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August 20, 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)
Addendum to GE's Statement of Position on Objections to Condition No. 4 in EPA's Conditional Approval Letter for GE's CMS Proposal Supplement

Dear Ms. Svirsky:

On July 25, 2007, the General Electric Company (GE) invoked dispute resolution, pursuant to Special Condition II.N.1 of the Reissued RCRA Corrective Action Permit, on several of the requirements in Condition No. 4 of EPA's July 11, 2007 "conditional approval" letter for GE's *Corrective Measures Study Proposal Supplement* (the Supplement). Those requirements related to the methodology for developing and applying target floodplain soil concentrations associated with the Interim Media Protection Goals (IMPGs) for mink. In support of its objections, GE submitted a Statement of Position. As discussed in that Statement, one of the requirements that GE disputed was EPA's directive to recalculate the target levels using the mean, rather than the median, of the biota-sediment accumulation factors (BSAFs) and bioaccumulation factors (BAFs) calculated for the mink's prey. As you know, and as GE discussed with EPA on August 7, 2007, GE has determined, based on further review of the data, that some of the underlying calculated BSAFs presented in the Statement – notably, those calculated for one prey species, frogs – were incorrect. Subsequently, at GE's request, EPA extended the time for informal discussions of the disputed issues (the first step in the dispute resolution process under the Permit) until August 21, 2007.

The purpose of this letter is to correct the errors in GE's Statement of Position and to show that those corrections do not change GE's conclusion regarding use of the median vs. the mean of the BSAFs and BAFs.

In support of its position that use of the median of the individual BSAFs and BAFs is more appropriate, GE's Statement presented examples of the skewed distributions of such individual values for a number of prey species, including frogs. However, GE has determined since then that the underlying BSAFs presented for frogs, which were originally set forth in Table 5-2 of the Supplement, were based on input values that contained a number of errors. These errors included the following: (a) erroneous calculation of tissue PCB and lipid concentrations in a number of leopard frogs and bullfrogs due to the fact that those whole-body concentrations were estimated by combining separate data on ovaries (for leopard frogs) and legs (for bullfrogs) with the offal, and that several mistakes were made in matching the appropriate data; (b) some errors

in matching tissue concentrations with sediment concentrations; and (c) the inadvertent omission of a number of bullfrog samples. Due to these errors, the resulting individual frog BSAFs presented in the Supplement and discussed in the Statement of Position were also in error.

These errors have now been corrected. The corrected tissue and sediment concentrations for the individual frogs, as well as the resulting BSAFs, are presented in Revised Table 5-2, attached hereto. These corrections require revision of several of the statements and figures presented in the Statement of Position relating to the frog BSAFs. However, as discussed below, those changes do not change the conclusion that the distribution of the frog BSAF values is skewed due to the inclusion of a few high values; and they do not change the overall conclusion that use of the medians of the BSAFs and BAFs is appropriate and that requiring use of the means of those values would overestimate the average exposure of mink to PCBs.

As shown in Revised Table 5-2, the great majority of the corrected BSAFs for frogs are still low (approximately 60% less than one), while a few have much higher values (3 over 20 and one of those over 40). This revised distribution is shown on Revised Figure 2. As a result of this skewed distribution, the mean BSAF value (4.36) is more than five-fold higher than the median (0.83).

Further, even with these corrected values, it still seems likely, as noted in the Statement of Position, that the extreme values represent artifacts resulting from uncertainties and limitations in the data set, rather than an accurate representation of PCB bioaccumulation. For example, the bullfrog with the highest BSAF (which came from Woods Pond) had a tissue concentration that was not significantly higher than the others but was associated with a sediment concentration far below most of the others in the Woods Pond area, suggesting that this frog likely was exposed to and bioaccumulated PCBs from other sediments in the Woods Pond area with substantially higher PCB concentrations. Similar considerations apply to the frog with the second highest BSAF (which was from the Reach 5 backwaters). Moreover, the leopard frog with the highest BSAF had a low tissue PCB concentration (0.15 mg/kg) but was collected from a pond (W-1) with a very low sediment concentration, while other leopard frogs from that same pond had even lower tissue concentrations (0.04-0.05 mg/kg). Again, this suggests that this frog likely obtained PCBs from sources other than the pond where it was collected.

The Statement of Position also presented a figure (Figure 5), which provided a comparison of the measured/calculated frog tissue concentrations to the concentrations predicted based on both the mean and median BSAF values for frogs. That figure has been revised based on the corrected values, and the corrected version is provided in Revised Figure 5. That figure continues to show that the median BSAF provides a much closer estimate of actual frog tissue concentrations than does the mean, which consistently overpredicts those concentrations.

This corrected information demonstrates that the distribution of the BSAF values for frogs remains skewed by the inclusion of a few high, and likely non-representative, values, and that use of the median of the BSAFs is a more accurate representation of actual concentrations than the arithmetic mean. Furthermore, the issues relating to the frog BSAFs do not affect the BSAFs for muskrats and the BAFs for small mammals. As shown in GE's Statement of Position, the

distributions of those BSAFs and BAFs are also highly skewed by the inclusion of extreme values that likely do not reflect the actual rate of PCB bioaccumulation by these animals. Overall, therefore, it remains true that use of the median of these factors is a more appropriate (unbiased) descriptor of the central tendency, and that requiring use of the arithmetic mean would give undue weight to extreme values that are likely not representative of the prey animals' PCB bioaccumulation, would lead to substantial overestimates of mink's exposure to PCBs, would result in overly conservative target floodplain soil concentrations, and is thus unjustified.

Finally, I note that these issues do not affect GE's objections, as described in its Statement, to the other disputed requirements – i.e., (1) EPA's directive not to use the entire Primary Study Area as the averaging area for the application of the target floodplain soil levels, but rather to use averaging areas no larger than single subreaches; and (2) EPA's directive not to adjust the target soil levels to account for foraging by mink outside the defined floodplain (i.e., the 1 mg/kg isopleth).

Please let me know if you have any questions about this information.

Very truly yours,

Andrew T. Silfer, P.E.
GE Project Coordinator

Attachments

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Public Information Repositories

Revised Table 5-2.
Data Used to Calculate Median BSAF and Average Lipid Content of Whole-Body Amphibians[1]

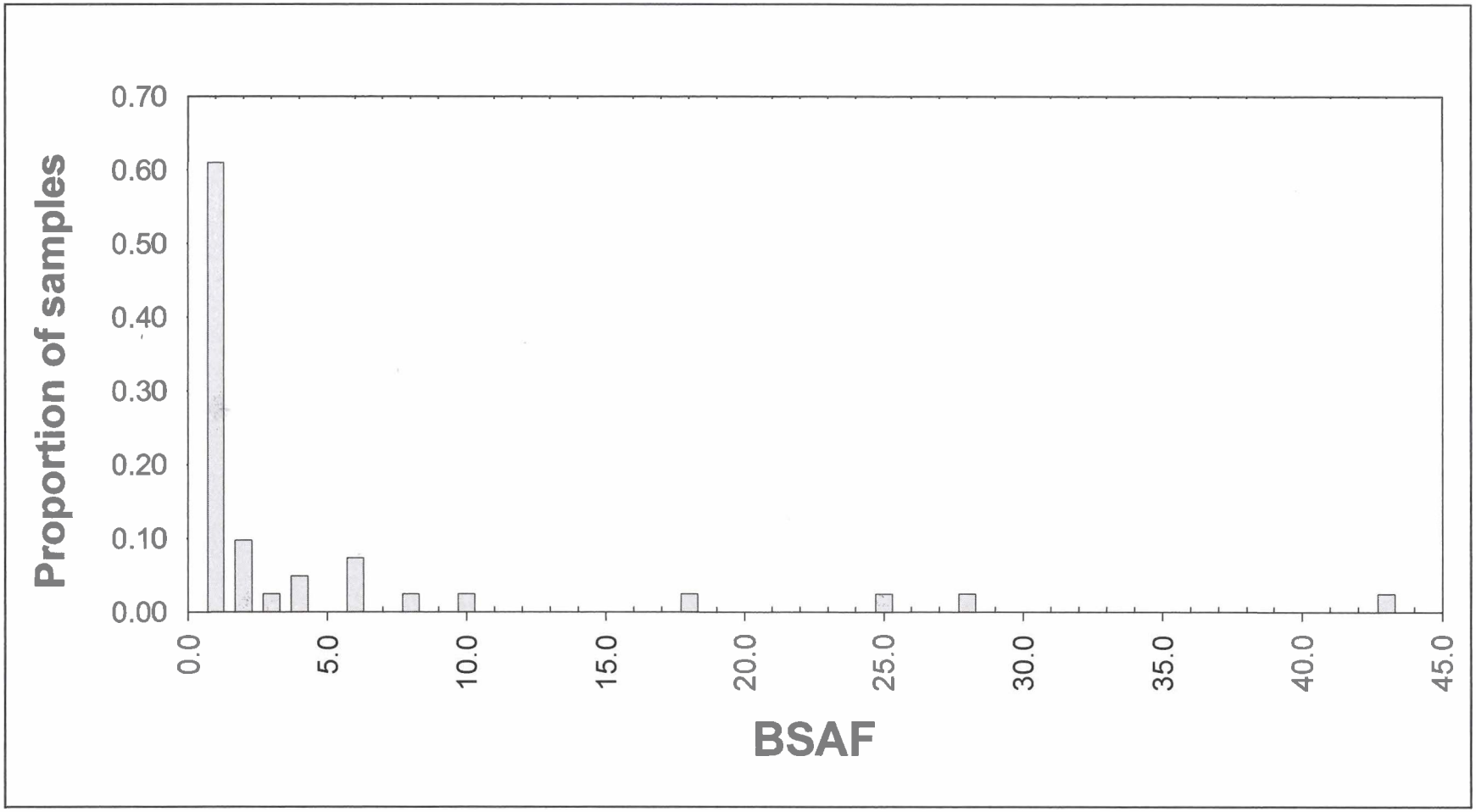
Pond	Tissue PCB (mg/kg)[2]	Lipid Fraction	Sediment PCB (mg/kg)	Sediment FOC	$BSAF_a$
Leopard Frog					
Reach 5A					
W-9A	2.96	0.0302	7.5	0.0169	0.22
E-5	1.31	0.0060	19.6	0.0492	0.55
W-9A	3.59	0.0160	7.5	0.0169	0.51
W-8	5.39	0.0160	43.5	0.0938	0.73
W-9A	1.18	0.0039	7.5	0.0169	0.69
Reach 5B					
W-6	0.81	0.0193	21.0	0.0505	0.10
W-6	1.76	0.0130	21.0	0.0505	0.32
W-7A	2.11	0.0190	27.6	0.0492	0.20
W-7A	0.53	0.0181	27.6	0.0492	0.05
W-7A	7.74	0.0147	27.6	0.0492	0.94
Reach 5C					
W-1	0.04	0.0074	0.4	0.2630	3.29
W-1	0.15	0.0040	0.4	0.2630	25.38
W-4	0.34	0.0100	0.4	0.0670	5.75
E-1	3.09	0.0130	26.6	0.1110	0.99
W-1	0.05	0.0141	0.4	0.2630	2.23
Wood Frog					
Reach 5A					
18-VP-2	2.92	0.0390	4.9	0.0476	0.73
23B-VP-1	0.30	0.0180	0.2	0.0763	6.14
23B-VP-2	1.22	0.0200	0.3	0.0887	17.98
Reach 5B					
38-VP-1	1.60	0.0080	28.5	0.0023	0.02
38-VP-2	5.34	0.0110	32.3	0.0919	1.38
Reach 5C					
46-VP-1	0.13	0.0150	0.8	0.1196	1.38
46-VP-5	0.59	0.0100	1.4	0.0303	1.32
Bullfrog					
Reach 5C					
H3-TA12BFTE-0-M004	7.25	0.0089	6.1	0.0078	1.05
H3-TA12BFTE-0-M001	6.13	0.0106	16.4	0.1031	3.63
H3-TA12BFTE-0-F002	3.48	0.0110	2.9	0.0713	7.87
H3-TA12BFTE-0-F003	5.09	0.0105	79.2	0.1274	0.78
H3-TA12BFTE-0-F009	1.58	0.0178	39.7	0.2671	0.60
H3-TA12BFTE-0-M011	2.54	0.0121	0.4	0.0199	9.47
H3-TA12BFTE-0-M010	3.18	0.0097	6.7	0.0339	1.66
H3-TA12BFTE-0-M007	0.90	0.0062	10.6	0.0295	0.41
H3-TA12BFTE-0-F005	1.50	0.0077	68.6	0.0536	0.15
Reach 5D					
H3-TA12BFTE-0-F008	4.25	0.0105	0.4	0.0260	28.81
Reach 6					
H4-TA13BFTE-0-M004	6.01	0.0069	0.5	0.0254	44.06
H4-TA13BFTE-0-F001	4.27	0.0110	54.0	0.0798	0.57

H4-TA13BFTE-0-M003	5.55	0.0078	40.0	0.0559	0.99
H4-TA13BFTE-0-M002	5.25	0.0068	76.0	0.0820	0.83
H4-TA13BFTE-0-F006	1.48	0.0070	205.0	0.1447	0.15
H4-TA13BFTE-0-M011	1.27	0.0054	37.9	0.1100	0.68
H4-TA13BFTE-0-F009	0.98	0.0163	70.3	0.0751	0.06
H4-TA13BFTE-0-M010	1.31	0.0218	11.8	0.0836	0.42
H4-TA13BFTE-0-M008	2.00	0.0175	0.5	0.0252	5.74

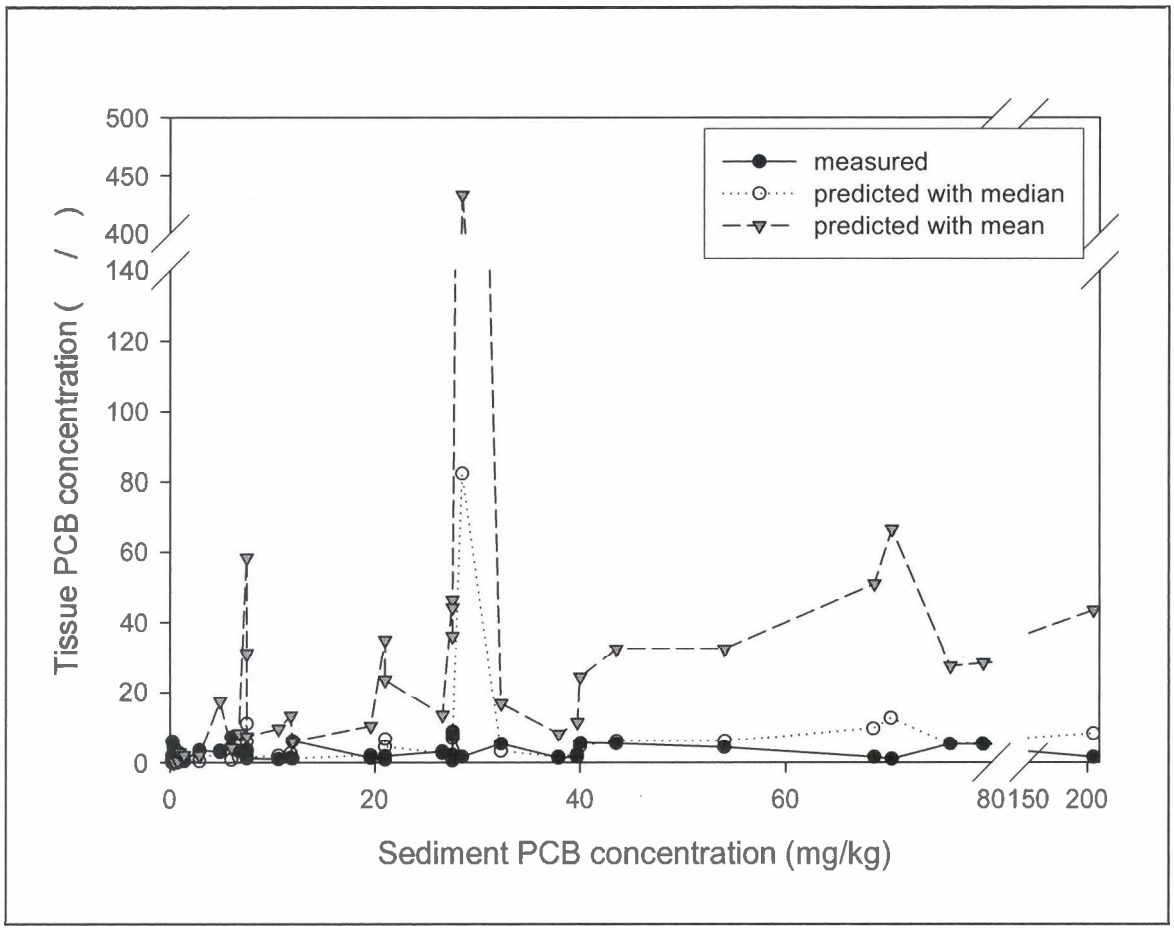
Notes:

[1] *Sediment PCB data are spatially weighted by pond for all but bullfrogs (many bullfrogs were from Woods Pond). PCB and TOC values for bullfrogs came from the co-located or nearest sediment sample. Data are from EPA database used for ERA.*

Mean concentration of PCBs in frogs was 2.61 mg/kg.



Revised Figure 2. Histogram showing skewed distribution of frog BSAFs.



Revised Figure 5. Predicted concentrations of PCBs in frog tissue using median and mean BSAFs compared to measured tissue PCB concentrations.