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EMAIL REGARDING U S EPA REGION IV COMMENTS ON FISH TISSUE MODEL RESULTS FOR SITE 3 CAUSEWAY LANDFILL MCRD PARRIS ISLAND SC
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U S EPA REGION IV

From: Llamas.Lila@epamail.epa.gov
To: charles.cook2@navy.mil; Sladic, Mark
Subject: Tom"s fish tissue model results
Date: Friday, February 13, 2009 4:48:46 PM

Hi guys,

I spoke with Charles earlier, and thought I would forward the numbers Tom Dillon sent me from his E&E model which Charles and I discussed, as an FYI at this point. I was able to reach Tom Dillon. I missed my HH Risk Assessor (HHRA) and I think he may be out some next week as well. Not sure. I have calls into 3 experts in HQ as well, to follow up with asking about standard procedures with respect to invertebrate BSAFs, which BSAFs to use, and whether or not some follow on calculation to fish tissue is needed. I know we thought we had the right BSAFs before, and we very well may have them. Not really sure why this is just now coming to light. I apologize for that, but now that it has, I am simply trying to make sure we know what we are doing, so I know how to feel about risk management based on sediment data .vs. fish tissue data at this site.

Here's what I am hearing so far:

1. From an eco perspective, we might not characterize as "standard practice" the use of a sediment to benthic invertebrate BSAF to estimate tissue concentrations in fish. However, this may be the case for human health practitioners. I am looking for more info on this from HQ. In the mean time, could the Navy/TtNUS provide a reference for the standard method or national guidance we are following which instructs us to use invertebrate BSAFs for inorganics when estimating fish tissue for human consumption? (My HHRA is out for another week, I think.).

2. We do agree that, with a few exceptions, inorganics generally do not biomagnify in the food web although trophic transfer may occur. One of the exceptions is mercury. This chemical, in its methylated form, is readily accumulated by biota, difficult to eliminate and does magnify through the food web. However, we do not know what form of mercury we have, or, I guess, how much of the mercury is actually methylated mercury. But I believe we are conservatively assuming it is methylated, and should be addressing that in the uncertainties section.

3. On my call with Mark, and company the other day, we stated that since the use of invertebrate BSAFs are assumed to be standard, we should expect similar concentrations to come from other fish tissue models, and wondered what Tom's model would yield. Tom has run the E&E fish model for mercury using the sediment concentrations reported in Tables 9 and 10 in the Site 3 TM. Below are the results.

a) From Table 9, minimum detected sediment concentration is 0.04 mg/kg. Model output for this sediment concentration is 0.11 mg/kg ww.
b) From Table 9, background sediment concentration is 0.09 mg/kg. Model output for this sediment concentration is 0.15 mg/kg ww.
c) From Table 10, 95% UCL sediment concentration is 0.121 mg/kg. Model output for this sediment concentration is 0.17 mg/kg ww.
d) From Table 9, maximum detected sediment concentration is 0.20 mg/kg. Model output for this sediment concentration is 0.24 mg/kg ww.

Not really similar to the invertebrate BSAF results. But we believe mercury was an exception. Additionally, for clarification I asked Tom if his model yielded filet concentrations or whole fish concentrations. Being eco oriented, it yields whole fish concentrations, but Tom feels there are likely well supported equations out there to get from whole fish to tissue. (Another question for HQ, I guess.) However, I read in the Tech Memo that a lipid content of 0.03 was assumed, which is recommended by EPA for the fillet portion of fish. So the Tech Memo numbers are filet. I now have a call back to Tom to ask if the same lipid content could be used in his model to get a filet number. Not sure what is used in his model. Seems like we have asked him this before, but I want to make sure. Am awaiting his response. If he says it can, I will ask that he run the model again for filet concentrations using the 0.03 lipid content and will share those results with you as well.

That is enough for now.

Have a good weekend.

Lila