



{In Archive} RE: From the Director/OSRTI: Request for comments on Building Preliminary Remediation Goals (BPRG) for Radionuclides

Hearty, Brian P NWD02 to: Stuart Walker

11/02/2004 05:57 PM

Cc: Dave Crawford, John Nebelsick

From: "Hearty, Brian P NWD02" <Brian.P.Hearty@nwd02.usace.army.mil>
To: Stuart Walker/DC/USEPA/US@EPA
Cc: Dave Crawford/DC/USEPA/US@EPA, John Nebelsick/DC/USEPA/US@EPA
Archive: This message is being viewed in an archive.

Stuart-

In addition to the comments I previously submitted I have these:

Comment # 1: BPRG Search. When using the site specific BPRG option, the equations and default values are shown to allow site-specific changes to be made. In the notes for the Exposure to Settled Dust on Surfaces equation it states "4. When $k = 0.0$, the dissipation term is not included in the calculation to prevent division by zero which would result in a PRG of zero." Since k is only used in the exponent of the dissipation term, if $k=0$ then the dissipation term would go to 1 and not 0. The note should be removed and there does not appear to be a need to remove this term from the equation.

Comment # 2: BPRG Search. When using the site specific BPRG option, the default value for the gamma shielding factor is given as 1. Reconcile this with the Table 1 default value of 0.4.

Comment # 3: The default assumption that one wall volume is contaminated should be considered more than sufficiently protective to determine a direct exposure PRG given that the CSM and default factors assume that the receptor is stationary at one meter from the infinite plane volumetric source for the entire exposure period. Experience with contaminated buildings has shown that it is much more likely that one surface, the floor, will have the highest levels of contamination and that the contamination will be generally concentrated on the surface and located in small discrete areas. All of these factors would reduce the risk from the default case. Also, given the size of most rooms, the external dose rate from other surfaces, unless the receptor is in a corner or at a floor-wall junction, would be significantly attenuated from that source 1-meter away.

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-----Original

Message-----

From: Walker.Stuart@epamail.epa.gov
[mailto:Walker.Stuart@epamail.epa.gov]
Sent: Thursday, October 14, 2004 7:01 PM
To: Nebelsick.John@epamail.epa.gov; Hearty, Brian P NWD02

Cc: Crawford.Dave@epamail.epa.gov
Subject: Fw: From the Director/OSRTI: Request for comments on Building Preliminary Remediation Goals (BPRG) for Radionuclides

I forgot to send you the email last Friday. I have sent this out to the EPA regions for review and was wondering if you had any additional comments. The most significant change was to the dissipation factor (default now of zero). One thing that we have been discussing is whether the direct external assumption of one infinite plane wall is sufficiently protective when multiple walls are probably contaminated. In particular whether their might be an easy method for this spreadsheet calculator to account for multiple walls.

The purpose of this e-mail is to provide the transmittal memo to request Regional comment on the draft Superfund Internet electronic calculator entitled Building Preliminary Remediation Goals (BPRG) for Radionuclides. The draft radionuclide BPRG calculator may be found at the following website: [REDACTED]. The user name and password are [REDACTED] and [REDACTED]. An electronic copy of the transmittal memo requesting your comment is below. Comments are requested by COB Friday October 29th. Please provide comments to Stuart Walker. (703) 603-8748, walker.stuart@epa.gov.

"Message from "Hearty, Brian P NWD02 ----
Brian.P.Hearty@nwd02.usace.army.mil> on Tue, 1 Jun 2004 17:26:04>
---- 0800-

<Walker.Stuart@epamail.epa.gov" <Walker.Stuart@epamail.epa.gov" :To
lebensick.John@epamail.epa.gov" <Nebelsick.John@epamail.epa.gov>, "Documentation, HTRW-CX NWD02" :cc
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BPRG Comments Subject

Stuart-

Here are my comments on the latest version of the BPRG USER's Guide and calculator. Thanks for the opportunity to look at this while it's still in production.

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Comment # 1: BPRG Home Page. Somewhere early in the Welcome or Introduction sections, provide a hyperlink to EPA's guidance, <<http://www.epa.gov/superfund/resources/remedy/pdf/93-60312.pdf>> on when to address building contamination under CERCLA.

Comment # 2: BPRG Users Guide, Section 2.1. Reword the sentence: "BPRGs are isotope concentrations that correspond to levels of cancer risk in air and dust." Such as, "BPRGs are radionuclide concentrations in dust, air, and building materials that correspond to a specified level of human cancer risk."

Comment # 3: BPRG Users Guide, Section 3.1. It would be beneficial if the default conceptual site model

diagram was presented to show any linkages assumed between the contamination mechanisms. The hyperlinked figures are helpful, but they do not really show if/how the three separate BPRGs are interconnected. The user's guide should explain how the "volumetrically" contaminated building material can degrade, become airborne, and result in settled dust.

Comment # 4: BPRG Users Guide, Section 3.2. The determination of a representative background in a building may be much more complicated than what is described in the referenced OSWER directive. The concentrations of natural uranium and thorium vary greatly in building materials and can easily exceed the default PRGs provided by the calculator. Here is a recent reference for radioactive materials in building materials: <http://nvl.nist.gov/pub/nistpubs/jres/105/2/j52hob.pdf> Any additional guidance on how to eliminate building materials containing levels of naturally-occurring radioactive materials that may exceed the BPRGs from further quantitative risk assessment would be useful.

Comment # 5: BPRG Users Guide, Section 4. It is not clear how the slope factor for external exposure to dust, SF_{d-ext}, which is defined in units of risk/yr per pCi/g was developed from the ground plane risk coefficients in FGR 13 which are in units of m²/Bq-s. Looking at the equations for PRG_{d-total} it appears that this slope factor should be in units of cm² instead of g.

Comment # 6: BPRG Users Guide, Section 4. It is not clear if the default gamma shielding factor, GSF, of 0.4 is appropriate for external exposure due to submersion or direct exposure to contaminated building materials as this factor was developed in the SSG to account for the shielding by building materials of gamma radiation produced in outdoor soil.

Comment # 7: BPRG Users Guide, Section 4.3.8. While the discussion in this section notes that the default dissipation constant, k, is 0, Table 1 lists the default value for k as 0.38. When using the site specific selection in the BPRG calculator, a value of 0.38 is also displayed as the default. Is the note correct or should it be removed?

