



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION II

290 BROADWAY

NEW YORK, NEW YORK 10007-1866

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**HUDSON RIVER PCBs REASSESSMENT RI/FS**

**COMMUNITY INTERACTION PROGRAM**

**JOINT LIAISON GROUP MEETING**

**Albany, NY**

**October 18, 1995**

**MINUTES**

On Wednesday, October 18, 1995, a Joint Liaison Group meeting was held at the Best Western Hotel on Wolf Road in Albany, NY, as part of EPA's on-going Community Interaction Program for the Hudson River PCBs Reassessment RI/FS. The purpose of the meeting was to provide liaison group members and other interested parties with a project status update and to review the anticipated schedule for the near future.

Attached to these minutes are copies of the agenda, sign-in sheets, handouts, and presentation overheads. Questions concerning these minutes or the meeting should be directed to Ann Rychlenski, the project's Community Relations Coordinator.

Ms. Rychlenski opened the meeting shortly after 7:30 PM and introduced Doug Tomchuk, EPA Remedial Project Manager; Mel Hauptman, EPA Section Chief, Superfund; Albert DiBernardo, TAMS Project Manager; Karen Coghlan, Community Relations Support, TAMS; Marian Olsen, EPA Senior Scientist in Risk Assessment; and Bill Ports, NYSDEC.

Ms. Rychlenski announced some changes regarding the Information Repositories:

- NYSDEC Region 4 has relocated to 1150 North Wescott Road, Schenectady, and
- Saratoga Springs Public Library has relocated to 49 Henry Street, Saratoga Springs.

She stated that the entire repository system is being reevaluated to ensure user-friendliness as to location and hours of availability, and there will be other repository location changes coming. Ms. Rychlenski announced that a CD-ROM containing the actual database EPA has compiled for the Reassessment will be released with the Database Report (the first of the Phase 2 Report volumes due out in November). Many of the current repositories do not have CD-ROM computer capability, so in addition to placing CDs in repositories that do have that capacity, Ms. Rychlenski will place CDs at adjunct locations such as universities for the convenience of those who would like to "crunch numbers." All repository and CD-ROM location information will be announced.

Ms. Rychlenski also reviewed the recent election of John Santacrose of the New York Audubon Society as Chairperson of the Environmental Liaison Group, replacing Nona Schtipelman of Clearwater (who had replaced Brigit Barclay, also of Clearwater). Josh Cleland of Scenic Hudson was elected Co-chairperson, filling the vacancy left by Mr. Santacrose. Both Mr. Santacrose and Mr. Cleland were present and were introduced, along with Carl Deppe, the other Co-chairperson.

Doug Tomchuk then took the floor with a presentation summarizing the last 12 to 18 months of the project. He referenced the publication this summer of the most recent EPA Update, which was distributed to the entire mailing list and provided the basis for his remarks. Copies of Mr. Tomchuk's overheads are found in Attachment 2.

EPA is currently in the middle of Phase 2 of the Reassessment. The first part of Phase 2 was to collect data, an effort which was completed in September 1994. This data collection included geophysical surveys to determine what the riverbed looks like; high resolution sediment coring to determine deposition date and history; low resolution coring to confirm the amount of material in the Thompson Island Pool and some of the other hot spots, and whether or not changes had occurred since DEC's earlier survey; and confirmatory sampling for the geophysical work.

Water column sampling including transect sampling, equilibrium studies, and flow average sampling were also performed, as well as total suspended solids/total organic carbon sampling, an additional task to support modeling work. TSS/TOC sampling determines if, for example, there is resuspension during high flows. Other parameters could then be correlated to those measurements. This was additional sampling done to support the modeling effort.

In answer to Darryl Decker's inquiry about omission of some archived data analysis, Mr. Tomchuk explained that EPA did not do archived analysis in either the sediment or the water column programs. There were problems in obtaining the archived samples, and in matching previously-used techniques with current ones for compatibility of results. EPA felt that analysis was not essential for the project. Mr. DiBernardo added that the archived sample data were scattered in various locations in the State, and the records of storage were not as good as originally anticipated. That, plus all the other potential technical and administrative problems, led EPA to decide that the value of that particular program had diminished.

The ecological field sampling program involved comparing resident fish and benthic invertebrate sample data to surficial sediment in comparable areas.

After data collection was completed, laboratory analysis, which had begun prior to September 1994, continued, and the lengthy process of data validation began, a process essential to be sure the data is correct and useable. This process is necessary so that data may be used in legal proceedings, as required. Any "qualified" data, meaning data which is limited in its use for some reason, is so noted but not necessarily rejected. Some data were rejected during the data validation process.

Data validation was done by a contractor other than TAMS, using some analytical techniques which are out of the ordinary in order to meet some of the specific needs of the project. The entire process took somewhat longer than had been anticipated, and was completed in September of this year. Mr. Tomchuk acknowledged some frustration but explained that delay associated with data validation is not uncommon. The Reassessment data has passed validation, and EPA feels confident that there is good data in the database.

Six reports will make up the entire Phase 2 Report package: the Database Report, Preliminary Model Calibration, Data Evaluation & Interpretation, Baseline Modeling, Ecological Risk Assessment, and Human Health Risk Assessment. Mr. Tomchuk discussed each report. Information on these reports is also contained in the July 1995 Update.

Mr. Tomchuk pointed out that what is important about the Database Report, the first scheduled for release, is that it will make all the data being used for the project available to everyone. The report basically provides a map of the data base and assistance on how to use the database. The report and the accompanying sets of numbers (to be released on computer disk [CD-ROM] on request only) are not thought to be designed for general use. Familiarity with computers, databases, and database manipulation is necessary to actually use the numbers. There are no conclusions in the Database Report, due out in early November. The CD-ROM will follow the report by a few weeks. The hierarchical structure of the database, approximately 70 megabytes in size, is seen in Attachment 2, page 4-9.

Mr. DiBernardo stated that the database is in two formats, one for Paradox and one for FoxPro, and in answer to a question about compatibility with user software, stated that the data can be used with traditional programs with no problem. The only caution is that there are extensive memo fields, and in some cases of downloading, some of the memo fields may be truncated.

Mr. Tomchuk stated that EPA is reviewing the draft of the Preliminary Model Calibration Report, due out in early January. This report is based on draft data and changes will be made based both on data that changes and on comments. Mr. Tomchuk referred to comments earlier in the Reassessment regarding the public's having an opportunity to review the assumptions used in setting up the models. He stressed that this report contains all the assumptions for the models and their set-ups, and this is the opportunity to comment on those assumptions. The report contains the groundwork for projections on future concentrations [of PCBs] in fish, sediment, and the water column, but does not contain any projections, as modeling is not yet complete. Mr. Tomchuk characterized the report as "explaining EPA's thought processes" in the modeling effort.

The Data Evaluation & Interpretation Report contains results of the high resolution and water column programs, and other information on sources (such as the Hudson Falls source). Geochemical analyses permit prediction of future trends on the basis of past trends, assuming no changes. This complements the computer modeling which is done to project the effect that any number of changes to those past trends would have on the future. According to Mr. Tomchuk, most of EPA's findings about fate and transport will be coming out in this report.

Darryl Decker inquired as to whether, when sources were discussed, any other than the Hudson Falls source were being considered. In response, Mr. Tomchuk referred to the upgradient Niagara Mohawk facility, the contribution of the New York City metropolitan area to the saline part of the lower river, and to consideration of the overall contributions of different reaches of the river in addition to the Hudson Falls source. An inquiry was made as to the scheduled release of the report, and whether the report would specifically address different reaches of the river as discreet elements, taking into account various source locations.

Mr. DiBernardo stated that the report, originally completed in preliminary form in September of 1994 using unvalidated data, is currently being recompiled to be commensurate with the now validated data. He added, relevant to the question on addressing various source locations, that if, hypothetically, one third to one half of the PCBs comes from the upper river, we have not determined what the other two thirds to one half comes from; we just know it comes from some sources to the lower river, but we have not determined whether those sources are tributaries, sediments, point sources, etc.

Mr. Tomchuk indicated April 1996 as the current target for release of the Data Evaluation & Interpretation Report. He stated that EPA intends to adhere to the schedule, ambitious as it is, and noted the challenge of three important reports currently scheduled for release during a three-month period (June, July, and August) in 1996.

The Baseline Modeling Report was added to the report group when EPA realized that the baseline model that was going to be used in the human health and ecological risk assessments should be presented to the public before the Feasibility Study, which was where it was originally intended to be released. The report includes the data and interpretation from the low resolution coring program which is not included in the field results report, but does not, however, include the remedial scenarios that EPA will be running in the Feasibility Study.

The Ecological Risk Assessment Report furthers the work done in Phase 1 and presents ecological risks to certain species associated with the site. Finally, the Human Health Risk Assessment Report presents the human health risks associated with the site, based on the Phase 1 Report. Mr. Tomchuk deferred the remainder of the discussion on human health risk to Marian Olsen.

Mr. Tomchuk pointed out that these six reports comprise the completed Remedial Investigation report. The Feasibility Study, or Phase 3 Report, is the next step. The process is to conduct a detailed analysis of alternatives, and to run the models for the various scenarios (No Action; Institutional Controls; Containment in Place; Treatment in Place; Removal and Disposal; and Removal, Treatment and Disposal) for each of those alternatives. In response to Mr. Decker's inquiry about where changes in health risk due to certain remedial scenarios would be addressed, Mr. Tomchuk explained that any assessment of such changes would be addressed in the Feasibility Study, not in the Human Health Risk Assessment Report.

Mr. Tomchuk then addressed the commenting process for the series of six reports. There will be six separate comment periods, with an end to each, so comments can

be addressed relative to the specific report in a timely manner. This approach was selected over the concept of one long, open comment period in order to avoid receiving very late comments on a report, which would preclude to a great extent the ability to take those comments into consideration at the appropriate time. Also, because the six reports are considered as the Remedial Investigation report as a whole, there will be a final comment period at the end of the six-report period to enable comments covering the whole process. There is also a mandatory comment period at the time of the Proposed Plan, before the Record of Decision is signed. Mr. Tomchuk stressed that there will be many opportunities for interaction regarding the reports, including joint liaison group meetings, during the remaining course of the Reassessment. Carl Deppe inquired about management of responses to the comments, and Mr. Tomchuk explained that comments would be incorporated into the next document. There will not be responsiveness summaries, nor will the commented-upon document be revised. One responsiveness summary is planned for the end of the project. Preparation for this will be on-going as comments are received.

Sharon Ruggi asked how the work done in the Allen Mills has affected the database, and whether EPA saw any impacts of remedial action at Allen Mills. Mr. Tomchuk used the slide representing the database layout to indicate presence of water column data and other source data, and indicated that everything that has been supplied to us is in the database and is being used in the analysis process.

Marian Olsen presented an update on the risk assessment process (see Attachment 3). The current risk assessment will consider many of the scientific advances made since the initial risk assessment was done for this project in Phase 1, including, among others:

- updates to Integrated Risk Information System (IRIS), which provides EPA's consensus on cancer and non-cancer toxicity values;
- new approaches to risk assessments presented in the Exposure Assessment Guidelines of 1992 and Cancer Guideline Revisions (1994, 1995, 1996) which include not only the high-end scenario but also central tendency (average exposures, for the general population, and population risks; and
- better explanation of what risk numbers mean based on 1992 and 1995 guidance on development of characterizations of risk, enabling a more in-depth discussion of uncertainties in the assessment.

Ms. Olsen reviewed the National Academy of Science definition that risk assessment involves one or more of the following four steps: hazard identification (what types of cancer and non-cancer health effects are associated with the chemical); dose response (at what level does the chemical cause the hazards); exposure assessment (how do people come into contact with the chemical); and risk characterization, which allows calculation of risk based on characterization of all the information from the first three steps and discusses uncertainties.

The information for the first two stages is developed by EPA's headquarters offices. For the cancer assessment, EPA's Office of Research and Development is currently doing a PCB reassessment which will be included when it becomes available. For non-cancer assessment, EPA uses a threshold level reference dose

and looks at whether or not that level has been exceeded. Aroclor-specific reference doses will be included as part of this risk assessment.

EPA Region II itself is largely concerned with exposure assessment, analyzing how people come into contact with PCBs. The Phase 2 risk assessment will look at fish consumption as the primary exposure path to be evaluated, based on the Phase 1 analysis and risk assessment. There will be a high-end (person who fishes more and consumes more fish than the average person) and a central tendency, or average, analysis. A population assessment for anglers will also be conducted. Ms. Olsen indicated that this is one of the first risk assessments in Region II where Monte Carlo Distribution, a statistical tool that allows the evaluation of uncertainty and variability in people's activities, will be computed as part of the assessment.

In response to a question about the new "catch and release" program in the Upper Hudson, and assessment of who is and who isn't following the rules and obeying the fishing ban, Ms. Olsen explained that essentially what is being analyzed is a normalized condition of fishing in the absence of a fishing ban, and since that is not the actual case in the Hudson, surrogate rivers, similar to the Hudson, will be evaluated to determine typical fishing habits and patterns. This is the baseline risk assessment, conducted as though there were no restrictions.

Considerable discussion ensued, centered primarily around visualizing the Hudson River in a baseline condition with no fishing ban, where normal fishing activities would occur without restriction and therefore could be analyzed; whether or not assuming normal fishing patterns in the Hudson River represented what is called a "worst case" scenario; and the source and use of surrogate river data.

Following is a summary of several major points in that discussion.

- EPA's policy on baseline risk assessment as stated in RAGS is "an analysis of the potential adverse health effects (current or future) caused by hazardous substance releases from a site in the absence of any action to control or mitigate these releases." We are doing a baseline risk assessment in accordance with this and other applicable guidance; therefore we are assuming that there is no fishing ban in place.
- In contrast to a baseline risk assessment, the "worst case" scenario would use a much higher level of fish consumption in calculating the exposure.
- Surrogate surveys being considered as part of the Phase 2 human health risk assessment are from surveys of rivers in New York State which do not have fishing bans and have similar fish species and characteristics to the Hudson, the assumption being that normal fishing patterns on those rivers would be applicable to normal fishing activity on the Hudson. The fish angler surveys in New York State are currently being analyzed for similarity to the Hudson River, based upon a specific set of criteria.

Ms. Olsen and Mr. Tomchuk indicated, in response to a question on the possibility of conducting additional, more rigorous surveys, that such surveys were not

planned, in part because consumption of fish taken from the Upper Hudson is still illegal, which reduces the possibility of collecting reliable answers.

Ms. Olsen stated that creel surveys will provide a major source of information on ingestion rates and species intake; county-specific census data from the Census Bureau on population demographics and migration will provide data for exposure duration evaluation; literature reviews will enable documentation of loss of contamination due to cooking; and concentrations of PCBs will come from model results.

Mr. DiBernardo referred the audience to the minutes of a May 11, 1995, EPA/GE/ChemRisk/TAMS meeting, available as a handout, which contain information related to many of the questions being asked.

Several additional questions followed. Ms. Olsen indicated in response that

- 1) the risk assessment would focus solely on PCBs;
- 2) the PCBs reassessment being carried out by EPA's Office of Research and Development is evaluating studies relating to PCBs, including a reassessment of previously-analyzed liver tumor slides from several animal studies submitted to EPA in 1991, and of the agency's new cancer guidelines, and developing a report which looks at the appropriateness of EPA's slope factor; (A slope factor is a plausible upper-bound estimate of the probability of a response per unit intake of a chemical over a lifetime. The slope factor is used to estimate an upper bound probability of an individual's developing cancer as a result of a lifetime of exposure to a particular level of a potential carcinogen. The analysis of the cancer slope factor involves evaluating the dose-response relationship between the dose to which animals are exposed and the number of tumors, and extrapolating from animals to humans as outlined in EPA's Cancer Guidelines.)
- 3) there is a work group within EPA that is looking at hormone disruptors (that analysis is part of non-cancer reassessment, not the cancer reassessment Ms. Olsen discussed previously); and
- 4) if non-cancer slope factors were to be redone, those changes would be applied appropriately to the Reassessment.

Ms. Olsen closed by stating there will be two risk assessments, one for the mid-Hudson and one for the Upper Hudson. Final revisions are being made to the Work Plan, which should be ready in a matter of weeks.

In introducing Bill Ports from the New York State Department of Environmental Conservation, who made the last presentation of the evening on the Hudson Falls/Ft. Edward GE plant site investigation and remedial action (see Attachment 4), Mr. Tomchuk said that although EPA is not directly involved in that investigation, it does relate to the Reassessment in some ways.

Mr. Tomchuk stated that EPA is primarily concerned with the PCBs that end up entering the river. GE's river monitoring data is in the database and is being used; EPA is able to distinguish between the upstream load and the Thompson Island Pool load by the difference in the congener patterns. EPA will consider

the extent to which this source can be eliminated before a decision is made on remedial action for the Reassessment.

Mr. Ports had a three-part presentation: a review of work being done at the Hudson Falls and Ft. Edward GE plant sites, a review of some additional activities being undertaken, and a synopsis of the plant site project's relation to the Reassessment.

Regarding the Hudson Falls plant site, Mr. Ports mentioned that there were three original operable units, one involving contaminated soil behind the plant site, which was initially scheduled for removal. At about that time additional PCB sources into the river were identified through river monitoring. Discovery of more contamination on site subsequently put the soil removal on hold. Additional work began in 1993, some of which continues today, to further define the contamination at this site.

Mr. Ports addressed the Interim Remedial Measures (IRMs) undertaken at Hudson Falls, including removal of sediments and pipes, various cleanup and repair operations, pressure grouting of bedrock in an attempt to stem some of the seepage of PCBs into the river, and drilling of horizontal wells in the tailrace tunnel to intersect more fractures and thereby collect more PCBs. Finally, the initial three geographic operable units have been modified to more geologically-oriented areas of focus.

DEC hopes for Records of Decision on proposed remedial actions by the fall of 1996. Mr. Ports pointed out that GE is building a new wastewater treatment plant with an initial capacity of 145 gallons per minute (GPM) at this facility. Discharge limits will be 65 parts per trillion or better. John Haggard of GE provided additional details on the wastewater treatment plant.

Mr. Ports, with some additional input from Mr. Haggard, also presented a history of work at the Fort Edward site, including the on-going recovery systems for on- and off-site groundwater and for DNAPLs, and the 1994 investigation of the old outfall area. New investigations were conducted this summer, involving soil gas probes, soil borings, installation of groundwater monitoring wells, and expansion of testing based on levels of contamination found. A five-year reassessment of progress is currently underway, and an IRM has been proposed to remove old outfall pipeline which is covering some contamination. Mr. Ports discussed dye studies (three proposed, two completed) to analyze how representative GE's water column sampling has been. One began at the tailrace tunnel and one at the outfall location. Results indicated that the mixing was fairly good, and what was being measured at Ft. Edward was a good surrogate for what is happening in the upstream reaches of the river.

Mr. Ports pointed out that effects of remedial efforts are discernable (Attachment 5, 6-6), but stated that there are still significant levels of PCBs in the river at some places, and there are still sources of PCB contamination to the river. Mr. DiBernardo stated that the actual mass loading to the reach to Rogers Island is 10 kg per month (April 1995), 15-20 kg per month to the Thompson Island dam, and above Bakers Falls, 2 kg per month.



Mr. Ports closed by reviewing the interaction of the other projects with the Reassessment: there continue to be sources of PCB contamination to the Hudson, which may never be completely rectifiable; monitoring continues, and the explanation of conditions which will be found in the upcoming Phase 2 Data Evaluation Report will be very important; DEC feels information from the plant site investigation and remediation project is important to the Reassessment, particularly in discerning what loading comes from where.

Regarding timing, Mr. Ports feels that if the current schedule holds, EPA will be able to see the results of the two plant site projects before reaching its final decision-making point in the Reassessment. Mr. Tomchuk stated EPA will continue to follow the project as has been done all along via weekly reports, regular telephone contacts with project team members, and EPA's liaison for the project, Maria Jon. He pointed out that as the Reassessment gets closer to final decision, EPA would become more involved in the project, partly to assess any affect the Reassessment decision might have on it.

Mr. Tomchuk reiterated, when asked if the Reassessment could be completed if EPA did "not have the answers" on the two plant sites, that as far back as August 1991, one of the major conclusions of the Phase 1 Report was that EPA had enough stream source, and that it was up to approximately 50% of the load coming in at Rogers Island. This was prior to identification of the Baker Falls source by GE. EPA was planning to make a decision at that time. EPA has been able to distinguish between the PCBs coming in (an undegraded Aroclor 1242) and contributions from degraded existing congeners, and therefore has been able to proceed with its work on the Reassessment.

A question was asked as to the amount of new load per year, as of 1995 and projected into oncoming years. A pie chart on display showed the total of 400 lbs per year of PCBs, which is a combination of contributions from the sediments into the water column and new PCBs from seeps and other sources, goes over the Thompson Island Dam.

Mr. DiBernardo said, for simplicity, to consider everything above Rogers Island as being "a new source." The number for that contribution is 10 kg or 22 lbs per month, a number that has been consistent since the beginning of 1995, which multiplies out to 120 kg or 264 lbs per year. Mr. DiBernardo also stated that this seems to be a steady arrival, unlike the fluctuations of the early 1990s. He agreed that the ongoing plant site remediation will have some affect on that flow, but the extent of that affect is still unknown. Analysis of 1992 information indicates that the average monthly contribution per month in relation to the 10 kg per month for 1995, from the same source, was 100 kg per month. He stated that evidence of the progress actually hit in mid-1993, when the flow went to current levels.

Ann Rychlenski closed the meeting by summarizing the anticipated community relation activities to support upcoming project activity:

- continuation of the liaison group structure and continued joint liaison group meetings to coincide with release of the report volumes;
- call-in availability sessions for interested parties to call on an 800 number, by appointment, and pose questions to the experts who

- have been key to production of a particular report volume;
- involvement of local universities via seminars and lectures; update of the Community Relations Plan;
- continued publication of "River Voices;" and
- sharing of comments and questions among liaison groups.

Ms. Rychlenski also invited suggestions for other activities that might assist in the sharing and understanding of information.



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**HUDSON RIVER PCBS REASSESSMENT  
COMMUNITY INTERACTION PROGRAM**

**JOINT LIAISON GROUP MEETING**

*Wednesday, October 18, 1995*

*7:30 p.m.*

*Albany, New York*

**A G E N D A**

*Welcome & Introduction  
Repository Update*

*Ann Rychlenski, Community  
Relations Coordinator,  
U.S. EPA*

*Review of Sampling Conducted  
& Data Validation*

*Doug Tomchuk, Remedial  
Project Manager, U.S. EPA*

*Phase 2 Reports: Commenting on  
the Reports*

*Doug Tomchuk*

*Phase 3 & Beyond*

*Doug Tomchuk*

*Introduction to Human Health  
Risk Assessment*

*Marian Olsen,  
Environmental Scientist  
U.S. EPA*

*Hudson Falls: Introduction*

*Doug Tomchuk*

*Hudson Falls: Ongoing Activities*

*Bill Ports, NYSDEC*

*Technical Wrap-Up*

*Doug Tomchuk*

*Planned Community Relations  
Activities*

*Ann Rychlenski*

*Questions & Answers*

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**WATER COLUMN SAMPLING**

**TRANSECT SAMPLING**

**EQUILIBRIUM STUDY**

**FLOW-AVERAGED SAMPLING**

**TSS/TOC HIGH FLOW SAMPLING**

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**SEDIMENT CORING**

**HIGH RESOLUTION**

**- sections dated by radionuclide time markers**

**LOW RESOLUTION**

**CONFIRMATORY SAMPLING (Geophysical work)**

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**GEOPHYSICAL SURVEYS**

**DATA COLLECTION COMPLETED**

**DESCRIBES:**

**BATHYMETRY  
SEDIMENT MORPHOLOGY  
SEDIMENT TEXTURE  
FINE-GRAINED SEDIMENT THICKNESS**

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**ECOLOGICAL FIELD PROGRAM**

**SURFICIAL SEDIMENTS**

**- PCBs, GRAIN SIZE, ORG. C, TC/TN**

**RESIDENT FISH**

**- PCBs, % LIPID**

**BENTHIC INVERTEBRATES**

**- PCBs, % LIPID, ABENDANCE, DIVERSITY**

**(WATER COLUMN)**

**- PCBs, TSS**

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**DATA VALIDATION**

- ensures that the values of the data are correct, and that the data have passed the required QA/QC
- much data is qualified during validation, but the values may still be used in analysis
- some data is rejected during validation, and are NOT used during data analysis
- required by EPA for data that may be used in legal proceedings

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**PHASE 2 REPORT**

**6 volumes**

**DATABASE**

**PRELIMINARY MODEL CALIBRATION**

**DATA EVALUATION & INTERPRETATION**

**BASELINE MODELING**

**ECOLOGICAL RISK ASSESSMENT**

**HUMAN HEALTH RISK ASSESSMENT**

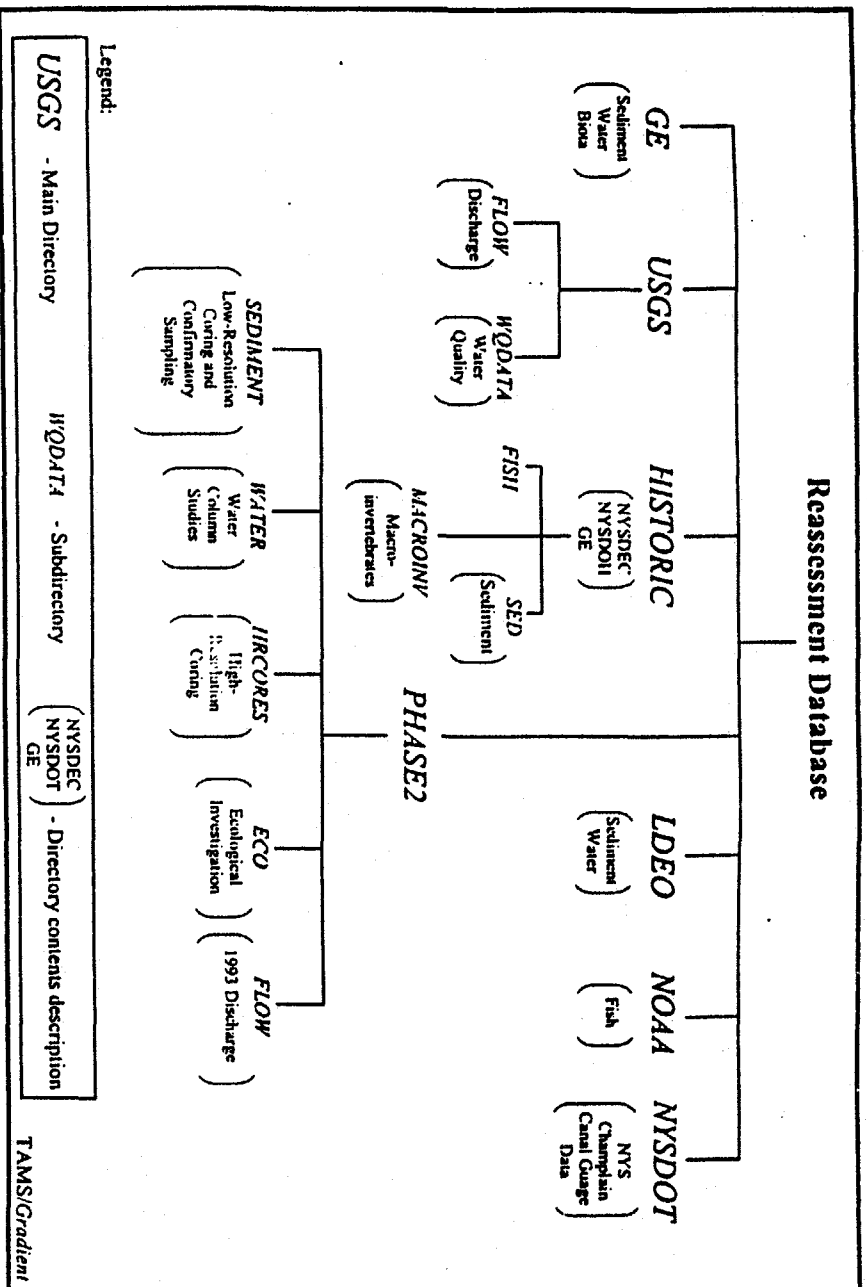


Figure ES-1

Descriptive Diagram of the Hudson River PCB Reassessment Database

HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FSDATABASE REPORT

- a guide to understanding the information contained in the database and where to find it in the database
- makes no conclusions about the data
- database being released on CD-ROM only
- provides interested parties access to the data on which EPA has based its reports

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**PRELIMINARY MODEL CALIBRATION REPORT**

- provides interested parties an opportunity to review the assumptions used in the models developed for the Reassessment
- groundwork for projections of future concentrations of PCBs in fish, sediment and the water column
- includes rationale for selection of calibration data sets
- does not include projections

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**DATA EVALUATION  
& INTERPRETATION REPORT**

- geochemical analysis of data from the water column and high resolution coring programs
- data evaluated to determine whether relationships exist between parameters and interpret the significance of any relationships
- potential future trends can be projected based on past trends
- much of the data represented graphically
- evaluation of sources (Hudson Falls, etc...)
- compliments computer modeling



**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**BASELINE MODELING REPORT**

- provides interested parties the opportunity to review the baseline model projections prior to their incorporation in the risk assessments
- baseline means that it does not include any remedial scenarios
- will include interpretation of low resolution coring data

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**ECOLOGICAL RISK ASSESSMENT**

- furthers the Phase 1 ecological risk assessment
- includes the evaluation and interpretation of the ecological data
- presents the ecological risk to certain organisms associated with the site

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**PHASE 3 REPORT**

**HUMAN HEALTH RISK ASSESSMENT**

- presents the human health risks associated with the site
- furthers the preliminary risk assessment that was included in the Phase 1 Report
- includes carcinogenic and non-carcinogenic risks from consumption of fish in the upper and the mid-Hudson regions
- both a point estimate (RME) and a Monte Carlo simulation will be included
- the most current PCB toxicity values adopted by EPA will be used in the risk calculation

**● FEASIBILITY STUDY**

- models run for numerous scenarios
- detailed analysis of alternatives

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**CONTAMINANT FATE AND TRANSPORT ANALYSIS**

**REASSESSMENT DESIGNED TO ANSWER THE BASIC  
QUESTIONS:**

1. When will PCB levels in fish meet human health criteria without any action?
2. Can implementing a remedy significantly reduce the time required to reach acceptable levels in fish?
3. Could a major flood event make PCBs in buried sediments available to the food chain?

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**FS - CATEGORIES OF ALTERNATIVES**

- NO ACTION or INSTITUTIONAL CONTROLS
- CONTAINMENT (CAPPING)
- IN SITU TREATMENT
- REMOVAL/DISPOSAL
- REMOVAL/TREATMENT/DISPOSAL

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**SCHEDULE**

**PHASE 2 REPORTS:**

DATABASE REPORT.....OCT 95  
PRELIMINARY MODEL CALIBRATION.....JAN 96  
DATA EVALUATION & INTERPRETATION.....APR 96  
BASELINE MODELING.....JUN 96  
ECOLOGICAL RISK ASSESSMENT.....JUL 96  
HUMAN HEALTH RISK ASSESSMENT .....AUG 96  
  
PHASE 3 REPORT.....NOV 96  
  
PROPOSED PLAN.....MAR 97  
  
RECORD OF DECISION.....SEPT 97

**HUDSON RIVER PCBs SITE  
REASSESSMENT RI/FS**

**GE HUDSON FALLS**

- EPA IS NOT INVESTIGATING THE PLANT SITE ITSELF
- EPA is concerned with PCBs that enter the river from the site
- GE's RIVER MONITORING DATA IS IN EPA's DATABASE
- EPA HAS BEEN ABLE TO DISTINGUISH BETWEEN UPSTREAM LOAD AND TIP LOAD BY CONGENER PATTERNS
- EPA WILL CONSIDER THE EXTENT TO WHICH THE UPSTREAM SOURCE CAN BE ELIMINATED IN ITS DECISION FOR THE SEDIMENT

# Hudson River PCBs Human Health Risk Assessment

# Risk Assessment Guidance

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- Integrated Risk Information System
- Risk Assessment Guidance for Superfund
- Risk Assessment Guidelines
- Risk Characterization Guidance
- OERR Specific Guidance

# Hazard Identification and Dose Response

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- Cancer Assessment
  - PCB Reassessment
- Non-Cancer Assessment
  - Aroclor Specific RfDs

- 12/16  
- 12/5/24

# Exposure Assessment

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- High End (Reasonable Maximum Exposure)
- Central Tendency (Average)
- Population
- Monte Carlo Distribution



# Exposure Assessment Data Sources

- Ingestion Rates - Creel Surveys
- Exposure Duration - Census
- Species Intake - Creel Surveys
- Cooking Losses - Literature
- Concentrations - Model Results

# Risk Characterization

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- Calculated Cancer / Non-Cancer Risks
  - High End
  - Central Tendency
- Calculated Population Risks
- Monte Carlo Analysis
  - Variability
  - Uncertainty
- Qualitative Discussions

# Ongoing Remedial Actions

- **GE Plant Sites**
  - **Hudson Falls**
  - **Fort Edward**
- **Additional Actions**
- **Interaction With the  
EPA Hudson River  
Reassessment Project**

# **GE Hudson Falls Plant Site**

- **Operable Units**
- **Additional Remedial Investigation**
  - **More Monitoring Wells**
  - **Soil Borings**
- **Interim Remedial Measures**
- **Modifying the Operable Units**

# **GE Fort Edward Plant Site**

- **Ongoing Remedial Work**
  - **On and Off-Site  
Groundwater Recovery**
- **DNAPL Recovery System**
- **Outfall Area and Former  
Pipeline to the River**
- **New Consent Order and  
Work plan**
- **Five Year Reassessment**
- **Additional Activities**

# **Additional Actions**

- **Ongoing GE Monitoring  
in the Hudson River**
- **Evaluating the Current  
Hudson River Monitoring  
Locations**
- **Falls Diversion**

# **Interaction With EPA's Hudson River Reassessment Project**

- **Source Condition(s) to the  
Hudson River**
- **Monitoring Results From  
GE, EPA and DEC**
- **Importance to the Hudson  
River Reassessment RI/FS**
- **Phase 2 Data and  
Interpretation**

10/06/95

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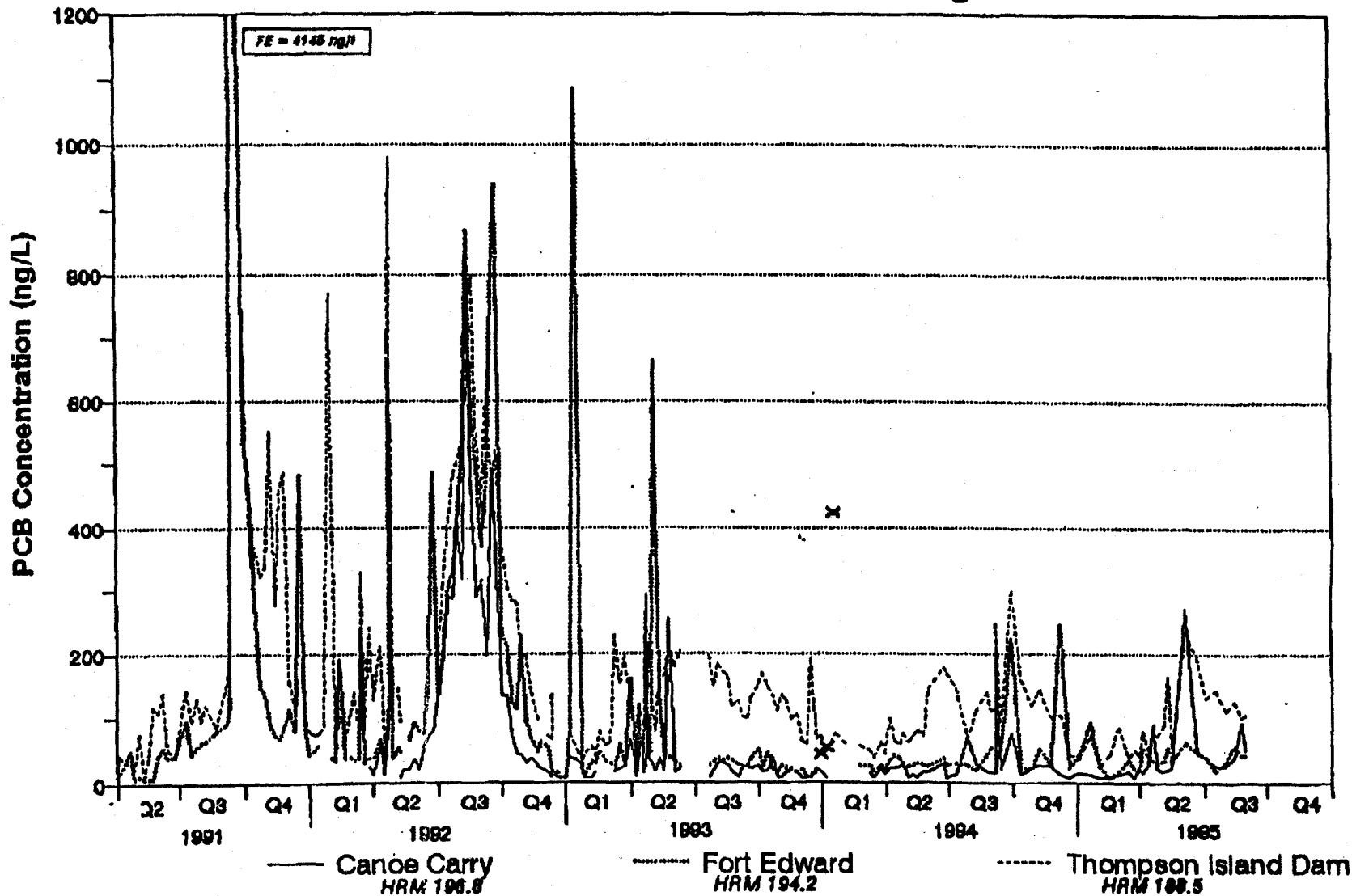
ATTACHMENT 4, 6-6

10/02/03

# General Electric Company

## Post-Construction Remnant Deposit Monitoring

### 1991-1995 Water Column Monitoring Results



Note:

\*Symbol (X) indicates sample collected from eastern shoreline at HRM 194.2, due to ice cover on the river.

\*MDL = 11 ng/l. PQL = 44 ng/l. Q = yearly quan.



USEPA REGION 2  
HUDSON RIVER PCBs RRI/FS  
COMMUNITY INTERACTION PROGRAM  
JOINT LIAISON GROUP MEETING  
OCTOBER 18, 1995  
ALBANY, NY

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Eleanor Brown	Citizens Liaison Group Schenectady	
Jim Reagan	32 Dublin Dr. Ballston Spa, N.Y. 12020	NYS DEC
Sharon Ruggi	15 Burgoyne Ave. Hudson Falls, N.Y. 12839	CEASE
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