

HLWYM HEmails

From: Michael Waters
Sent: Thursday, March 02, 2006 5:49 PM
To: Biswajit Dasgupta
Cc: Roland Benke; Albert Wong; Tae Ahn
Subject: My comments on worker technical basis document for worker doses.
Attachments: Waters-Comments-draft-report.wpd

Bis,

I am sorry I missed you before you left back to Texas. Attached are my comments/questions (green highlight) on the document.

I had more comments than expected. I hope it does not put a wrinkle in your plans, but I not sure if we can finalize it as-is. We should consider publishing the technical basis document in the context, that new dose module is a screening tool under development, with a few open items to address.

Below is a synopsis of my more significant comments that currently lead me to this conclusion. Please disseminate comments to others as necessary, and let's discuss further.

Mike

1. The realistic near-field dispersion phenomena is very complex. From reading the draft, I have no real sense at all, of the accuracy and uncertainty associated with the predictions from the worker modules.....either from a quantitative benchmark standpoint, or a qualitative engineering gut-feeling. The outside worker dose module appears to be derived from an IAEA screening method. Should the module in the PCSA Tool be considered as a bounding(?) screening tool calculation, rather than portrayed as something more accurate?

Bottomline, the confidence of the dose predictions from this module need to be spelled out, if we want to use it to support our licensing review bases. For example, if I calculate 90 mrem in a confirmatory calculation and the limit is 100 mrem, what does that mean? Please consider directly addressing how the predicted values line up against available experimental data (i.e. benchmarks) , or code-to-code comparisons (e.g. RSAC, ARCON, MACCS results). And any other qualitative discussions.

2. I did not the time to delve into the mathematical model derivations for either module. Please let me know how these have been independently peer reviewed from both a phenomena-modeling and mathematical derivation standpoint. We need to have a second set of eyes on this part (perhaps the CNWRA review process covers this).

3. I am concerned about the unexplained discrepancies in the RSAC code for wake modeling (e.g. results for 1 x 1 case). Is it a fallacy in the model that represents the phenomena, or it is an error in the coding?

We rely on RSAC as the workhorse in the PCSA Tool for off-site public dose calculations. I realize they are two different RSAC modules, but I am concerned the credibility of the entire code is diminished if there is something unexplained/wrong in the wake modeling module. We need to resolve this discrepancy and consider contacting the RSAC code developer if necessary.

4. The draft document needs to go through a technical editor before being published.

NOTE: My comments are initial thoughts, pending further consideration, and do not reflect official Agency views.

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