From:	Jay Field
To:	Eric Blischke/R10/USEPA/US@EPA
Cc:	Burt Shephard/R10/USEPA/US@EPA; rgensemer@parametrix.com; Robert.Neely@noaa.gov; Benjamin Shorr; Jennifer Peterson
Subject:	Re: Sediment Toxicity Results
Date:	03/12/2007 01:24 PM

Eric,
QM defines toxicity based on statistical significance alone, since toxicity was characterized by three different effect levels defined by degree of difference from control and statistical significance. [QM only has the capability of looking at yes/no toxicity]. However, if you do the control-normalized bioassay query and set the low and the high at 70 (or 80) and 90 respectively, you should be able to visualize the effect level approach that we asked LWG to use. Below are excerpts from EPA's response to the LWG benthic interpretive report that relate to the toxicity classification issue. I would characterize the Level 1 toxicity threshold (<90% of control and greater than 80%) as 'minor' or 'indeterminate' toxicity, whereas LWG appears to consider anything >=70% of control and <80% as indeterminate. We definitely did not instruct them to classify anything >=80% of control and non-toxic.
Jay

EPA comments on benthic interpretive report:

Three Tiered Framework: Based on the inherent reliability problems associated with development of a single SQV, EPA recommends calculating two screening values; a low screen below which a sample shouldn't be toxic and a high screen above which it should be toxic. Optimization should be possible at these two ends of the spectrum. As noted previously, the two models are generally in agreement in predicting very toxic samples and those that are clearly non-toxic samples. However, we don't agree on the classification of the samples that fall in between these classifications. The values that fall in between these two classifications would be classified as "indeterminate", and would require empirical toxicity testing or the use of additional lines of evidence.

Level 1 Biological Effects Level: The report states "*it is recommended that Level 1 not be used to set SQVs for Portland Harbor because it is relatively unreliable in accurately predicting effects and well below the cleanup levels set at other regional Superfund sites.*" EPA agrees that Level 1 Biological Effects Level values should not be used as target cleanup levels. However, Level 1 values should not be discarded, as they represent concentrations associated with low level effects and provide useful information for defining areas of concern. The incidence of Level 1 or greater effects increases with increasing probability of toxicity.

Page 5, Section 2.1.2, Biological Effects Definitions: The report states that "*The biological effects levels used in the analyses are intended to correspond conceptually to "no effects level" (Level 1), "minor effects level" (Level 2), and "moderate effects level" (Level 3). As requested by EPA (EPA 2005a), the three levels were set at 90, 80, and 70% of the response observed in the control sediment, respectively.*" The biological effect levels are mischaracterized. A more appropriate characterization would be "minor effects level" (Level 1), "moderate effects level" (Level 2), and "severe effects level" (Level 3).

Blischke.Eric@epamail.epa.gov wrote:

> Jay, there is a discrepancy between the LWG's determination of what is a
> toxic effect vs. how we have defined it in Query Manager. The LWG seems
> to be looking at 80 and 70% difference from negative control and claims
> that this was based on our direction. Can you clarify this for me?
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> Thanks, Eric

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