Message

From: Walker, Stuart [Walker.Stuart@epa.gov]
Sent: 7/24/2020 3:17:01 PM
To: Praskins, Wayne [Praskins.Wayne@epa.gov]
CC: Manning, Karessa [manningkl@ornl.gov]; Dolislager, Fredrick G. [dolislagerf1@ornl.gov]
Subject: FW: BPRG 3-D run question
Attachments: Resident_with_Progeny_Parent_Decay.xlsx; Indoor_Worker_with_Progeny_Parent_Decay.xlsx

This is the analysis Karessa did for the short lived radionuclides using the BPRG output option 2 with decay, and changing the half lives of the daughter to match the parents. The Navy also did this in their BPRG runs after discussions with EPA for the same radionuclides.

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From: Manning, Karessa <manningkl@ornl.gov>
Sent: Wednesday, July 22, 2020 2:00 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

Hi Stuart,

I have attached a copy of the BPRG runs you asked for that contain progeny set to the halflife of the parent (where necessary) for short lived rads. There are two files total, one for resident and one for indoor worker. Each file contains different tabs for each room position. Please let me know if you need anything else.

Thanks!

~Karessa

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, July 21, 2020 3:49 PM
To: Manning, Karessa <manningkl@ornl.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: BPRG 3-D run question

Ok, give me a call if you have a question. I will be out for a doctor appointment

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From: Manning, Karessa <manningkl@ornl.gov>
Sent: Tuesday, July 21, 2020 3:18 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

Hi Stuart,

Sorry, I was doing functionality tests for some urgent ORNL website security fixes that Katie and Leslie had to implement on all our tools. I will work on the BPRG with progeny output tonight and have it to you sometime tomorrow. ☺

~Karessa

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, July 21, 2020 2:16 PM
To: Manning, Karessa <manningkl@ornl.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: BPRG 3-D run question

How is this going?

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From: Walker, Stuart
Sent: Friday, July 17, 2020 5:12 PM
To: Manning, Karessa <manningkl@ornl.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

Your welcome.

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From: Manning, Karessa <manningkl@ornl.gov>
Sent: Friday, July 17, 2020 5:06 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

Thanks!

-Karessa

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Friday, July 17, 2020 4:09 PM
To: Manning, Karessa <manningkl@ornl.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] FW: BPRG 3-D run question

Per our discussion

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From: Walker, Stuart
Sent: Tuesday, July 14, 2020 3:36 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>; David Hays <David.C.Hays@usace.army.mil>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

Thanks Wayne, so Fred this footenote in the excel file lays out which they used SE and which they used output 2 and changed the progeny half live.

User-provided for Cs, Co, Eu, H and Sr (to account for ingrowth of short half-life progeny of Cs and Sr)

'Secular equilibrium (no decay)/Show individual progeny' for long-lived ROCs (Am, Pu, Ra, Th, U); 'Provide results for progeny (with decay)' for short-lived ROCs (Cs, Co, Eu, H, Sr)

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From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Tuesday, July 14, 2020 2:39 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>; David Hays <David.C.Hays@usace.army.mil>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: BPRG 3-D run question

See notes in attached xsheet provided by the Navy on BPRG options. They ran residential and indoor worker for all radionuclides.

Wayne Praskins | Superfund Project Manager
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415-972-3181

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, July 14, 2020 11:27 AM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>; David Hays <David.C.Hays@usace.army.mil>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: BPRG 3-D run question
Importance: High

Out of the Hunters Point radionuclides below, which were run using the PRG output option 1 and which did you use PRG output option 2 with the half lives of the progeny changed to match the parent. Were all of these run with residential and indoor worker land use. We have a set of revised surface factors but I just want to confirm which land uses and output option runs Fred should be applying the surface factors to post-processing

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Tuesday, July 14, 2020 2:14 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: FW: draft text for you to review

- Am-241
- Co-60
- Cs-137
- Eu-152
- Eu-154
- H-3
- Pu-239
- Ra-226
- Sr-90
- Th-232
- U-235

fred d.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Thursday, June 25, 2020 9:07 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Cc: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: draft text for you to review

See below in red text. I'll cc Fred in case he has something to add, I am out on AL on Friday.

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From: Praskins, Wayne <Praskins.Wayne@epa.gov>
Sent: Thursday, June 25, 2020 8:30 PM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: RE: draft text for you to review

Help me with the big picture here.

You're asking ORNL to run BPRG using default parameters except those listed in his Wednesday, June 24, 2020 10:42 AM email? yes

The biggest change is the assumption that the floor and lower 6' of wall are contaminated, rather than all 6 interior surfaces? Yes, for the BPRG run.

What is a surface factor? The external slope factors assume the individual is on a contaminated flat plane that extends in all directions. The surface factor is to model the radiation field that results from not just the floor being contaminated but also the walls and/or ceiling. It's a concept we took from RESRAD BUILD when developing the BPRG calculator. We have done a lot of work in the various calculators through the years to come up with adjustment factors for the external slope factors to better mimic radiation fields, see attached 2011 and 2016 presentations that summarize this work.

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From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Thursday, June 25, 2020 3:29 PM
To: Praskins, Wayne <Praskins.Wayne@epa.gov>
Subject: FW: draft text for you to review

See Fred's note below, he should have numbers early next week. If you look through the email chain you see some explanation on what we were discussing.

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Thursday, June 25, 2020 10:36 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: RE: draft text for you to review

Should have numbers early next week.

fred d.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Wednesday, June 24, 2020 11:22 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: draft text for you to review

Looks good

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Wednesday, June 24, 2020 10:42 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: draft text for you to review

Caleigh,

Hunter's Point has requested some MCNP runs to facilitate their site assessment. In particular they are interested in surface factors that are generated for the BPRG calculator. These requests are really an advanced release of the work you are already doing. In other words, these requested advance results should duplicate the final results. A detailed write-up isn't required. Hopefully you can build on the submission you did for them last year. I suggest forgoing the raw kerma and energy factors and just present the final surface factors.

Here is the scenario:

- Receptor position - Center of room first, other receptor locations as time permits or all at once if multiple tally points can be done simultaneously.
- Material of floor - Concrete
- Material of wall - Concrete
- Material of celling - Concrete
- Source thickness on floor - Ground plane
- Source thickness on wall - Ground plane, but only going up 6 feet of the wall from the floor
- Source thickness on ceiling - None
- Room size - 3.05 x 3.05 x 3.05 meters or 10x10x10 ft.

Here are the parent isotopes of interest:

- Am-241
- Co-60

- Cs-137
- Eu-152
- Eu-154
- H-3
- Pu-239
- Ra-226
- Sr-90
- Th-232
- U-235

Surface factors will be required for each progeny as well.

Please let me know when you can start and how long this effort will take. It's okay to release results parent by parent and a final summarization at the end.

Thank You,

fred d.

From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Wednesday, June 24, 2020 8:04 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>; Walker, Stuart <Walker.Stuart@epa.gov>
Subject: [EXTERNAL] RE: old Hunter's Point runs

Good morning, plan to use them to facilitate comparisons to results from other models.

Thank you
Dave

From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Wednesday, June 24, 2020 6:51 AM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>; Walker, Stuart <Walker.Stuart@epa.gov>
Subject: [Non-DoD Source] RE: old Hunter's Point runs

Good morning,

How do you plan to use the surface factors ORNL will be providing? I don't see how you can enter them in the calculator.

Fred Dolislager
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From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Tuesday, June 23, 2020 12:14 PM

To: Walker, Stuart <Walker.Stuart@epa.gov>; Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: old Hunter's Point runs

Nope, looks good.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, June 23, 2020 11:09 AM
To: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>; Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [Non-DoD Source] RE: old Hunter's Point runs

Thanks Dave. Any other comments on my red text?

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From: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Sent: Tuesday, June 23, 2020 11:47 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>; Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: RE: old Hunter's Point runs

Rom size is: 3.05 x 3.05 x 3.05 meters
Isotopes are in the below table:

Parent ROC	Contributing Progeny	Input Concentration (dpm/m²)	EPA Model Conversions	
			pCi/m2	pCi/cm2
^{241}Am		10,000	4505	0.450
^{60}Co		500,000	225225	22.523
^{137}Cs	^{137m}Ba	500,000	225225	22.523
^{152}Eu		500,000	225225	22.523
^{154}Eu		500,000	225225	22.523
^{3}H		500,000	225225	22.523
^{239}Pu	^{235m}U	10,000	4505	0.450
^{226}Ra	$^{222}Rn+D$	10,000	4505	0.450
	$^{210}Pb+D$	10,000	4505	0.450
	$^{210}Po+D$	10,000	4505	0.450
^{90}Sr	^{90}Y	100,000	45045	4.505
^{232}Th		3,650	1644	0.164
	$^{228}Ra+D$	3,650	1644	0.164
	$^{228}Th+D$	3,650	1644	0.164
^{238}U	^{234}Th	48,800	21982	2.198

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, June 23, 2020 10:35 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Cc: Hays, David C Jr CIV USARMY CENWK (USA) <David.C.Hays@usace.army.mil>
Subject: [Non-DoD Source] RE: old Hunter's Point runs

I put some answers below in red text, hopefully Dave can correct and fill in.

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Tuesday, June 23, 2020 11:18 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: RE: old Hunter's Point runs

OK, Will need:

- Isotope(s)
- Receptor position Center of room first, other receptor locations as time permits

- Material of floor Concrete
- Material of wall Concrete
- Material of celling Concrete
- Source thickness on floor Ground plane
- Source thickness on wall Ground plane, but only going up 6 feet of the wall from the floor
- Source thickness on ceiling None
- Room size

fred d.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Tuesday, June 23, 2020 9:57 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: old Hunter's Point runs

They never used Caleigh's report. I had sent it to them. I was hearing the Navy and state were going to push a floor only scenario which is what we asked Caleigh to run. This was later changed to a floor and 6 feet up each wall. I was waiting to see if they could figure out how to adapt RESRAD to adequately account for it using a volume slope factor for ground plane fixed contamination and dust while they use ground plane dose conversion factors for the same situation for dose assessment. ACE and Navy were unable to get an adequate explanation from ANL.

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Tuesday, June 23, 2020 9:46 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: RE: old Hunter's Point runs

Stuart,

LMK when they tell you what they want differently. Also, I look more closely at the report Caleigh did and the very last tables are room ratios, but they are by energy. I'm not sure how the folks at Hunter's Point used those ratios. They would be pointless to me.

fred d.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Monday, June 22, 2020 11:27 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: old Hunter's Point runs

I think its just the floor and going up the wall 6 feet, but ACE was going to send me something today. I will share this with them.

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Monday, June 22, 2020 11:05 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: RE: old Hunter's Point runs

Stuart, I was asking for the timeframe of that old discussion as in November 2019. ☺ I have found the folder.

Thanks for finding those old emails. What changes did you want?

fred d.

From: Walker, Stuart <Walker.Stuart@epa.gov>
Sent: Monday, June 22, 2020 10:30 AM
To: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Subject: [EXTERNAL] RE: old Hunter's Point runs

I just sent it to you. Two emails, one with Caleigh's runs and another with some explanation from Lauren. The timeframe would be ASAP.

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From: Dolislager, Fredrick G. <dolislagerf1@ornl.gov>
Sent: Monday, June 22, 2020 9:32 AM
To: Walker, Stuart <Walker.Stuart@epa.gov>
Subject: old Hunter's Point runs

Stuart,

I've been looking for the old hunter's point MCNP for floors, but can't find it. Do you have a timeframe for me?

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