

STATEMENT OF
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REGION 2
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STANDING COMMITTEE ON ENVIRONMENTAL CONSERVATION

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INTRODUCTION

Good morning Mr. Chairman, and Members of the Committee. I am pleased to have this opportunity to appear before you to discuss the Hudson River PCB problem. My name is William McCabe. I am the Deputy Director of the Emergency and Remedial Response Division for the United States Environmental Protection Agency, Region 2. The Emergency and Remedial Response Division is responsible for implementing the Superfund program within the State of New York, as well as in New Jersey, Puerto Rico and the United States Virgin Islands. With me today is Douglas Tomchuk, EPA's project manager for the Hudson River PCBs Superfund site.

BACKGROUND

Today, I would like to start with a brief background of EPA's experiences with the Hudson River PCBs site from the Superfund perspective. I should note

that EPA and the New York State Department of Environmental Conservation previously conducted numerous studies under the authority of the Clean Water Act. However, the recent studies, and the studies on which EPA and NYSDEC will base the selection of a remedial alternative to address the site, are being conducted under the Federal Superfund program. The site itself is described as the Hudson River from Hudson Falls to the Battery in New York City. Remedial alternatives will be evaluated for the PCB-contaminated sediments in the Upper Hudson River, which extends from Hudson Falls to the Federal Dam in Troy.

In 1984, EPA issued a Record of Decision for the site. The Record of Decision called for: 1) capping with clean soil the shoreline remnant deposits, which are areas of PCB-contaminated material that had been in the Fort Edward dam pool and which were exposed by the drop in the water level subsequent to the removal of the Fort Edward dam; 2) an evaluation of water quality at the public water supply at Waterford, New York, which is the first public water supply system on the Hudson, downstream of the contaminated sediments; and, 3) interim No-Action for the PCB-contaminated sediments in the Upper Hudson River. With respect to the contaminated sediments, the Record of Decision stated, "This decision may be reassessed in the future if, during the interim evaluation period, the reliability and applicability of in-situ or other treatment methods is demonstrated, or if techniques for dredging of contaminated sediment from an environment such as this one are further developed." In December 1989, based on technical advances from other sites with contaminated sediments, and the requirements of the Superfund Amendments and Reauthorization Act of 1986

(SARA) to conduct a five-year review for sites where contaminants remain on site, EPA decided that it was appropriate to reassess the interim No-Action decision for the PCB-contaminated sediments in the Upper Hudson River.

When EPA started the Reassessment Remedial Investigation and Feasibility Study (RI/FS) in 1990, it decided that it would be appropriate to approach the study in three phases. In the first phase, the Agency looked at the existing data. One of the conclusions of the Phase 1 Report, issued in August 1991, was that it was necessary to collect additional data. Phase 2 was defined as Further Site Characterization and Analysis, which included the development of a sampling plan for the collection of the data needed to answer questions regarding the fate and transport of PCBs within the Hudson.

One of the benchmarks of the Reassessment is that we used congener-specific PCB analysis for all of our PCB measurements. A quick background with respect to the chemical terminology used to describe PCBs is useful for understanding some of the findings of EPA's most recent study. PCBs, or polychlorinated biphenyls, are a class of chemicals, consisting of 209 individual compounds with a varying number of chlorine atoms and relative positions for the chlorine atoms on the molecule. Each compound is known as a *congener*. A PCB can have between one and ten chlorine atoms, and can be grouped by the number of chlorines per molecule into what are referred to as *homologues*. Commercial mixtures were sold based on the percent chlorine in the mixtures and in the United States were referred to as *aroclors*.

The sampling for the Reassessment was conducted between 1992 and 1994. After the samples were analyzed by the laboratory, the data had to be validated, a procedure which confirms the accuracy and precision of the data. This process took much of 1995, because of the complexity of the congener-specific analysis, and the large number of samples that had to be validated. (Approximately 1500 PCB samples.) Subsequent to the validation of the Phase 2 data, EPA has conducted, and is continuing to conduct, the analysis of those data, as well as data from other sources, such as the U.S. Geological Survey, NYSDEC and General Electric. The Agency then prepares a report on its findings, known as the Phase 2 Report. At the request of the citizens that are participating in the Reassessment study, EPA divided the Phase 2 Report into six separate volumes, so that the documents would be more manageable. The first Phase 2 Report issued was the Database Report, and the second was the Preliminary Model Calibration Report, released in November 1995 and October 1996, respectively. Of course, the Data Evaluation and Interpretation Report was released in February 1997, and is the impetus for much of the recent interest in the Hudson River PCB problem. Three additional Phase 2 Reports will be issued within the next year, including the Baseline Modeling Report, the Ecological Risk Assessment and the Human Health Risk Assessment. These reports will be followed by a Feasibility Study, which will be issued as the Phase 3 Report, anticipated for the Spring of 1998. EPA will then prepare a Proposed Plan, in which EPA (with concurrence from NYSDEC) will present its preferred remedial alternative to the public for comment. After public comment is received and responded to or appropriately addressed, EPA will

issue a new Record of Decision. EPA optimistically has estimated that the Record of Decision will be issued in December 1998, although that is partly dependent upon the volume of comments received and the work required to address the comments.

COMPLEXITY OF STUDY REQUIRES TIME

Since the Reassessment started in 1990 and is not expected to be completed until 1998, I believe you should know why it is taking so long to complete the study. While there have been delays to the schedule because we underestimated the time necessary for data validation and because of contract problems, the major reason for the delay is due to the expansion of the scope of work from the original plan. The level of detail required for this site is considerably more than needed at other Superfund sites. The discovery of a new source of PCBs to the river from the GE Hudson Falls plant site, during the middle of the study, complicated matters even more so. The corresponding increase in the data analysis required to differentiate between the PCBs emanating from the sediments and those entering the river from the GE Hudson Falls plant site was substantial. Basically, because the PCB problem in the Hudson is very complex, and the Reassessment must be based on credible science, it has taken a long time to conduct the necessary analyses. However, this level of analysis is necessary to develop an adequate scientific basis for the Agency's decision. This is not to say that there will not be any uncertainty with respect to scientific issues upon completion of the study. In all likelihood, as the level of detail increases, the amount of scientific debate will

also. However, the Reassessment will provide a credible, detailed, well-documented basis for the Agency's decision. In addition, EPA has spent significant time addressing issues raised by the team of scientists working on the project for General Electric. While many people are critical of the expenditure of time in this manner, EPA believes that a number of the concerns that General Electric has raised have been valid, and that by understanding such concerns and addressing them as appropriate, the Reassessment can benefit.

THE DATA EVALUATION AND INTERPRETATION REPORT

I would like to briefly speak about EPA's most recent report, the Data Evaluation and Interpretation Report. This report provides the findings of the geochemical analysis of the river's water-column and dated sediment core data. While this report presents several important findings, I must stress that it does not make any conclusions as to the appropriate remedial alternative for the contaminated sediments. As I stated previously, EPA is still about a year away from proposing a remedial alternative for the site.

The findings of the Data Evaluation and Interpretation Report can be summarized by the two following conclusions:

First, the sediments in the Thompson Island Pool (a six-mile reach of the river between Fort Edward and the Thompson Island Dam where the highest concentration of PCB-contaminated sediments in the Hudson are found) are

the most significant source of PCBs to the water-column in the freshwater Hudson (for over 100 river miles, to Kingston) during periods of low flow (approximately 10 months of the year).

Second, sediment inventories will not be naturally "remediated" via dechlorination. The extent of dechlorination is limited in the sediments, resulting in probably less than 10 percent mass loss from the original concentrations.

While natural anaerobic (without oxygen) dechlorination of sediments occurs in the Hudson, it only does so with any degree of predictability when the concentration of PCBs in the sediments is greater than 30 mg/kg (or parts per million). In addition, because dechlorination does not remove chlorine atoms from the innermost (or ortho) position on the molecule, the molecule is still considered a PCB, and still considered toxic. Several studies have shown that dechlorinated PCBs may actually cause greater neurotoxic effects, than PCBs that have not undergone dechlorination.

The Data Evaluation and Interpretation Report finds that the dominant PCB load to the freshwater Hudson originates from the sediments in the Thompson Island Pool. So, many people have asked, "Why doesn't EPA just clean up the sediments now?" The answer returns to the important point that I stated before, EPA has to complete the various studies before it can support a decision as to whether a cleanup is appropriate or implementable, and if so, what that cleanup

method should be. EPA must first estimate what the future concentrations in fish tissue will be, based on future water-column and sediment predictions, generated by computer modeling. After we have estimated PCB concentrations in fish tissue, we must then determine the risk from consuming fish. Then, if there is an unacceptable risk to human health or the environment, EPA has to evaluate the feasibility of cleaning up the site.

Another way to describe the investigations that are being conducted for the Reassessment is to put them in the context of the questions that the study is designed to answer. The fate and transport and risk questions are summarized as follows:

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?
3. Could a major flood event make PCBs in buried sediments available to the food chain?

The studies that I have outlined, above, are designed to provide the Agency with the answers to these questions. As stated previously, EPA has set up a framework in order to answer these questions in a scientifically credible manner. Based on

the answers, EPA can then proceed with the selection of an appropriate alternative.

DIRECT RESPONSE TO QUESTIONS

1. What remedial measures should be taken to begin to address PCB contamination in the Hudson River?

I believe the above testimony clearly presents EPA's position that it is premature to evaluate remedial alternatives to address the PCB-contamination in the Hudson River at this time. When the Feasibility Study is conducted, EPA will evaluate alternatives in the following categories; no-action or institutional controls, *in-situ* treatment, *in-situ* capping, removal and landfilling, and removal with treatment and landfilling.

2. What are the potential health and environmental impacts of leaving the PCB contamination in the Hudson River?

The potential human health impacts from the PCB contamination in the Hudson River are mainly associated with exposure via the consumption of fish. Therefore, risks from the site are minimized if anglers follow the fishing advisories issued by the State. If people do consume fish from the site, there are potential cancer and non-cancer risks. According to the preliminary risk assessment in the Phase 1 Report, issued in August 1991, both the cancer and non-cancer risks are unacceptable. As part of Phase 2, EPA will conduct a risk

assessment based on the most recent data and the model predictions.

Recent discussions of risks due to volatilization of PCBs appear to be premature, as there is very little data from which to base a calculation of risk. In addition, rough risk calculations for an air pathway have shown the risk from such exposures to be within an acceptable range, and several orders of magnitude less than the risk from consuming fish.

There have also been recent assertions regarding the potential for disruption of the endocrine system by PCBs. While there are studies documenting endocrine disruption in wildlife, there currently is not conclusive evidence of such effects in humans. The Agency has committed significant resources to conduct additional research into endocrine disruption effects. If wildlife in the Hudson is impacted by endocrine disruption effects from PCBs, that impact would continue to exist if PCB are left in the Hudson.

3. What measures should be taken to address the ongoing PCB contamination of the upper Hudson River?

EPA believes that the interim remedial measures taken by General Electric, under order by the New York State Department of Environmental Conservation, have been effective in reducing the PCB load entering the river from the GE Hudson Falls Plant site. However, additional long-term measures will probably need to be implemented to further reduce the leaking of PCB oil from the

fractured bedrock into the river. Such measures probably include the recovery of PCB oil from the bedrock, so as to limit the potential for migration.

CONCLUSION

EPA's Reassessment study has been designed to determine whether remedial action is necessary, and if so, what action should be taken to address the PCB problem from the contaminated sediments in the Upper Hudson River. EPA will be issuing its findings in a series of reports, and while the findings of the studies may lead people to make conclusions regarding the appropriate course of action, the Agency requests that the public remain patient. It is important that the proper process be completed so that when the Agency makes a decision, it will be based on sound science. In turn, the Agency will make every effort to involve the public and to complete the Reassessment expeditiously. This concludes my testimony. I would be happy to answer any questions you have.