From: Praskins, Wayne
To: Robinson, Derek J CIV USN NAVFAC SW SAN CA (USA)
Cc: Chesnutt, John
Subject: RE: BRPG/RESRAD
Date: Thursday, October 8, 2020 4:49:00 PM

Derek –

I reviewed the information you provided via email on Monday in response to my August 20, 2020 letter and email on the HPNS building RG evaluation.. The attachment to your email provides brief descriptions of the RESRAD-BUILD and EPA calculators, identifies some differences between the two, and describes issues believed to make the EPA risk estimates "overly conservative." It does not propose specific changes to the EPA calculators.

You asked what I thought about the value of further pursuing issues at our level raised by the HPNS building RG evaluation. I think the value depends on which issues the Navy would like to pursue. To help focus any future discussions (and determine who should participate in the discussion), I prepared a list of seven possible discussion topics. Which of the following topics, if any, would the Navy like to pursue?

I generated the list based on my review of the attachment and understanding of the issues. I could further refine the list if I shared the attachment with our technical experts. I don't know how quickly they could respond. Let's talk early next week on how best to proceed.

1. RESRAD-BUILD slope factors. This is the first of the three "primary reasons" identified in our 8/20/20 letter (uncertainty about the basis for the slope factors used by RESRAD-BUILD to estimate risk from a contaminated surface). If the Navy can provide information that adequately explains how RESRAD-BUILD calculates risk, we may be able to support use of RESRAD-BUILD for evaluating *fixed* contamination. Resolution of this issue would not provide a basis for EPA to support the use of RESRAD-BUILD for *removable* contamination (e.g., dust).

2. RESRAD-BUILD approach to removable contamination (i.e., dust). The attachment to your email includes a statement that the default ingestion rate, a key parameter used to estimate risk from removable contamination, is 14 times lower in RESRAD-BUILD than in the EPA calculators. And that the 14-fold difference is believed to be due primarily to the EPA calculator's inclusion of child/toddler exposures for six of the 26-year exposure period. It seems unlikely that there are site-specific reasons supporting the less conservative way RESRAD-BUILD models ingestion but we are open to discussing if there are. To support an alternative model like RESRAD-BUILD there needs to be a solid rationale why it better represents conditions at HPNS than EPA's calculators.

If the Navy's reasons for favoring the RESRAD-BUILD approach to ingestion are not site-specific then I see little value in discussing at the Regional level. Similarly, if the Navy believes

that the BPRG calculator is just too conservative, this is an issue best addressed at the national level.

3. EPA Calculator Limitations. The attachment describes several limitations in the EPA calculators compared to RESRAD-BUILD (accounting for radioactive decay and ingrowth, accounting for loss of radon). We are open to discussing the significance of these limitations. I would want to include our technical experts in the discussion.

4. BPRG Exposure Assumptions. Last fall, the Navy proposed changes to two of the BPRG default values (*hand to mouth frequency* and *fingertip surface area*). These two parameters affect the estimated risks from *removable* contamination. We are open to discussing the reasons we were unable to support the Navy's proposed changes. I would want to include our regional risk assessor in the discussion.

5. BPRG Dissipation Factor. The default value in the BPRG calculator for physical dissipation of any radionuclide contamination is zero. Your email offers the following rationale for using a nonzero rate:

> "factors such as remediation, cleaning, radon emanation, resuspension, contact transfers and dilution with uncontaminated dust serve to reduce surface dust concentrations over time.
> At HPNS, building contaminant reservoirs have been removed due to radioactive source license termination or remediation of residual surface contamination. Additionally, potentially contaminated surfaces were cleaned prior to surveys in impacted buildings and localized contamination was remediated. Many buildings have been in use for non-radiological purposes and surfaces have either been sealed or subject to continual factors that would remove dust from prior sources. Use of $k = 0.0$ is therefore overly conservative and inconsistent with EPA guidance and industry-standard values. The BDCC and BPRG User's Guides, Section 4.3.8, state 'there is strong support for considering dissipation in setting criteria for building clean-ups.'"

We are open to discussing further. I understand that EPA and the Navy have discussed this topic in the past at length with little success.

6. Extent of Contamination. The Navy RESRAD-BUILD simulations provided to EPA last fall assume that radiological contamination is present only on the building floor. We think that a more appropriate assumption is that contamination is present on the floor and lower six feet of the interior walls. In our August 20 email we provided BPRG results for fixed contamination based on this assumption and noted that four of the current RGs (Cs-137, Co-60, Eu-152, Eu-154) would need to be reduced if the risk level associated with the four RGs is to remain below 1 x 10-4. This is the third reason identified in our August 20 letter why we were unable to concur with the Navy's long-term protectiveness determination.

7. Background/Detection Limits. You indicated that you think some of the BPRGs based on default assumptions (e.g., the Ra-226 BPRG value) may be below background levels or below practicable detection limits. We are open to discussing further. As you know, EPA policy generally does not require cleanup below background. I would probably want to include Dave Kappelman and/or one of the Army Corps health physicists in the discussion.

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Sent: Monday, October 5, 2020 1:25 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: BRPG/RESRAD

Please let me know if we should pursue this further at our level.

Best Regards,

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