

GE, PCBs, and the Pittsfield/Housatonic Site

In 1990, I was hired with my ex-partner to videotape interviews for a proposed television documentary about General Electric and Pittsfield, Massachusetts. The producers, Barbara Abrash, a documentary filmmaker, and Dr. June Nash, an anthropologist, were unable to secure funding for the project. The footage lay on a shelf in our office. But I was haunted by an interview with Ed Bates and Charles Fessenden, two former GE employees, and two years later decided to continue the project on my own.

Unfortunately, before I went back in 1992 to continue the project and re-interview them, Charles Fessenden had died of leukemia. His death and the incredible story Ed Bates told of their efforts to get to the bottom of the health problems of the workers under his charge at GE Power Transformer has inspired me to devote eight years of my life to find out the truth about GE, PCBs, Pittsfield and the Housatonic River. Later that year I became a founding member of the Housatonic River Initiative (HRI) and have been working ever since to clean up the river and remove GE's PCBs from Pittsfield and contaminated sites in Berkshire County.

Since 1992 I have attended and videotaped countless meetings sponsored by the Massachusetts Department of Environmental Protection (DEP), the Massachusetts Department of Public Health (DPH), and the United States Environmental Protection Agency (EPA). I have conducted many interviews with former GE workers, the former Mayor of Pittsfield, Remo DelGallo, and those who contaminated residential and commercial properties. Excerpts from some of those videotaped meetings and interviews accompany HRI's official comments to the state and federal environmental Agencies regarding the Consent Decree they negotiated with GE, a decree which is now before the Federal District Court in Springfield, Massachusetts..

While I am not a chemist, nor a licensed engineer, I do believe my experience chronicling this complicated story of contamination and clean-up has provided me with a valuable viewpoint.

When I began to investigate this story, a generation of concerned citizens had already spent a decade working for a clean-up. Their numbers included Ed Bates, the former Manager of Tests at Power Transformer, and Charles Fessenden, his Supervisor of Calculations; environmentalists like George Wislocki of the Berkshire Natural Resources Council, George "Gige" Darey, a sportsman, a Selectman of Lenox, and the Chairman of Massachusetts Fisheries and Wildlife, Betty Phinney, a teacher, Tim Gray who lived on the river in Lee and was studying environmental science at UMASS, and George Hamilton, a professor of Environmental Sciences at Berkshire Community College; concerned parents at the Allendale School, which had been built on PCB-contaminated fill; and former Pittsfield Mayor DelGallo who with Bernie Kleban of Monterey had helped to organize an unofficial blood-testing program in the early 1980s for GE workers. All of these people were extremely frustrated with the lack of any appreciable action, and many of them had pretty much given up hope that any clean-up would occur.

The founding of the Housatonic River Initiative (HRI) in 1992, a broad-based coalition of local environmentalists, sportsmen, and political leaders, was regarded by many as our last chance to put pressure on GE and the environmental and public health officials to actually do something significant about the problem.

In its first newsletter, HRI published "The Housatonic Manifesto," which stated:

The Housatonic River Initiative sets forth the following objectives and commits itself to witnessing their achievement by the end of the 20th century, so that the people of Berkshire County may celebrate the river and its gifts:

The Housatonic River and its associated tributaries and wetlands shall be cleansed of all toxins, including PCBs, and there shall be no discharge of waste into the river.

Broad reaches of land along the river shall be protected by public ownership , and the public shall enjoy access to both land and water in pursuit of pleasure and enjoyment; appropriate improvements such as foot trails, bicycle paths and boat launches shall be encouraged for the public enjoyment.

On March 24, 1993 HRI mobilized the attendance of 300 people at a meeting with MADEP and the EPA to discuss public involvement in the clean-up effort. At that meeting MADEP officials were presented with a letter to Commissioner Daniel Greenbaum which stated:

As members of the Housatonic River Initiative, an ad hoc coalition of environmental groups and concerned citizens, we have for many years been witness to the Commonwealth's efforts to cleanse the Housatonic River of PCBs. The years that have been consumed by studies and deliberations have caused us to lose confidence that real progress will ever come.

One reason for our loss of faith is that the Department of Environmental Protection has not sought to include the citizens of Berkshire County as active participants in the clean-up process. This isolation from the process has often meant that we do not know what our public agencies, let alone General Electric, intend to do in regard to the clean up.

The lack of any consistent public citizen presence in clean-up activities is one of the reasons the process has been so disappointing to date. However, the people of Berkshire County have recommitted themselves to asserting the public interest in restoration of the Housatonic River, and we would welcome a similar recommitment to public involvement on the part of the agencies. Denying such involvement at this point would be a sad disservice to the citizens of this county.

To that end, the Housatonic River Initiative proposes to work cooperatively with the Massachusetts Department of Environmental Protection, and the U.S. Environmental Protection Agency in drafting and signing a Memorandum of Understanding, which would spell out ways to keep Berkshire citizens involved in the Housatonic River clean up.

In a May 5, 1993 letter, Alan Weinberg, Regional Engineer, Bureau of Waste Site Cleanup, Western Region of MADEP informed the Housatonic River Initiative of the following:

(1) In reference to future technical meetings for the Housatonic River and the GE facility sites in Pittsfield, it was concluded that DEP supports the proposal for a designee of the HRI to attend and participate in technical meetings between DEP and GE, and between DEP, GE and EPA, subject to EPA concurrence. The designee and/or HRI would receive any reports or written materials before such meetings, allowing an opportunity to review these materials and to discuss with DEP or EPA any concerns prior to technical meetings.

(2) HRI will seek to invite and include representatives of cities and towns along the Housatonic, particularly Pittsfield, Lee and Lenox, as well as other interested groups in the Pittsfield area, so as to effectively constitute a citizens advisory committee for the GE facility sites in Pittsfield as well as the Housatonic River site. HRI will develop a plan for channeling information on remedial planning and actions for the Housatonic River and the General Electric sites from technical meetings to the larger populace.

(3) DEP will seek funding through the Department's Site Assessment and Remediation Support Services (SARSS) contracts in effort to provide technical assistance to the HRI/Citizens Advisory Group. Ö

(7) The DEP Western Regional Office will make every effort to increase the level of staffing and to assemble a Project Team assigned to the Housatonic River and Pittsfield GE Facility sites.

Based on HRI's success and effective advocacy and our ability to represent a wide variety of stakeholders, the Massachusetts Department of Environmental Protection (MADEP) has recognized HRI *"as a primary citizens advisory group for these sites"* suggesting that *"interested citizens and other parties are encouraged to join forces under the HRI umbrella."* (Revised PUBLIC INVOLVEMENT PLAN for the Housatonic River and the General Electric Company Pittsfield Disposal Sites, prepared by Massachusetts Department of Environmental Protection, April 1995, Pg. 66.)

One of the first projects HRI undertook was to begin a prolonged period of research. Along with fellow members Benno Friedman, Tim Gray, and Professor Donald Roeder, I began to research some of the main issues, and read some of the principle documents generated by GE and its contractors, as well as the 1988 RCRA Site Assessment compiled by the EPA.

The first thing I realized was that there were serious and major discrepancies between the anecdotal testimony of former GE workers and Pittsfield residents, and General Electric and its contractors regarding the volume and extent of the PCB contamination. And that time and time again, the Agencies seemed to accept GE's calculations.

Before I review some of the history at this site, I want to create a larger context for all that follows. Two major events occurred in 1996 and 1997. The first was the discovery of extremely high levels of PCB-contaminated oil in riverbank soils and river sediment in a section of the Housatonic River opposite to the former GE Building 68 in an area of the river between the Newell and Lyman Street Bridges. The second development, probably not unrelated, was the decision of the EPA to finally propose this site on September 25, 1997 for placement on the National Priorities List (Superfund). This action, a clear and marked escalation by the EPA, brought GE to the negotiating table in the Fall of 1997. Negotiations began between representatives of the EPA, the U.S. Department of Justice, the U.S. Department of the Interior, the National Oceanographic Atmospheric Administration (NOAA), the Commonwealth of Massachusetts, the State of Connecticut and the City of Pittsfield. Unfortunately, the Housatonic River Initiative argued in vain to gain a seat at the negotiations. Not only was the constituencies of HRI denied – sportsmen, environmentalists, local official from South Berkshire towns which border the river – but EPA officials included representatives from the City of Pittsfield – Mayor Gerald Doyle, Jr. who had never been forceful advocate of a GE cleanup, and Thomas Hickey, the City Council President, a former GE employee, and one of the few people fortunate enough to have his PCB-contaminated property bought by GE several years before.

On September, 24, 1998 EPA Region One Administrator John P. DeVillars announced that the public agency and GE negotiating teams had achieved an agreement in principle. The Consent Agreement called for GE to clean the site in various degrees, reimburse state and federal agencies for past and continuing costs, in return for the Agency's decision not to list the site on the National Priorities List.

John DeVillars declared that the agreement:

"sets the course for the environmental and economic restoration of Pittsfield and southern Berkshire County. The agreement provides for substantial investments in the cleanup of the Housatonic River, the GE plant site, and other contaminated properties, as well as brownfields redevelopment in Pittsfield and compensation for natural resource damages.

With this agreement, we have moved the cleanup onto the fast track. We have honored our most important responsibility - to protect the health and environment of Pittsfield and Berkshire County. We have built our agreement not only on a strong legal and scientific foundation, but on basic principles of fairness and equity. And we have demonstrated that whenever possible, the greatest common good is achieved through cooperation, not confrontation; through collaboration, rather than polarization.

This agreement affects many different interests - neighborhood residents, environmentalists, business people, towns throughout the valley from Pittsfield well into Connecticut. If each of these constituencies examines only the portion of the agreement most directly affecting them, they may well find something less than what they deem perfect. But if they look at not only their own interests but also the common good, I believe they will find, as we do, much to celebrate and take pride in.

We very much appreciate the patience of the community as GE and the government agencies took the time necessary to reach this agreement. It took longer than any of us expected or liked. But we believe our time and effort will pay substantial dividends for all the citizens of this community well into the future. As this agreement moves from concept to reality, we look forward to the community's continued thoughtful and valuable participation.

Mr. DeVillars' claims notwithstanding, I believe that the absence at the table of a strong locally-based environmental advocacy - combined with an atmosphere of great political pressure on environmental negotiators - set the stage for massive and unnecessary compromise during the negotiations.

It is my belief that the failures of the 1999 Consent Decree have been shaped by the history at this site. From the moment GE introduced the use of Pyranol, its trademarked name for PCB-oil in the early 1930s, it controlled and withheld information about potential health effects, the use and misuse of the chemicals, and where it was disposing its PCB-contaminated waste.

State and federal environmental agencies and public health agencies have been playing a catch-up game ever since. GE has masterfully withheld information in violation of Consent Agreements signed in 1980, 1990, and 1991; GE has skillfully avoided acknowledging responsibility until such time as Statute of Limitations realities have precluded workers, and contaminated property owners from gaining compensation. GE has outmaneuvered state and federal regulators for many decades; and in the final analysis, won far more than the government litigators have gained for the people.

Here is a review of some of the relevant history.

A SHORT HISTORY OF PUBLIC FRUSTRATION

One example of the discrepancy between the official record and personal experience regards the important issue of the underground movement of PCB-oil from the GE plant to the surrounding neighborhood. On August 15, 1997 and December 7, 1999, I videotaped Remo DelGallo, the former Mayor of Pittsfield, and the owner of DelGallo's Restaurant on Newell Street, across East Street from GE's Building 100. Remo DelGallo stated:

My involvement goes back to January 1980 when I saw a group of people drilling test wells in the road, and uh I was wondering what they were doing so I called the Commissioner of Public Works at that given time, and the Commissioner of Public Works at that time was Gerry Doyle, Senior, the Mayor's father. And he said to me, "Remo, I can only tell you what they told me. They're looking for the location of the water table and the flow of water in the water table." We knew that wasn't what they were looking for.

And uh that's when we became directly involved in what was going on and in the meantime they drilled approximately 200 test wells in this given area, bordering Newell Street, East Street, and Fasce Place, all the way to the Housatonic River. And uh, now what we were primarily concerned about was ñ is the liquid waste and uh you know I've mentioned time and again Pittsfield is a city but it's still a village. Everybody knows what's going on. I can go back 50, 60 years if need be that when the General Electric Company had the oil tanks, the oil house up on the northerly side of the railroad tracks next to Peck's Bridge, those tanks leaked for years and years and years and I don't know why they never took corrective measures and the oil flowed down the embankment, under the railroad tracks and then into East Street and what was said uh created a plume and when they say a plume, they're talking about an underground lake of oil Ö

We saw the oil ñ there was a tremendous amount of oil even in those days. Now you have to remember, inside the General Electric Company ñ it's an old plant located in the center of the city of Pittsfield and there were umpteen drains all over the place. And they dumped a voluminous amount of oil in those drains. Nobody even knew where the drains went. Some leached into Silver Lake; a good number of them went into the Housatonic River. But my real concern at the time was, when I say credibility gap, I say it for a given reason because the gentleman who was a personal friend of mine, a fellow by the name of George Rousseau, was in charge of all liquid waste disposal for the General Electric Company since 1936 and he is the one that informed as to where the liquid waste was being dumped ñ four given sites on General Electric property ñ and you probably don't understand what they mean by waste oil.

It came in 30 gallon barrels and 55 gallon barrels, some two-thirds Pyranol, one-third oil; two-thirds water, one-third Pyranol. And when I say disposed, we're talking about thousands and thousands and thousands of gallons of oil. We're not talking about crank-case oil, a hundred and fifty gallons. We're talking about thousands and thousands of gallons of oil, including that oil tank that they had up on what is known as Peck's Bridge, 550,000 gallons of oil, that's how much - it held that capacity ñ and it leaked for years and years and years, before 1964 and after 1964.

Now I'll go back to 1980 when we contacted Angelo Inatosca and he had an associate, Walter Schwartz, they worked for what we called the DEQE, the Department of Environmental Quality Engineering, and they stated that it never penetrated, the plume, the oil never penetrated the southerly side of East Street. So I took it upon myself to take them up to a place known as Bardo's Bakery and now we have Hiser, H&S Automotive up there and uh Bardo's Bakery, I remember he had a sump pump at the bottom of the stairs and I said to Angelo Inatosca at the time and representatives of the General Electric Company and EPA, if there's no oil in that sump pump I'll agree with you it never penetrated the southerly side of East Street. And now when we went up there and uh we

checked that sump pump, it was loaded with oil, loaded with oil.

And the sump pump was emptying into the city sewer line and I explained it to them what happens when you empty that sump pump into the city sewer line from there it goes down to the sewer treatment plant and from the sewer treatment plant into the Housatonic River, from the Housatonic River into Lenoxdale uh Woods Pond

And they also stated and when I say they I'm talking about representatives of the General Electric Company and Angelo Inatosca it did not touch the Housatonic River and yet we did find out it did penetrate the Housatonic River. They said it did not contaminate Goodrich Pond and since then we found out that it also contaminated Goodrich Pond.

Another critical dispute is centered around the extent of PCB-contamination in the Housatonic River. It is fascinating to read the Massachusetts DEP's own account of the 10 year period between 1981 and 1990. In its 1990 Draft version of its Public Involvement Plan, General Electric Company, Housatonic River And Newell Street Disposal Sites, Pittsfield, MA the DEP wrote:

B. HOUSATONIC RIVER:

In 1981 the Department of Environmental Protection (then DEQE) and the US EPA executed a Consent Order with GE which required GE to conduct preliminary studies of PCB contamination in the Housatonic River; 1) document the facility's hazardous waste disposal practices, 2) examine the extent of existing contamination on site, and 3) investigate contamination of the Housatonic River and corrective action alternatives. GE hired Stewart Laboratories, Inc. of Knoxville, TN to conduct the study. The report was issued in 1983 and entitled "The Housatonic River Study".

"The Housatonic River Study" concluded that approximately 39,000 pounds of PCBs had adhered to the bottom and backwater sediments of the River, approximately 250,000 cubic yards of sediment contamination spread over 20 miles of river. The 1983 report estimated that approximately 70% of these PCBs were located in and along the Housatonic River between the GE facility and the headwaters of Woods Pond in Lee and Lenox, MA, an additional 20% of the PCBs were located in Woods Pond itself. The report concluded that PCBs were pulled from behind Woods Pond dam into the Housatonic River downstream.

The stretch of River believed to be the most heavily contaminated is between New Lenox Road and Woods Pond. Within this 4 mile stretch an estimated 22,000 pounds of PCBs have settled.

In late 1983 DEQE and the US EPA amended the Consent Orders to require GE to conduct a Feasibility Study for remediation of the Housatonic River. A 1984 report from GE proposed evaluation of No-Action, sediment removal, river channelization, in-situ impoundment, and the continuance of bio-remedial research and technology.

In 1985 GE also prepared a report entitled "Housatonic River Study, 135 Day Interim Report". This report proposed among other things the installation of stop logs in the raceway of the Woods Pond Dam to discourage the transport of sediment past the Woods

Pond Dam. (In 1987 the US Army Corps of Engineers under contract with the US EPA issued a report which supported GE's conclusion about the Woods Pond Dam and recommended further study.)

In June 1988 the Department executed a Notice of Responsibility and second administrative Consent Order with GE and several other parties. GE made improvements to the Woods Pond Dam abutment and constructed a closure structure at the Dam to minimize the transport of PCB contaminated sediments downstream.

In December 1989 GE completed construction of the new dam structure, downstream from the former Woods Pond Dam. The new dam is adjacent to and part of the stoplog structure.

In January 1990 GE requested permission to conduct a Pilot Test to determine the effectiveness of Biological Degradation in eliminating PCBs from sediments and soils in Woods Pond.

In March 1990 the Department issued a Notice of Responsibility to GE stating that portions of the Housatonic River, Silver Lake and their floodplains constitute a disposal site under MGL c. 21E and the MCP. The Department cited the 1983 Housatonic River Study Report by Stewart Laboratory and a subsequent investigation by Blasland & Bouck which confirmed the presence of PCBs in sediments and certain floodplain areas along the Housatonic River.

In Spring 1990 a Consent Order governing the continued investigation and cleanup of the Housatonic River and Newell Street disposal sites will be executed by GE and DEP. The Consent Order governs: resampling of water and sediments for PCBs and chemical compounds in: Woods Pond, upgradient of the GE Facility (to determine background levels), Silver Lake, upstream of Woods Pond Dam, and downstream of Woods Pond Dam; the confirmation of all hot spot locations; floodplain and former oxbow sampling and analysis; a fish sampling program; sediment transportation, environmental and public health risk characterization; and (possible) future Short Term Measures (Pp. 4-5) (Emphasis added.)

That's the state agency's account of those years. Our research revealed some very interesting additional and contradictory information. GE's 1982 Stewart Report estimated that there was a total of approximately 40,000 pounds (slightly less than 20 tons) of PCBs in the Housatonic River from the GE site to the Connecticut border. GE workers believed that that was a gross underestimation of the problem.

In a video interview conducted on July 6, 2000 Tim Gray recounts his early involvement with the Housatonic River:

Well it was right around the mid-seventies, '75 or '76 that I was at UMASS and uh we applied for a grant to the Institute for Man and His Environment - there were three other students that were interested in the Housatonic River. Um I at that time already lived on the Housatonic River so I had a keen interest in what was back there, and uh we were all young environmental science students and wanted a project -

And we worked for a couple of semesters sampling the Housatonic River, and indeed

finding out that everything we sampled had PCBs. We sampled frogs, fish, and sediment. And everything came up positive for PCBs, and at that point we approached a fellow named Jim Thayer um from General Electric with our results, trying to see if he was interested and he told us he wasn't interested and our data was false and couldn't be true. GE had done sampling in the river and knew more about the river than anyone else and um the PCB pollution wasn't that extensive.

We also went to the Agencies, the DEQE and were basically told that our data was interesting but they also told us at the same time that because we didn't use exact quality control procedures etc. and etc. um that they were quick to dismiss our data. And in fact we never portrayed our data as being absolutely perfect in the way that an engineering firm would sample in the worry that someday they might be hauled into court. We were just a bunch of young students trying to find out if there were PCBs in the river. And I think our data was good enough to say yes, there were PCBs in the river but at that time we were rebuffed by everybody.

On September 12, 1990 I participated in a videotaped interview with Ed Bates, the former Manager of Tests, and Charles Fessenden, the former Supervisor of Calculations, at GE Power Transformer in Pittsfield, Massachusetts.

Ed Bates stated:

Öthe GE scientist and engineer in 1936 come out with Pyranol which had polychlorinated biphenyls in it. And uh people don't realize that Pyranol is twice as heavy as water. You put a gallon of Pyranol in water and it sinks right to the bottom. Within that twelve and half pounds of Pyranol weighs seven pounds of every gallon is PCBs. We used to use an average of 20,000 gallons of Pyranol a week. And this ñ if you do simple mathematics ñ this is 200, uh 140,000 pounds of Pyranol, of PCBs a week that we were handling. And uh we had a loss rate: spillage, overfilling of about 3% so this says that every week we would lose between 4- and 5,000 pounds of PCBs that would go down the drain and into the river. Ö [and] it wasn't until 1975 and '76 that they started to use silicon and phase out Pyranol.

We had a meeting last Sunday that, a forum, where the head of the Pittsf- of the Massachusetts DEQE talked, and he said that they've been trying from 1981 to now, which is 1990 to get an agreement of consent from the GE. Uh he was very indefinite as to the now on it.

The Eagle said that they [GE] had put these special uh cylinders in the water, didn't they Charlie? For three years, so this means it's been 1981 to 1993 before they'll decide to anything for the Housatonic River. **In the meantime about a million and a half pounds of PCBs have been plowed into that river. Uh, I imagine a good 30% is left.** (Emphasis added)

I was astounded by the differences in the calculations. GE's estimates were accepted for more than a decade. There are several examples which indicate how these incredibly low estimates came to be accepted as truth. A November 1982 brochure entitled "PCBs and the Housatonic River" was published

jointly by the Berkshire County Regional Planning Commission, the Housatonic River Watershed Association, and the Housatonic Valley Association and was funded in part by an EPA grant. The pamphlet stated:

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.

A one page fact sheet entitled "PCB Contamination in the Housatonic River" was produced in October 1987 by the Berkshire County Regional Planning Commission and Galileo Studios with funding provided by the Massachusetts Department of Environment Quality Engineering. The sheet declared:

The estimated 39,400 pounds of PCBs clinging to the bottom and backwater sediment of the Housatonic River accumulated over a 40 year period.

Both the Massachusetts and federal environmental agencies accepted GE-sponsored data without any efforts at independent verification. In fact, the USEPA, in its "Facility and Process Description" in its 1988 RCRA Site Assessment for the GE/Pittsfield/Housatonic Site, quoted the GE sponsored Stewart Report's assessment of the PCB problem in the Housatonic River:

In December 1982, the Housatonic River study, performed by Stewart Laboratories for GE, documented that approximately 40,000 pounds of PCBs were contained in the river sediments in Massachusetts, comprising more than 250,000 cubic yards of contaminated sediment (Reference 123). Of this amount, 70% occurred between the GE plant and Woods Pond, 20% occurred in Woods Pond, and 10% occurred between Woods Pond and the Connecticut border. The PCB levels in sediments ranged from less than 1 to 210 ppm (dry weight) and appeared to be confined to the upper 12 inches of the sediment.

PCB transport was thought to occur mainly through sediment deposition, suspension, and redeposition. (RCRA Site Assessment, III-29).

This significant discrepancy in calculating the total amount and distribution of PCB-contamination of the Housatonic River continued. In its December 1991 "MCP Interim Phase II Report/Current Assessment Summary For Housatonic River," compiled to fulfill its obligations to both the Massachusetts Department of Environmental Protection and the USEPA, GE's contractors, Blasland & Bouck, Engineers concluded that while it couldn't locate the prior sampling locations of the Stewart Report:

However, a statistical comparison was made of log-normal means from the two data sets on a reach-by-reach basis for the river. **This comparison indicates that there has been no significant change in the overall distribution of PCB concentrations in the Housatonic River sediments since the comprehensive study in the early 1980s.** This conclusion is also supported by the existing information on PCB transport in the river, both as reflected in the sedimentation data from impoundments along the river (discussed immediately below).

Data from impoundments along the river indicate that sediments containing PCBs are subject to gradual "siltling over" with cleaner sediments such that PCB levels in the surficial sediments are lower than the levels in the deeper sediments. In addition, the recent PCB data indicate some evidence of natural PCB dechlorination in the sediments. (ES-2 to ES-3) (Emphasis added.)

In response to questions from the DEP, GE issued its Addendum to MCP Interim Phase II Report/Current Assessment Summary For Housatonic River defending its conclusions in August 1992.

Much like Remo DelGallo and his concern for the contamination of the plumes in Pittsfield, environmentalists concerned with the contamination of the Housatonic River were extremely frustrated with the early track record of the environmental agencies.

On August 8, 1992 during a canoe ride from the Decker canoe launch in Lenox, I interviewed George "Gige" Darey, an active sportsman who grew up fishing and trapping on the river, a Lenox Selectman at the time, and Chairman of the Massachusetts Division of Fisheries and Wildlife.

George Darey stated:

I've constantly been at most of the public meetings a thorn in the sides of GE and uh EPA, you know, trying to prod them into making GE own up to the seriousness of this problem and doing something about it. You know it's uh, it's very frustrating because I don't think we're any further along the way to correcting this problem than we were about, what is it, seven or eight years ago now or more that we started to have all the public hearings.

You know that woman who came in here from EPA, I forgot her name, the first one, said that she was going to stay here till the uh project was finished and uh you know she was gone in less than a year. And then we had somebody else here and I've taken them out on this ride that we're taking right now, I took most of those people till I kind of got fed up with it. If I had decals for all the EPA people that I've given rides down this river to, they'd come halfway down this canoe.

And the last one that came here, I told her I said if you're around here in a year, I said you let me know and I'll give you a ride down here but it's like doing anything with the federal government, that they've changed hands so many times, that we never seem to get anything done and, of course, GE is not doing very much to solve the problem they're caused either. You know the solutions they give are so ridiculous and so outlandish that uh you know nobody wants to do them and it's almost as if you feel, hey these guys are going to keep on doing this till we finally throw our hands up in the air and say, hey the river's - is OK like it is, just leave it alone.

This kind of frustration was widespread. Massachusetts State Representative Christopher Hodgkins had a similar tale to tell. At a November 9, 1992 meeting of about one hundred people at Simon's Rock College in Great Barrington, Rep. Hodgkins recounted his experience with the site:

When I was first elected to office, four months into that, there was a public meeting held at the Western Mass Electric Company building and there was a room about this size and we all went up there uh for the famous result which is this - the Remedial Alternatives Evaluation Proposals - and the EPA at the time had three solutions, three proposals of which you can put forth. The first is removal, so you can come up with proposals to remove them. The second is containment, so you can come up with proposals for containment, and the third, of course is no action.

And this is the God's honest truth, and for those of you who doubt, we even have little diagrams here of - uh - this is always my favorite - this is their proposal for containment - Their proposal for containment. We're going to contain the PCB sediments. It's insoluble. It sinks right to the bottom, so let's just contain it. So they go down the Housatonic River and they take the wildlife land to the right of the river going south, take the land to the right of the river and re-route the river. This is the truth. They even have diagrams of it. Cement it over but then they're going to re-route the river, and then

where the sediment is, they contain that sediment by putting a cement cap over that sediment. And then they re-route the river back on to where it was and now we have a Housatonic River, it will be like a great big water slide.

The second proposal, the second proposal, and this is a true one too, this is what their proposal was. Their second proposal was removal. So how shall we remove it. Well we'll re-route the river. We'll then look at the Sediment. We'll take the sediment and we'll scoop it up and we'll put it in these great big earth-moving trucks. We'll head them down East New Lenox Road, down Williams Street, down Dorchester Avenue, down East Street and we're going to dump it in Silver Lake, because that's already a Superfund Site and here's where they have a picture, Silver Lake Disposal Site, and uh that was their proposal for removal. And everybody in the room, because this was hundreds of thousands of dollars for this study, you know, just stood there with their mouths open.

And then, guess what, we had to go through a whole stage where we had to have hearings on their proposals, no matter if they were just totally stupid. We had to have hearings on their proposals. So then as time went on and on, then they said, well if you don't like Silver Lake, where will we dump it. So we said, well we'll find you a place to put the stuff, even if you have to put it in tight tanks next to the river until you find a site. That's what they did with the Hudson. They at least dredged it then they had to find a site for it, or at least part of it they dredged. And uh, so then that was their only ñ there were only two alternatives.

And then as time went on, a lot of folks that kept on coming to these public hearings, and saying what is going on here. And the EPA during all this time had five Project Directors. The DEQE, unfortunately, has had only one Project Director and I know that after every meeting, every two years, we'd all get up and ask for his resignation en masse. And finally the good news is, of late, they have now taken that gentleman, who was in charge of Hazardous Waste Sites in Western Massachusetts, and they've moved him to the central office and he no longer has anything to do with this project, thank God.

But a lot went on during that time and quite frankly what we're all reading about now is what we read a couple of weeks ago, a couple of months ago. General Electric spends \$25 million, now that's a total since all this started, \$25 million on remediation and the remediation is their favorite one, and that's when you talked about the concern in your backyard ñ we have things that can break down the PCBs, the Pac-Man idea, the biodegradation. There's these things which can eat the PCBs and they're going to eat them all up and then they're going to go away. You know that's what they have going on right now.

So as all this was happening, some of us asked for some other things ñ the Berkshire Regional Planning Commission, all sorts of environmentalists, all good people, all involved said wait a minute! There's 114 proposals supposedly that you looked at, why not try some of them? Why not try wet dredging? Why not try several different alternatives, just as a test? And every single time the General Electric Company would come forth and say no, based on analysis that we conducted, this is no longer feasible! So we then said, well what is feasible? Are you talking about financially? Or environmentally? Just not feasible! Ö But it's so funny, it's so funny, it's sad.

When this all started ten years ago, the room was this filled. There were this many

people here, and then as time went on, the Ed Bates of this world and others were all that were left, and uh the last meeting we had up at the Town Hall in Lenox, we looked around and there were only six of us.

Eleven years after the Stewart Report, on March 24, 1993 at a meeting at the Town Hall in Lenox, Massachusetts called in response to the Housatonic River Initiative's efforts to strengthen the Agencies' public participation process, it was clear that the Agencies were still relying on GE-sponsored data. At the meeting Alan Weinberg and Kathy Wanat of the DEP once again reinforced the notion that the river had 40,000 pounds of PCBs in it. Alan Weinberg stated:

The problem is we're dealing with years of study and hundreds and hundreds and hundreds of sampling locations and uh you're talking about sediments and soils and fish and frogs and uh any number of things and uh, you know, the PCB contamination ranges from nothing to hundreds of thousands of parts per million. I mean there's no question that there are a lot of PCBs in the river. There's what 29,000 pounds [Kathy Wanat: 40,000] 40,000 pounds in the river, o.k. PCB contamination, PCBs. There's no I don't think there's any question about that. There's no question that the river is contaminated with PCBs and the floodplains have contamination, soil around the facility is contaminated. That's why we're here

The reliance on GE-generated data was a dynamic that characterized this site. GE and its contractors provided almost all of the testing and sampling. And the Agencies were resistant to calls from HRI and other interested parties, including flood plain property owners and owners of the Newell Street businesses, for an significantly increased, comprehensive, and independent testing program. The repeated reliance on GE data, shaped and marked the critically-important issue of how much contamination we were dealing with, where it was, and therefore effected the issue of how it should be dealt with.

On August 8, 1993, I submitted comments on behalf of the Housatonic River Initiative to Douglas Luckerman of the USEPA on GE's April 1993 Proposal for its RCRA Facility Investigation of the Housatonic River and Silver Lake. I wrote:

For the record it should be stated that concerned citizens of Berkshire county have a long-standing feeling that both the U.S. EPA and the Massachusetts Department of Environmental Protection (DEP) have allowed GE to set the all-important parameters at issue here, including the extent and location of PCB contamination of the Housatonic River and its flood-plain. This has mainly occurred by the very limited nature of the testing the DEP has mandated thus far. So please understand that the HRI welcomes the opportunity to provide a more extensive interpretation of what GE terms the "limited number of additional data gaps that need to be filled" (p. 1-3)

It is HRI's feeling that at far too many locations, the testing was not deep enough to reach non-detectable PCB concentrations in the sediment of the Housatonic River. This is especially true in the floodplain where testing has often not met that standard, nor for that matter moved enough beyond the reaches of the 10 year floodplain.

It is our understanding that as part of the MCP Floodplain Investigation, floodplain soil samples were collected at depths of 0-6 inches and 6-12 inches at 121 sampling locations

on 11 different transects. (DEP June 15, 1992 Review of the GE MCP Interim Phase II Report, p. 8)

Because MCP Phase II floodplain sampling was limited to 0-6 and 6-12 inch depths, the HRI believes that it is premature to conclude that the section of floodplain which exhibited PCBs above 1 ppm was generally limited to the area between the GE facility and the Woods Pond Dam. (p. 4.2) Ö

As general policy, before corrective measures are approved, the HRI would welcome a more complete profile of PCB contamination, both vertically at a greater number of test sites to non-detectable PCB concentrations, and horizontally throughout the 100 year floodplain. This is especially important because as GE notes data from impoundments along the river indicate that sediments containing PCBs are subject to gradual silting over with cleaner sediments such that PCB levels in the surficial sediments are lower than levels in the deeper sediments. (p. 2-8) All the more reason to establish the widest possible profile of the changing PCB concentrations in both the Housatonic River and its floodplain, and what better way to accurately reflect that by finding the levels at which there are non-detectable PCB concentrations.

This same concern prompts us to challenge GE's assertion that based on review of the site data by ChemRisk (GE's risk assessment consultant), the existing data on PCBs in the river sediments are considered sufficient to assess the potential risks relating to such PCBs. In addition, the existing data on the distribution, concentration, and volumes of PCB-containing sediments appear to be sufficient to conduct at least a preliminary study of corrective measures for the sediments. (pp. 2-8, 9)

Berkshire County citizens have seen all too often how an inadequate and ill-informed knowledge of river use has resulted in an underestimation of potential risks. Until there is a more extensive and reliable data base of PCB concentrations and a more reliable profile of river use, similar underestimations of risk potential will occur. Ö

The HRI has several questions and concerns with GE's Preliminary Health and Environmental Assessment Proposal For The Housatonic River, Silver Lake, And Their Floodplains, April 28, 1993. On Page 2 GE states: Based on present information, it appears that there is no current or reasonably foreseeable use of or exposure to groundwater in Area 6. Hence, exposure pathways associated with groundwater will not be further considered in this proposal. To our knowledge, no conclusive examination has been made of the ground water as to direction or flow rate, the ground's permeability, or any other factor that might bear on present or future contamination. Considerable amounts of land have already been contaminated given the complex network of aquifers (sic) and the abundance of ground water in this area, we think it's impossible without additional testing to state with any degree of certainty that there will be no future use or exposure to contaminants. Nor do we think it within GE's purview to make such important public policy decisions. The HRI urges that appropriate Pittsfield officials and the public be consulted as to issues of future use and exposure to Pittsfield's groundwater. Ö

As regards Task 7.0 Exposure Assessment, the HRI urges you to reject GE's assertion that "potential risks are often substantially overestimated." Similarly we urge you to reject GE's contention that "The use of numerous conservative assumptions in an assessment has the effect of introducing additional and unnecessary overconservatism into the results of the assessment." (p. 12) Public health and safety as well as effective stewardship of the Berkshire County environment demands the most conservative assumptions in risk assessment. Each day the scientific and public health communities are learning more and more about the complicated toxicology of PCBs. Now is not the time to relax risk assessment standards.

HRI also urges maximum public participation as regards Subtask 7.1 Refinement of Exposure Information and Identification of Exposure Scenarios. There is always the danger that outside consultants may underestimate both exposure information and exposure scenarios. We urge vigilant oversight in the development of scenarios for residential, recreational, and occupational exposure scenarios.

Similar vigilance is required in oversight of Task 8.0 Characterization of Risk to Human Health. Again we urge that the EPA maintain a policy of conservatism as regards predicted intakes and dose-response information, as well as consult with experts in environmental toxicology and public health. GE has a history of denying and minimizing the potential carcinogenic effects and non-carcinogenic hazards of PCBs.

On January 3, 1994 the EPA issued a modified Corrective Action Permit for the GE facility in Pittsfield under the Resource Conservation and Recovery Act (RCRA). As required by the Permit, in May 1994 GE submitted a Proposal for the Preliminary Investigation of Corrective Measures (PICM) for the Housatonic River and Silver Lake, which set forth a range of potential measures to address the contamination in the river and Silver Lake.

On July 15, 1994, the Housatonic River Initiative submitted extensive comments, including stating once again its concern that the true extent of contamination had yet to be calculated or delineated:

For the record, HRI would like to repeat comments it has previously made to both EPA and DEP concerning GE's estimates of PCB contamination beginning not only from the GE plant and surrounding neighborhoods but throughout the river system. Local residents, including many who have worked extensively with PCBs at Power Transformer, have always felt that GE has underestimated the extent of the PCB problem, and have always questioned the accuracy of the Stewart report and subsequent reports of GE-employed consultants who often refer back to the Stewart report.

We ask that you bear this in mind as you consider GE's assessment of the problem: "The volume of sediment with PCB concentrations exceeding 1 ppm in the main channel of the Housatonic River between the GE facility and the headwater of Woods Pond was estimated to be approximately 455,000 cubic yards (cy) (BBL 1991). Most of this sediment was found to consist of fine-grained, organic material that ranges in depth from 12 to 56 inches below river bottom. The volumes of sediment with PCB concentrations exceeding 10 ppm and 50 ppm are estimated to be approximately 320,000 cy and 179,000 cy, respectively (BBL 1991)" (PICM, 1-7).

Such concerns have prompted our continual demand that EPA and DEP demand that GE test along the floodplain both horizontally and vertically until there is reason to believe we have reached reliable non-detect levels of PCBs. Until we have such reliable data, we

are being asked to make profoundly important decisions without adequate data. A remediation strategy conducted without this kind of necessary data will only provide us with temporary and partial solutions.

GE next includes "bioremediation" as a second in-situ technology that warrants additional investigation: "Although a full-scale in-situ application of PCB sediment bioremediation has not yet been realized, there is reason to believe that this potential technology offers several environmental and economic advantages to other PCB remediation technologies under consideration." (PICM, 2-5).

The HRI disagrees. We regard "bioremediation" as a totally unproven, and yet to be successful technology which GE promotes in an effort to delay any kind of comprehensive, and, of course, costly, remediation strategy. GE has already gained years of delay with its bioremediation efforts at Woods Pond, and Berkshire County has yet to see any significant reduction in PCB-contamination. The bottom line is that even GE cannot state with any degree of optimism that bioremediation will be effective: "This is a promising and developing technology, but it is uncertain at this time whether it will prove to be a viable remediation alternative." (PICM, 2-8). We urge you to redirect GE's efforts and expenditures to studying and testing strategies that will prove effective within a matter of years not lifetimes.

GE offers us Mother Nature. GE states: "Natural recovery of the Housatonic River and Silver Lake sediments is defined as a combination of physical and/or biological processes that reduce the mobility and/or toxicity of PCBs contained in the river sediments. In addition, these processes could also reduce the potential for exposure by humans and biota to the PCB-containing sediments, as a result of the in-situ covering of PCB-containing sediments with "cleaner" sediments." (PICM, 2-9). What we are offered here is nothing more than natural "blending."

Some of what GE claims to be the reduction of PCB levels in our river system is merely demonstration that some of the contamination has moved downstream and into the Long Island Sound and beyond. We have merely transferred some of our poisonous legacy to others.

GE states: "Available sampling data suggest an overall declining trend in PCB levels in certain fish species in Massachusetts and, in some cases, Connecticut (Academy of Natural Sciences of Philadelphia 1991; BBL 1991). One possible explanation for this observed decrease in PCB levels in select species is a reduction in exposure of fish to PCB-containing sediments by the covering of PCB-containing sediments with cleaner sediments." (PICM, 2-11).

As you consider this claim we remind you of our comments of April 1993 regarding work being done by the Michigan Department of Public Health and the Institute for Environmental Toxicology at Michigan State University which calls into question GE's contention that there has been a general decrease in PCB-concentrations in fish since the 1980s:

"All of the methods currently used to develop consumption advisories are based on quantification of a total concentration of PCBs, even though PCBs are a complex mixture

of congeners. As a result of different PCB sources, differential partitioning, degradation, metabolism, and excretion of PCB congeners in environmental compartments and within organisms, the relative concentrations of PCB congeners in environmental samples can vary among matrices, over geographic regions, and over time (14). Individual congeners vary in toxic potency by as much as 6 orders of magnitude (15). The toxic potencies of PCB mixtures are dependent on the relative concentrations of the individual congeners. The most potent PCB congeners are also some of the congeners most resistant to degradation and metabolism (16). Thus, there has been concern that risk assessments based on total concentrations of PCBs are inaccurate because measurement of total concentrations of PCBs may not reflect the potency of the PCB mixture to cause toxic effects." ("Predictions of Concentrations of 2,3,7,8-Tetrachlorodibenzo-p-dioxins Equivalents from Total Concentrations of Polychlorinated Biphenyls in Fish Fillets, Environmental Science & Technology, Vol. 26, 1992).

GE continues: "Both published data and data generated by GE's Corporate Research & Development (CRD) facility are available and indicate that partial PCB dechlorination processes are underway in Silver Lake sediments and to a lesser extent in Housatonic River sediments (BBL 1985b; Brown et al. 1987). Biological degradation of PCBs represents a potential mechanism to reduce the toxicity of PCBs in these sediments (BBL 1985b)." (PICM, 2-11).

We'd like to remind you of our comments of September 3, 1993 which alert you to the results of recent work by Brian Eitzer of the Connecticut Agricultural Experiment Station published in Environmental Science Technology, 1993, 27, 1632-1637, entitled "Comparison of Point and Nonpoint Sources of Polychlorinated Di-benzo-p-dioxins and Polychlorinated Dibenzofurans to Sediments of the Housatonic River."

Some of his conclusions follow: "Clearly the Woods Pond (site code 2) samples are different from all other samples in both pattern and total concentration. The PCB point source is between Center Pond and Woods Pond (site codes 1 and 2 respectively). It is most likely, therefore, that this point source is creating a major impact on the dioxin and furan concentrations in the Woods Pond sediment samples."

"The Housatonic sites ... show elevated levels of PCDF homologs, particularly the F4, F5, and F6 homologs. This is most pronounced in the Woods Pond samples in which F4 actually exceeds D8. Since PCDF are known contaminants of PCB (10,11) it is quite likely that the elevated PCDF originate from the PCB source. The proportional increase in PCDF diminishes as samples are taken further downstream from Woods Pond, which indicates a reduced impact of the point source on the downstream sediments."

As we've stated previously, Mr. Eitzer's report demonstrates that we are dealing with previously unrecorded and potentially very dangerous levels of polychlorinated dibenzofurans.

Perhaps GE needs to be reminded of its own words. As GE's own Material Safety Data Sheet for Aroclor 1254, dated May 1980 clearly states: "**At about 300 to 600 C some PCBs can oxidize to produce chlorinated dibenzofurans which are much greater in toxicity than the PCBs.**" (Emphasis added.)

After introducing huge amounts of Monsanto/Westinghouse/GE-made poisonous PCBs into our neighborhoods, air, and river system, GE asks us to defer to what may prove, if it is ever fully successful, to be several centuries worth of natural processes. At best this is a cynical proposal. At worst, it is an example of GE's callous disregard for both human and animal life.

In March 1995, General Electric, in response to several concerns of the EPA and DEP, issued a revised version of the PICM. Most of HRI's concerns fell on deaf ears. GE's revised PICM stated:

(2) Scope of Proposal

The PICM Proposal addresses potential corrective measures for sediments in the Housatonic River (including Woods Pond) and in Silver Lake in western Massachusetts. The scope of this proposal is limited to a preliminary screening of the technologies. The need for remediation at this time has not yet been determined. (1-3)

4.1 Summary of Technologies Selected for Further Evaluation

This PICM Proposal addresses both in-situ and ex-situ technologies for PCB-containing sediment.

In situ technologies do not involve removal of the sediment and thus avoid many of the difficulties associated with ex-situ technologies, which necessitate the removal, transportation, dewatering, possible ex-situ treatment, and ultimate disposal of the sediment. Of the in-situ technologies that were screened, armoring, bioremediation, and natural recovery have been selected for further investigation in the PICM. Armoring, which involves placement of layers of clean material over the PCB-containing sediment, is potentially applicable to portions of the upstream and middle reaches of the Housatonic River and to the areas near the shores of Silver Lake and near the east, south, and west shores of Woods Pond. However, additional studies are needed to evaluate its effectiveness, reliability, implementability, environmental effects, and cost.

Bioremediation, which involves the natural or enhanced biological degradation of PCBs, is potentially applicable to all locations, but further laboratory and field research is needed to determine whether this will prove to be a viable remediation technology.

Natural recovery, which primarily consists of the natural deposition of clean sediment over contaminated sediment, is potentially applicable to all locations as well, although further investigations are needed to confirm that natural recovery is occurring and to define the location and extent of such recovery. Natural recovery may be augmented by certain active measures such as enhancing the process of sedimentation (e.g., in Woods Pond) or limited river channelization in particular localized areas.

In order to implement an ex-situ remediation technology, several steps must be satisfactorily addressed: removal of the sediment, its transportation to a place where the sediment can be processed, dewatering of the sediment, treatment of the extracted water, ex-situ treatment of the sediment (if necessary), and ultimate disposal of the sediment. Of the removal technologies that were screened, the grab dredge, cutterhead dredge, horizontal auger dredge, Pneuma dredge, and river isolation and wet excavation technologies have been selected for further investigation. Each of these removal

technologies is potentially applicable to different locations of the river or Silver Lake (depending on the depth and type of sediment as well as its accessibility to dredging equipment), although severe technical problems would be faced in attempting to remove sediment from backwaters and wetlands in the lower reach of the Housatonic River or certain other locations. Moreover, any of the available dredging or excavation technologies will have substantial adverse environmental impacts in terms of destruction of wetlands and wildlife habitat, disruption of the aquatic ecosystem, sediment resuspension, and incidental noise, traffic and odors.

With respect to transport of the sediments to the dewatering location, all of the available technologies carry some risk of accidental spillage or leakage as well as, in some cases, adverse environmental impacts. Ö

The ex-situ treatment technologies selected for further investigation include three forms of high temperature thermal treatment (fluidized bed incineration, rotary kiln incineration, and infrared thermal treatment), low temperature thermal desorption, nucleophilic substitution, and soil washing. High- and low-temperature thermal treatment technologies have been widely used to treat contaminated soil at a number of sites. However, their use in treatment of PCB-containing sediment is limited. In addition, high temperature treatment involves a lengthy and costly permitting process and public acceptance of an on-site PCB incinerator is generally low Ö (4-1, 4-3)

This extensive excerpt reveals two important realities. The first is that as of March 1995, we were no closer to a clean-up than we were in the 1980s. The three strategies remained containment, removal, and natural recovery, a fancy term for no action. The second is GE's continued championing of the two least expensive options, bioremediation, what Representative Hodgkins refereed to as the Pac-man approach, and natural recovery, the no action approach of allowing Mother Nature to gradually cover over the contamination with sediment.

In its Supplemental Phase II/RCRA Facility Investigation Report For Housatonic River and Silver Lake, Volume I, January 1996, GE restates its claims about the extent and delineation of the contamination:

2.6.1 Sediment

The extensive sediment PCB sampling and analyses and reconnaissance/probing efforts have shown that the predominant load of PCBs present in the sediments of the Housatonic River exists within the approximate 12 mile stretch of the river between the GE facility and Woods Pond Dam. The average PCB concentration in this reach has been determined to be approximately 29 ppm, and the average depth of PCB-containing sediment in this reach has been determined to be approximately 2.4 feet. Aroclor 1260 is the predominant PCB Aroclor detected in the Housatonic River, constituting approximately 85 percent of the total detections, with the remainder quantitated as Aroclor 1254 (approximately 14 percent of the total) or Aroclor 1242 (less than 1 percent of the total). (Pg. 2-7)

3.2.1 Prior Investigations

In accordance with a 1981 Consent order issued by the MDEP and USEPA, GE commissioned Stewart Laboratories, Inc. (Stewart) to conduct an extensive study of the

presence and distribution of PCBs within the Housatonic River system. In general, the Stewart Study included:

- i A review of available aerial photographs and topographic maps;
- ii A site reconnaissance of the river from Center Pond in Dalton, Massachusetts to the Connecticut Border; and
- iii The collection of 892 sediment samples from 226 sampling stations generally representative of distinct sediment accumulation areas in the river between Center Pond and the Connecticut border. Each of these samples was qualitatively assessed for sediment particle size and was analyzed at various depth increments for PCBs.

The resultant report (Stewart, 1982) provides a comprehensive "baseline" survey of the occurrence, distribution, and transport of PCBs in the Housatonic River and Silver Lake. (Pp. 3-2 to 3-3)

Two years after its first PICM, General Electric issued its "Report on the Preliminary Investigation of Corrective Measures for Housatonic River and Silver Lake Sediment" in May of 1996. The report stated:

This report presents the results of the studies and research conducted in the PICM and the preliminary evaluation of the selected technologies using the proposed evaluation criteria. Consistent with its purpose, this report does not include any recommendation of corrective measures for the Housatonic River and Silver Lake sediments and is not intended to lead to the selection of such measures, since the sediment cleanup levels and remedial objectives for the site have not yet been established and the specific areas requiring remediation have not yet been identified. Such recommendation will be provided as part of the Corrective Measures Study (CMS), which will be proposed and conducted after the completion of all site investigations, the performance of a Health and Environmental Assessment (HEA), and the establishment of Media Protection Standards (MPS) and remedial objectives for the site. (ES-1)

The message was clear to the citizens of Berkshire County that they ought not expect to see a PCB-cleanup in the near future. And it was not a surprise to see that GE was still advocating its no action approach:

Natural Recovery

Information from other sites indicates that natural recovery has been selected as the primary remedial action or as a part of the overall remedy at a number of sites. Moreover, information collected from the Housatonic River and Silver Lake indicates that natural recovery in the form of silting-over is on-going to varying degrees at the site with more pronounced evidence of such silting-over in Woods Pond, Silver Lake, and several backwater areas in the downstream river reach. This evidence includes the results from numerous sediment cores, many of which show lower (and declining) PCB concentrations in the surficial sediments than at depth, particularly in Woods Pond, Silver lake, and the backwater areas. In addition, recent preliminary analytical results from GE's Corporate Research and Development (CRD) group indicate that natural biodegradation in the form of dechlorination of PCBs is occurring to a greater extent than previously believed within certain site sediments.

Based upon the foregoing information, it appears that natural recovery is already occurring at portions of this site and can be an important part of an effective long-term remedial approach to the site. ((ES-6) Ö

In-Situ Bioremediation

In-situ bioremediation is the enhanced biological degradation of PCBs contained in the sediments. Research on the biodegradation of PCBs had identified two classes of bacteria that contribute to such biodegradation. Anaerobic bacteria degrade highly chlorinated PCB compounds into less chlorinated derivatives by removing the chlorine atoms. The less chlorinated derivatives may then be susceptible to further degradation by aerobic bacteria. In-situ bioremediation has not yet been applied on a full-scale basis to any similar PCB site in the United States; and its potential effectiveness, reliability, and implementability for remediating PCB-containing sediments are uncertain at this time. However, natural and enhanced PCB dechlorination has been observed in numerous laboratory studies involving Silver Lake, Housatonic River, and Woods Pond sediments. Additionally, GE had performed two separate pilot-scale field tests in the Hudson River and Woods Pond that indicate a potential for successful application of this technology to PCB-containing sediments. The potential effectiveness of in-situ bioremediation for site sediments is further supported by evidence that some dechlorination of PCBs in Silver Lake, Housatonic River, and Woods Pond sediments has been occurring naturally over time. In fact, recent laboratory results from GE's CRD group appear to indicate that the natural dechlorination of sediments in the Housatonic River and Woods Pond may be more extensive and prevalent than previously believed. (ES 8-9)

At the same time GE was pushing natural recovery and bioremediation as feasible clean-up options, it was once again emphasizing the negative effects of removal technologies:

First, it should be recognized that, although sediment dredging has been widely used for navigational purposes, navigational dredging has limited applicability to remedial removal technologies, since the latter must be concerned with contaminants in the sediments. In fact, there is no precedent for total remedial dredging of PCB-containing sediments from a flowing river. Second, experience from other sites, where removal technologies were used for PCB-containing sediments in different types of waters or on a limited basis, demonstrates that no sediment removal technology will remove all of the PCBs or achieve low-level PCB cleanup goals. Third, sediment removal must be followed by a series of other steps, including transport, dewatering, and treatment and/or disposal of the removed sediments, all of which must be considered in evaluating a removal technology.

Fourth, all sediment removal technologies have short-term and long-term adverse environmental impacts, including but not limited to) destruction or alteration of the aquatic or wetlands habitats in the affected areas, resuspension of sediments in the water column, changes in physical parameters of the water body, and exposure of the sediments to the air resulting in PCB volatilization and odor emissions. (ES-9)

Year after year HRI raised the issue of inadequate sampling and the gross underestimation of total contamination to no avail. GE's reports to the Agencies continued to mislead the regulators and public alike. And, in our experience, it took the Agencies many years to correct this problem.

But everything changed in the Spring of 1996, when reality intervened and finally contradicted the findings of the Stewart Report. As a result of an increased sampling regime a part of the ongoing analysis of GE's East Street Area 2/USEPA Area 4 Site and the adjacent

Housatonic River - the March sampling and analysis of riverbank soils adjacent to Building 68 and the May sampling of nearby sediments identified highly elevated levels of PCBs. A large amount of highly concentrated PCB oil was discovered in the area of the former Building 68 on GE property near the Housatonic River. And GE informed the Agencies of that fact on July 15.

J. Lyn Cutler of the MADEP responded in her July 24, 1996 letter to GE:

From:

J. Lyn Cutler, MADEP

To:

Ronald F. Desgroseilliers

General Electric Company

Manager, Area Environmental and Facility Operations

General Electric Company provided verbal notification on July 15 to the Department of Environmental Protection (the Department) of levels of polychlorinated biphenyls (PCBs) in Housatonic River sediments in excess of 15,000 ppm at a location adjacent to Building 68 in East Street Area II. The Department had been previously notified of elevated levels of PCBs in adjacent bank deposits up to 37,000 ppm. As stated in numerous conversations with Andrew Silfer (GE), the Department expects GE to submit plans to address this issue. Per your request earlier today, the Department hereby makes its request in writing. (Emphasis added.)

The Department has determined that these levels of PCBs pose an imminent hazard to human health and to the environment, therefore, it is requesting the submission of an Immediate Response Action Plan (IRAP) by the close of business on Tuesday, July 30, 1996. The IRAP should contain a proposal to define the source(s) of the PCBs and to fully evaluate the vertical and horizontal extent of contamination, within the Housatonic River related to these source areas, on the riverbanks and in adjacent areas in East Street Area II. The remediation proposed in the IRAP should be adequate to remove the source(s) of the contamination and eliminate any further releases to the Housatonic River. Since the contaminated sediments and potentially bank deposits will continue to serve as ongoing sources of contamination to downstream reaches of the river, **the IRAP should contain provisions to address complete removal of the potential source areas, rather than propose temporary measures, such as capping or armoring, to abate the imminent hazard.** (Emphasis added.)

A subsequent letter from GE dated July 30, 1996 offers GE's history of this release of oil, and GE's position regarding possible cleanup measures:

From: Ronald F. Desgroseilliers
Manager, Area Environmental Operations
To J. Lyn Cutler MADEP

As you know, these PCBs appear to be attributable to a release that occurred in 1968, when a tank containing PCB Aroclor 1260 in the Building 68 area collapsed, splitting the tank seam and releasing approximately 1,000 gallons of PCBs to the riverbanks and the river. Although the contaminated surface rock and river bottom sediments were excavated and removed at that time, the current findings indicate that some PCBs from this release still remain in the sediments and the riverbank.

At the outset, GE does not accept the conclusion in your letter that the levels of PCBs found in the sediments and riverbank adjacent to Building 68 pose an imminent hazard to human health and the environment. Your letter provides no supporting basis for that conclusion, and GE does not believe, based on existing information and the characteristics of the affected area, that the PCBs in that area would be found to present an imminent hazard. From a human health standpoint, access to the affected area is restricted by fencing and by the river itself. Specifically, the area in which Building 68 is located is completely surrounded by a locked chain-link fence, as is the area across the river, the Newell Street Parking Lot. Moreover, access to the riverbank is restricted by the steep and vegetated nature of the riverbank and by the river itself.

Hence, the only way that individuals could access the affected area is by climbing a fence or by walking along the steep, vegetated riverbank or in the river, which would be extremely difficult. Given these site-specific conditions, it is unlikely that the levels of PCBs in this area could be considered an imminent hazard to human health.

From an ecological standpoint, it is also unlikely that this area would present an imminent hazard given the small size of the affected area and the fact that, as discussed further below, it does not appear to be a significant source of PCBs to the water column of the river. The affected area itself appears to be very limited in size and is located in an urban setting within or adjacent to an industrial facility. As such, it does not provide a sufficiently large or suitable habitat for an ecological population or community, and hence is very unlikely to cause significant ecological harm (let alone an imminent ecological hazard) to environmental receptors at the subpopulation, community, or ecosystem-wide level, as required by the Massachusetts Contingency Plan (MCP) (see CMR 40.0995(4)(d)2.)

Moreover, recent water column PCB data indicate that this area is not a significant source of PCBs to the river. Analysis of water column samples taken from the river during seven sampling events in 1995-96 does not reveal any significant increase of PCB concentrations between the closest station upstream of this area (Newell Street Bridge) and the closest downstream of this area (the footbridge from East Street Area 2 to the Newell Street Parking Lot). (Emphasis added.)

GE and the Agencies argued for several months about the need for, and the extent of, remediation. An August 20, 1996 point letter from MADEP USEPA to GE declared that the site represented an imminent hazard.

From: J. Lyn Cutler, Section Chief, Special Projects MADEP

Bryan Olson, Project Manager, Corrective Action Section, Office of Site Remediation and Restoration, USEPA, New England Region

To: Ronald F. Desgroseilliers
General Electric Company

Re: DEP: 1-0147 Pittsfield; EPA: Area 6; GE/Housatonic River; DEP: 1-0146 Pittsfield; EPA: Area 4; GE/East Street Area II; Contamination adjacent to Building 68; basis for Imminent Hazard determination, requirements for removal plan

The Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency (the Agencies) have received the Immediate Response Action Plan for contamination adjacent to Building 68 (IRAP). The IRAP, dated July 30, 1996, was submitted by the General Electric Company via facsimile transmission on July 30 and by hard copy July 31. The IRAP was submitted in partial fulfillment of the requirements for an IRAP outlined in the Department's July 24, 1996 letter. In order to expedite the investigation of the extent of contamination, the Agencies reviewed and conditionally approved the sampling program of the IRAP in a letter, dated August 1, 1996. This letter of August 20, 1996 summarizes the Agencies' review of the remaining portions of the IRAP.

... Notwithstanding the determinations described below, the Agencies reserve the right to require additional sampling or analysis if new information indicates that such sampling is necessary to comply with the EPA RCRA Corrective Action Permit, the Massachusetts Contingency Plan, the National Contingency Plan or as otherwise appropriate.

Agencies' Determination

(8) The Agencies have determined that remedial actions must be taken, pursuant to their respective statutes, regarding the contamination in and around the area of Building 68. The contaminated soils and sediments behind Building 68 present an imminent hazard to human health, pursuant to M.G.L. c21e and the Massachusetts Contingency Plan, and may present an imminent and substantial endangerment to health or the environment, pursuant to 7003(a) of the RCRA statute, (hereafter, referred to as the imminent hazard). Support for this determination includes, but is not limited to, the information presented in Attachments I, II, and III.

(9) Within 10 days of the date of this letter, GE shall post PCB-warning signs in and around the contaminated area that is subject to this IRA. If any new sampling indicates that this area extends beyond the area of the current investigation, then signs shall be added accordingly within 10 days of knowledge of this extended area. The signs shall read: "WARNING PCBs present in soil and sediment at levels which may pose a threat to human health. For more information contact Massachusetts Department of Environmental Protection (413) 784-1100. U.S. Environmental Protection Agency (617) 565-3420." These signs shall have a similar format, in size, color and font, to those signs produced for the fish consumption advisory and for Silver Lake.

(10) By September 3, 1996, GE shall submit a revised IRAP. The revised IRAP shall include plans for remedial action(s) to abate the imminent hazard. **Based on review of available information, the Agencies believe that removal is the only remedial action**

which can abate the imminent hazard for the sediments in this area for the following reasons: a) prevention of sediment transport and water column resuspension; b) maintenance of existing flood storage capacity; c) elimination of a potential source; d) prevention of human exposure to the contaminated sediments (and soils); e) prevention of ecological exposure to sediments (and soils); and f) consistency with, and not an impediment to, final remedial actions.

Additionally, the removal remedial action, if implemented now, would work toward the completion of the action begun by General Electric in response to the 1968 release. The Agencies also believe that, for riverbank soils in this area, abatement of the imminent hazard can be accomplished by a combination of removal, containment and bank stabilization, for the same reasons. However, if GE proposes other removal action(s), the Agencies will evaluate that proposal.

(11) The revised IRAP shall also include a detailed explanation of how the Aroclor 1260 release occurred and, specifically, what measures were taken to partially remediate the contaminated soil. (Emphasis added.)

The following letters were attached:

United States Government Memorandum ñ U.S. Fish and Wildlife Service, New England Field Office, 22 Bridge Street ñ Unit #1, Concord, New Hampshire 03301-4986

August 15, 1996

From: Kenneth C. Carr
To: J. Lyn Cutler, MADEP
Subject: Contamination Adjacent to Building 68

We have conducted a cursory assessment of the potential ecological risk associated with the PCBs adjacent to Building 68. We have modeled PCB uptake in the diet of American robins and mallards based on exposure to soil and sediment during feeding. We have not considered dietary exposure for consumption of food items. Therefore, these scenarios represent conservative estimates of exposure. Due to the lack of risk-based data for robins and mallards, we have compared likely dietary exposure in robins and mallards to literature values for pheasants and white leghorn chickens.

Models based on soil and sediment exposure alone, were used to determine PCB levels in the diet of American robins and mallards. These models indicate that PCBs in the river sediments and soils along the riverbank adjacent to Building 68 pose an imminent hazard to birds. Levels of PCBs consumed by American robins and mallards which forage in the heavily contaminated area are likely to cause imminent reproductive effects. The likely average dose of PCBs via soil for American robins and mallards is 12 mg PCB/kg body wgt-day and 1.6 mg PCB/kg body wgt-day, respectively, for a 10% exposure scenario (see calculations below). Dahlgren et al. (1972) reported an Aroclor 1254 LOAEL of 1.8 mg PCB/kg body wgt-day for egg hatchability in pheasants.

In the diet of adult female, white leghorn hens, PCBs at concentrations of 20 ppm have resulted in reduced hatchability, significant chick mortality, and reduced egg production (Britton and Huston 1973; Lillie et al. 1974; Scott 1977). Ingestion by soil by robins feeding in the most heavily contaminated locations is likely to result in PCB dietary concentrations equivalent to 76 to 572 ppm PCBs. Ingestion of sediments by mallards foraging in the area is likely to result in PCB dietary concentrations equivalent to 56 to 312 ppm PCBs. The exposure from soil and sediment associated with diet was calculated by multiplying the contaminant level in the media by the average fraction of the soil or sediment in the diet (e.g. for American robins, if 10.4% (EPA 1993) of diet is soil containing 5500 ppm PCBs, dietary equivalent from soils equals 572 ppm PCBs).

The area adjacent to Building 68 is limited in size (approximately 200 ft along the river by as much as 50 feet wide, for a total of about 0.2 acres). Suitable foraging habitat for robins is approximately 0.05 acres (200 ft in length by 10 ft of river bank). Since the typical territory of a robin is 0.30 acres (DeGraaf and Rudis 1986), robins in this area might be expected to spend approximately 20% of their time (0.05/0.30) foraging in contaminated soil. With an exposure scenario of 20%, the likely average daily dose of PCBs via soil associated with food items for American robins is 24 mg PCB/kg body wgt-day. For mallards, which have a considerably larger territory size (about 2 square miles) (DeGraaf and Rudis 1986), but which concentrate feeding efforts in wetlands and waterbodies, a 10% exposure scenario is conservative.

August 20, 1996 Memorandum

From: Mary Bellew, Environmental Scientist, EPA
Margaret Harvey, Environmental Analyst,
Office of Research and Standards, DEP

To: Bryan Olson, EPA
J. Lyn Cutler, DEP

Re: Human Health Evaluation of Risks from Exposure to Elevated Levels of PCBs in Housatonic River Soil and Sediment in an Area Immediately Adjacent to Building 68

... This evaluation focuses on exposures to a youth (aged 9<18) who walks and plays in the sediment and riverbank soils on a regular and continuing basis during the summer months. The Agencies have referred to this receptor group as the "youth trespasser." In this evaluation, the Agencies have evaluated the Reasonable Maximum Exposure (RME) to the youth trespasser. As defined in EPA Risk Assessment Guidance for Superfund, the RME is the highest exposure that is reasonably expected to occur (EPA, 1989). The intent of the RME is to estimate a high-end exposure case that is still within the range of possible exposures (EPA, 1989). EPA Superfund Guidance specifies that risks to the RME receptor be used as the basis for decisionmaking.

CONCLUSIONS

Based on the evaluation presented in this Memorandum, the Environmental Protection Agency and the Massachusetts Department of Environmental Protection conclude that the elevated levels of PCBs in the Housatonic River sediments and riverbank soils in an area immediately adjacent to Building 68 in Pittsfield, Massachusetts, may present an Imminent and Substantial Endangerment to Human Health pursuant to Section 7003 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6973 and an Imminent Hazard to Human Health pursuant to Section 40.0955 of the Massachusetts Contingency Plan (MCP) and M.G.L. 21e.

HAZARD IDENTIFICATION

Elevated levels of PCBs have been found in Housatonic River sediments and riverbank soils in an area adjacent to Building 68 at the East Street Area II site at the GE facility in Pittsfield, Massachusetts. **Based on limited sampling, PCBs have been detected in surficial sediments (0 to 6 inches in depth) at levels as high as 15,600 mg/kg and in surficial riverbank soils as high as 5500 mg/kg.** (Emphasis added.)

The elevated levels of PCBs apparently are attributable to a spill of Aroclor 1260 in 1968 in or around Building 68. According to GE, the spill resulted in a release of approximately 1,000 gallons of PCBs to the riverbanks and river. According to GE, at the time of the release, contaminated surface rock and river bottom sediments were excavated and removed. Recent findings indicate that some PCBs from the 1968 release still remain. GE only recently informed the Agencies of the 1968 PCB spill when routine sampling conducted by GE revealed the highly elevated PCB levels in soil and sediment.

By October 1996 GE completed the additional sampling the Agencies required and submitted its Immediate Response Action Plan for Building 68 Area, Technical Report (IRAP)

The IRAP stated:

3.2 Extent of Release to Bank Soil

3.2.1 Soil Quality

As shown in Table 2-1 and on Figure 2-1, **PCB concentrations in bank soils ranged from 8.6 to 5,500 ppm at the surface (0 to 6 inches) and from less than 1 to 102,000 ppm in subsurface soils.** The arithmetic average surficial PCB concentrations is 720 ppm, while that for subsurface soils is 5,896 ppm. The relatively higher levels of PCBs (i.e., greater than 300 ppm) appear to be concentrated in the area immediately adjacent to and within approximately 65 feet downstream of the existing Building 68 structure (on the western or "downstream" side). (Pg. 3-2)

3.3.2 Evaluation of the Overall Extent of Release to Sediments

As indicated on Figure 2-1, the relatively higher concentrations of PCBs, notably Aroclor 1260, in sediments of this area generally encompass the northern approximately two-thirds of the river bed extending from the area immediately adjacent to Building 68 downstream for approximately 510 feet (from the upstream end of Building 68). These data appear to define the horizontal extent of the sediments that have been affected by the Aroclor 1260 release from Building 68. The extent of the affected sediment is depicted on Figure 2-1. The spatially weighted average PCB

concentrations in this affected area are 2,042 ppm overall and 2,041 ppm for surface (i.e., 0 to 6 inches) sediments only.

The vertical extent of PCBs in this area generally ranges from 2 to 4 feet. However, at several locations where core samples were collected to refusal and analyzed at depth, relatively high levels were detected in the deepest sample collected. Since the cores were advanced to refusal (using manual sampling techniques), attempts to collect additional sample from such locations using similar sampling techniques would not likely be successful. (Emphasis added.)

These figures for bank soils ñ PCB concentrations in bank soils ranged from 8.6 to 5,500 ppm at the surface (0 to 6 inches) and from less than 1 to 102,000 ppm in subsurface soils. The arithmetic average surficial PCB concentrations is 720 ppm, while that for subsurface soils is 5,896 ppm.î - and these figures for river sediment ñ The spatially weighted average PCB concentrations in this affected area are 2,042 ppm overall and 2,041 ppm for surface (i.e., 0 to 6 inches) sediments only.î exceeded the Stewart Report by an enormous amount.

The Agencies and GE spent several additional months debating the most appropriate strategies for remediation, and GE presented a revised Building 68 Area Removal Action Work Plan in May 1997.

In Section 5.2 Removal Limits/Quantities, GE stated:

The Agencies' March 27, 1997 comment letter stated that the initial sediment removal depth in the eastern portion of the removal area adjacent to Building 68 should be 5 feet.

However, in subsequent conversations, the Agencies agreed that the initial removal in that area could be to a depth of somewhat less than 5 feet (e.g., 3 to 4 feet), provided that GE samples the remaining sediments and conducts additional removal at deeper intervals if the Agencies so require. Based on that understanding (as further discussed in Sections 5.5 and 5.6), the initial removal depth in the area adjacent to Building 68 will be 3 to 4 feet as shown in Figure 5.1. Similarly, the Agencies' letter stated that the initial removal in the upstream area where GE had proposed an initial excavation of 1.5 feet should be modified to a depth of 2.5 feet. Based on similar rationale to that noted above, the initial removal depth in the upstream area has been modified to 2 feet, as also shown on Figure 5-1. (Pp. 5-1 to 5-2.) (Emphasis added.)

The Work Plan called for remediation of contaminated river sediments at depths of six inches in the shallower depths to up to 4 feet in the vicinity of Building 68. In the event that post-removal sampling revealed additional significant contamination, GE's sheetpiling wall would allow them to go as deep as 8 feet.

The Plan stated:

For the design of the sheetpiling in this area, an allowance for additional removal has been identified based on available information. Specifically, from the sediment probing performed in January 1997, it was determined that the average depth of refusal for a metal rod driven into the underlying materials was approximately 8 feet (as measured from the top of the sediment layer). Based on this information, the sheetpile installation has been designed to allow sediment removal up to a depth of 8 feet.

Although the preliminary sheetpiling design supports the possible removal of up to 8 feet of the sediments, the need to remove sediments to this depth is contingent upon the results of post-removal sampling, as well as the technical practicabilities of continued further removal. These considerations are further discussed in Section

5.6.

In determining the technical practicability of further excavation, the stability of such excavation is a critical factor. As discussed in Section 5.3.3, the sheetpiling installation has been designed to allow for an additional depth of sediment removal beyond the initial removal depth.

Specifically, the sheetpiling has been designed to support possible sediment removal to a maximum depth of 8 feet in the eastern portion of the removal area in the vicinity of Building 68 and to a maximum depth of 5 feet in the western portion of the removal area. GE does not believe that excavation in excess of those maximum depths would be appropriate. (Pp. 5-5 to 5-6.) (Emphasis added.)

According to the GE's February 1998 Report on Supplemental Characterization Activities in Building 68 Area:

During the course of sediment removal activities within the river, oil and sheens were observed within certain areas of the excavation limits on three separate occasions.

Responding to the Agencies' concerns, **GE and its contractors discovered in well 3-6C-EB-25 extremely high levels of PCBs at 18 feet - a new, previously unknown source of contaminated oil with PCB levels as high as 624,000 ppm.** While we're aware that in his March 7, 1997 letter Steve Simmer of the United States Army Corps of Engineers (US ACE) reviewed, and commented upon, GE's written Action Plan, we wonder whether the Corps or EPA engineers conducted any independent on-site engineering studies in the Building 68 Area. US ACE made detailed comments about GE's calculations of water flow, but we wonder if, with more time and effort put to engineering and design, the sheetpiling could have been sunk more deeply.

Or, if that was impossible, whether an alternative plan might have been implemented that called for a slurry ditch constructed on the GE riverbank property. Perhaps with either better engineering or an alternate strategy, the Building 68 remediation might have been able to more effectively remove the contamination at depth.

Many, many times during the last decade we have requested that the Agencies set up a pilot project for remediation in a site-specific project to better test the specific conditions of the river system and to do side by side comparisons of remediation choices, including several treatment modalities.

Faced with this new source of almost pure PCB product, and unanticipated high levels of contamination at depth, removal efforts were modified. The January 20, 1998 letter from Andrew T. Silber to USEPA and MADEP reviews GE's removal actions at Building 68:

Area A

Excavation activities in Area A were performed on July 31, 1997 through August 8, 1997 and were completed to an approximate depth of 3.5 feet. Despite stability concerns with the footings of Building 68, excavation of this area did not proceed to the depth of the stormwater pipeline. Additionally, a wedge of soil was left against the building foundation due to stability concerns. As requested by the USEPA, five PCB samples were obtained on August 27, 1997 at the base of the wedge of soil for documentation purposes. These samples were obtained at the base of the sloped soil against the south

wall of the building. **The results of these samples ranged from 891 to 63,700 ppm. Based on these results, the USEPA requested that GE place a geotextile on the sloped surface and bottom of this excavation prior to backfilling. Additionally, at the request of the USEPA, some additional soil was removed from the top of the soil wedge at the western end of the building (to ensure that a minimum of 6 inches of clean backfill would be placed over the PCB-containing soils).** (Emphasis added)

GE's February 1998 Report on Supplemental Characterization Activities in Building 68 Area states:

3.5 NAPL/Surface Water Characterization

... NAPL sample 68-Cell 5-1 was collected from several locations approximately three to four feet below original grade (i.e., the top of the pre-removal sediment layer) in Cell 5 on October 7, 1997. The oil contained PCB quantified as Aroclor 1260 (930 ppm), chlorobenzene (100 ppm), tetrachloroethene (16 ppm - estimated value), pentachlorobenzene (31,000 ppm - estimated value), 1,2,4,5-tetrachlorobenzene (21,000 ppm - estimated value), and 1,2,4-trichlorobenzene (250,000 ppm). Ö

The DNAPL sample from well 3-6C-EB-25 (sample 3-6C-EB-25-1) was collected December 3, 1997. The NAPL exhibited Aroclor 1242 and Aroclor 1260 concentrations of 10,700 ppm and 613,000 ppm, respectively, and a specific gravity of 1.550. The compound 1,2,4-trichlorobenzene was detected at a concentration of 190,000 ppm. No other SVOCs or VOCs were present above quantitation limits.

NAPL sample 68 Cell-6-Oil-1, collected September 25, 1997 from Cell 6 excavation area, containing 251,000 ppm of PCB Aroclor 1260 as reported previously in *Building 68 Removal Action - Assessment of Observed Oil and Proposed Activities*. (Pp. 3-3 to 3-4.) (Emphasis added.)

The Building 68 chronology mimics so much of our experience with this site. A 1968 GE spill. A 1982 report. Sampling in 1996. Remediation in 1997, and additional remediation in 1998.

It seems as if the engineering limitations of the Building 68 Removal, coupled with the discovery of an unexpected source, led to the decision to leave contaminated bank soils with PCB levels as high as 102,000 ppm at a depth of 6 to 8 feet deep and river sediments with PCB levels of 2,240 ppm at a depth of 8 feet.

So two things happened simultaneously with the discovery of the PCB contamination at Building 68: first, it became clear that the Stewart Report's conclusions were thoroughly inadequate. Indeed, as The Berkshire Eagle story of December 2, 1997 reported, **if GE's estimated average concentration of 1,550 parts per million for the sediments in the hot spot is even close, then at least 10 tons of pure PCBs were removed from the river bed off Building 68. That would represent more than half of the 39,000 pounds a GE consultant estimated was in the Housatonic River sediments above the Connecticut border in 1983.** (Emphasis added.)

Second, what now seems apparent is that GE's difficult experience with the Building 68 Removal Action, in effect, has determined the limits of remedial action for the entire 1/2-Mile Reach section of the Housatonic.

This detailed chronology about the Housatonic River sets the stage for the decisions that the

Massachusetts DEP and the USEPA made during its eighteen month secret negotiations with GE.

Let's examine some of these decisions in greater detail.

According to **Appendix F to Consent Decree: Removal Action Work Plan for Upper 1/2 Mile Reach of Housatonic River, dated August 1999, and EPA approval letter dated August 5, 1999, October 1999**, the following remedies have been chosen:

1.3.1 Sediment-Related Activities

GE proposes to remove and restore (i.e., replace with cap and armor) certain river sediments in the 1/2-Mile Reach. **Within this reach, the vertical extent of removal in the majority of these areas where removal will occur will be up to 2 feet, with removal to a depth of 2.5 feet proposed for one area. In areas of low PCB concentrations, no action is planned.** For example, a stretch of the River downstream of Newell Street contains sediment with little to no detectable levels of PCBs; thus no action is required for this section. ... It is anticipated that approximately 8,100 cubic yards (cy) of sediment will be removed. ...

The removed sediment will be permanently consolidated with other GE site-related materials at USEPA-approved locations at the GE facility. Following removal, the sediment removal areas will be capped and armored using a multi-layer cap system.

...

... The current spatial average PCB concentration for the top foot of sediment in the 1/2-Mile Reach is approximately 55 ppm. Following implementation of the sediment removal and replacement activities, the sediment with the highest PCB concentrations will have been removed and the spatial average PCB concentration in the surficial sediment (top foot) will be reduced to less than 1 ppm. **Further, the proposed sediment replacement activities will effectively isolate any remaining PCB-containing sediment and minimize the potential for resuspension of sediments, desorption of PCB from the sediments into the water column, and direct contact of humans and biological receptors with PCB-containing sediment.** (pp. 1-4 to 1-5.) (Emphasis added)

In HRI's June 1999 public comments to EPA regarding GE's proposed remediation for the Upper 1/2 Mile Reach we addressed the interconnected issues of permanently effective technologies vs. land disposal or containment, and raised several issues regarding the limits of the remediation. Our concerns were that:

- 1) unnecessarily high levels of contaminants are being left unremediated in the sediment and bank soil;
- 2) a geotextile liner will be placed above that unremediated and remaining contaminated layer of river sediment in an attempt to cover over contaminants that may, in later years, re-contaminate the river system;
- 3) geotextiles have only been used for twenty-five years; there is significant disagreement among technical experts as to its efficacy in riverine systems. There has not been an adequate pilot test in situations similar enough to the Housatonic to justify its use here without such a pilot test;
- 4) the Agencies have decided to allow GE to place contaminated river sediment and contaminated soil from the banks from the Upper 1/2-Mile Reach of Housatonic River, as well as contaminants from the Allendale School and Newell Street properties in an existing, unlined non-TSCA approved hazardous waste dump with existing PCBs averaging 498 ppm, and with levels as high as 120,000 ppm, 50 yards across the street from the playground of the Allendale School;

5) even though the costs of completely treating and removing the overwhelming bulk of the contaminated sediments and bank soils of the Upper 1/2-Mile Reach of Housatonic River from the local environment are reasonable and certainly affordable by General Electric - the Agencies have chosen instead to allow GE to landfill these contaminants in our community; and

6) the Agencies haven't followed their own guidelines regarding a thorough examination of all remediation options.

In his Responsiveness Summary for Allendale School Removal Action. 1/2 Mile Removal Action and Consolidation, October 1999, Bryan Olson, of the USEPA stated the Agencies response to public comments on their plan for the 1/2 Mile of the River:

Based on the experience of the Building 68 Removal Area (a 550-foot section of the river located within the 1/2-Mile Reach), EPA determined that the complete removal of PCB-contaminated sediments in the 1/2-Mile Reach is not feasible. For example, during the Building 68 cleanup, the sediments in some sections of the River were excavated to a depth of eight feet and PCB levels as high as 2,240 remained. Therefore, EPA based its review of the limits of sediment excavation on the following criteria: removing a significant mass of PCB-contaminated sediments; reducing surficial PCB sediment levels to less than 1 ppm; excavating sediments to a sufficient depth to allow for the installation of an appropriate cap/backfill configuration that would effectively prevent the residual PCBs that remain in the underlying sediments from migrating up to the surface sediments or water column. (Emphasis added).

And so it has become crystal clear that the USEPA's analysis of the Building 68 Removal Action has affected all subsequent decisions concerning the 1/2-Mile Reach, including the decision not to obtain PCB and Appendix IX+3 constituents samples in the river beyond a depth of 2.5 feet.

As the USEPA states on page 4-1 of Appendix F to Consent Decree: Removal Action Work Plan for Upper 1/2 Mile Reach of Housatonic River, dated August 1999: "Recent sampling performed by the USEPA (August to October 1998) involved establishing 63 transects, approximately 50 feet apart, along the River in the 1/2-Mile Reach, and generally obtaining samples (when retrievable) from three locations along each transect at 6-inch depth intervals, **to a maximum depth of 2.5 feet.** Samples collected from this reach between 1981 and 1998 indicate the presence of PCBs in sediments ranging from less than 1 part per million (ppm) to 9,411 ppm." (Emphasis added.)

Why obtain deeper samples when a de facto decision had already been made to limit all remedial activity to 2.5 feet for the 1/2-Mile Reach. Unfortunately, this decision will leave extremely large quantities of PCBs untouched below the 2.5 feet level. And this strategic decision has led inevitably to the determination to employ a multi-layered computer-designed cap system.

More extensive engineering, and/or a pilot project, ought to have been considered as an alternative to the plan. The Building 68 Removal Action revealed the existence of an unanticipated source of DNAPL - wouldn't it make sense now to consider a range of remediation strategies, including the construction of a slurry/ditch and pumping system deep enough to capture and drain the DNAPL plumes that continue to endanger the river system.

There is certainly room enough on the extensive GE property which borders the 1/2-Mile Reach for such a drainage ditch and pumping system to ensure that the deep plumes heading to, and possibly travelling below, the river itself are immobilized and remediated. Such a system would not only prevent any possible future recontamination but would enable the remediation efforts in the 1/2 Mile Reach to go deeper and remove greater quantities of contaminated sediment.

Based on our long-standing concerns with the underground plumes that threaten the river, and our belief that GE, in violation of the 1980 and 1990 Consent Agreements it signed with the Commonwealth and the U.S., has failed to adequately chart and identify the extent of its contamination, HRI repeatedly suggested modifications to the EPA's approach for the 1/2 Mile Reach. Our advocacy for a slurry/ditch and pumping system along the stretch of the 1/2 Mile Reach was based on much anecdotal testimony from former GE employees and neighborhood residents who remember widespread dumping in the area. Unless and until all significant sources of contaminated oil are remediated the river will be continuously threatened.

It's instructive to go back out and revisit the concerns both the EPA and MADEP raised to GE on November 22, 1996 about its plan for the Building 68 Removal Action:

- 1. when and if there is any failure of the armoring**
- 2. covering over the large volume of extremely elevated levels of PCBs in the sediment of a dynamic river system does not eliminate the potential source of PCBs to that river system**
- 3. armoring the grossly-contaminated sediments in this area would be an impediment to any subsequent removal and disposal of grossly-contaminated sediment**

Because of these apparent inconsistencies, HRI raised the following issues:

Capping and geotextiles: We have several comments about the decision of the Agencies to allow the use of GE's proposed cap for sections of the Upper 1/2 Mile Reach of the river without an adequate pilot-project under the real conditions of the Housatonic. Thus far, all major decisions regarding the cap are based on computer-modeling.

Our technical consultant, Joel Loitherstein of LEEI, has stated:

LEEI was not able to find other locations where a cap and armor has been placed beneath a river. The available literature refer to caps being placed beneath relatively calm surface waters such as harbors and lakes. There is a similar project being proposed in New York, but a pilot test is being performed before it is put in place.

It is the opinion of LEEI that these remedial decisions are based on entirely too little data, and that the data itself are highly questionable. Given GE's proposed plan to cap the remaining river sediment subsequent to excavation, we seriously question the benefit that such an exercise will have on the ecological systems and potential human receptors when compared to the disruption and uncertainties that the exercise will entail. ... It is also the opinion of LEEI that capping the sediment should be further evaluated as a remedial option before it is implemented over the entire 1/2-mile stretch. We have reviewed many articles on capping, including some cited in BBL's report ...

According to one study 'capping is likely to be used only in environments where the long-term integrity of the cap can be guaranteed. Typically this would mean low hydrodynamic energy environments such as harbours, estuaries and lake bottoms.' ... It is the opinion of LEEI that the Work Plan should also involve a pilot test of a high velocity and scouring area before the cap is implemented over the entire 1/2-mile reach. It is our opinion that, rather than a prediction of PCB flux based on computer models (Appendix G of BBL's report), that GE be required to obtain actual data on flux and PCB concentrations using seepage meters placed at key locations on the river bottom. These

data could then be used to calibrate the model to make more accurate predictions of the cap's useful life."

On February 11, 1999, at the request of HRI, the EPA brought their river remediation consultant from the U.S. Army Corps of Engineers to address the Community Coordinating Council. Michael Palermo, Ph.D., Director of the Center for Contaminated Sediments, who has extensive experience with a range of projects, said :

I don't know of that many riverine sites - once again, rivers present a set of site conditions that are a little different say than an estuarine or open ocean type of site - you have different things to design for, for instance, flood events, or in this case, even ice, you know, formation and ice effects, **but no, we have not seen caps constructed in many riverine situations.**" (Emphasis added).

In response to HRI and CCC member Benno Friedman's question about what it would cost to go back into the river to fix the cap in the event of cap failure, Palermo said:

Well, I'm not a good cost estimator, but I would just guess it would cost more than it did to do it the first time for sure. It would not be an easy proposition to do, it would not be an inexpensive proposition to do.

When Benno Friedman continued to ask whether complete removal and treatment, even though it might cost more, made more sense than a system that might fail, Palermo added:

I have no way of knowing that because I don't know what the cost estimates are to remove, you know, even what they propose to remove - I haven't seen those figures."

We were disturbed to learn that even the EPA's own consultant hadn't been told what the most reasonable alternative to landfilling and capping might cost! And we wonder whether this indicates that the Agencies haven't adequately examined all the other remediation options!

Because of the Agencies' decision to allow GE to leave significant amounts of PCBs in the river, the ability of the cap to perform perfectly is critically important, and the fact that there has not been significant past experience with capping a similar riverine system is very significant.

Palermo continued:

... in this particular half-mile reach, you know, the objective is going the next step - this cap has got to not only physically stabilize what sediments are left in place, it's also got to isolate those contaminants from moving up, you know, up through the cap and back into the river system. This cap design has that added level of concern in the design, another process that has to be looked at very closely.

It's easier to design the armoring layer to resist scouring or erosion than it is to design a cap to contain the contaminants under certain circumstances."

HRI and its consultants believe that these decisions are too important to be made by a computer modeling program. We need a pilot project to prove it will work.â

The recent history of clean-up activities in the 1/2 Mile Reach bears this out. Several times the cranes dredging the river sediments and banks have uncovered significant sources of contaminants.

During the June 7, 2000 meeting of the Citizens Coordinating Council, GE's Andy Silber reported on the discovery of DNAPL oil in Cell F1 on the south side of the 1/2 Mile Reach and DNAPL oil found during excavation of Cell G1 on the north side of the river.

During the July 20, 2000 Site Visit, standing on the river bank about 100 yards south of the Newell Street Bridge, Dean Tagliaferro, the EPA Project Manager for the 1/2 Mile Reach stated:

As you know in October GE started at the Newell Street Bridge. This part here the Removal Action is all completed down beyond the trees, so this part has been excavated and restored per the Work Plan. This area, the basic premise was based on extensive sampling - we decided how much needed to be removed from the sediments and it varied from two to two and a half feet up to three feet on the banks.

And the second criteria was that, at the base of the excavation, we would inspect it and if there was NAPL or oil at the base of the excavation, GE would be required to take additional actions. That situation did happen here, both with oil being present. On the upstream end the two feet was taken out, underlined with geotextile fabric, backfilled with sand and then rock on top of that and a lot of that rock you can see extending up the bank.

The area where we detected oil at the bottom of the excavation was right here in front of this head wall. GE sampled the oil - it was found about two feet down in the river - when the river was dry, there was sheetpile in the middle, it was dried out, two feet was excavated, there was oil in small patches. It was sampled and found to contain uh compounds that go with manufactured gas plant waste, which is a process gas companies did about a hundred years ago.

If there was any oil to be left, GE was required to put in a collection system. The last day I was out here there was still some oil at the bottom of the excavation, so GE installed a stone trench underneath the river and put this pipe in it on an angle which actually goes about 10 feet below the river into the stone to collect any oil. On top of that, there was an impermeable liner just in this area placed about 5 feet below the sediments and on top of that followed the regular restoration. So from the top you cannot see any of that. This well went back into the ground, uh underneath the river, and after that we took - GE has removed about 500 gallons of oil from that well.

As we have seen over the last few years, finding and delineating PCB contamination is not easy. A single boring within a 25 foot grid may detect or miss substantial concentrations of PCBs. As the river remediation continues, there will be times when unexpected pockets or plumes of PCBs will be uncovered. There have been, and will be, times when those pockets remain untouched.

In its Removal Action Work Plan for the Upper 1/2 Mile Reach, the EPA has, in effect, turned this reach into one gigantic pilot project, except that as GE completes this work, the EPA will offer them a certificate of completion. And while there are re-openers within the provisions of the Consent Decree, anyone who has watched GE carefully over the years, can reasonably expect GE to mount a court challenge to any attempt by the Agencies to require large-scale modifications for work they have

completed and for which they have submitted and received approval for a Completion of Work Report.

In Exhibit 2, United States Memorandum In Support Of Motion To Enter Consent Decree, the United States offers its responses to comments on the proposed Consent Decree. Section II B, Comments on Adequacy of Public Process, Response 2 declares:

Overall, the public participation afforded on the lodged Decree by the United States in the area affected in the proposed Consent Decree was quite extensive and met all legal requirements. During the 120-day public comment period, EPA held three public meetings on November 16, 1999 in Pittsfield, on December 9, 1999 in Stockbridge, Massachusetts, and January 4, 2000 in Kent, Connecticut. Moreover, the EPA, the U.S. Department of Justice, and the Commonwealth of Massachusetts presented a summary of the Consent Decree at an October 26, 1999 meeting of the Citizens Coordinating Council (CCC). The CCC, established by EPA in November 1998, is a group of over 30 environmental, business and community leaders from both Massachusetts and Connecticut. Ö

The public participation afforded by the United States on the proposed Consent Decree plainly satisfies all necessary legal requirements.

I firmly believe that the government overstates the nature and quality of public participation at this site from the onset of closed-door negotiations. Let's review some of the previous statements of EPA officials regarding public participation. On April 8, 1998 EPA Region 1 Administrator John DeVillars spoke at a public meeting at Pittsfield High School to announce the failure of a round of negotiations with GE, and to announce a four-part action plan, including the listing of this site under Superfund. Mr. DeVillars declared:

The negotiations didn't achieve the outcome we had hoped for, an agreement that we could all get behind, including GE, that was in the interests of this community, but we did achieve some benefits from it. We clearly narrowed our differences. I think for all of us on this stage, we deepened our understanding of this community, and the difficult situation that you're in on this issue and importantly we built some strong relationships that will hold us in strong stead over the coming years Ö

Ö we announced a four-part plan, as you know on Monday, and I won't review that except in very summary fashion. Four elements:

1) An aggressive enforcement action now immediately to ensure that there's source control on the plant site so that further contamination of the river doesn't take place, as well as to begin and complete remediation in the river to address some substantial public health risks in the first two miles of the river.

Secondly, to go forward in what frankly I think is as important a part of that four-part action plan as any and that is **to build a community advisory board and to begin a process whereby we work very effectively in a very open fashion with this community to understand even better your interests and to make sure you have a voice in the process** ñ that means the business community, that means the environmental community, it means the South County towns, the State of Connecticut, the Commonwealth and EPA, the Department of Fish and Wildlife for the Commonwealth, the people who contribute the most to this effort. We need you as part of it. That community advisory board is one mechanism that we're going to use, but meetings like this, expanded office hours, material that we're trying to get out for you, is all ñ out to you ñ **is all to make certain that you're informed and that you're able to hold us accountable for what we owe you ñ which is a prompt and safe cleanup in this community** Ö

And the fourth element, of course, is to move forward with the Superfund listing. For a variety of reasons, it's the best tool that we can use. I'm happy ñ it's not simple stuff by any means, and I'm happy to get into why we think it's the best tool as much as you want, but let me leave it at that and reiterate that this is but the second or third or fourth of many meetings that we've had and will continue to have on a regular basis so that we can make you as much a part of this as you care to be.

Ö all the engineering studies, the legal analysis, all the substantive issues here that are in play are ones that will be shared with that advisory board and any subcommittees that they establish, and, you know, a dialogue ñ and hopefully we can come to consensus as we move forward Ö

Ö ultimately, it's EPA that has to make a judgment as to how much risk, where the cleanup happens, whatever, but what I'm also saying is that on the decisions about the advisory board as well as the many decisions that will follow **we want the community input and I think if we get and we have a good dialogue, we collectively will be making those decision, That's certainly the process we're going to be working hard to achieve.**

Ö what I think is reasonable and fair to commit to in terms of the two miles of the river is as follows: We're going to, and this is the Immediate Enforcement Order that we're issuing. We'll have that order out by May 15th. GE has to submit us a plan, an engineering study, in essence, by July. We will work with the community to evaluate that, possibly look for more analysis from them and make a decision on, for the plant site itself for controlling the continuing sources of pollution to the river, a decision that will lead to construction activity, cleanup if you will, at the plant site by November of this year. And then for the river itself, we'll continue to sort of do that kind of analysis by the spring of next year. So within 12 months, remedial activity will begin in the river, and it will be approximately two years for those two miles. Ballpark estimate: a mile a year. It depends obviously a little bit what we find in further, in terms of further sampling and analysis Ö

Ö These schedules are going to change, it's very complicated. We don't know exactly where everything is, where we're going to find it, that may change engineering for the remedy itself. And we've got to maintain a good dialogue and keep you posted. But what we've got available tonight is our best estimate of what those schedules are going to look like. As more information comes in, we'll be sharing that with you, and we may have to modify those schedules. But that's the time frame for those two miles of river.

If GE basically says "We're not going to comply with your order. We don't think that's should be our responsibility." Which I think would be an extremely irresponsible statement, or action, on their part, but if they do say that, then we're prepared to move forward and do the work ourselves with dollars out of the Superfund, and seek penalties under the full force of the law: \$27,500 a day from them and seek to recover our costs times three, which is what the law allows us to do, and we believe we have a very strong legal case and a very strong public health and scientific case. So my hope is that they will do right by this community and comply with those orders. But if they don't, we're prepared to do it ourselves, and that timetable is roughly two years from next spring or three years from now that river remediation will be completed, yes completed.

After this announcement, the government agencies resumed negotiations with GE. HRI renewed its request for a seat at the table for public representatives, including representatives of contaminated river-

front properties, contaminated commercial property owners, and representatives from South County communities that bordered the river. We were refused the right to participate but were told once more that these constituencies could continually make their needs and desires known by active involvement with the newly-formed advisory board, the Citizens Coordinating Council.

HRI, in its response to the provisions of the Consent Decree, provided its evaluation of the limits of that participation. HRI stated:

When negotiations began between the United States, Massachusetts, Connecticut and General Electric, we strenuously but unsuccessfully argued that representatives of HRI and the Berkshire County community other than the Mayor and City Council President of Pittsfield be invited to participate. We were told that appropriate members of the USEPA, DOI, NOAA etc., and MADEP could adequately represent and advocate for the public interest.

We were told, additionally, that the Citizens Coordinating Council (CCC) would serve as the appropriate forum where community input could be offered. As active, and often frustrated members of this Council, we were repeatedly told at CCC meetings that the most critical and substantial matters regarding the cleanup were covered by the confidentiality provisions of the negotiating process, and could not be fully or openly discussed. True, substantive public participation was thwarted by this closed-door negotiating process.

While Mr. DeVillars assured the public they would have ample opportunity to provide input into the process of shaping any Consent Agreement, the public was presented a document as a fait accompli. Environmental regulators had negotiated an agreement that precluded any substantive change ñ it was understood by all parties that should the agreement be modified, GE could walk away from the agreement.

Thus, the public was told that any change would torpedo the great gains the regulators had won in the negotiation process. GE and the Commonwealth of Massachusetts, the State of Connecticut and the federal agencies all now had a stake in defending this agreement.

In addition to his promises regarding public participation, Mr. DeVillars outlined a strategy for an active and thorough cleanup utilizing the strongest possible federal legislation, CERCLA, or Superfund. For years we had labored under provisions of RCRA and for years the environmental community had urged federal regulators to list the site under Superfund. Finally, it seemed the community would be better served by the EPA. In response to a question concerning EPA's ability to fund initial work on the river, Mr. DeVillars emphasized the commitment of the agency to move forward with remediation and meet any legal challenge GE might launch:

What I can commit to is that if GE does not at this point in time, that if GE does not honor our order, if they do not do right by this community in terms of controlling sources at that plant site and cleaning up those two miles of river, the Environmental Protection Agency will step in and pay for it. That, we're going to need about, ballpark, and Bryan or others, Matt, Doug correct me if I've got this wrong but ballpark about 5 million dollars this year for the work, EPA work, that's required and GE, I

think, to their credit, you know we've got some disagreements obviously but they're they are, as I understand it, quite committed to honoring the commitments they've already made to date in terms of the residential properties and the Allendale School, further sampling at the Newell Street commercial properties, I believe, is that correct, the last piece? [Bryan Olson: "not yet, no."] Not yet, no, we're working on that too, but you know, on the school and on the residential properties, to moving forward and doing, doing the right thing here.

We made it clear if they didn't, we would bring that under the order as well although frankly I don't think that's why they're doing it. I think they're doing it because they legitimately see it as an appropriate thing to do, um but if they don't in that same spirit address the issues in the river, and the banks of the river and the floodplain properties that are either contaminated or in danger of contamination, then we will step in and do the work: \$5 million this year, ballpark we're estimating and these are very rough numbers, approximately \$20 million a mile of river and that includes floodplains and banks as well, and so as I mentioned earlier that will be over the next two fiscal years so I'm prepared to commit that the Environmental Protection Agency will be there to make certain that our resources, if necessary, get that job done in, according to that schedule. Um the only way I'm going to be able to do that is if the United States Congress funds the Superfund adequately. I can't commit to future fiscal years because I don't know what the Congress is going to appropriate. But that's the context for the plant site source control and the two miles of the river.

And beyond, and I would just say one other thing on that and this may be more detailed than people want but uh you know one of the concerns is: will GE litigate this to death and nothing will ever happen? Um, it's hard to predict litigation schedules and the like. Their opportunities for litigation and the amount of time they can tie this project up in litigation under Superfund is much less than under any other statute. Um and it's our feeling that it would be nice if they litigate at the time this is listed finally, that it is reasonable to assume that that litigation, during that, the other thing I'll commit to is during that period of litigation, up to the time the shovels go in the ground to begin the construction work, we will on our dime, seeking to recover thirty cents for every dime we spend, do that work, the further engineering analysis to get the full Superfund piece ready for construction. Beyond that we're then looking at probably even more substantial amounts and I can't at this time uh commit to that. And again, my earlier commitment, not to appear to be, you know, duplicitous about this, is very much based on what the Congress appropriates. Um we think the litigation would likely have run its course and we feel confident we will win if it's litigated before that the construction activities under Superfund would begin, so there should not be any delay in actual work getting done even if it's litigated under Superfund. And that's quite good news, I think, for this community. It's not an absolute guarantee, because you can't predict what judge is going to hear it, on what schedule but um our experience suggest it's a realistic

expectation.

It is interesting to read this assessment in light of the government's comments in "United States' Response To Comments On Proposed Consent Decree", Exhibit 2 to United States' Memorandum In Support Of Motion To Enter Consent Decree. In response to comments that the EPA should have cleaned the river itself, then sued GE for damages, the government wrote:

As with any settlement, the government weighed the benefits of the proposed settlement offer against the cost, time, and likelihood of success of litigation, and potential remedies associated with unilateral EPA action. In this case, the government decided that the proposed Consent Decree offers far more benefits compared to the costs and uncertainties associated with litigation.

If there is no settlement of this matter, the government faces a number of significant uncertainties. To begin, it is unclear if EPA could pay for the response actions outlined in the Consent Decree. EPA funding for response actions comes from the National Superfund which in turn is funded by Congressional appropriations. Because funding levels for the Superfund program are already insufficient to address all contaminated sites nationwide, and there are competing priorities, EPA may not be able to initiate or complete cleanup actions at this Site.

Further, the Trustees may not undertake restoration activities unless and until damages have been recovered from a responsible party. Thus, in this case, no restoration work, and possibly none or only a small portion of cleanup work, could proceed unless and until conclusion of litigation – a fight which could take years with uncertain results.

In short, the government undertook a balancing of the benefits of the proposed settlement against the pros and cons of litigating the matter with GE. The government ultimately determined that the overall recovery, compensation and public health benefits of the settlement far outweigh the expense, time, and uncertainties associated with litigation.

The very critical issue of strategy was never brought before the CCC, nor brought before the public in any public meeting. Thus the most crucial issue affecting the river, contaminated river front property-owners, commercial property owners, contaminated residential homeowners, South County communities, sportsmen, active and passive users of the river was never open for public participation. The most critical strategic decision ever made regarding this community was made behind closed doors by environmental regulators and attorneys who live in Boston and Washington D.C. We had no voice in that process. And that behind closed door decision to forge a negotiated settlement was unfortunately just the way things had always been done at this site.

The government invested enormous time, effort and money in the effort to come to a settlement. Mr. DeVillars had a personal, political stake in both public acceptance and federal district court approval, having shepherded this agreement. State and federal agencies had a financial stake in approval of the agreement, since as part of the deal, GE would reimburse the EPA and MADEP for past expenses totaling up to nineteen million dollars. GE had a major stake because they had successfully negotiated an agreement that might cost them \$200 million, when they could have easily faced cleanup costs and penalties amounting to more than a billion dollars; they had won an agreement in which the EPA would spend federal dollars to partially pay for river remediation at the site even though they clearly had the financial ability to fund it; in its entirety; and they had won an agreement that allowed them to cap contaminated areas, landfill contaminated wastes rather than pay for more expensive alternative treatment technologies; and leave enormous amounts of toxic contamination in the community. All these were important gains for a corporation facing the cleanup of other contaminated sites across the country; for this agreement would set important precedents for them.

HRI and other interested parties had only two avenues left: to introduce public comments in the hope that the EPA would revise the settlement or to intervene in the court process.

HRI carefully reviewed the settlement agreement and submitted 54 pages of detailed comments on the Consent Decree. HRI concluded that the Plaintiffs, the government agencies, needed to improve the agreement in several important respects:

Notwithstanding their best efforts, while the Plaintiffs declare, as a matter of fact, in V.8.b that they have *determined that: (i) The Removal Actions, when implemented and completed in accordance with this Consent Decree, the SOW, and the Work Plan for the Upper 1/2 Mile Reach Removal Action (including achieving and maintaining Performance Standards are protective of human health and the environment with respect to areas addressed by those Removal Actions; and (ii) Except as expressly provided in this Consent Decree, no further response actions for the areas addressed by such Removal Actions are necessary to protect human health and the environment* we believe a careful reading of the Consent Decree reveals several critical instances where the public health and welfare, and the well-being of the environment, can be better protected. In these respects, this Consent Decree can be more fair, reasonable, and better serve the public interest. As it stands, the proposed settlement is inadequate to the task of guaranteeing that the public health and environment will be fully protected from future releases of contamination stemming from the GE site and/or GE's off-site dumping actions.

CERCLA Section 9621(b), General rules for cleanup, clearly states:

(1) Remedial actions in which treatment which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants is a principal element, are to be preferred over remedial actions not involving such treatment. The offsite transport and disposal of hazardous substances or contaminated materials without such treatment should be the least favored alternative remedial action where practicable treatment technologies are available.

The President shall conduct an assessment of permanent solutions and alternative treatment technologies or resource recovery technologies that, in whole or in part, will result in a permanent and significant decrease in the toxicity, mobility, or volume of the hazardous substance, pollutant, or containment. In making such assessment, the President shall specifically address the long-term effectiveness of various alternatives. In assessing alternative remedies, the President shall, at a minimum, take into account:

A (A) the long-term uncertainties associated with land disposal;

B (B) the goals, objectives, and requirements of the Solid Waste Disposal Act (42 U.S.C 6901 et seq.);

(C) the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous substances and their constituents;

(D) short- and long-term potential for adverse health effects from human exposure;

C (E) long-term maintenance costs;

D (F) the potential for future remedial costs if the alternate remediate action were to fail; and

(G) the potential threat to human health and the environment associated with excavation, transportation, and redispersion, c. containment. The President shall select a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to maximum extent practicable. If the President selects a remedial action not appropriate for a preference under this subsection, the President

shall publish an explanation as to why a remedial action involving such reductions was not selected.

(2) *The President may select an alternative remedial action meeting the objectives of this subsection whether or not such action has been achieved in practice at any other facility or site that has similar characteristics. In making such a selection, the President may take into account the degree of support for such remedial action by parties interested in such site.* (Emphasis added.)

The Housatonic River Initiative believes that this Consent Decree fails to meet these standards. This site calls for a range of remedial actions and treatment ***which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances.*** The Defendant and Responsible Party is more than able to meet the costs associated with alternative, remedial actions and treatment ***which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances*** (Emphasis added.)

The decision to exclude the Housatonic River Initiative and other public representatives from these negotiations has ensured the fact that the great public support for selecting these alternative remedies has been discounted by the parties. And this exclusion all but ensured that, contrary to Section 9621(2), the President has unfortunately failed to *take into account the degree of support for such remedial action by parties interested in such site.*

Critical to this Consent Decree are the Plaintiffs' covenants not to sue. Section 9622 (f) (4) of CERCLA states:

In assessing the appropriateness of a covenant not to sue under paragraph (1) and any condition to be included in a covenant not to sue under paragraph (1) or (2), the President shall consider whether the covenant or condition is in the public interest on the basis of such factors as the following:

(A) *The effectiveness and reliability of the remedy, in light of the other alternative remedies considered for the facility concerned.*

(B) *The nature of the risks remaining at the facility.*

E (C) *The extent to which performance standard are included in the order or decree.*

F

G (D) *The extent to which the response action provides a complete remedy for the facility.*

(E) *The extent to which the technology used in the response action is demonstrated to be effective.*

(F) *Whether the Fund or other sources of funding would be available for any additional remedial actions that might eventually be necessary at the facility.*

(G) *Whether the remedial action will be carried out, in whole or in significant part, by the responsible parties themselves.*

As we will demonstrate in our comments below, this Consent Decree fails the public interest in several respects:

The effectiveness and reliability of the remedy, in light of the other alternative remedies considered for the facility concerned.

The nature of the risks remaining at the facility.

The extent to which performance standard are included in the order or decree.

The extent to which the response action provides a complete remedy for the facility.

The extent to which the technology used in the response action is demonstrated to be effective.

And because of these failures, we believe it is premature for the Plaintiffs to agree to

covenants not to sue.

In light of these concerns, we suggest specific improvements to provisions regarding:

- 1) Upper 1/2 Mile Reach Removal Action
- 2) The Hill 78 and Building 71 Consolidation Areas Removal Action
- 3) The Silver Lake Area Removal Action
- 4) Removal Actions at the Former Oxbow Areas
- 5) The Natural Resources Damage Award

I have previously reviewed the issues HRI raised regarding the Upper 1/2 Mile Reach Removal Action. HRI's comments regarding the rest of the Consent Decree are as follows:

2. The Hill 78 and Building 71 Landfills:

The APRIL 1994 Public Involvement Plan document by the Massachusetts DEP states: *"The Hill 78 landfill is approximately two acres in size with a maximum depth of approximately 40 feet. ... The school property is within 50 feet of the Hill 78 site fence line. From approximately 1940 to 1980, GE used the Hill 78 area as a landfill for demolition or construction debris, excess fill and solid (reportedly non-hazardous) waste.*

*GE also allegedly used the landfill to dispose of drums containing PCBs and fuller's earth saturated with PCBs in the 1950s and 1960s. The EPA RCRA Facility Assessment stated that former GE employees disposed of PCB oil in the landfill. From 1980 to early 1990, GE used this area to store soils containing less than 50 ppm PCBs from routine, facility-wide excavations. **Sampling of the fill revealed areas with PCB concentrations up to 120,000 ppm in subsurface soil.**" (emphasis added).*

*In 1991, GE's consultants completed a Phase I investigation of the site. ... **Results confirmed that the landfill area is the most contaminated portion of the site.** Ground water in the vicinity of the landfill area is contaminated with PCBs at concentrations up to 9 ppb. In addition, VOCs were detected in ground-water samples collected from wells located downgradient of the landfill area and south of the Altresco power plant at concentrations of less than 1,000 ppb. Ground-water samples collected from a well in the southwestern corner of the site contained concentrations of less than 30 ppb of dioxins and furans.*

The Department classified the site as a priority and GE submitted Phase II Scope of Work proposing further definition of ground-water contamination at the site and assessment of contamination potentially attributable to abandoned transformer oil lines extending from the East Street Area II site across this site and to Building 51 (part of the Unkamet Brook site). (Emphasis added).

And then from the DEP's Public Involvement Plan, Volume 5, Page 12:

*"Table 1: Descriptions and Characteristics of GE Pittsfield Disposal Sites
Hill 78 Landfill Area; 57 acres; DEP & EPA jurisdiction - Contamination: PCBs in*

subsurface soils (average concentration 498 ppm; maximum concentration: 120,000 ppm)."

Members of the public and HRI kept reminding the EPA and DEP regulators that the existing Hill 78 landfill was already filled with all kinds of toxic materials, including liquid plumes, many barrels of PCB-contaminated liquids, solvents, and probably metals - precisely the kind of high-level, dangerous waste that the EPA wasn't willing to add to Hill 78 or put in the newly-lined Building 71 landfill.

HRI and many members of the public are very concerned that GE and the Agencies are adding tons and tons of more waste on top of extremely dangerous toxic wastes in Hill 78, ensuring that any potential problems of leaking barrels will be that much more difficult to deal with.

We believe public health and safety will be unnecessarily threatened by the Agencies' decision to not only leave such high-level contamination in place at Hill 78 but to add to it and make more difficult any efforts that may prove necessary at a later date to deal with potential problems.

Ö While the decisions to enlarge the Hill 78 Consolidation Area, and construct the Building 71, and possibly the New York Avenue/Merrill Road, Consolidation Areas meet the criteria for short-term effectiveness, ability to implement, and cost, it certainly fails the criteria for reducing the volume of waste. And there is reliable testimony and good reason to doubt that this decision provides either long-term reliability or effectiveness.

Hill 78 is 50 yards from an elementary school and a block from a populated residential neighborhood. School children, teachers, local residents are without protective clothing or respirators. An unexpected fire or explosion at Hill 78, with its large quantities of liquid PCB oil, buried barrels, and other toxic liquids would represent a public hazard. We appreciate that the Agencies have designed a ground water monitoring system and an inspection regime to ensure the integrity of the cap, but what about unanticipated fires, explosions, and tornadoes. Why needlessly expose schoolchildren to such risks?

Ö HRI believes that there is a far more protective alternative: treatment. Unfortunately, the Agencies have not adequately considered the clear benefits of a complete removal/treatment plan rather than the partial removal/capping/landfilling plans they have endorsed.

Ö And we believe that our position on treatment rather than landfilling is supported by the very mandates of the Agencies and an objective review of the standards regarding Corrective Measures:

- 1) overall protection of human health and the environment;
- 2) ability of the technology to attain media cleanup standards;

- 3) the ability of the technology to control the sources of releases; and,
- 4) the technology's compliance with standards for management of wastes

We believe a critical examination of these four factors leads to the treatment option rather than the decision to landfill across from a public school. As prior EPA testimony states, sooner or later landfills will discharge contamination into the environment and the landfilling option cannot, therefore, guarantee *"to control the sources of releases."* Therefore, neither can it guarantee the *"overall protection of human health and the environment."*

To the extent that EPA and DEP believe that landfilling meets those standards, they have the added burden of comparing the effectiveness of treatment and landfilling: *"If two or more technologies meet the evaluation standards then there are five evaluation decision factors which must be considered. The five evaluation decision factors are:*

- 1) *ability of the remedy to provide long-term reliability and effectiveness;*
- 2) *ability to reduce the toxicity, mobility, or volume of wastes;*
- 3) *short-term effectiveness;*
- 4) *ability to implement; and,*
- 5) *cost."*

HRI believes that treatment - thermal desorption, for example - will greatly reduce the large volume of toxic contaminants. By destroying much of the contamination, rather than burying it, the treatment option better provides *"long-term reliability and effectiveness."* It clearly better meets the standard of *"reducing the toxicity, mobility, or volume of wastes."* Treatment is not only effective in the short-term, it is a far more effective option for the long-term. GE has proven its ability *"to implement"* the treatment option in its remediation of the Rose Superfund site in Lanesboro, Massachusetts. Similarly, GE Canada is utilizing thermal desorption treatment in Canada. Only when it comes to cost, and the ability to implement, does landfilling have advantages.

3. The Silver Lake Area Removal Action

Attachment K to the SOW details the nature of the cap intended for Silver Lake:

ib.(i) This cap shall include an isolation layer positioned directly above the sediments over the entire lake bottom. This layer shall consist of silty sand, with a presumptive thickness of 10 inches, if geotextile is placed between the sediments and the cap (or 12 inches, installed in two six-inch lifts, if a geotextile is not placed between the sediments and the cap), an organic carbon content of 0.5 percent (as total organic carbon) and concentrations of PCBs at non-detectable levels and other constituents at background levels as approved by EPA. (The presumptive thickness of the cap is based on use of a 6-inch isolation layer to control PCB migration from the underlying sediments into the surface water of the lake, plus an additional 4 inches of silty sand if geotextile is not used), to account for uncertainties associated with bioturbation. GE shall perform pre-design investigations to confirm the design parameters which support the above presumptive thickness and organic carbon content assumptions presented in this Attachment, then the isolation layer.

If those pre-design investigations confirm the design assumptions presented in this Attachment, then the isolation layer will consist of a silty sand layer with a thickness of

10 inches, if geotextile is placed between the sediments and the cap (or twelve inches, installed in two six-inch lifts, if a geotextile is not placed between the sediments and the cap), and an organic content of 0.5 percent (as total organic carbon). If the pre-design investigations indicate that a thicker cap and/or a higher organic content is necessary, then the cap thickness and/or organic content will be modified using revised input parameters based on the results of the pre-design investigations and the procedures/equations presented in Exhibit K-1. GE shall ensure that the design cap thickness is achieved over the entire bottom of the lake.

ii) The capping system shall also include an overlying armoring layer of stone, incorporated along the shoreline as necessary to prevent erosion of the isolation layer due to wind-induced wave action.

id.(i) If the periodic inspections and monitoring of the cap thickness and the shoreline armoring layer indicate that the design standards for those components of the capping system are not achieved or maintained, GE shall evaluate and propose to EPA appropriate corrective actions to achieve those design standards, and shall implement such corrective actions upon approval by EPA.

ii) If the sampling of the isolation layer indicates that that layer is not performing in general accordance with the predictions on which the isolation layer design was based in terms of controlling PCB migration from the underlying sediments into the surface water of the lake, GE shall evaluate corrective actions and submit the results of such evaluation to EPA for approval, and shall implement such corrective actions, if any, upon approval by EPA. (Technical Attachment K, pp. 2-3) (emphasis added).

The Agencies' decision to limit remediation of Silver Lake to a 10 to 12 inch layer of silty sand is one of the most disappointing decisions we have seen at this site in the last decade.

Ö The Agencies performed extensive independent testing in the Upper 2-Mile Reach of the Housatonic River. This did not happen with Silver Lake: the Agencies did no independent testing, nor, as far as we can tell, did they perform any independent analysis of remediation options. After a review of the publicly available records concerning Silver Lake, it appears to us, that with the hectic year and a half of difficult negotiations, the Agencies seem to have regarded Silver Lake as an afterthought.

At the least, HRI requests a pilot project for the Silver Lake remediation to see whether or not complete removal of contaminated sediments is possible. If the Agencies are serious about their desire to restore Silver Lake so that people can fish and swim in it, it is vital to restore public confidence. It is commonplace for older Pittsfield residents to reminisce about the years that the highly contaminated Silver Lake wouldn't freeze or the time it caught fire. We do not, nor do we believe that the public will, regard as adequate a clean-up scenario limited to dropping twelve inches of sand from a barge thirty feet down to cover contaminated sediments with levels as high as 20,700 ppm.

Ö This remediation plan can easily fail. It does not utilize permanent solutions. It does not reduce the quantity of toxic wastes in any large or material way. Ö

4. Removal Actions at the Former Oxbow Areas

Section IX PERFORMANCE STANDARDS AND RELATED REQUIREMENTS, 23 e. of the Consent Decree sets the clean-up standards for these areas. It allows GE to select one of three options for determining spatial averaging of contamination for the top foot of soil at a property: *i(i) consideration of the overall property as an averaging area* *Ö (ii) establishment of averaging areas which do not exceed 1.0 acre for GE-owned industrial portions of the GE Plant Area. 0.5 acre for other commercial/industrial properties or recreational properties, or 0.25 acre for residential properties* *Ö (iii) proposal of other specific averaging areas to EPA for approval.* If GE selects the first option, it must *remove and replace all soils in the top foot in unpaved portions of such property or area in which PCBs have been detected in excess of the following NTE concentrations: 125 ppm at a commercial/industrial property or area; 50 ppm at a recreational property or area; or 10 ppm at a residential property.* (Page 116, Consent Decree)

HRI urges a downward revision of these allowable not-to exceed (NTE) concentrations for Removal Actions Outside the River for the top foot of soil: current levels of 125 ppm at commercial/industrial properties; 50 ppm at recreational properties; and 10 ppm at residential properties should all be lowered.

Appendix E provides further details, For GE-owned commercial/industrial properties in the Former Oxbow Areas, or properties for which an ERE has been obtained, cleanup levels are as follows: 0 to 1 foot, a spatial average of less than 25 ppm; 1 to 6 feet, less than 200 ppm; and if averaged levels at 0 to 15 feet, incorporating anticipated response actions, will exceed 100 ppm, then GE shall install an engineered barrier. For properties where an ERE cannot be obtained, cleanup levels are as follows: 0 to 1 foot, a spatial average of less than 25 ppm; if the spatial average, after incorporating anticipated response actions, will exceed 25 ppm at 0 to 3 feet, then shall remove and replace soils to achieve a less than 25 ppm average; from 1 to 6 feet, after incorporating anticipated response actions, less than 200 ppm; and if averaged levels at 0 to 15 feet, incorporating anticipated response actions, will exceed 100 ppm, then GE shall install an engineered barrier. (Page 50).

For recreational properties within the Former Oxbows *if the spatial average PCB concentration exceeds 10 ppm in the top foot or 15 ppm in the 1- to 3-foot depth increment, GE shall remove and replace soils as necessary to achieve spatial average PCB concentrations at or below those levels* *Ö GE shall then calculate the spatial average PCB concentration for the 0- to 15-foot depth increment* *Ö If that spatial average PCB concentration exceeds 100 ppm, GE shall install an engineered barrier* *Ö* (Page 51).

We do not believe that these decisions fully protect public health or the environment. GE and the Agencies arrived at an averaged cleanup level of 2 ppm for residential fill properties. While we do not challenge that there is some difference between 24 hour a day residential exposure and less constant occupational or recreational exposure, we do not believe leaving PCB contamination at levels up to 25 ppm in the top foot in commercial areas like Newell Street.

Newell Street is a perfect example of an area that transcends simple categorization. The same area is home to the workers and management of Moldmaster Engineering, the members of the Italian American Club, and borders many homes.

Similarly, a sampling and remediation regime which allows averaging areas of half an acre does not adequately serve to either discover or remove potential hotspots.

Finally, we do not believe that a remediation strategy which calls for an engineered barrier when and if high levels of contamination are found at depth is an adequate solution to the potential dangers of buried barrels, new-found potential plumes and free product in the oxbows. Former GE workers have spoken often of buried barrels, and yet to be discovered GE dumpsites. Only a more comprehensive testing regime in the Former Oxbows and a commitment to remove all high level contaminants at depth can adequately protect the public health for years to come and ensure that the Housatonic River will not be recontaminated.

Recent experience reveals that the Agencies and GE have yet to detect all possible sources of contamination within the Former Oxbow areas. For several years HRI has been questioning the reliability of GE's demarcation of the DNAPL and LNAPL plumes. For several years we questioned whether or not it was possible that the plumes had migrated below and to the other side of the Housatonic River, and were assured that this had not happened. The recent discovery of a new plume in the Newell Street area reveals that our concerns are well-founded. And since July 1999, they've pumped out at least 9,000 gallons of PCB-contaminated oil from this previously undetected plume. This is a significant amount of oil.

According to Technical Attachment H of Appendix E, Groundwater/NAPL Monitoring, Assessment, and Response Programs, GE recovered 1,750 gallons of LNAPL and 600 gallons of DNAPL from 1990 to March 1999 from the Lyman Street Area, and 700 gallons of LNAPL from 1991 to the present in East Street Area 1. This new plume has already greatly exceeded those outputs. Hopefully it is far less extensive than the large plume at East Street Area 2, from which, since the 1970s, GE has removed 800,000 gallons of NAPL.

We are very concerned by the highly contaminated groundwater in these areas. The Combined Action and EE/CA Approval Memorandum (Appendix B) recognizes this problem as it relates to the Housatonic River: *7. Dissolved contamination in groundwater migrating into the Housatonic River. Due to the presence of several DNAPL plumes, LNAPL plumes, and heavily contaminated soils, PCBs are present in low levels in the groundwater. Although the concentrations of PCBs are low, the volume of groundwater discharging to the Housatonic River may be large, and the total loading of PCBs may be significant. Therefore, this represents a potential source of PCBs to the Housatonic River.* (Page 9).

Appendix C of the Consent Decree gives a sense of how compromised Pittsfield's groundwater has become. Within Groundwater Management Removal Action Area #1 (GMA #1), which includes the GE Plant, East Street Areas 1 and 2, Newell Street I and II and the Silver Lake area, the groundwater contains *PCBs in levels as high as 51,600*

ppb (unfiltered) and 420 ppb (filtered) in the Lyman Street Area and 3,700 ppb in unfiltered samples and 770 ppb in filtered samples along the east edge of Silver Lake **Lyman Street Area.** LNAPL that contains up to: 27,000 ppm PCBs, 1,280 ppm 1,2,4-trichlorobenzene, *Up to 20,000 ppm trichloroethene* **Newell Street Area II:** DNAPL that contains up to 388,500 ppm PCBs, 430,000 ppm 1,2,4-trichlorobenzene *LNAPL that contains up to: 24,000 ppm PCBs, 7,300 ppm 1,4-dichlorobenzene* (pp. 17-18).

The Agencies seem to have made the decision that Pittsfield's groundwater has been so thoroughly contaminated by GE's PCBs and other toxics that it will never serve as a source for drinking water. Therefore, their remediation decisions at the GE plant, East Street Area 1 and 2, the first two miles of the Housatonic River, Silver Lake, the Oxbows etc. consist of limited removal/capping scenarios rather than complete removal. The Agencies also believe that for now the City has sufficient alternate sources of water so that it won't have to tap this groundwater.

Let's review some recent history as regards Pittsfield's groundwater. Concerned about future water needs in the early 1970s, the City of Pittsfield took land in Windsor for a reservoir. During a court battle, when this supply was in jeopardy, the city was assured by consultants that even if the court ruled against them, the city had plenty of usable groundwater available in the southeastern quadrant of the city.

In 1974, the Vincent property on East Street, not far from GE and the Housatonic River and 2,000 feet from the old city landfill in that section of town, was identified as one of the best sources for water. In 1977, the city was informed by the state that PCBs were found in the groundwater at the Vincent property. Afterwards, the City of Pittsfield in the late 1970s and the 1980s was so concerned about its limited water reserves, that it began a testing program to search for usable groundwater. During a drought in 1981, the City was considering pumping water from Lake Onota. The city's concern for future water sources was quite clear. Based on that concern, the Berkshire Regional Planning Commission sought in 1983 a \$250,000 state grant for expanded monitoring to determine the extent of contamination under the Vincent property on East Street, and for a possible clean-up program.

The application was rejected because the state felt that the site was a poor choice for potential drinking water, and that Pittsfield was competing against towns and cities forced to close already existing water supplies because of contamination.

The October 1999 Safe Water Act *Ground Water Report to Congress* speaks about the economic and ecological impacts of contaminated groundwater:

Ground water contamination can also impair the economic well-being of the nation through the following:

- 1. Removal of contaminants from drinking water sources through remediation or at the point of supply through treatment can be very costly.*
- 2. Relocating wells and finding new ground water supplies is expensive and may not be technically feasible.*
- 3. The presence of contaminants in ground water adds liability to the land owners of the property that is the source of the contamination.*
- 4. Loss of ground water due to over-pumping and contamination can lead to loss of drinking water, agricultural and industrial supplies, and recreational uses.*

Contaminated ground water discharging into surface water can degrade surface

water quality and affect surface water ecosystems. (Page 19)

The August 4, 1999 Request for Removal Actions Outside the River at the GE-Housatonic River Site Action Memo, Appendix D of the Consent Decree states: *The groundwater at the Site discharges to either Unkamet Brook, Silver Lake or the Housatonic River. Currently, control of the groundwater discharge to these surface waters consists mainly of groundwater extraction and treatment in support of preventing the migration of NAPLs. At a majority of the groundwater/surface water interface, there is no hydraulic control to prevent discharge to the surface water. Therefore, there is a potential threat of release of these hazardous substances to surface waters (i.e., sensitive ecosystems). Part of the proposed actions contained in this Action Memorandum are procedures to further characterize the groundwater contamination, the magnitude of the threat to the surface waters, and if necessary, to conduct additional response actions.* (Pp. 27-28).

We have always advocated the most thorough clean-up strategies. And while we appreciate the cost considerations involved in thorough removal scenarios rather than partial removal and capping, we nevertheless question the wisdom and long-term efficacy of a policy that abandons a community's ability to utilize its groundwater to meet its growing needs for water in the years to come.

HRI therefore suggests an expansion of the provisions of the Consent Decree regarding groundwater and NAPL. Not only should GE implement an increased monitoring and assessment program but should immediately expand its Groundwater Treatment Program to begin a systematic and comprehensive treatment regime of Pittsfield's PCB-contaminated ground water throughout the Former Oxbow areas.

5. The Natural Resources Damage Award

HRI would like to challenge the provisions of Section XXII. Natural Resource Damages of this Consent Decree. We believe the amount of money negotiated by the Agencies and the Trustees and the Settling Defendant for Natural Resource Damages fails to adequately reimburse the nation, the Commonwealth of Massachusetts, the State of Connecticut and the people who live within the reach of the Housatonic River and Silver Lake for the almost 70 year loss of these resources, and future losses until full restoration, and for the damages to them.

Unlike the typical CERCLA process, the expedited nature of these negotiations created a pressing need for the Natural Resource Trustees to quicken the process of assembling the Natural Resource Damage Assessment. We believe, as a result of this time crush, that the Trustees and their contractors, Industrial Economics, Incorporated of Cambridge, Massachusetts failed to adequately quantify lost availability to the public of the Housatonic River and Silver Lake, and damages to these natural resources, and therefore underestimated the natural resources liability of the Defendant.

By excluding the Housatonic River Initiative from these negotiations, some of whose members have a lifetime experience with these resources, as hunters, fishermen, sportsmen, canoeists, hikers, etc. the Trustees failed to involve some of the most

important and informed stakeholders. These stakeholders ought to have been involved in the critical discussions between the Plaintiffs and the Defendant regarding Natural Resource Damages.

... Let's examine the Industrial Economics, Inc. report. On Page 1-3, in the *Limitations* section, the authors state: *The nature of existing, readily available data and information limited our ability to complete all of the objectives described in the Statements of Work. In particular, our injury assessment does not identify and quantify all of the natural resources injuries likely to present in the Housatonic River* Ö

5 **Contaminants of concern:** *Polychlorinated biphenyls (PCBs) are the primary contaminants of concern at this stage of the damage assessment. Though there are other hazardous substances present in the Housatonic River that may contribute to natural resource injuries, we have not addressed potential injuries resulting from exposure to substances other than the PCBs.*

6 **Geographic Scope:** Ö *We have not assessed potential injuries and damages associated with Silver Lake and Unkamet Brook. Both may require additional scrutiny. In addition, we have not addressed specific injuries and damages that might be associated with the former oxbows located in Pittsfield, though we do recognize the potential importance of these areas to a final determination of restoration and compensation requirements. Furthermore, we recognize that these areas may be sources of continuing contamination to the Housatonic River.*

7 **Injury Assessment:** *Existing data are available to characterize the nature and extent of contamination in the Housatonic River environment but do not in all cases provide sufficient information to document natural resource injury. As a result our injury assessment focused on a summary of the existing contaminant concentration data and the likelihood that those data are indicative of natural resource injuries (which could be documented through additional data collection and/or analysis).*

8 **Restoration:** *Due to the limitations of the injury data and the dependence of restoration planning on the injury assessment, we focused our efforts in this area on the preliminary identification of categories of activities as well as specific activities that might be appropriate for the purposes of compensatory restoration. These activities do not include primary, physical restoration of natural resources (e.g., sediment removal), the specification of which would be the primary outcome of a completed injury assessment. (Pp. 1-3 to 1-4) (Emphasis added).*

The clearly stated limitations of the report itself buttress our previously stated concerns that the Trustees entered the negotiations with insufficient data: limited natural resource injury data; a failure to include potential injuries resulting from exposure to substances other than the PCBs; and the failure to assess past active and passive use loss of Silver Lake are the most glaring examples.

Ö while we believe this report reveals major flaws in the assessment process, we are nonetheless struck by the preliminary figures of between \$11 million to \$32 million for Recreational Damages, and \$25 million to \$250 million for Passive Use Losses. While Industrial Economics cautions that these two categories cannot be automatically added

because of possible overlap the sums nevertheless exceed by a large factor the amounts the Agencies and Trustees negotiated with the Defendant.

As an exercise let's reduce the combined sums by 25% to account for possible duplications in accounting for lost use. We are left with a combined range of \$27 million to \$211,500,000.

Now let's imagine a Resource Damage Assessment that takes into account the newly acquired data being gathered by the EPA's Susan Svirsky and her team working on the Ecological Risk Assessment. Add the emerging data about tree swallows, amphibians, small mammals and minks, etc. Add an accurate assessment about the lost use and ecological damage to Silver Lake. Take into account the fact that we now know the West Branch of the Housatonic River has large levels of PCB contamination, and assess that ecological damage. Do the same for Goodrich Pond which we now know has high levels of PCBs in bank soils. Add the appropriate assessment for loss of Pittsfield's groundwater. And with a Berkshire-based comprehensive study, more accurately estimate how wildlife viewing and other general outdoor activities have been, and will continue to be, affected by the presence of PCBs.

Ö We appreciate the fact that the Trustees and Agencies settled for a significant remediation package, and that such remediation fulfills in part the mandate of the Trustees to ensure that the injured resources be restored. Nevertheless, the Plaintiffs' and public's interest is ill-served by an underestimation of the damages these resources incurred and an inaccurate accounting of the lost use of these resources.

We believe the public interest would be better served by conducting a full-fledged Natural Resource Damage Assessment that better incorporates the newly emerging EPA data and more accurately accounts for past and future lost Massachusetts usage.

That's a summary of the important issues HRI raised in its public comments to the Consent Decree. A review of Exhibit 2, United States Memorandum In Support Of Motion To Enter Consent Decree, reveals that, in spite of our arguments, the government believes our concerns have been answered by provisions of the Decree itself, and therefore needs no modification.

On July 20, 2000 the U.S. Department of Justice officially asked Judge Ponsor to enter the Consent Decree, stating:

The Consent Decree executed by the United States, Massachusetts, Connecticut, the City (of Pittsfield), PEDA and GE is a fair and reasonable resolution of claims against GE, comports with the objectives of CERCLA, RCRA and the CWA and is in the public interest. **The public comments submitted in this action do not show that entry of the Decree is improper, inadequate or not in the public interest.** The Court should defer to the agreements reached in the Decree, and enter the Decree as a final judgment." (Emphasis added.)

Exhibit 2 to the United States' Memorandum in Support of Its Motion to Enter the Consent Decree provides EPA's answers to some of our concerns and the concerns of other commenters:

Several commenters object to the Consent Decree on the grounds that the commenters were excluded from the negotiating process, that the negotiations were conducted in private, and that certain information regarding the negotiations continues to be maintained in confidence. ... It is well settled in law and policy that it is appropriate for the government to conduct private negotiations. Without the ability to discuss the possibility of settlement, and engage in a bargaining process, settlements could not be attained ... in this case, the government provided the public with more information and access to the negotiations than is required by law or policy ... The commenters seek privileges or rights beyond what is contemplated by law or government policy. (Pg. 8)

As regards the government's decision to provide GE covenants not to sue in exchange for cleanup action and reimbursement for the monies the agencies have spent, Lois Schiffer, the Assistant Attorney General of the Environment and Natural Resources Division of the Justice Department wrote:

Regarding civil liability, the governments have provided GE covenants not to sue for particular civil liability in exchange for GE's commitment to complete the proposed Consent Decree's obligations regarding comprehensive Site remediation, natural resource damage recovery, and recovery of government costs. The United States believes that the covenants not to sue provided by the governments are appropriate under the circumstances and do not unjustly limit the rights of property owners.

First, as to the appropriateness of the covenants, the covenants are limited or conditioned in several respects that protect the public from inappropriate releases from liability. First, the future liability covenants not to sue provided GE do not take effect until EPA certifies that a particular removal or remedial action is complete ... Second, the covenants not to sue provided GE are subject to satisfactory performance by GE of its obligations under the proposed Consent Decree ... Third, the proposed Consent Decree includes reservations by the United States of its rights to pursue GE for future liability if new information or previously unknown conditions, together with any other information, indicate that a Removal Action or Remedial Action is not protective of human health and the environment ... In addition, to respond specifically to a particular concern about PCBs being found to be a greater health risk in the future, the proposed Consent Decree addresses EPA's ability to pursue the 'reopeners' in such a situation.

I began these comments by detailing the gap between what the community knew about this site and what the Agencies deemed to be true about this site. Whether it was the extent of contamination in the Housatonic River, the extent of the underground plumes, or the existence of PCB-dumpsites throughout the community, GE consistently under-estimated the problem and the state and federal agencies acted accordingly.

The government's response to reasonable questions and concerns by community members continues that trend. Public participation, according to the government, was more than adequate, despite the fact that important public constituencies who took Mr. DeVillars' pledge to heart - "to begin a process whereby we work very effectively in a very open fashion with this community to understand even better your interests and to make sure you have a voice in the process ..." now believe they were excluded from that very critical process.

Finally, the government declares that it has won an important victory for the community. In its Memorandum in Support of Its Motion to Enter the Consent Decree the government states:

Not only is the settlement fair, it is reasonable. Reasonableness is evaluated in three ways: technical adequacy, adequacy of the settlement to compensate the public; and how well the settlement reflects litigation risks and other considerations. The Decree passes these tests with flying colors.

First, the various response actions that have been and will be performed at the Site are adequate to address the contamination. EPA used its best technical judgment and selected a series of response actions that will be protective. **The various concerns identified by commenters were considered by the Agency and do not raise any serious issues.**

Second, the settlement adequately compensates the public. The United States will recover 90% - 97% of the expected site costs through cost recovery and work. In addition, the Decree includes a natural resource damage package worth over \$25. The overall settlement goes far beyond what would be required to demonstrate adequacy of compensation. ... “ (Pg. 9) (Emphasis added.).

In the proposed settlement, GE will bear several hundred million dollars in costs and cleanup obligations to account for its responsibility for PCB contamination at the Site. The components of the settlement demonstrate substantive fairness: GE's obligation to complete a comprehensive and expeditious cleanup of the Site; GE's commitment to compensate the governments for natural resource damages; GE's requirement to reimburse a significant amount of the governments' past and future costs; the governments' relatively minimal degree of compromise in the settlement; the significant limitations and reservations regarding the governments' covenants not to sue GE; and the appropriate boundaries around GE's contribution protection in the settlement.. (Pp. 40-41.)

And so we end for the moment, where we began. Despite 8 years of research, extensive contact with former GE workers, outreach with contaminated river front property owners, contaminated commercial property owners, residential homeowners, sportsmen, river enthusiasts, we are informed by the government that despite our detailed 54 pages of public comments: **“The various concerns identified by commenters were considered by the Agency and do not raise any serious issues.”**

Where then, is the opportunity promised us by EPA Region One Administrator John DeVillars to **“make certain that you're informed and that you're able to hold us accountable for what we owe you – which is a prompt and safe cleanup in this community.”** It seems a slightly loaded deck of cards we're playing with if the same agency that pledges accountability determines ipso facto that despite our protestations to the contrary our concerns do not raise any serious issues.