

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: May 15, 1995

SUBJECT: Review of Proposed Plan for Micro-Exposure Risk Assessment for
Upper Hudson River Project by ChemRisk

FROM: Marian Olsen
Technical Support Section

TO: Tim Barry
Office of Policy, Planning and Evaluation

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Office of Research and Development

At a recent meeting with the staff from General Electric, their contractors, Paul Price and Russ Keenan from ChemRisk suggested using an improved Monte Carlo Analysis procedure to assess risks from the site. The contractors defined the MicroExposure Analysis of Fish Consumption as a model that will calculate the dose received from each fish consumed and sum the doses to determine the long-term dose rates for each angler. Further, they suggest that the approach considers:

- o The proper use of the distribution of PCB concentrations in fish,
- o Species preference,
- o Cooking losses,
- o Temporal changes in PCB concentrations,
- o Exposure duration, and
- o Timing of remedial alternatives.

We would greatly appreciate your assistance in reviewing this proposal. To aid in the review, attached are summary slides from the ChemRisk presentation (Attachment I) and the proposal (Attachment II). Specifically, we would appreciate your general comments and specific comments on the following issues:

- o Is this method statistically and scientifically sound?
- o How does this method compare to a standard Monte Carlo analysis? What are the differences? How would this impact calculated risks (i.e., potential under or over-estimate of risk)? How would the results of this proposed analysis compare to the standard Reasonably Maximally Exposed Individual calculation used in Superfund?

- o Are you familiar with any other sites, regulations or decisions made by the Agency that have used this approach?
- o Has this approach been published in any of the scientific literature and what has been the scientific communities response to the documents?
- o What are the pitfalls associated with this approach? What are the benefits?
- o Are all of the parameters random probabilities? Is there a potential to propagate errors in each component of the analysis?
- o What are the minimum datasets that will be needed to run this model? Would this model run using surrogate data -- what are the pitfalls?
- o What are the minimum number of runs required to develop a representative distribution? ChemRisk has indicated a total of 5,000 should be adequate? Is this number reasonable?
- o ChemRisk has run the model using a 486 computer with approximately 20 hours of run time. Is another computer (Mainframe, etc.) more appropriate? Will the program design introduce any additional errors?
- o Cursory review identified a couple of issues:
 - It appears that the model does not address the possibility of an individual moving out of the county and returning. Is this true?
 - It appears that the model does not address the possibility of an angler deciding to return to fishing after a respite.
 - The mortality statistics seem to be based on the general population. Is there a possibility that the anglers because of the consumption of fish and participation in the sport might be healthier than the general population?

If you have any questions, please feel free to call me at (212) 637-4313 and we can discuss this further.

Thank you very much for your help.

Attachments

cc: D. Tomchuk
D. Santella
V. Pitruzzello