Message

From: Praskins, Wayne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=4F47BC0A2C2E42A98347D59CD1A98B19-WPRASKIN]
Sent: 4/7/2021 6:11:36 AM
To: Hays, David C Jr CIV USARMY CENWK (USA) [David.C.Hays@usace.army.mil]
Subject: Next steps

Dave –

Thanks for your response on 3/26. EPA, Navy, and CA management met last Monday as planned to discuss our disagreement about the HPNS building remediation goals. In the meeting the Navy proposed to test one of the impacted buildings, along with a reference building, using longer count times. We're expecting a written proposal by the end of this week. Not clear yet exactly how the Navy proposes to use the results; hopefully the proposal will make things clearer. I would like to share the proposal with you when I get it and am hoping you'll have a few minutes early next week to discuss.

In the meantime, we would like to have a backup plan in case the Navy proposal does not prove workable. The backup might be new RGs calculated using RESRAD BUILD which are closer (but probably not as low?) as the BPRGs. Would you or others in your group have time to run RESRAD BUILD with some of the alternative inputs/assumptions we've discussed to calculate new RGs? That would probably include choosing the direct rather than indirect ingestion option and using the EPA recommended ingestion rates. And possibly the floor + lower wall assumption and the updated dose to risk conversion factor.

Perhaps it would be good to discuss? Thanks.

Wayne Praskins | Superfund Project Manager
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From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Friday, March 26, 2021 5:14 AM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: RE: MDA Formula

Wayne, The 0.4 equilibrium value is a typical assumption (used often in similar situations). My biggest concern is that the generic BPRG value calculation used 1.0, so not a direct comparison. Also, I have used 0.4 but it is actually a range of values dependent on site specifics, with that said I don't think anyone would argue using it is wrong. Finally, I began rethinking it use as we discussed the issue of gross alpha vs Ra-226. EPA drinking water methods require counting the Ra-226 quickly after extraction due to ingrowth of Rn and daughters. Increase to a factor of 4 is noted with increasing time between separation and counting. This would suggest not as much Rn loss from a thin layer of Ra-226 containing material as I and others would assume by use of the 0.4 equilibrium factor. I think we should run the calculator using the 0.4 and see what value for Ra-226 results.

Background count rate can be controlled to a point. Typical value for gross alpha is 1 cpm or less. Changing to different lower background counting instrument, understanding background contributors and mitigating them are ways to control background. As we have discussed, for a 26 min count time I think the Navy could consider reducing the number of wipes counted to result in the same total of all samples counting time. Many ways to resolve long count time concerns.

Dave

From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Thursday, March 25, 2021 7:15 PM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Subject: [Non-DoD Source] RE: MDA Formula

Dave –

Thanks! I went back and looked at the Navy's draft workplan for retesting of the buildings and saw that they:

- Have proposed use of the Strom & Stansbury 1992 Equation (same as the MDA equation in my email; the Navy contractor calls it an MDC)
- Estimate the MDC for Ra-226 as 7.67 dpm/100 cm2 with a 1 minute count time (2 minute count time for background and 2 dpm background count rate)
- Their MDC estimates account for the presence of Ra-226 progeny by bumping up the efficiency value to 1.134. They assume 40% equilibrium for Rn-222 progeny and sum the weighted efficiencies of Ra-226 and the four alpha-emitting progeny.

I'm going to raise the idea again with my team of accounting for the presence of Ra-226 progeny when calculating the MDC. (I had raised it after you first proposed it some months ago and will raise it again.)

I put the MDC equation in a spreadsheet to see what it would take to get down to a 1.2 MDC. I get a count time of 26 minutes using their inputs (column E in attached spreadsheet).

1. What do you think of using a 0.4 equilibrium value?
2. Is it realistic to expect a lower background count rate? I see that the count time drops in half if the background count rate drops from 2 dpm to 1 (column F).

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From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Wednesday, March 24, 2021 1:53 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: RE: MDA Formula

Wayne, please see the attached table from NUREG 1507 (1997). Note that the title is MDC and that one of the MDC equations is the same as the MDA equation provided in your email attachment. Thus, depending on reference and assumptions the two are interchangeable. I still suggest use of MARSSIM equations and terminology "MDC" (sec. 6.7.1, pgs 6-32 thru 6-37). Also note that each equation (and there are others) has limitations and certain assumptions that go with them, the proper equation is the one that matches the counting methods/assumptions or specified by guidance such as MARSSIM. QAPP or SOP should specify why one is chosen.

I have also attached an excerpt from MARLAP which gets more into the technical details should you need help sleeping later.

Dave

From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Wednesday, March 24, 2021 1:56 PM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Subject: [Non-DoD Source] FW: MDA Formula

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From: Perez, Gonzalo@CDPH <Gonzalo.Perez@cdph.ca.gov>
Sent: Wednesday, March 24, 2021 10:40 AM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: MDA Formula