April 5, 2005

Ms. Susan Svirsky
Rest of River Project Manager
c/o Weston Solutions
10 Lyman Street
Pittsfield, MA 01201

Dear Ms. Svirsky:

The Connecticut Department of Environmental Protection (CTDEP) appreciates the opportunity to provide comments on the revised Human Health Risk Assessment for the GE/Housatonic River Site, Rest of River dated February, 2005. This report identifies potential risks to people within the Housatonic River ecosystem due to the presence of polychlorinated biphenyls (PCBs). Connecticut shares EPA's goals of restoring the Housatonic River to a condition that allows attainment of Water Quality Standards and designated uses for the river. The Human Health Risk Assessment is an important step towards achieving this goal. However, as the process for evaluating and restoring the river moves forward, there are several issues, as outlined below that must be considered in order to achieve an acceptable outcome within Connecticut.

CT DEP supports a risk-based approach to identifying acceptable environmental concentrations of PCBs. Such an approach is applicable to identifying acceptable water, sediment, soil and fish tissue concentrations of PCBs. Connecticut has consistently applied in its regulations and Water Quality Standards a level of acceptable risk equal to one excessive lifetime cancer in one million exposed individuals. EPA at times endorses a broader range of acceptable risk, from one in ten thousand to one in one million. Designation of acceptable environmental conditions within Connecticut must be consistent with CT DEP policies for acceptable risk levels. Final remedial goals developed based on direct exposure of people to contaminated sediments must be consistent with the direct exposure criteria contained within the Connecticut Remediation Standard Regulations. CT DEP has identified the Remediation Standard Regulations and the Connecticut Water Quality Standards as Applicable or Relevant and Appropriate Requirements.

Similarly, CT DEP supports the evaluation of potential risks associated with consumption of fish caught from the Housatonic River. This includes the evaluation of risks to subsistence fishers and people who may consume waterfowl caught within the Housatonic basin in Connecticut. We believe that there is sufficient information to

indicate that these populations exist within Connecticut currently and request that the risk assessment be revised and additional data collected to fully evaluate risks to these populations. Additionally, as EPA is aware, CT DEP has worked closely with the Connecticut Department of Public Health regarding the derivation of acceptable concentrations of chemicals within fish tissue to allow for the consumption of fish taken from Connecticut's waterbodies. The fish consumption advice provided to CT DEP by the Connecticut Department of Public Health must be used to guide remedial actions so as to allow for the eventual restoration of the fishery within Connecticut.

CTDEP is also concerned with the quantity and quality of data used to support the risk assessment. Connecticut maintains that the dataset used within the Human Health Risk Assessment was not sufficient to provide a definitive characterization of current and future risks. CTDEP is requesting a revision to the risk assessment in consideration of this issue. We believe that deficiencies within the dataset used to evaluate the Connecticut portion of the Rest of River site that must be recognized as it may lead to an underestimation of risks. This must be considered as the process for investigation and remediation of PCBs moves forward.

Additional comments have been appended to this letter for your consideration. We appreciate the opportunity to provide comments at this time and look forward to working with EPA to resolve the water quality impairments within the Housatonic River. Please contact Ms. Traci Iott at (860) 424-3082 or Ms. Susan Peterson at (860) 424-3854 with any questions you may have.

Sincerely,

Betsey Wingfield
Director
Bureau of Water Management
Planning and Standards Division

Comments have additionally been transmitted via:

FAX: Attention: Ms Susan Svirsky
FAX # (413) 442-4447

EMAIL: svirsky.susan@epa.gov

Review of Revised Human Health Risk Assessment for the Housatonic River

Traci Iott
Environmental Analyst III
CT DEP
Bureau of Water Management

April 5, 2005

6 Pages

I have reviewed the revised Human Health Risk Assessment for the Rest of River Portion of the Housatonic River, dated February 2005 and prepared under contract for USEPA as part of the on-going remediation efforts relating to the General Electric facility in Pittsfield, Massachusetts. The portion of the Housatonic River within Connecticut that is considered within this report is designated as river reaches 10 through 16. This is equivalent to the area from the Connecticut/Massachusetts border down to the Derby/Shelton Dam. The area below this dam down to Long Island Sound was not included in the assessment due to the presence of PCBs within this reach of the river from sources other than GE. Two exposure pathways were evaluated within Connecticut: direct exposure to river sediments and fish consumption. Additional scenarios were evaluated for the Massachusetts portion of the river such as exposure to flood plain soils, agricultural products grown in affected soils and consumption of waterfowl. These were not evaluated within Connecticut. Additional chemical constituents were also included in the risk assessments for the Massachusetts portion of the river that were not evaluated within Connecticut.

Direct Exposure to Sediments

The risk assessment concludes that there are no unacceptable risks due to direct contact with river sediments within Connecticut. This is based on 28 data points collected from surficial sediments (0-0.5 ft), with a maximum PCB of 0.47 ppm. Sediment concentrations were compared within the risk assessment with the high-contact sediment screening concentration of 3 mg/kg PCBs as well as the high-contact residential screening criterion of 2 mg/kg. These benchmarks are based on cancer endpoints and assume exposure of children and adults to sediments.

This analysis is slightly different than that which might be conducted under the Connecticut Remediation Standard Regulations (RSRs). These regulations provide two types of criteria for direct contact - residential and industrial/commercial- with the provision made for calculating site-specific criteria as warranted. For a screening evaluation of the data under the RSRs, the use of the residential Direct Exposure Criteria (DEC) for total PCBs of 1 mg/kg is most appropriate in absence of a criterion based on site-specific exposure patterns. The difference between the screening value used in the report and the DEC value are a result of different target cancer risk levels, different assumptions regarding exposure frequency and the consideration of soil adherence factors and exposure surface contact areas within the risk assessment. The maximum PCB concentration in the dataset used in the report is below the Connecticut Residential DEC.

The dataset used in the risk assessment represents a fraction of the sediment data available for the river. The advantage of this dataset is that it is relatively recent data. The historical dataset spans many years. A brief review of data collected within the past 10 years indicates that most PCB sediment concentrations are below 1 mg/kg in both surficial and deeper sediments but that there are data points greater than 1 mg/kg PCB.

There are, however, deficiencies associated with the data set used in the risk

assessment. The portion of the river within Connecticut evaluated within the risk assessment is 72 miles in length. The level of sampling data available is equivalent to one sample for every 2.5 miles of river. This is inadequate to accurately define the nature and extent of contamination within Connecticut and identify localized areas of elevated PCB concentrations.

Additionally, Section 3.1.2.7 (Connecticut Sediment Sampling) of Volume 1 indicates that the number of samples analyzed for grain size had to be reduced since it was difficult to obtain samples of sufficient size due to large grain size (cobbles/boulders). From this description of the sampling locations, it is unlikely that the sediment data used to evaluate risks were collected from depositional areas that would most likely have retained PCBs. Therefore, use of the current dataset for surficial PCB concentration may underestimate surficial sediment concentrations within Connecticut.

Sediment samples collected in Connecticut were analyzed for total PCBs. However, a variety of other compounds were included in the risk assessment for the Massachusetts portion of the river. These compounds were evaluated in addition to total PCBs, using a Toxic Equivalence (TEQ) approach. The report concludes that risks from TEQ under direct contact scenarios are similar to risks from total PCBs and that overall risk is a sum of these two categories. Given the lack of data for TEQ within Connecticut, the potential risks associated with these substances are a source of uncertainty when evaluating the overall risk implications for exposure to contaminated sediments within the Connecticut portion of the Housatonic River.

Finally, the evaluation of risks from direct contact focused only on surficial sediments. While exposure to surficial sediments will address current potential exposure concentrations, it will not address potential future exposure concentrations. This issue was to be addressed within the revised risk assessment with the consideration of potential future uses/exposures within the Housatonic River Basin. The revised risk assessment, however, did not address this issue for sediments.

The issue of potential future exposures is tied directly to the level of PCBs in deeper sediment layers in depositional areas and behind dams on the river. Future uses of the river in Connecticut may include a variety of activities that could mobilize the deeper sediments; potentially reintroducing elevated PCB levels into surficial sediment horizons. These concentrations could then affect exposures from both direct contact as well as from fish and waterfowl consumption. In order to adequately characterize risks associated with PCBs within the Connecticut portion of the river, potential future risks from the mobilization of PCBs in bedded sediments must be evaluated. This will require the collection and evaluation of a more robust data set for sediment PCB concentrations.

The risk assessment does indicate that nine samples were collected in association with the dams and that PCBs were evaluated to a depth of three feet. However, this data is not presented or used within the risk assessment. Additionally, the report indicates that sufficient sample mass could not be gathered from several locations, indicating that the samples were not likely collected from depositional areas and may not be representative

of bedded sediment PCB concentrations.

As evaluation of risks and remedial needs are considered for the Housatonic River, I recommend the application of the Connecticut Residential Direct Exposure Criteria (DEC) as the goal for PCBs in Connecticut for soils or sediments that people are or could be exposed to or that could migrate to areas where exposure could occur. This recommendation is based on the large area included in the study area for Connecticut and the acknowledgement that a wide range of land uses occurs within this area from remote portions that are not easily accessed to portions of the river that flow through towns and residential areas. CT DEP must approve any modifications to the residential DEC prior to establishing an alternative acceptable level for PCBs in sediments. Application of the residential DEC to the river requires that the 95th upper confidence level of the mean of sediment PCB concentrations for the river must equal 1 mg/kg PCB or less. Connecticut uses an acceptable risk level of 1 in 1,000,000 for cancer endpoints and a hazard index of 1 for non-cancer endpoints. The risk level used by Connecticut is more restrictive than that used by EPA and should be followed within Connecticut.

Fish Consumption

A traditional risk assessment approach to evaluating risks associated with consumption of fish is presented in the risk assessment. Both cancer and non-cancer endpoints are evaluated. This approach is acceptable for evaluating current risks at the site. The report indicates that unacceptable risks do exist regarding fish consumption, supporting the current fish consumption advisory. However, as we move through the process of evaluating what actions need to be taken to restore the Housatonic River to a condition where Water Quality Standards and Designated Uses are achieved, it is important to understand the differences between the risk assessment process used in the current document and those employed by the Connecticut Department of Public Health (CTDPH) to evaluate the need for fish consumption advisories due to PCBs. Remedial goals established to insure restoration of the fishery should be based on the health guidance that is at least as stringent as that established by CTDPH.

The current fish consumption risk assessment includes a discussion of current and traditional fish cooking and consumption practices of the Schaghticoke Tribal Nation within Connecticut. This discussion is presented within the evaluation of uncertainties presented in Section 7 of Appendix C of the revised risk assessment. The presentation in the report filled a major gap in the previous risk assessment documents and identifies greater risk associated with traditional tribal practices. These practices must be considered as remedial goals and activities are identified for the river.

However, the revised risk assessment is deficient in its consideration of subsistence fishing exposures within Connecticut. Section 8.6.3.1 of Volume 1 of the risk assessment indicates that EPA searched for and did not find evidence of any subsistence fishing populations within either Massachusetts or Connecticut. The report indicates that risks to subsistence populations would be higher than those predicted

within the current report.

The CTDEP is concerned about subsistence fishing within Housatonic Basin. There is sufficient concern for these populations that CTDEP has translated fishing advisories, signs and informational videos on fish consumption advisories into several different languages to reach populations that may consume greater amounts of native caught fish. This concern is supported by the findings of a creel survey conducted by the CTDEP during the late 1980s as well as a Connecticut fish consumption survey published in 1999 by Ms. Nancy C. Balcom *et al* and referenced within the revised risk assessment. The study entitled Quantification of Fish and Seafood Consumption Rates for Connecticut was funded in part by the CTDEP. The fish consumption survey evaluated subsistence fishing within the low-income community. Additionally, the cultural practices of several different ethnic groups should be considered within the subsistence fishing group. The Balcom report identified mean consumption rates for these groups ranging from 43.1 g/day for limited income populations to 59.2 g/day for Southeast Asian populations. These consumption rates are greater than the central tendency and high-end consumption rates of 8.7 and 31 g/d used in the revised risk assessment. The data presented in the Balcom report must be used to evaluate risks to subsistence populations such as the limited income and Southeast Asian populations identified in the CT fish consumption rate study.

Waterfowl Consumption

The revised risk assessment evaluates potential risks to people who harvest and consume waterfowl from the Housatonic River within Connecticut within the evaluation of uncertainties presented in Section 7 of Appendix C. This risk assessment, however, is based on modeled concentrations of potential PCB concentrations in duck tissues based on sediment concentrations. CTDEP has only one data point for PCBs in ducks collected from the Housatonic River. This data point had PCB concentrations greater than those modeled within the risk assessment. However, it was excluded from the revised risk assessment.

Samples of tissues from waterfowl must be obtained from the Housatonic River watershed within CT and evaluated in order to provide a more accurate estimate of potential risks associated with waterfowl consumption. CTDEP Wildlife Division has submitted a proposal for funding of a study of pesticide and PCB concentrations in waterfowl from the Housatonic and Quinnipiac Watersheds. If this study is funded and conducted, we will share the information with EPA.

Summary

The revised Human Health Risk Assessment GE/Housatonic River Site Rest of River represents a substantial level of effort from both EPA and their contractors.

However, several issues must be addressed to provide an accurate assessment of risks to people within the Housatonic River watershed within Connecticut. First, the datasets for sediment PCB concentrations, both in surficial and deeper sediment horizons must be expanded to include an adequate amount and quality of data from depositional areas. Additionally, the more conservative CT Direct Exposure Criteria (Residential Exposures) should be used to screen the data, in recognition of the wide variety of land uses that occur within the watershed and not explicitly evaluated within the revised risk assessment. Finally, the evaluation of risks associated with fish consumption must be expanded to include subsistence fishers. The fishing habits of both subsistence fishing populations and the traditional practices of the Schaghticoke Tribal Nation must be considered as the remedial process for the restoration of the river proceeds.