing list for the site.

- Places the Consent Decree and Statement of Work for the Removal Actions Outside the River ("Statement of Work"), as well as the Summary of the Consent Decree, on the EPA web site devoted to the site.

- Places the Consent Decree and all appendices in four repositories in Berkshire County, as well as with the Berkshire County Chamber of Commerce, the Housatonic River Initiative office, the Housatonic Valley Association office in Connecticut, and upon later request, at three additional public repositories in Connecticut.

- Provides to requesters individual paper copies of the Consent Decree, or paper or CD/ROM copies of the Statement of Work.

- January 20, 2000 - Hosts a Lenders Forum for property owners who would be affected by the work at the GE facility and Housatonic River sites.

- In addition to these more formal mechanisms, through the last several years, EPA and MDEP staff have been available to meet with the community informally at virtually any time.

- January 5, 2000 - A CCC meeting is held to present and discuss a natural resource damage restoration update, an update on the investigation of the West Branch of the Housatonic River, an update on CCC work related to the Consent Decree schedule, and the results of the Residential Fill Ad Hoc Committee's meetings.

- January 18, 2000 - Comment period for GE/Housatonic River Consent Decree is extended a second time to February 23, 2000.

- January 18, 2000 – EPA hosts commercial lending forum for the GE Pittsfield/Housatonic River site. The forum is held at the Crown Plaza Hotel in Pittsfield to allow property owners to hear lenders' views on the effects of the proposed Consent Decree on lending. The property owners attending are those who would be affected by the work at the GE facility and Housatonic River sites.

- February 2, 2000 - A CCC meeting is held to present and discuss updates on the following: ½-Mile Reach; work by the Natural Resource Damage Trustees; demolition work at the GE facility areas known as the 20s, 30s, and 40s complexes; the status of ongoing studies by the MDPH; a report by the Housatonic River Restoration Group (composed of some members of the CCC); and an update from the Residential Fill Ad Hoc Committee.

- March 1, 2000 - A CCC meeting is held to present and discuss the Engineering Evaluation and Cost Analysis (EE/CA) for the 1 ½-Mile Reach of the Housatonic River. Three independent technical experts answer the public's questions concerning the proposed work.

- April 12, 2000 - A CCC meeting is held to present updates on Consent Decree motions to intervene; demolition activities in the 20s, 30s, and 40s complexes; residential fill property remediation and results of Ad Hoc committee meetings; ½-Mile Reach DNAPL issues; the West Branch sampling proposal; MDPH activities; and Natural Resource Damages.

- May 3, 2000 - A CCC meeting is held to provide updates on the issues covered at the April 12 meeting and also to discuss methods to make the CCC more effective in providing input into the remediation planning process.

- May 23, 2000 – EPA and MDEP host informal meetings with property owners along the Upper 1 ½-Mile Reach of the Housatonic River whose properties will be affected by work under the EE/CA.

- June 7, 2000 - A CCC meeting is held in Stockbridge, MA, to facilitate participation of groups from Connecticut. EPA offers an update on "Rest of River" investigations, human health and ecological risk assessments, and hydrodynamic modeling. Connecticut DEP officials give updates on sediment and biota sampling efforts occurring in Connecticut. Natural Resource Damage updates and GE site remediation updates are also provided.

- June 7 and 8, 2000 – EPA and MDEP host informal meetings with property owners along the Upper 1 ½-Mile Reach of the Housatonic River whose properties will be affected by work under the EE/CA.

- July 20, 2000 – EPA, MDEP, and GE take the CCC on a tour of the GE site in lieu of a monthly meeting. The tour includes Building 19, the Hill 78 and Building 71 On-Plant Consolidation Areas, and the ½-Mile Removal Action Area.

- July 25, 2000 – EPA and MDEP hold public informational meeting at the Berkshire Athenaeum Public Library Auditorium. The purposes of the meeting are to summarize the results of the EE/CA, to update the community on the investigation progress, and to answer questions about the investigations and findings.

- August 18, 2000 – CCC receives updates on EPA, MDEP, and GE activities and a presentation on the newly designed EPA Web site for the GE project. CCC members decide to not meet again until October.

- August 9, 2000- EPA and MDEP hold public information meeting in Kent, CT, on the EE/CA.

- August 15, 2000 - EPA holds a public hearing to accept verbal comments on the preferred alternative as presented in the EPA fact sheet on the EE/CA.

- October 4, 2000 - Presentation to the CCC on the Consent Decree.

- October 2000 - EPA announces proposed modeling framework for assessing Housatonic River cleanup.

- October 27, 2000 - Federal Judge gives final court approval to the Consent Decree that presents the cleanup plan for the Housatonic River and other GE Pittsfield sites.

- November 1, 2000 - EPA announced its policy regarding homeowners with contaminated property, providing to those homeowners the opportunity to obtain a letter of clarification from EPA that EPA is not pursuing them for liability at the Site.

- November 2000 - Revised Administrative Consent Order (ACO) executed by MDEP and consented to by GE on November 13, 2000. Revised ACO supersedes two 1990 ACOs between MDEP and GE and provides for continued assessment of remediation of off-site properties contaminated with fill from the GE Pittsfield facility (including East Street Area 1-South) and includes a streamlined process for the residential fill properties.

- November 21, 2000—GE - Pittsfield CCC Connecticut Subcommittee Meeting—The first organizational meeting of the GE - Pittsfield CCC Connecticut (CT) Subcommittee. Meeting discussion included the purpose of this initial meeting, background on the CCC, the establishment of the CT Subcommittee, and a brief introduction to the cleanup issues and the Consent Decree. As a result of input from Connecticut representatives on the CCC, CCC decided to explore the formation of a CT Subcommittee that would meet in Connecticut. The purpose of the subcommittee is to improve Connecticut stakeholders' ability to learn and comment on the cleanup of the Housatonic River and related areas covered by the Consent Decree. EPA, CT DEP, and the CT NRD trustee made presentations to the group and answered questions. The group also discussed the CT Subcommittee mission and procedures and decided that the subcommittee would meet on a quarterly basis.

- November 27, 2000 - EPA issued its Action Memorandum for cleanup of the 1 ½-Mile Reach of the river. The cleanup outlined in the Action Memorandum includes removal from the river and off-site disposal of

approximately 90,000 cubic yards of contaminated sediments and bank soils.

- January 5, 2001—GE-Housatonic River CCC Meeting—Updates by GE, MDEP, the NRD representative, and EPA. In addition, a presentation was made on the first meeting of the CT Subcommittee. As a result of the subcommittee meeting in Connecticut, the group reached a consensus that the name of the CCC should change to "GE-Housatonic River CCC" without the word "Pittsfield" in the name any longer.

- February 7, 2001—GE-Housatonic River CCC Meeting—Updates presented by GE, MDEP, the NRD representative, and EPA. Updates included work in the river and the commercial properties and residential cleanup program. EPA announced a 2-week extension of the comment period for Connecticut residents to comment on the Biota Consumption Advisories on the River. There was a discussion whether the West Branch and entire watershed should be posted with consumption warnings. MDEP updated the group on activities at the King Street Dump, in the West Branch of the river, and sediment sampling in Goodrich Pond.

- March 26, 2001—GE-Housatonic River CCC CT Subcommittee Meeting—EPA presentation on the preliminary evaluation of a wide spectrum of data gathered from the Rest of River Reach and a status report on the ecological characterization of the Connecticut Housatonic River Valley to map habitats, to identify animal use, and to develop baseline conditions that describe the ecological setting. A discussion about production and posting of fish consumption signs on the Connecticut portion of the Housatonic River ensued.

- April 4, 2001—GE-Housatonic River CCC Meeting—EPA presentation to the group on the Human Health Risk Assessment Process with a discussion following. Updates on site activities by GE, EPA, MDEP, and the NRD representative and an update on the March 26, 2001 Connecticut Subcommittee meeting.

- April 25-26, 2001 - EPA holds public peer review session regarding the Modeling Framework document for the Rest of River. In the peer review, a panel of independent experts reviewed EPA's proposed framework for modeling the fate, transport, and bioaccumulation of PCBs in the Rest of River.

- May 2, 2001—GE-Housatonic River CCC Meeting—Updates by GE, EPA, and the NRD trustee. The Peer Review Meeting on the Modeling Framework Design document for the Rest of River was summarized and discussed.

- June 6, 2001—GE-Housatonic River CCC Meeting—In lieu of a regular meeting, the CCC was given a tour of the GE site. Brief updates were made by EPA and MDEP, and a GE representative led the site visit, including a tour of work in the ½-Mile Reach of the river, the water treatment plant, and the Hill 78 Consolidation Area.

- June 25, 2001—GE-Housatonic River CCC CT Subcommittee Meeting—The "Purpose Statement and Operating Guidelines of the CT Subcommittee" were reviewed by the group. EPA updated the group on the analysis of data collected from the Rest of River, including the review of more than 30 reports previously produced by federal and state agencies representing data from the past 30 plus years. A discussion followed the presentation. Updates were presented by CT DEP and the NRD representative.

- July 24, 2001—GE-Housatonic River CCC Meeting—EPA presentation on the "Ecological Risk Assessment for the Housatonic River: Initial Field Study Results." The presentation included the role of the ecological risk assessment in the Rest of River project, EPA's approach, the role of field studies in the assessment, the initial results from the field studies, next steps, and a schedule. A discussion on the Ecological Risk Assessment followed. Updates were made by GE, EPA, MDEP, NRD, and CT Subcommittee.