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Dear Mr. Tomchuk:

I have attended the June 16 EPA presentation of the Baseline Modeling Report and submit the following comment. My main concern with the HUDTOX model centers on the conceptual approach, calibration, and assumptions used in obtaining mass balances in the Thompson Island Pool (TIP). This matter is critical to model validity, and also fundamental to an understanding of overall Hudson River processes and dynamics, not just the TIP.

In reviewing the data and debate to date, I think there is general agreement that PCB and sediment loading observations at the TI dam can be representative; and that PCB loading of the water column generally increases during transit of the TIP. However, to adequately constrain TIP mass balance of both PCB and sediment, observations of equal quality for input loading are necessary at Ft. Edward/Rogers Is., and there are two problems that I still see as adding to model uncertainty, if not conceptual error.

The first is representative water column sampling, as I have noted before. If the EPA accepts the GE "routine composite sample" procedure developed for this site (as implied, Responsiveness Summary 1·4·2, book 1,p DEIR 9,10), then use the GE results and use all of them for consistency. Second is the problem of estimating total mass flux in high discharge events. Again, GE data is probably the best obtainable, but considerable variance, especially for PCB loading, will be present (e.g. see the USGS study of the 1981(?) event at the Stillwater station by C.Barnes, and note the variability in PCB loading at this sample frequency). As a result, estimates of total PCB mass input to the TIP are poorly constrained, and a simple relationship of PCB concentration (or TSS for that matter) to discharge does not exist. Other than that both PCB concentration and TSS qualitatively tend to increase during high discharge events, there is little or no correlation of the two at any observation station (I have presented a review of this data at a prior STC meeting).

Under these circumstances, the incorporation of the LRC results into the model calibration then becomes a forcing function that is likely to distort the TIP conceptual model and model output because short term PCB and sediment mass balance, and long term mass conservation, is insufficiently constrained. As HUDTOX stands, an assumption of a net PCB loss of 43% from the 0-10cm sediment zone (what calibration period?) then translates to an implied TSS resuspension component, and the unknown mechanism of low flow PCB transfer to the water column (assumed resuspension) may be an artifact of this assumption. An assertion that the values of model variables appear to 'fit' together, or are internally consistent, is then circular reasoning and not a test of validity.

If the EPA feels that changes in PCB congener pattern and PCB loading imply sediment resuspension (Waterford, March 1993, Responsiveness Summary book 1,3·2·4,p.DEIR 25), what were the results at

the TI dam? Given the HydroQual analysis of sediment sources and loading in the TIP, how do you know that resuspended sediment can be distinguished from tributary and upstream sediment flush?

The Hudson hydrodynamic model is being used to estimate high discharge event scour effects. The 1975-76, 1983, and 1998 events potentially would produce distinct sediment layer truncation boundaries where scour has occurred (that for '75-'76 was described by Tofflemire and Quinn; DEC, 1979, using ^{137}Cs chronology). Have these been looked for in appropriate cores and locations as a check against model predictions?

Again, I recommend that the matter of incorporating the LRC results into HUDTOX be submitted to peer review. My comments regarding the Human Health and Ecological Risk Assessment SOWs will be submitted in a separate letter.

Very truly yours,

George W. Putman

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