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cc: Case Action

October 6, 1998

Jeanne M. Fox
Regional Administrator
USEPA, Region 2
290 Broadway
New York, NY 10007-1866

Dear Ms. Fox:

In July, the Environmental Protection Agency released the Low Resolution Coring Report prepared as part of the Agency's Hudson River reassessment. Press accounts said Agency representatives characterized as "startling" its main conclusion: that 40% of the PCBs in the "hot spots" of the Thompson Island Pool had been swept downstream between 1984 and 1994. EPA said this situation might lead to an emergency action later in the year.

Recognizing the importance of this issue, GE, with the help of outside consultants, has thoroughly analyzed the report. As the comments filed with EPA point out, the report is seriously flawed at a fundamental level, which we believe renders its conclusions invalid. For example, EPA's contractor chose a analytical method that ultimately showed that most of the PCBs in the Thompson Island Pool sediments (approximately 80 percent) had disappeared in a ten-year period. This is clearly wrong and demonstrates the incorrectness of the contractor's approach. In our view, this report should not be used as the basis of any future remedial decision and certainly should not serve as the basis for any emergency action. The reality is that conditions in this river have improved dramatically in all relevant respects and there is no justification for any remedial action until EPA finally concludes its reassessment.

The enclosed newspaper article indicates that EPA is contemplating peer review after it has used this report as the basis for some action. Given the critical importance of ensuring that the information which will drive the remedial decision is of the highest quality, we ask that this report be subjected to independent, external peer review as soon as possible. As was demonstrated recently with EPA's

modeling report, independent peer review of significant technical documents is essential to avoid and correct errors that may result in inappropriate decisions or causes of action. In this case, immediate peer review would avoid any delay in the process and misdirection of any work that would be based on this report.

I would also welcome the opportunity to meet and discuss this matter with you at your earliest convenience.

Sincerely,

Stephen D. Ramsey

cc: John Cahill
Encl.

Daily Freeman (Kingston, N.Y.)
9/12/98

Ruling on PCB cleanup likely on hold until '99

By MICHAEL McCAGG
Freeman staff

Mid-Hudson

Responding to an independent peer review committee of scientists that criticized one aspect of the U.S. Environmental Protection Agency's Hudson River PCB review, a spokesman said the agency probably will decide without a similar review whether emergency steps are needed to stem the flow of PCBs downriver.

That decision, originally due by the fall, will take longer than expected to develop and won't be made public until 1999, said Richard Stapleton, a spokesman with the federal agency's New York City office.

The steps, which could include limited dredging or efforts to seal areas of high concentrations of the toxic pollutant, would be conducted before the agency completes its overall review of the polychlorinated biphenyl pollution of the Hudson River, in 2001.

"There is overwhelming evidence to the point where you do not need peer review," said Stapleton of a July report from his agency that indicated PCBs illegally dumped by General Electric into the Hudson River over a 30-year period were flowing downriver.

"Using existing science, there is overwhelming evidence evident of significant loss of PCBs over the years from the hot spots," he said Friday.

"Hot spots" are areas of high concentrations of PCB pollution and are located near two former General Electric plants on the northern part of the river.

The July report, which found that the PCBs were not being buried and sealed by river sediment as General Electric maintains, received support last week from the state Department of Environmental Conservation.

But General Electric officials have blasted the report, saying it contains elementary errors of science, and repeatedly called on federal officials to put the report before an independent peer review committee before making any decisions on emergency cleanup actions.

Stapleton said an independent peer review will eventually occur, but not before a decision on the need for the emergency cleanup has to be reached.

He also emphasized that just because the July report indicates PCB leakage, that doesn't necessarily mean his agency will support accelerated cleanup efforts of the "hot spots."

"We're looking to see first of all if we know enough — have enough information to make that kind of decision now, and whether it makes sense given that the other actions will be completed within a few years," Stapleton said.

As to General Electric's accusations that the July report is flawed, Stapleton said the company's claims are "sheer bull."

"We have ... thousands of pages of documentation backing up all of our theories," he said.

An independent panel of seven scientists called acceptable, but in need of major revision, an Environmental Protection Agency plan that will be used in the development of a Hudson River model to determine whether a major cleanup is needed.

Federal officials said they have already begun to address the flaws in the plan.

Summary of GE Evaluation of EPA Low-Resolution Coring Report for the Hudson River

The problems with EPA's July 1998 Low Resolution Coring Report begin with the method that EPA's contractor chose and end with the sweeping -- and incorrect -- conclusions it drew. In a nutshell, EPA claimed that PCBs in buried deposits in the Upper Hudson River were washing downstream at an "startling" rate rather than being buried by cleaner sediment. But this conclusion is inaccurate; it was reached because EPA's contractor excluded key data, compared incompatible data and used analytical tools too crude for the job.

The problems began with the choice of low-resolution coring as a way to estimate changes in the mass of PCBs over a large part of the bottom of the Upper Hudson River. Tubes of mud were pulled from the river bottom and analyzed for PCB content. Comparing the PCB concentration in one tube taken in 1994 to one taken in 1984 may tell something about the change in PCB levels in that one spot, if indeed the same spot were sampled, but it cannot provide reliable information about overall changes in PCB levels in a large area of the river bottom, as EPA sought to do. Drawing one straw from a haystack in 1984 and one from the same haystack in 1994 tells almost nothing about how, or if, the haystack itself has changed. GE advised EPA in 1992 that it would not be possible to use the low-resolution sediment data to estimate changes in PCBs mass in Thompson Island Pool sediments; EPA's contractor pursued it anyway.

To try to evaluate changes in sediments over a ten-year period, EPA's contractor started with the results of core samples that New York State had collected in 1984. Though New York State had collected 1,200 samples, it was still too few to make a reliable estimate of the PCB mass in six miles of the Thompson Island Pool. Indeed, the calculated mass estimate from the New York State data could vary by as much as 46 percent -- hardly a sound basis for comparison.

EPA's contractor proceeded, nonetheless, to undertake its own sample collection program in 1994, but its one-every-three-acres sampling (60 cores) was 10 times less comprehensive than even New York State's. In several instances, EPA's contractor failed to use the same technique to collect the samples and failed to collect them from the same locations that New York State had used, although the great variability in sediment conditions even over distances of five to ten feet renders the samples useless for comparison.

When it came time to perform its analysis -- an analysis already doomed by data-starvation -- EPA's contractor compared samples with the highest PCB concentrations to the full range of 1994 samples, a technique akin to comparing the heights of the tallest children to the heights of all children and concluding, absurdly, that children are getting shorter. Compounding uncertainty upon uncertainty, EPA's apples-to-oranges technique devolved into a useless apples-to-raisins comparison.

Then, in perhaps its most glaring error, the EPA contractor compared its 1994 samples, which reflected total PCB content, with the 1984 samples, which did not. The analytical technology available in 1984 permitted detection of only those PCBs with three or more chlorine atoms. By 1994, the analytical method had improved so detection of all PCBs was possible. Obviously, the contractor should have compared similar kinds of PCBs in the two sample sets, and in its report, EPA went to some length to say this was the approach to use, leading readers to believe that, in fact, it was used. It was not. Without explanation, the contractor resorted to comparing only PCBs with three or more chlorines for 1984 with total PCBs in 1994. Had the contractor used the method the report recommended, it would have calculated that most of the PCBs in the Thompson Island Pool sediments (approximately 80 percent) had disappeared, which is wrong. Had it occurred, there would be no need for EPA to conduct this reassessment; the PCBs would be gone. If EPA had performed the analysis as it said it should be done, someone probably would have recognized the problem and abandoned this approach.

There were other clues to the multiple problems with this approach, but they were not detected. First, EPA's contractor should have recognized that its conclusions were contradicted by the available data collected on the Hudson River over the last 10 years. Second, the contractor should have been mystified by the fact that there are no physical mechanisms known to science that could have swept most of the PCBs out of the Thompson Island Pool in a ten-year period. Indeed, if all the known physical mechanisms (diffusion, erosion and ground water advection) that could remove PCBs worked maximally, a loss of only 18 percent of the PCBs could have occurred -- no where near the 80 percent estimate EPA's method produced. And if EPA's theory were true and large volumes of PCBs were washing out of the buried deposits, the type of PCB detected in the water and fish would look like that in the buried deposits -- and it does not.

To verify the accuracy of the EPA contractor's work, GE set out in 1998 to collect sediment from some of the same locations that EPA used in 1994. GE's data showed increases of as much as 100 percent in PCB levels in some of the very same places where EPA, because of its mistakes, estimated losses of 80 percent. Of course, neither answer is correct, which demonstrates again that EPA's method is unreliable and should never have been used and cannot now be relied upon to choose the most effective remedial action.

In addition to the problems in its data analysis, EPA also reached the wrong conclusion that there was "little evidence" of widespread burial of sediment -- a conclusion implausible on its face considering the area in question is a dammed pool that traps sediment and leads to continuous deposition.

Here, EPA's contractor ran into two problems. First, it missed the obvious evidence of burial because it chose to segment its samples into nine-inch slices. Evidence of burial is clear in more thinly sliced samples, such as the high-resolution cores collected and analyzed by GE in 1998.

Second, EPA tried to measure the presence of a naturally occurring radioisotope to determine whether burial occurs. Fully 70 percent of EPA's samples contained the isotope showing burial, yet EPA concluded erroneously there was little evidence of burial. As for the 30 percent of sediment samples that did not show the isotope, EPA analyzed most of these after the isotope had disintegrated to non-detectable levels. For the purpose of determining presence or absence of burial, these samples were useless. Therefore, the only valid evidence EPA had supported the burial, and yet it concluded there was little or none.

Because of these fundamental errors and many other serious ones, the conclusions in EPA's low-resolution coring report are inaccurate and invalid and should not be used by EPA to justify any "emergency action" and cannot form the basis of any scientifically defensible clean-up decision for the Hudson River. GE has urged EPA to refrain from taking any action based on the conclusions in this report until they can be scrutinized by independent experts outside the agency, a peer review process common in important scientific disputes. EPA has publicly espoused the virtues of peer review, but some agency officials have suggested that for this report peer review may be deferred until sometime next year, perhaps after some emergency action is taken based on these flawed conclusions.