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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

US Environmental Protection Agency
Hudson River PCBs Reassessment Remedial Investigation/Feasibility Study
Community Interaction Program

DRAFT

Joint Liaison Group Meeting
July 23, 1998
Albany, NY

On July 23, 1998, a Joint Liaison Group meeting was held at the Albany Marriott, Albany, NY to discuss the scope of work for the human health risk assessment and to present the findings of the Low Resolution Sediment Coring Report (LRSCR). The LRSCR is an addendum to the Data Evaluation and Interpretation Report (DEIR) released in February 1997, which was the third of six segments of the total Phase II investigation report. The agenda for the meeting is Attachment 1. Sign-in sheets are found in Attachment 2. The use of brackets - [ ] - indicates clarifications made by the writer in cases where text would otherwise be unclear to those not at the meeting. Copies of the audio tapes recorded at the meeting are available on request.

Ann Rychlenski, United States Environmental Protection Agency (EPA) Public Affairs Specialist and Community Relations Coordinator for the project, opened the meeting and reminded the audience that the public comment period for both the scope of work and the LRSCR ends on August 31, 1998. There will be public availability sessions held on the LRSCR in Latham on August 19 [Holiday Inn Express, 2:30 to 4:30 PM and 6:30 to 8:30 PM] and in Poughkeepsie on August 20 [Marist College Student Center, Performing Arts Room, 6:30 to 8:30 PM]. A Scientific and Technical Committee Meeting will be held on August 18 at the Best Western on Wolf Road in Albany to discuss the LRSCR.

Marian Olsen, EPA Environmental Scientist and Human Health Risk Assessment specialist, presented the scope of work for the human health risk assessment for the Reassessment. A baseline risk assessment is required for all sites under the Superfund program. Attachment 3 contains a copy of Ms. Olsen's entire presentation. Ms. Olsen stressed that 1) there will be two risk assessments, the first for the upper Hudson River from Hudson Falls to Albany/Troy, and the second for the mid-Hudson from Albany/Troy to Poughkeepsie; and 2) that both cancer and non-cancer health assessments will be performed for both health risk assessments. The risk assessment is used by EPA's decision-makers to help evaluate whether further remedial action is needed at a site; it is an integral part of the process. Risk assessment involves hazard identification [Do PCBs cause cancer and non-cancer effects?], dose response [At what levels do PCBs cause these effects?], exposure assessment [How do people come into contact with PCBs? Do they inhale them? Eat fish containing PCBs? Have skin contact with soils or sediments containing PCBs?], and risk characterization and evaluation [quantification of the risks and discussion of the uncertainties].

EPA has identified PCBs as probable human carcinogens. What is called "cancer slope factors" have been developed to help quantify [the magnitude of] cancer risk to humans. These cancer slope factors can be found in EPA's database of risk information, the Integrated Risk Information System (IRIS). As the cancer slope factor values increase, the risk of cancer increases. The cancer slope factor for ingestion of fish [contaminated with PCBs] is 2 [mg/kg-day], which is higher than what has been used for arsenic and benzene, two known human carcinogens.

Non-cancer toxicity is assessed using a "reference dose," the daily exposure likely to be without appreciable risk of adverse health effects. Ms. Olsen stated that PCB studies have been done in monkeys, an important distinction for PCBs because that means information is available for a species more similar to human beings than rodents. Exposure exceeding the reference dose means greater concern relative to non-cancer health effects. For the Reassessment, EPA is looking at various pathways of exposure: ingestion of fish and water, skin contact, inhalation, etc.

Ms. Olsen referenced Administrator Browner's remarks about fishing advisories and concern that people are still eating the fish, particularly in areas where people are advised not to eat contaminated fish at all. In the human health risk assessment, EPA will try to determine not only the levels of PCBs in the fish but also, if there were no fishing ban, what amount of fish would be ingested by people living along the river.

The upper Hudson River risk assessment is expected to be ready in August 1999. The risk assessment for the mid-Hudson is dependent upon reevaluation and updating of the Thomann model, being done outside EPA's reassessment. Risk assessment results will be incorporated into the feasibility study.

Question: How can studies of fishing in New York and in comparable rivers in the United States, and analyses of estimates of how long people live in the Hudson Valley near the river, be equated to how much fish people eat?

Response: Ms. Olsen said surveys of licensed anglers of how much fish are consumed of certain species, how they are prepared, etc., will be used to help predict how much is ingested and how long people will fish as an indication of what would happen on the Hudson [in the absence of a fishing ban]. Data are available on 10,000 anglers throughout the state, and a small data set is available specifically on anglers on the Hudson River. One survey is available on the Hudson that will be used as a "ground truthing" for the data set from the state.

Question: Regarding dermal contact as an exposure route.

Response: EPA will look at levels of PCBs within porewater, and the health risks to people swimming. Studies do exist on the absorption of PCBs into the body through the skin. Mr. Tomchuk referenced the Phase 1 Report, which cited dermal contact as an exposure route in the preliminary health risk assessment. It was not seen as a significant risk at that time. New data obtained since the preliminary assessment will be used to characterize dermal contact in the upcoming health risk assessment.

Questions: When will the Thomann model be ready, and how will EPA do its independent review of that model to ensure its quality? If EPA accepts the new model, will it be made available for comments as part of the public process on the Hudson? Would it be peer reviewed before used?

Response: The update is expected to be complete sometime this summer. Significant revisions have been made to the original and EPA will have to look at those. The model would be published on its own. The question of peer review would have to be addressed.

Question: Re Mr. Tomchuk's indication that the Thomann model focuses on striped bass; how is the fact that striped bass pick up PCBs from other sources going to be factored into remedial decisions on the upper Hudson?

Response: EPA will apply the model to striped bass but will also apply Thomann's PCB fate and transport model for resident species in the Hudson.

Doug Tomchuk, assisted by Dr. Ed Garvey of TAMS Consultants, Inc., EPA's contractor, next presented a discussion of the LRSCR. Objectives of the LRSCR were to obtain new sediment inventories to compare to the 1984 inventories in selected locations in the Thompson Island Pool (TIP), and refine the mass estimates in certain hot spots below the Thompson Island Dam.

Mr. Tomchuk clarified the difference between low and high resolution coring. Low resolution sediment cores are four-inch diameter cores of an average two-foot length. Cores are divided into sections of approximately nine inches each. The term "low resolution" refers to the size of the divisions. High resolution cores are divided into fine sections: two centimeters at approximately an eighth of an inch depth and at an inch and a half below that. Low resolution coring is to determine inventory, or amount, of PCBs in the hot spots. High resolution coring is to interpret transport over time through dated sediment records.

The LRSCR presents four conclusions, as follows.

- ***There was little evidence found of widespread burial of PCB-contaminated sediment by clean sediment within the Thompson Island Pool.*** Burial is seen at some locations but more core sites showed loss of PCB inventory than showed PCB gain or burial. [Identifiable] sediments that were once down approximately three feet are now at the surface. In approximately 60 percent of the cores, the highest PCB concentrations were found to be within 9 inches of the sediment/water interface. In cores where contaminated material had been buried, the newly deposited sediment was also found to be contaminated with PCBs.

- ***From 1984 to 1994, there has been a net loss of approximately 40 percent of the PCB inventory from the highly contaminated sediments in the Thompson Island Pool.*** EPA calculates that 30 percent of that loss has gone into the water column, and the remaining 10 percent loss, as was calculated in the DEIR, was due to dechlorination.

- ***From 1976 to 1994, there has been a net loss of PCB inventory in the hot spot sediments between the Thompson Island Dam and the Federal Dam at Troy.*** For example, hot spots 31, 34, and 37 showed PCB losses of three fourths, one half, and two thirds, respectively, while hot spots 25 and 35 basically showed no change.

- ***The PCB inventory for hot spot 28 was considerably greater than previous estimates.*** Current estimate is approximately 20 metric tons, vs. the original estimate of 2 to 7 metric tons, attributed to significant underestimates in previous studies rather than actual deposition of PCBs in hot spot 28. It is important in that the 20 metric tons estimated is greater than the inventory in the TIP.

In summary, Mr. Tomchuk stated PCBs are being redistributed within the Hudson River system, indicating that the stability of the sediment deposits cannot be assured. It is likely that PCBs will continue to be released from the Hudson River sediments. Further, the magnitude of the losses of PCBs from the sediment into the water column was an unexpected result of the analysis. He read a statement from Jeanne Fox, Region II Regional Administrator, indicating that EPA would evaluate the implications of this finding and decide by the fall what steps should be taken to stem this loss, followed by a similar statement from EPA Administrator Carol Browner.

Mr. Tomchuk said EPA would evaluate the findings and determine if any action is necessary. He emphasized that if any action involved removal of sediment, EPA would use existing permitted landfills and would not look to site a landfill in the Hudson Valley. Mr. Tomchuk also emphasized that the Reassessment will go on; the study must be completed to enable a Record of Decision (ROD).

Following are highlights of the question and answer period.

Question regarding speaker's understanding that fish data indicates levels of PCBs in the fish are going down, vs. reports that PCBs in the water column are going up. Would they not have gone up if PCB levels in the water column are going up?

Response: Fish data still show that [PCB] levels in fish are unacceptable. The [loss of PCBs to the water column] is a process that has been going on for years; EPA is not saying this is an increase. No measurements have been done between 1984 and 1994. Fish have likely been exposed to higher concentrations in the past also; this will continue as long as scour and redeposition of contaminated material occurs.

Question: 1) Clarification of term "clean material as used in the presentation;" 2) are PCBs being diluted from more highly contaminated hot spots and redistributed to surrounding sediments and not being picked up as part of the hot spot mass? 3) **Comment**: If a limited-scale removal had been done in 1977, we may not now be talking about a more spread out removal process.

Response: 1) There is not a specific PCB measurement associated with the term "clean material" as used in the slide; the point being made there was that PCBs were being found in surface sediments. 2) Redistribution could be from a large gain to the PCB inventory in the river from the Hudson Falls plant site, or from redistribution from the hot spots. Sometimes PCBs are released from the sediments and reprecipitated; sometimes there is just loss. The evidence suggests that sediments from the hot spots are recontaminating points downstream as well as in the channel. 3) Acknowledgment of what is "probably a valid deduction."

Question regarding the difference in core patterns where some look like scour and others just look like loss. What fraction of those in which there is loss shows a shifting up of the profile vs. loss that cannot necessarily be ascribed to a shifting up of the profile?

Response: Less than half the samples showed definitive evidence of scour. To be absolutely certain scour occurred, Cesium must be evident near the surface relative to PCBs at depth. Sometimes one could be certain, other times not. The cores were not tallied specifically as to which were scours and which was just loss.

Question: 1) Evidence in the DEIR suggested reasonable expectation of monos and dis [homologues of PCBs] in the project area; is anything going to be done to revisit the cores to quantify what else might be there so as to come up with "the entire picture?" **Follow-on:** concern about the future based on evidence that monos and dis are more labile; comment that speaker feels this would be an important part of the future examination. 2) Please describe the "short term study" that will be done to determine the next steps.

Response: 1) The survey done in 1994 includes a complete PCB spectrum. The data in the 1984 survey only quantitates tri and higher homologues. EPA cannot assess what has happened to the monos and dis in the ten-year interim. This means that the losses that have been calculated are minimum losses; if there were monos and dis present in 1984, they are gone, because everything [in the full spectrum] has been accounted for in the current study. If there was more there than EPA knows was there, then that too was part of the loss. 2) EPA has not yet determined specifically what if anything needs to be done.

Comment and question from GE: Looking forward to seeing how EPA utilized the data. Suggested that when analysis is broadened to include "all the other data," it doesn't seem plausible to see significant scour in the hot spot areas. Other information GE referenced included congener composition in fish and water and two-dimensional hydrodynamic modeling that didn't "seem to support any widespread scour." Will EPA constrain findings on sources of PCBs by quantitative analysis done with the modeling? The LCSCR findings may be wrong; not constrained by rigorous analysis.

Response: EPA's next report is the Baseline Modeling Report where a mass balance view will be given. That should not detract from the findings of the LCSCR. These findings were constrained by rigorous analysis.

Question: Does this proposed new mechanism of PCB release in any way affect the levels of PCBs in the river that we've all been measuring in the last 20 years?

Response: If you compare loss of PCBs from the sediment inventory to the water column transport of PCBs, it comes pretty close. The explanation for the water column increases and the water column PCB loads would be the losses from the sediment. The thing that changed is that EPA has now quantified [the problem]. A third of the PCBs' leaving the sediment led EPA to conclude that perhaps an action would be warranted on a faster time frame, rather than waiting for more [PCB loss].

Question: 1) When did you arrive at the conclusion that there is a 30 percent loss to the water column? 2) Will the basis for the calculations be explained in the report?

Response: 1) In the process of issuing this report, within the last two months; for some staff on the analytical level, perhaps somewhat earlier. 2) Yes.

Question: Speaker assumed profiles were not based on actually measuring the depth of sediment but were derived from PCB levels. Referenced graph used in the presentation showing change in profile from

1984 to 1994. Assume that was showing profiles at the surface of the bottom of the river. 1) Is the new profile derived from EPA's analysis of PCB and other information from the low resolution cores? 2) Will you revisit your scour model, which said that it appeared there was essentially no erosion of fine-grained sediments from the hot spots?

Response: The zero level on those profiles is the sediment/water interface. The graph shown was an example to illustrate gain and loss of PCBs in certain areas. 1) Yes. 2) These implications will have to be taken into account. There are mechanisms that may not be modeled in the past (e.g., biota-type disturbances, ice scour, boat propeller wash, etc. that were not part of the hydrodynamic scour model. Not all locations showed scour even when they showed mass loss. "We saw fewer PCBs; that is not to say we didn't see scour."

Comment and question: Using a rather limited data set and extrapolating from cores varying distances apart, [EPA] is extrapolating to what is happening in the TIP as a whole, that 30 percent of the inventory in the TIP as a whole has been lost. In the absence of additional data and with conflict of your scour model, you have no hesitation in "broad pronouncements of terrible risks." Comment on spacing of cores. Question as to EPA's confidence in the results and in extrapolating for the whole TIP, different collection methods, different analysis methods, etc.

Response: These are very powerful results and we have confidence in them. The statistical evidence for [the extrapolation] was not in comparing core to core, but in comparing all the cores. The integration of all the cores led to the conclusion that mass is being lost. Based on the 60 cores placed in the pool which are distributed fairly well throughout, statistics bear out the loss. The two data sets, 1984 and 1994, are different by about 40 percent. Median distance of separation was three feet; of the 60 cores, 30 were within three feet of each other. Cores were placed within areas of predominantly similar materials. If anything, EPA's quantitation is better than the state's. If there were no change EPA would expect a higher number, because EPA thinks it did a better analysis. Everything is pointing in the other direction.

Follow-on: Concern over emphasis on the hot spots, making a decision about what to do "in a rather quick fashion;" feeling that the loss might be more widespread than the hot spots.

Response: [PCB loss occurred] in areas [with PCB concentrations of] 10 grams per meter square, which do not directly correlate to the hot spot boundaries previously drawn. A lot of those areas are outside of the hot spots, so what is being referred to is highly contaminated hot spot-type material.

Question: 1) Based on current data, is hot spot 28 gaining PCBs, losing, or roughly stable?

Responses: 1) It is losing. More than half the cores placed in the hot spot put the peak [PCB] concentration in the top nine inches [of sediment]. In some cores, peak concentration was down as far as two or three feet, which indicates burial. This implies a very long profile. Of the five or six feet of material that had been there, the loss has been a foot or more.

Follow-on Question: Does EPA really feel there are other mechanisms than scour that might explain the loss? Ice and boat wash seem just a small part.

Response: Those are not the total explanation, but everything can contribute. From early spring to late fall, [there is a] rise of PCBs in the water column, coming out of the sediments. The water passes through the Thompson Island Pool and there is a water column gain; it is not coming in at Rogers Island. The sediments are the only thing contaminated here. Water column evidence says there is [PCB contamination] coming out of the sediments; coring evidence says the [PCBs] that were in the sediments is not there as much anymore. [The conclusion is] that there [are PCBs] coming out of the sediments and going downriver.

Follow-on: Is there a seasonal pattern?

Response: GE data over the past few years have shown that the sediment releases have been confined to the period from May to November. The most pronounced releases are in the warmer periods of the year.

Questions: Question regarding the relationship of the two presentations: the release of PCBs from the sediments and the "alarming" comments about the toxicity of these compounds. If there is scientific credibility here, the people of the Hudson River Valley are medically impaired. There should be clear evidence of higher cancer rates, immuno-suppression, and impaired mental and behavioral effects. Speaker wonders if there is any such evidence.

Response: EPA's concern is the primary exposure route, which is the ingestion of fish. Ms. Olsen is not aware of any epidemiological studies that have looked at that question at this time. EPA is doing a risk assessment to evaluate that, looking at probabilities. This differs from an epidemiological study that may be done by a group such as NYS Department of Health (DOH).

Follow-on: How will comparison of fishing practices across the state address that? Speaker feels EPA is "making very alarming statements based on very little data on health" and "you are not showing an effect in the Hudson River Valley." He suggested EPA "go to the CDC."

Response: Mr. Tomchuk disagreed. There is enough evidence for EPA to base its risk assessment on the IRIS numbers, which indicate the cancer and other risks of PCBs. EPA cited the fishing ban, which indicates exposure.

Comment: From Mr. Mele. A more important question would be to go to the DOH: why, after issuing health advisories for 20 years, have there been no epidemiological studies? With regard to motor boat scouring, he referenced an article on the statistical effects of motor boat scour on eutrophication of a lake in upstate New York by resuspension of sediments from the bottom, and said motor boat engines have a dramatic effect. Relatively small outboard motors are capable of bringing [sediment] up from depths as great as 20 feet, a fact that should not be overlooked.

Comment: Ms. Trieste said she believed EPA's responsibility is to inform the public about information being discovered regarding the Hudson River. She referenced the GE newsletter, "River Watch," and said it gives the impression that PCBs are decreasing in the river, and if we take the "do nothing" approach, everything will be fine "down the road." EPA's data is saying the opposite: doing nothing is not solving the problem. She accepts the current uncertainties of the health risks, but stated that the fact is that the river is still very much contaminated with PCBs, and it is flowing and dredging itself.

Response: Mr. Tomchuk addressed use of the word "dredging," and clarified that the information indicates redistribution of sediments, accompanied by significant loss of PCBs to the sediments.

Follow-on comment: Mr. Haggard stated GE has "not advocated the 'do nothing' approach," and added that the action being taken to control sources is effective.

Question: Mr. Behan. Question as to when EPA looked at these data, and a series of questions as to when anyone found it startling. "When? When? Was it a week ago? I'm just trying to get the answer."

Response: Mr. Tomchuk: within the last two weeks. The whole study took over a year to prepare. When it was completed, EPA recognized it as substantial information: "this is startling. I think you would have to agree that a 30 percent loss from the sediments is startling information."

Follow-on Question: Did the Administrator know about this before her testimony before Assemblyman Brodsky's committee?

Response: No.

Question: Mr. Dergosits. 1) Are you seeing movement of the hot spots into the navigable channel of the upper Hudson River? 2) Expressed surprised at GE's data showing an increase in PCB transport in the water column during the May to November timeframe, particularly since that is the navigable season in the Champlain Canal system. He feels there is a direct correlation. Mr. Dergosits is glad to see EPA is going to consider emergency action, and hopes EPA will take into account the navigable benefits of the upper Hudson, and the impacts associated with any action.

Response: 1) No. The sediment textures are consistent with what NYSDEC mapped in 1984 and '76.

Comment: Ms. Pulver, speaking as councilwoman of the Town of Ft. Edward. She mentioned the DEIR, the landfill siting study, Administrator Browner's comments regarding dredging, and the information tonight that carries "implications of immediate dredging. The political stench reeks," she said. "I'm supposed to feel comfortable because it may not be landfilled locally. Well, I don't feel comfortable." Ms. Pulver reminded EPA that "60 communities in the upper Hudson not only said they did not want a landfill in our communities, but they also said, 'please do not dredge the Hudson River.'" She stated that the social and economic impact on the town of Ft. Edward and other communities along the Hudson "would be disastrous" and emphasized that this must be considered. She pleaded that EPA "not jump into a dredging solution at this time." She said, "you have promised us good science. Let this process at least complete itself."

Comment: Mr. Adams said last February people received what "many" believed to be premature conclusions about PCBs in the Hudson River. He feels the conclusions presented tonight "contradict" the conclusions of February 1997, and expressed concern over EPA's "jumping so fast before there is a very thoughtful and thorough consideration of what you are putting out in this report." He wonders if the Administrator and Regional Administrator "really know what they are saying."

Comment: Mr. Connolly cited the DEIR as saying "all the PCBs are coming from the Thompson Island Pool." Mr. Tomchuk clarified that the DEIR characterized the TIP as the "primary source." Mr.

Connolly questioned the current indication that hot spot 28 has more PCBs than the TIP, and observed that the conclusions seem at variance. He recommends caution.

Response: Mr. Tomchuk said any process that occurs, as yet to be laid out, will consider the available information. EPA will continue its studies.

Questions: 1) Mr. Hodgson asked if Mr. Tomchuk would "put into perspective" the temporary remedial action that EPA would be considering this fall, and its relationship to the whole Reassessment. 2) Has EPA made any decisions or established any procedures for making a decision as to what if any action would be required? 3) Mr. Hodgson expressed concern that the current lengthy, expensive scientific process might be "cast aside."

Response: 1) EPA does not know what type of process would be selected, if any, so it is hard to judge impact. 2) EPA has not established any procedures yet. Mr. Tomchuk indicated the public might be hearing from the agency within the upcoming weeks as to what those procedures might be. EPA will continue with the schedule to complete the studies for this [Reassessment] process. 3) Mr. Tomchuk assured Mr. Hodgson that the agency will proceed with caution to be sure the right decision is made.

Question: Can you give an idea of how much scour EPA thinks is going on? What type of depth - how much sediment loss - is involved?

Response: No. It varies a lot. In a number of locations the 1984 cores and EPA's cores are not sufficient to define "scour" as opposed to simply defining that there has to have been a mass loss. Of the two cores shown, one core would suggest scour down to 12 inches. The other core suggested two feet. These are unequivocable examples of scour in that the bottom of the core has moved upward. Basically EPA is talking about losses; in certain spots it is showing as scour.

Follow-on: If there is less than a foot of scour between 1984 and 1994, probably occurring continuously, it hardly qualifies as an emergency action. It is a gradual decrease in sediment. Why now is it an emergency if it will continue slowly eroding over time?

Response: Consideration of an expedited action is because EPA has recognized what type of sediment inventory loss has occurred over time - a 30 percent loss. EPA does not know the time frames during which the losses occurred.

Follow-on: EPA is assuming that PCBs that get scoured or resuspended are moving downstream. These PCBs are probably going to be heavily dechlorinated. Why does EPA assume these PCBs are moving and causing a risk instead of being degraded and destroyed, and the 30 percent loss then [would be] perfectly consistent with the biodegradation of those PCBs?

Response: The water column transport work in the DEIR shows a large mass of PCBs transported out of the system over the federal dam at Troy. The risk assessment deals with the food chain, and if areas are exposed because of scour, slow scour, or even diffusion, there could still be a risk. Any destruction of PCBs would be after they are in the water column, so there would still be the opportunity to get into the biota and into the food chain. The mass losses of PCBs from the sediment in the TIP are not out of line with PCBs seen in the water column as a gain across the sediments. PCBs are lost from the sediment

inventory. EPA does not see any evidence in the cores collected of long-term destruction within the cores.

Question: 1) Since EPA has been focussing on PCBs in the tri-chloral and higher range, what is the basis for EPA's statement for the relative contribution of dechlorination to the PCB loss? 2) That [molecular weight] "is all right when ... looking at the total PCB." What about the higher PCBs that are subject to dechlorination?

Response: 1) The molecular weight of the material in place is commensurate with a ten percent dechlorination loss. 2) We took account of the moles. Using NYSDEC data on molar balance and taking dechlorination to its nth degree, [one] cannot accomplish [the PCB loss that] was seen. EPA saw not only a 30 percent loss in mass that is attributed to loss at the top, but also a 30 percent loss in the moles. Dechlorination will account for no more than about five percent of molar loss. You have to have lost molecules from the sediment.

EPA counts molecules whether the PCBs are higher or lower [in chlorines]. The 1984 data was looked at for a tri- and higher measure. If the material were in place in 1984 and monos and dis were not measured, and one assumes it was dechlorinated, 95 percent of the molecules would still be there ten years later. EPA found that 95 percent of the molecules were not there. Independent of dechlorination, EPA found only 70 percent of the molecules in 1994. Therefore, 30 percent of the molecules are gone. No dechlorination process destroys molecules other than five percent. Because there was a 30 percent loss of the molecules, there was a 30 percent loss of mass.

Question: NYSDEC's 1978 survey said there were 135,000 pounds of PCBs in the pool. The 1984 survey said 51,000 pounds, a 60 percent loss. In 1994 another survey done by another method found another 40 percent loss. Is it possible that differences in methodologies could account for those differences in volume?

Response: EPA cannot speak to the 1978 to 1984 difference. EPA was very rigorous in determining how the 1984 figure was quantitated and how to take the data from 1994 and plug it into what would be attributable to the 1984 analysis.

Question: Did EPA verify that by comparative analysis in a laboratory?

Response: We did not.

Comment: "Then you can't make that assessment."

Response: "I'm not sure I agree with you on that."

Comment: Mr. Dergosits stated the 1977 data was collected on the higher 40-mile reach of the Hudson and the 54,000-lb estimate was based on the Thompson Island Pool.

Question: Please clarify that loss of PCBs does not mean loss as in "going away" but rather, loss of PCB inventory from the sediment to someplace else.

Response: Dr. Garvey explained that what EPA did with this study was to go back to these locations, survey and inventory them, and assess how much PCBs were there. EPA compared the results with the 1984 numbers obtained from the state. The inventory is gone; all of the mechanisms EPA is aware of that destroy PCBs could not have accomplished what was observed. There must have been some other process by which PCBs were removed from the sediment.

What EPA is forced to believe is that the material that was there has somehow left the sediment and traveled downstream. Some of it entered the water column, some of it entered the fish, some of it recontaminates sediment further downstream, some of it ends up in the channel deposits coarser-grained). In fact, the data suggests that the coarser-grained sediments have increased in inventory over time as opposed to the finer grained sediments which have lost inventory over time.

The system is basically re-releasing or reworking PCBs from one area of the river to another over time. What has been documented in this study is that over a ten-year period of time, 30 percent of the inventory in the fine-grained sediments the Thompson Island Pool has been reworked and released for subsequent transport, absorption to fish, volatilization through the atmosphere, recontamination of the sediments downstream, recontamination of the water downstream, and so on. They are not destroyed.

Question: With hot spots redistributing/reworking themselves, does EPA find any leveling off as far as fish data is concerned?

Response: EPA is not sure whether this [redistribution/reworking] is happening a little every year, and that is what is causing the numbers in the fish that have been seen for a long time, or by one event years ago. Making that correlation is not practical at this point.

Question: When does EPA anticipate a peer review for this report?

Response: EPA is confident in the report and will receive and address comments. Independent peer review will still occur. Peer review is scheduled for the Phase 2 reports at the end of Phase 2, probably in the time frame of August 1999.

Follow-on: EPA will make a key remedial decision without going through any peer review, even though the Administrator has said [peer review] is an important component?

Response: There is evidence of significant loss. As an agency that is responsible for protecting human health and the environment, not to act on a report that says there is a 30 percent loss would be irresponsible.

Question: Mr. Mele's understanding of the peer review process is that it addresses new science. He does not see anything that is "new science;" EPA has established principles and applying new data to them. He does not see that this is a subject for peer review.

Response: EPA believes it should undergo peer review, and will do that in October of 1999.

Question: What is the format for the Availability Sessions?

Response: EPA will be available to sit down with people and discuss their questions and comments one-to-one. No presentation is expected at this point.

Question: What monitoring is still going on, and what will be its relationship to the overall study?

Response: To keep the schedule it has committed to, data after December 1997 will not be incorporated into EPA's reports. EPA will not ignore data or new evidence. It will be looked at before the proposed plan and reported on in the responsiveness study. If there is something that suggests a change, EPA will have to take a look.

Follow-on: 1) Could EPA comment on on-going monitoring, such as fish data, etc.? 2) Is the data collection for your [EPA's] study essentially complete?

Response: 1) GE is still collecting water column samples; DEC. is collecting fish data, there will be various sampling efforts over the next several years, and DEC. has numerous other sampling programs in effect right now. 2) Yes.

Comment: Mr. Dergosits cited evidence of scour in DEC's 1982 samples. The question will be how extensive this is.

There being no further discussion, the meeting was adjourned.

ATTACHMENT 1

Public Meeting

U.S. ENVIRONMENTAL PROTECTION AGENCY

HUDSON RIVER PCBs REASSESSMENT

COMMUNITY INTERACTION PROGRAM

JOINT LIAISON GROUP MEETING

Thursday, July 23, 1998

7:30 p.m.

Marriott Hotel, Wolf Road, Albany, New York

MEETING TO PRESENT LOW RESOLUTION CORING REPORT

&

SCOPE OF WORK FOR THE HUMAN HEALTH RISK ASSESSMENT

AGENDA

Welcome & Introduction	Ann Rychlenski, Community Relations Coordinator, U.S. EPA
Presentation of the Scope of Work for the Human Health Risk Assessment for the Hudson River PCBs Reassessment	Marion Olsen, Environmental Scientist U.S. EPA

Question & Answer Period for Human Health Risk Assessment Scope of Work

Break (10 minutes)

Presentation of the Findings of the Phase 2 Low Resolution Coring Report	Doug Tomchuk, Remedial Project Manager, U.S. EPA

Question & Answer Period for Low Resolution Coring Report

ATTACHMENT 2
1-2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
HUDSON RIVER PCBs REASSESSMENT RI/FS
COMMUNITY INTERACTION PROGRAM

Joint Liaison Group Meeting
July 23, 1998
Albany, New York

NAME	ADDRESS	AFFILIATION IF ANY
Suzanne Fields-Swan	43 McKinney Rd Salem NY 12865	SVMC
Jim Reagan	32 Dublin Drive Ballston Spa, N.Y 12020	NYSDEC 12020
John Brown	1479 Dean ST Schenectady NY	GE-CRD
Mel Schweiger	1 Computer DR. S. Albany, NY 12205	GE
George Hodgson	Sara 50 W. High St. Ballston Spa	Saratoga Co. EMC
John Santacrose	~~Audubon Society of NYS~~ PO Box 3705, Aby, NY 12203	Audubon Soc of NYS/ATT
Frank Mondello	2287 Pine Haven Dr Niskayuna NY	GECRD
Ann Casey	211 Kent St Albany 12206	SPH U@ Albany
Marian Trieste	463 RT 32 Schuylerville NY	Sierra Club
John Dergosits	200 Southern Blvd Albany NY 12201	NYS Canal Corporation.
Keith H. [illegible]	80 Casey Rd Fort Edward	Gov. Liaison Comm

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NAME	ADDRESS	AFFILIATION IF ANY
K.L. Farrar	Waterford NY 104 Broad St	DEC
D.D. ADAMS	216 STAGE RD, CHARLTON, NY 12019	GOV'T. LIAISON SAR. CO. EMC
Jennifer Palmer	2842 County Rte #6 Fort Edward	CEASE
John Connolly	305 West Grand Ave. Montvale, NJ 07645	QEA
B Bush	46 Dove St Albany NY 12210	SUNY
James & Robert & Kudlack	144 Kudlack Road Greenville NY 12083	Ky. Advisor To Congressman Solomon

ATTACHMENT 2
2-2

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NAME	ADDRESS	AFFILIATION IF ANY
MARK BEHAN	PO Box 922 Glens Falls, NY	GE
Joan Gerhardt	"	GE
Ken [illegible]	B 8 Schenectady NY	GE
William T. Potts	NYSDEC 50 Wolf Rd Albany NY 12303	NYSDEC
W Domick	"	"
Daphne Ross	112 Market St Poughkeepsie 12601	Clearwater, Inc.
Andy Mele	"	"

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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NAME	ADDRESS	AFFILIATION IF ANY
Rich Schiafo	9 Vassar St Poughkeepsie NY 12601	Scenic Hudson

Human Health Risk Assessment

Scope of Work

10.9642

ATTACHMENT 3
1-8

Human Health Risk Assessment Scope of Work

- Superfund requirement
- Upper Hudson River Assessment - Hudson Falls to Albany/Troy
- Mid-Hudson River Assessment - Albany/Troy to Poughkeepsie
- Cancer and non-cancer assessments
- Used by EPA decision makers

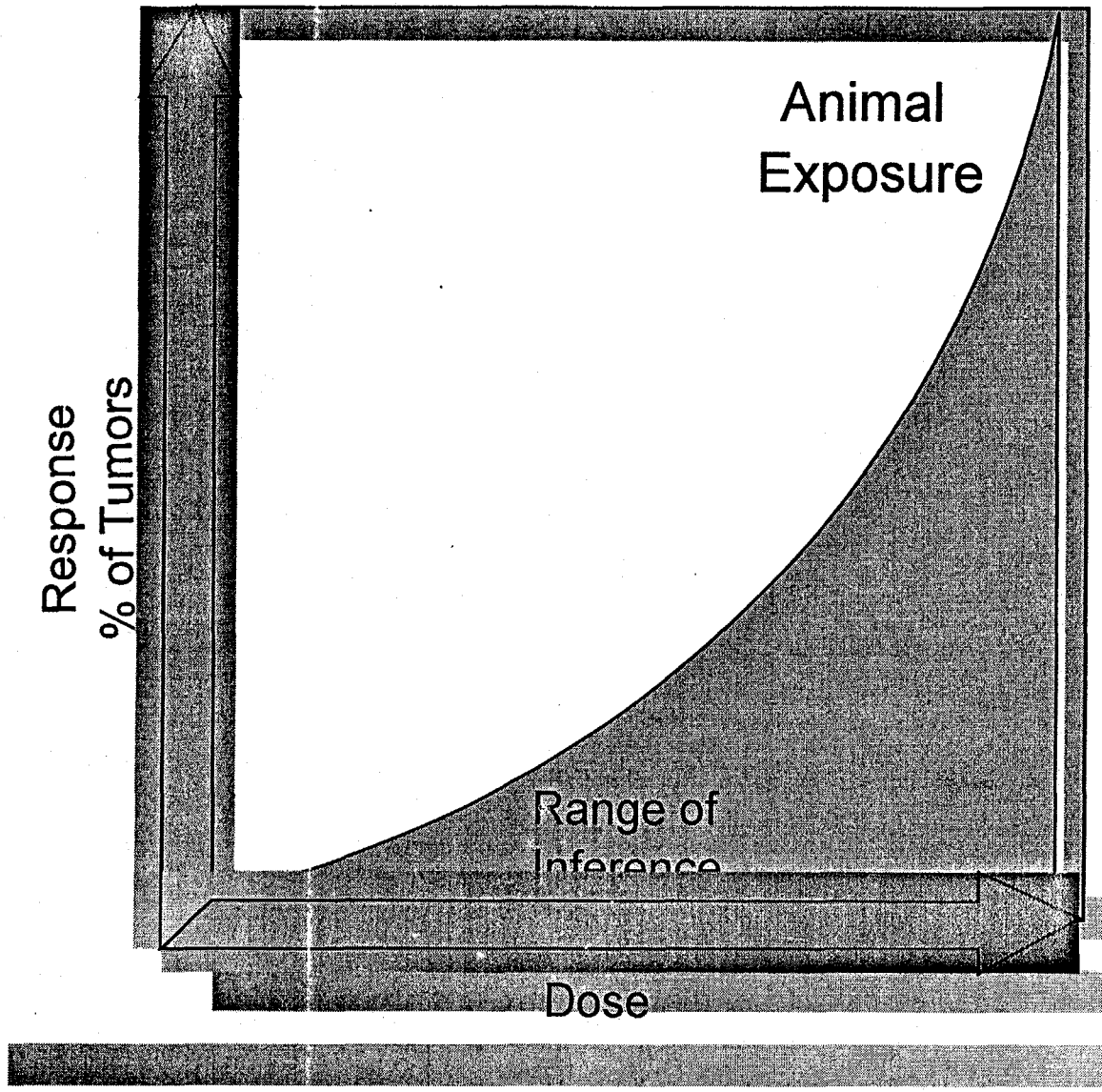
Risk Assessment - Definition

- Hazard Identification
  - *What types of toxicity do PCBs cause?*
- Dose-Response
  - *What levels produce toxicity?*
- Exposure Assessment
  - *How may people be exposed? Eating fish, swimming in the river, or inhaling PCBs?*
- Risk Characterization/Evaluation
  - *What is the level of risk and hazard?*

PCB Toxicity - Cancer

- Probable human carcinogen (hazard identification)
- Cancer slope factors available for oral (eating or drinking), skin contact, and inhalation routes of exposure (dose response)
- Based on a peer-reviewed assessment and available on the Integrated Risk Information System

(relationship between exposure and adverse effects)



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ATTACHMENT 3-8

Cancer Risk =

Cancer Slope Factor X Exposure

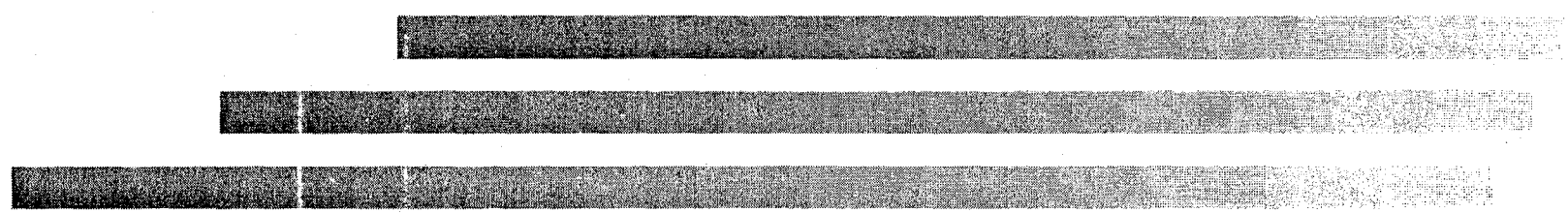
Cancer Slope Factor for Ingestion of Fish = 2

PCB Toxicity - Non Cancer

- Non-Cancer Toxicity Evaluation
  - Uses a Reference Dose - a daily exposure level that is likely to be without appreciable risk of adverse health effects for humans
- Aroclor specific Reference Doses (Dose Response)
  - Aroclor 1016 (reduced birth weight)
  - Aroclor 1254 (immune system effects)

Reference Dose Calculation

- No observed Adverse Effect Level
- Reduction for protection of humans
  - Animals -- Humans
  - Sensitive humans including children and elderly
  - Available studies
  - Subchronic to chronic



Non-Cancer Hazard =

Exposure / Reference Dose

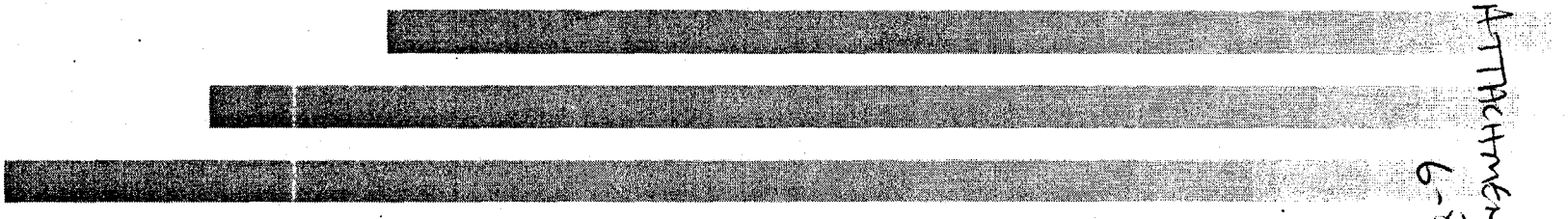
PCB Reference Doses = 0.00007 - 0.00002

Attachment 5-8

Exposure Pathways

Fish Advisories - Main Concern

- Ban on ingestion of fish by children under 15 years old and females of child bearing age
- Catch and release program in Upper Hudson River
- Species specific advisories in Mid-Hudson River
- Concern - people are still eating fish



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ATTACHMENT 6-3

Exposure Assumptions - Fish (Primary Concern)

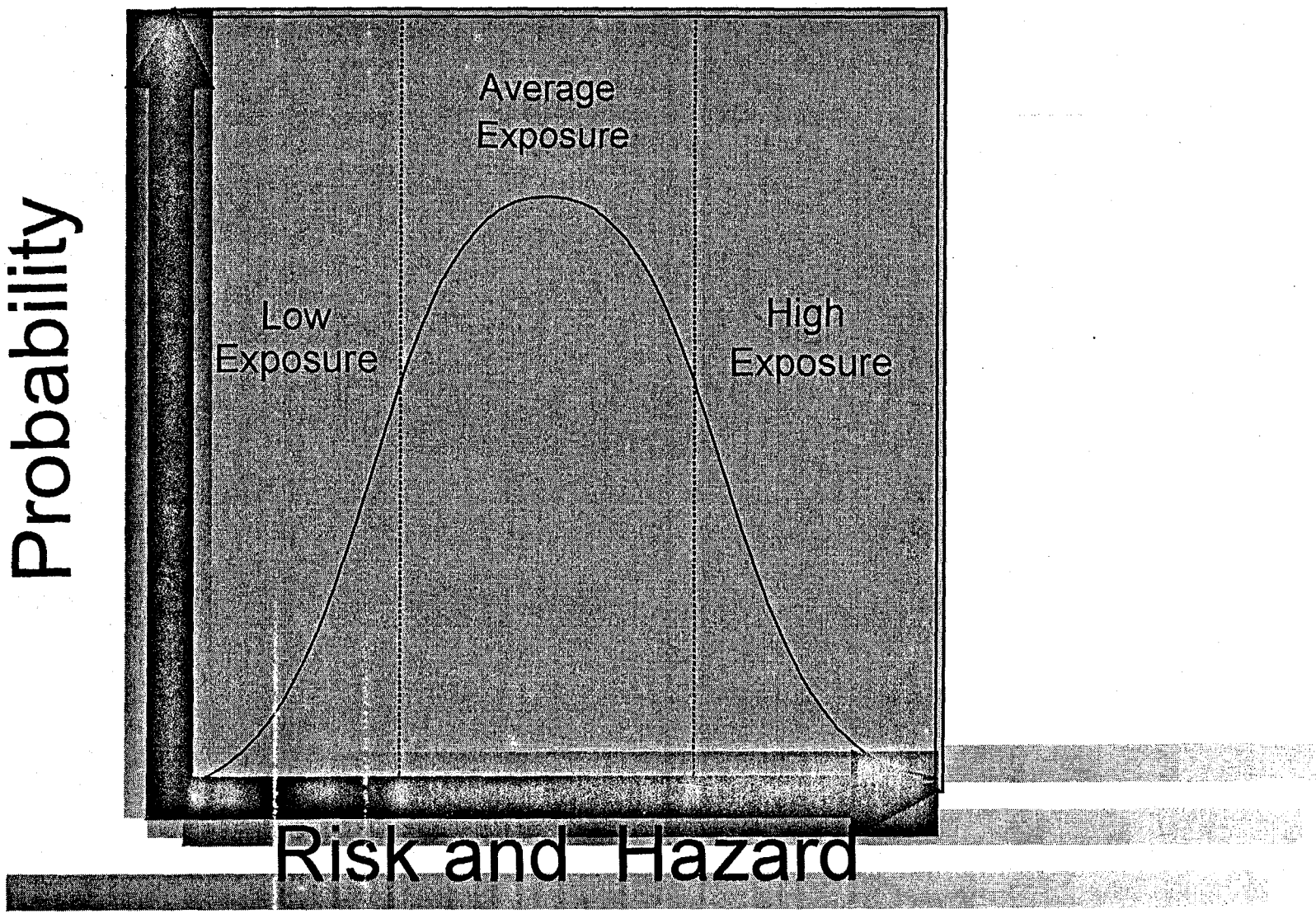
- What is the concentration of PCBs in Hudson River fish?
  - Modeling Results
  - NYSDEC and Phase 2 Fish Samples
- How much and how frequently is fish from the Hudson River consumed?
  - Fish surveys of NYS rivers
  - Surveys of other rivers
- How long do people consume Hudson River fish?
  - Census data

Other Routes of Exposure (Secondary Concerns)

- Recreational Exposures
  - Sediment contact
    - Skin contact while wading
    - Swallowing sediments from hand to mouth exposure
  - River water
    - Skin contact while swimming
    - Swallowing water with PCBs while swimming
- Inhalation of volatilized (or evaporated) PCBs

ATTACHMENT 7-8

Monte Carlo Analysis of Variability



Risk Characterization/Evaluation

- Cancer Risks - probability of developing cancer
- Non-Cancer Hazards - exceedence of Reference Dose
- Uncertainty and Variability: Monte Carlo Analysis and Discussion
- Used by decision makers to determine need for additional actions

Next Steps

- Comments by August 31, 1998
- Upper Hudson River Assessment - August, 1999
- Mid-Hudson River Assessment - dependent on availability of Thomann model
- Risk results will be incorporated into the Feasibility Study