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December 19, 2007

Ms. Susan Svirsky  
U.S. Environmental Protection Agency  
c/o Weston Solutions, Inc.  
10 Lyman Street  
Pittsfield, MA 01201

**Re: GE-Pittsfield/Housatonic River Site  
Rest of River (GECD850)  
Flaws in EPA Model**

Dear Ms. Svirsky:

This letter relates to certain flaws in EPA's model for the Rest of River, which EPA has recently brought to GE's attention, and the consequent impacts on the CMS schedule.

#### Background

EPA notified GE on November 29, 2006, that they had completed its modeling study and had transmitted the model input and output files to GE. As you know, that action triggered the initiation of the Corrective Measure Study (CMS) process, as provided in Special Condition II.E of the Reissued RCRA Permit and Paragraph 22.j of the Consent Decree.

GE then developed various work plans, supplemental work plans, and other documents to follow the Permit process and to respond to various EPA requirements and suggestions. Several of these documents pertained to the development of input parameters and computer code to allow use of EPA's model to predict the impacts of the sediment remedial alternatives. These included GE's Model Input Addendum (MIA, submitted by GE on April 16, 2007 and conditionally approved by EPA on May 24, 2007), the EFDC Code Technical Memorandum (submitted on May 14, 2007 and conditionally approved by EPA on July 11, 2007), and the Supplement to the MIA (submitted by GE on August 3, 2007 and conditionally approved by EPA on August 28, 2007).

Based on the time required to conduct these efforts as well as the time required to plan and conduct a chemical extraction technology treatability study as part of the CMS, GE requested an extension of the CMS deadline until March 21, 2008, in a letter dated August 24, 2007. EPA, while not agreeing completely with the rationale, approved GE's request on September 7, 2007.

As you know, the GE team has been working on the CMS for the past 8 months or so. One key component of this work is the simulation of the impacts of 8 sediment remedial scenarios, using EPA's model, for the reaches between the Confluence and Rising Pond Dam. This task involves predicting the effect of the various remedial scenarios on water, fish, and sediment PCB

concentrations in Reaches 5 and 6 (the Primary Study Area (PSA)) using one model, doing so again for Reaches 7 and 8 using another model, and finally extrapolating the results predicted at the Rising Pond Dam into Connecticut using a one-dimensional (1-D) analysis described in the CMS Proposal. (Two of the remedial scenarios – No Action and Monitored Natural Recovery – are the same from a remedial standpoint so there are really 7 distinct scenarios to simulate.)

For most of the remedial alternatives, these simulations take about 3 weeks to run using EPA's model for the PSA and another 3 weeks to run for Reaches 7 and 8 for the 52-year simulation period that GE and EPA agreed was appropriate. We anticipate that the Connecticut 1-D analysis will run quickly. However, the run times for alternative SED 8, and to a lesser degree SED 7, take additional time, as EPA and GE agreed that the model would be run for 30 years following the completion of remediation. This requirement means that the model projections for SED 7 (for which remediation is estimated to take 25 years) will simulate a 55-year timeframe, while those for SED 8 (for which remediation is estimated to take about 51 years) will be run for an 81-year timeframe. Each model simulation for SED 8 requires a total of nearly 10 weeks to complete (for the PSA and Reaches 7 and 8 together).

In addition, each scenario for each section of the river will need to be run twice: once with base-case assumptions for PCB inputs from the East Branch, resuspension rates, backfill PCB concentrations, etc.; and again for a sensitivity analysis using the lower-bound estimates required by EPA for a number of key parameters. This means that a total of 14 simulations will need to be completed for the PSA, an additional 14 simulations for Reaches 7/8, and 14 simulations of the Connecticut 1-D analysis. (Obviously, the simulations in the downstream reaches cannot be started until the corresponding model runs for the PSA are completed.)

In terms of hardware, GE's consultant, QEA, is running EPA's model on a set of 18 computers. These computers are utilizing Intel Core Duo x6800 processors, which are among the fastest PC-based processors currently available. As stated above, each of these computers is capable of completing a single 52-year simulation (PSA and Reaches 7 and 8 together) in approximately 6 weeks; the 81-year simulation for SED 8 takes nearly 10 weeks to complete.

### Recent Developments

EPA recently called to GE's attention certain flaws in the EPA model for the Rest of River. These were discussed in a conference call on November 28, 2007, between EPA's modelers at HydroQual (HQI) and GE and its modeling team at QEA. The most recent problems were that the model was not correctly simulating certain aspects of the erosion calculation and the effects of sediment bed layering under certain conditions. Following that conference call, HQI issued two corrected subroutines for the model. Described by HQI as a "code bug," HQI on November 30 also provided GE with a few plots comparing the original validation run with the run using the revised code. As described by HQI, differences between the two runs in computed sediment PCB concentrations in some "spatial bins" in Reach 5A were on the order of +/- 5%, with one bin showing a difference of 15%.

As you know, the model is a critical tool for the evaluation of remedial alternatives for the Rest of River. Even small changes in the code can affect the model's ability to predict the long-term comparative effects of remedial alternatives, and it is important that the model produce reliable outputs within the bounds of uncertainty. The issue with the model and the revised code provided by HQI came about when GE was in the process of completing numerous model runs. At that time, using the model that contained this "code bug," GE had completed the PSA model runs for SED 1 through SED 6 for both the base case and the sensitivity case, and the runs for SED 7 and SED 8 were well into their simulation timeframes. In addition, the Reach 7/8 model runs were recently initiated using the output from the corresponding PSA runs. In order to address the "code bug" identified by HQI, GE will need to start over and re-run all of the simulations conducted to date. QEA began several of those runs on December 5, 2007 and the remainder on December 14, 2007. Given these start dates the revised model simulations for SED 1 through SED 6 will not be complete until mid-to late-January 2008 and that for SED 8 will not be complete until about the third week in February.

Following completion of these simulations, there are a number of tasks which make use of model outputs and must be completed for each of the sediment remedial alternatives under evaluation:

- Revisions to the comparisons of predicted sediment and fish PCB concentrations to the IMPGs for human and ecological receptors for all reaches, including all IMPG comparison tables;
- Revisions to the comparisons of model-predicted water column PCB concentrations to the chemical-specific ARARs for PCBs;
- Revisions of all model numerical output tables and graphics;
- Revisions of the EPA-required extrapolations of the model projections beyond the simulation period to estimate the timeframes for achievement of IMPGs that would not be achieved within the model simulation period, along with corresponding changes in the text;
- Recalculation of model-predicted PCB load reductions at Woods Pond Dam and Rising Pond Dam; and
- Revisions to the modeling assessment of the effect of a large flood event.

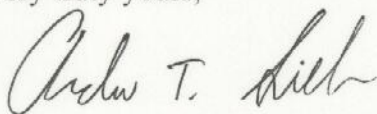
In addition, the revised model projections for all the sediment remedial alternatives are necessary to complete the comparative evaluation of those alternatives – e.g., in terms of the time to achieve the various IMPGs.

While several of these tasks were completed using preliminary results from earlier model runs, the model simulations that were currently running were going to be the final model results to serve as the basis for the above-listed tasks and for incorporation into the CMS Report. However, these simulations now need to be re-run with the "code bug" fixed.

Due to the delay in being able to finish the final model results – from December until January/February 2008 (depending on the alternative being simulated) – and the associated delay in preparing supporting tables, figures, and text, GE does not believe that it will be able to adequately complete, review, and submit the CMS Report by March 21, 2008. GE will need additional time to rerun and complete these model simulations but rather than requesting a specific extension at this time, we propose to evaluate how those runs are progressing and propose a revised date for the CMS Report in January 2008.

In the meantime, please let me know if you have any questions.

Very truly yours,



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GE Project Coordinator

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