UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
National Water Quality Laboratory, 6201 Congdon Boulevard
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SUBJECT: A review of the report entitled "Investigations of PCBs in the Hudson River (Hudson Falls-Ft. Edward Area) prepared by the Surveillance and Analysis Division of Region II

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The preliminary field investigation performed by the Region II staff in the Hudson Falls-Ft. Edward area of the Hudson River has shown that the General Electric facility at Hudson Falls is discharging approximately 17 pounds of PCBs per day and the Ft. Edward facility is discharging approximately 30 pounds of PCBs each day. The PCB mixtures in these discharges are comprised of the PCBs found in Aroclor 1242 or 1016. The report shows that the outfall of the General Electric facility at Ft. Edward contained 2000 ug/l PCBs and that the river and immediate vicinity of the discharge contained 2 - 3 ug/l at several of the sampling sites downstream. Further downstream, the PCB concentration was less than the detection limit of 1 ug/l.

The composite sample of minnows in the "control area" contained about 7 ug/gm PCBs which was a mixture of Aroclor 1254 and 1248. The yellow perch above the dam contained approximately 17 ug/gm total PCBs. In contrast, the minnows collected below the GE discharge contained 78 ug/gm and a rock bass sample collected contained 350 ug/gm quantitated as Aroclor 1242.

This field investigation has revealed the largest source of PCBs into the aquatic environment that I know of. The combined effluents of the GE facilities in this area of the Hudson River are discharging approximately 48 pounds per day of PCBs into the Hudson River. This is in contrast to the estimated total loading of all of the streams in the State of Wisconsin into Lake Michigan at approximately 8 pounds per day, and typical municipal waste treatment plants discharge a few tenths of a pound per day into receiving waters. The 48 pounds per day is about $2.1 \times 10^{10}$ micrograms of PCBs per day and would therefore be capable of contaminating approximately $10^{13}$ liters of water each day with PCBs at the level of a recommended water quality criteria of 1 part per trillion.

The mean flow of the Hudson River at the Hudson Falls site is approximately 4500 cfs, which is approximately $10^{10}$ liters per day. Consequently, if the GE discharges were thoroughly mixed with the Hudson River, one would expect approximately 2 ug/l of the PCBs in the Hudson River in the vicinity below the discharge. The data presented in this report indicate that between 2 and 3 ug/l of PCBs are present in the discharge area. Moreover, the laboratory-determined bioconcentration factors of PCBs in small fish range from approximately $5X10^4$ for mixtures such as Aroclor 1242 to approximately $2.5X10^5$ for Aroclor 1254 and 1260. This report has presented



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bioconcentration factors for fish in the Hudson River to be approximately $7.8X10^4$ for the common shiner and $1.2X10^5$ for rock bass. Thus, the field investigation has not only produced water data which is consistent with mass balance considerations, but also is in close agreement with the bioconcentration of PCBs anticipated from laboratory experiments.

It is my opinion that this report has been written in a conservative manner and does not, by itself, adequately describe the significance of the GE discharge into the Hudson River. For example, on page 9, "The highest concentration of Aroclor 1016 is representative of the outfall concentrations more than the ambient river concentrations (less than 1 ug/l). However, the downstream stations are representative of ambient river concentration below 1 ug/l. The fact the detection limit was 1 ug/l in this initial study has made it possible only to identify the areas heavily contaminated with PCBs. Moreover, the river for many miles downstream from the GE discharge could be contaminated with PCB s at levels one hundred times over the 10 ppt guideline set forth by EPA in 1972 and a thousand times higher than the recommended water quality criteria of 1 ug/l.

The concentrations of Aroclor 1242 of 78 ug/gm in shiner minnows and 350 ug/gm in rock bass show that the fish in the Hudson River are heavily contaminated with PCBs. Even though it would be difficult to show an imminent health hazard to residents in the vicinity of the Hudson River, this GE discharge does pose a threat to the use of biological resources in the Hudson River. The Food & Drug Administration has set a tolerance for PCBs of 5 ug/gm in the edible portion of fish. There has been a great deal of concern in the Lake Michigan system because PCBs have reached whole fish concentrations of 15 to 20 ug/gm in the larger fish. Similarly, discharges from Minneapolis have resulted in tissue concentrations of 20 to 50 ug/gm in fish in the Lake Pepin area of the Mississippi River. The FDA has seized 20,000 lbs. of these fish fillets and prevented the sale for human consumption and animal feeds. Moreover, a number of states in the midwest area have recently cautioned the public to limit the intake of fish taken from these contaminated areas because of the potential human health hazard.

The fish below the GE discharge contain two to seven times more PCBs than any of the fish being seized in the Lake Michigan or the Mississippi River system. The fact that there is not an active commercial fishing operation on the Hudson River in the area of the GE discharge should not be cause for the EPA to ignore this contamination.

It is my opinion that the EPA should initiate a more extensive study of the distribution of PCBs in the water and the fish of the Hudson River below the GE discharge. The data presented in this report is certainly a justification for EPA to investigate jointly with GE in bringing about an immediate reduction of the total loading of PCBs to

the Hudson River. I recommend that we encourage Region II to initiate a fish and water sampling program and that the National Water Quality Laboratory offer assistance, if needed, in bringing about a prompt investigation of the contamination of the fish in the Hudson River.

Attachment