Message

From: Hays, David C Jr CIV USARMY CENWK (USA) [David.C.Hays@usace.army.mil]
Sent: 12/17/2020 6:53:39 PM
To: Praskins, Wayne [Praskins.Wayne@epa.gov]
Subject: RE: RESRAD BUILD
Attachments: Excerpt from RESRAD-BLD user manual ANL-EAD-03-1.pdf

Wayne, Please see the attached excerpt from the RRB user manual. This could be a starting point recommendation of how to model the HPNS building occupancy scenario. Note values for direct ingestion and air release fractions. Given the manual's air release fraction equating to the mean value from the distribution of potential values I would argue the use of 0.1 is not conservative as stated in DON response to your first set of questions.

Dave

From: Hays, David C Jr CIV USARMY CENWK (USA)
Sent: Thursday, December 17, 2020 12:27 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: RE: RESRAD BUILD

Yes, I can be available.

From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Thursday, December 17, 2020 12:23 PM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Subject: [Non-DoD Source] RE: RESRAD BUILD

We may set up a call to discuss further on Monday. Are you available? Would probably be a small group: you, me, Derek, and Craig Bias.

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From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Thursday, December 17, 2020 10:19 AM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: RE: RESRAD BUILD

Wayne, your questions in red are spot on. Setting air fraction to zero in RRB results in no indirect exposure and with direct exposure set to zero the removable fraction becomes a moot point as would not be addressed in DON model. DON still not realizing their model is not consistent with the actual CSM either (as I understand it from discussions over the past months). If the 20% removable fraction is part of the RG and as modeled by DON it is removed linearly over the 26 year exposure period, it does not make sense to only assume ingestion can only be a result of the fraction of the source that becomes airborne. A common definition of removable fraction is Surface activity that is readily removable by wiping the surface with moderate pressure. This certainly can be and is often considered as wiping with hand/fingers thus direct ingestion is possible.

I believe the DON has an issue with stating a removable fraction but not modeling it appropriately, further supporting our past discussions and recommendations to either eliminate removable fraction or reduce it greatly. Alternatively, prove it and the assumptions that go with it (such as 10% becomes airborne). Takes me back to CSM is the issue.

Dave

From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Thursday, December 17, 2020 11:28 AM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Subject: [Non-DoD Source] FW: RESRAD BUILD

Dave - My dialogue with the Navy on the HPNS building RGs continues. I sent Derek some questions yesterday (items #1-3 below), got a response this morning (items 1A-3A), and sent some follow up questions (in red font) a few minutes ago.

I welcome any input that might increase our understanding and move us closer to a solution.

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From: Praskins, Wayne
Sent: Thursday, December 17, 2020 9:21 AM
To: Robinson, Derek J CIV USN NAVFAC SW SAN CA (USA) <derek.j.robinson1@navy.mil>
Subject: RE: RESRAD BUILD

Derek - Thanks. I am interested in continuing the dialogue, either by email or setting up a call. Please see follow up questions below.

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From: Robinson, Derek J CIV USN NAVFAC SW SAN CA (USA) <derek.j.robinson1@navy.mil>
Sent: Thursday, December 17, 2020 6:58 AM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: RE: RESRAD BUILD

Thanks Wayne. Hopefully these answers make sense to you. If not, we should have a call.

1. The basis for the decision to assess risk from the removable fraction using the "indirect ingestion pathway" rather than the "direct ingestion pathway."

A. Direct ingestion refers to exposure from the source itself, indirect is from the removable part of the source that has settled elsewhere. For example, direct ingestion would include eating pieces of radiological paint.
=> I'm not sure I understand. Ingestible radiological paint sounds to me like a removable fraction.

2. The basis for the 0.1 value used for the "air release fraction" in the indirect ingestion pathway.

A. The air release fraction is the fraction of the removable contamination that becomes suspended, resulting in some inhalation and indirect ingestion dose. The Navy using 0.10 is conservative Consistent with the CSM, The

BPRG effectively uses 0.0. To be consistent with the EPA tool, we would use a value of 0.0, so.
=> My understanding is that yes, the BPRG effectively uses 0.0. But that is because it models ingestion more like the direct ingestion option in RESRAD BUILD.
=> If you set the air release fraction in RESRAD BUILD to 0.0 (and are not using the direct ingestion pathway), wouldn't you be zeroing out the ingestion pathway? I could see an argument for setting the air release fraction to 0 if you made use of the direct ingestion option.

3. The basis for the adult ingestion rate of 0.0001 m2/hr (and 0.0002 m2/hr for children). The October 2019 Battelle memo explains why the rate was doubled for children but doesn't compare the absolute rates to the EPA calculators. If I did the math right, the effective ingestion rates in the EPA calculators are about an order of magnitude higher.

A. The indirect ingestion rate for a receptor directly affects the dose from ingestion of deposited dust (indirect ingestion) as described in Sections E.2 and J.3.6. The default value in RESRAD represents a mean value from a probabilistic input distribution for a 16-hour exposure day to account for adults having the bulk of the exposure time and is consistent with the CSM at HPNS. This factor is one in the key contributors to the overly conservative outputs by the BPRG calculator and is not consistent with our CSM.
=> I understand the argument that the default BPRG ingestion rate is very conservative. Is your view that the lower RESRAD default ingestion value is consistent with the CSM at HPNS a site-specific one or a more general view? If it is site-specific, can you further explain?

From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Wednesday, December 16, 2020 1:28 PM
To: Robinson, Derek J CIV USN NAVFAC SW SAN CA (USA) <derek.j.robinson1@navy.mil>
Subject: [Non-DoD Source] RESRAD BUILD

Derek –

We talked yesterday about some questions I had about the Navy's RESRAD BUILD evaluation of the HPNS building RGs. I thought it might be useful to put my questions in an email to you.

1. The basis for the decision to assess risk from the removable fraction using the "indirect ingestion pathway" rather than the "direct ingestion pathway."

2. The basis for the 0.1 value used for the "air release fraction" in the indirect ingestion pathway.

3. The basis for the adult ingestion rate of 0.0001 m2/hr (and 0.0002 m2/hr for children). The October 2019 Battelle memo explains why the rate was doubled for children but doesn't compare the absolute rates to the EPA calculators. If I did the math right, the effective ingestion rates in the EPA calculators are about an order of magnitude higher.

I also mentioned the "air exchange rate" but see that its basis is described in the October 2019 Battelle memo. So no need to pursue that topic further. Thanks.

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