

Preliminary Remediation Goals for Radionuclides in Outdoor Surfaces (SPRG) External Peer Review

Background and Overview

EMS, under contract EP-W-07-037 with the Environmental Protection Agency's Office of Solid Waste and Emergency Response, has been requested to obtain external, independent reviews of the draft "Superfund Preliminary Remediation Goals for Radionuclides in Outdoor Surfaces (SPRG) Electronic Calculator." The draft SPRG calculator is available for review at <https://epa-sprg.ornl.gov/>. Click "yes" when prompted by a security alert asking for a certification. The user name and password are "prg" and "development."

EPA developed the electronic calculator to help risk assessors, remedial project managers, and others involved with risk assessment and decision making at sites with contaminated hard outside surfaces (e.g., building slabs, outside building walls, sidewalks and roads). The electronic calculator provides guidance for establishing risk-based preliminary remediation goals (PRGs) for radioactively contaminated hard outside surfaces at Superfund sites (those regulated under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, or CERCLA). The calculator addresses contaminated dust and fixed surface or volumetric contamination on or inside hard outside surfaces located in areas that will have a residential or commercial/industrial land use.

Radionuclide-specific SPRGs usually are derived from two general sources: (1) concentrations based on potential "applicable or relevant and appropriate requirements" (ARARs) and (2) concentrations based on risk assessment. ARARs often include concentration limits set by other environmental regulations, such as Safe Drinking Water Act maximum contaminant levels (MCLs). The second source for SPRGs, and the focus of this web-based tool, is risk-based calculations that set concentration limits using toxicity values under specific exposure conditions.

EPA issued guidance in 1997 on how to establish protective cleanup levels for radioactive contamination at CERCLA sites. The guidance reiterated that cleanup levels of radionuclides generally should be within the risk range for carcinogens established in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) when ARARs are not available or are not sufficiently protective. Thus, cleanups generally should achieve a level of risk within the 10^{-4} to 10^{-6} carcinogenic risk range based on the reasonable maximum exposure for an individual.

The SPRG Calculator presents recommended risk-based SPRGs calculated using default input parameters and the latest toxicity values. Users can modify the input parameters to create site-specific SPRGs to meet the needs of your site, considering factors related to the underlying exposure scenarios, pathways, and routes.

The purpose of this peer review is to identify any technical problems, omissions, or inconsistencies in the draft SPRG calculator, and to obtain expert opinion as to the calculator's usefulness and appropriateness for its intended function. Your comments and recommendations will be used to revise the draft calculator so that the final version will reflect sound technical information and guidance.

I. E-mail your comments to EMS's Project Manager (N. Jay Bassin, jay.bassin@emsus.com, 301-589-5318), on or before February 15, 2008. An annotated copy of the user's guide document may be submitted as well your specific comments by e-mail.

II. Your responsibilities are described below:

Review the web site to become familiar with its structure, organization, subpages, and links. The SPRG Calculator, for purposes of this peer review, includes:

- The web site home page (Welcome and Introduction) and links to subpages
- The users guide, which includes instructions, explanations, equations used, default data used, assumptions, and sources
- Frequently Asked Questions (FAQs)
- SPRG Search page (the online calculator itself)

We suggest you consider a number of points, covered below, but we rely on your expertise and experience to cover any aspect of the SPRG Calculator. Assume that the SPRG Calculator is intened to assist risk assessors, remedial project managers, and others involved with risk assessment and decision-making at sites with contaminated outdoor hard surfaces such as buildings, slabs, outside building walls, sidewalk and roads.

III. SPRG Review Guidance

We request that you review three things: (1) the overall web site itself; (2) the User's Guide, and (3) the SPRG Search tool. You should focus your review on the "Users Guide," which provides a complete overview, explanation, and instructions, together with supporting data, models, equations, and references and citations. Based upon your review of the Users Guide, you should review the SPRG Search (the online calculator itself) to determine whether the calculator appears to apply the principles, models, equations, and data described in the Users Guide. Please note clearly any inconsistencies between the User's Guide and the calculator.

A. Overall Web Site

1. Is the web site clearly organized, described, easy to navigate, and generally "user friendly"? If not, what do you recommend?
2. Have the objectives of the SPRG Calcuator, as stated in the documentation, been realized? If not, what do you recommend?
3. Does the documentation (Users Guide) match the SPRG Search calculator (online tool) and vice-versa? If not, what do you recommend?
4. Do you have any other recommendations to improve the usability of the web site?

B. User's Guide

1. Is the tool and website clearly explained?
 - a. Are the assumptions clear and reasonable? If not, what do you recommend?
 - b. Does it adequately describe it's limitations? If not, what do you recommend?
 - c. Is it well written and clearly organized? If not, what do you recommend?
 - d. Is the technical support documentation complete, well organized, and easy to follow? If not, what do you recommend?

2. Are the sources/citations appropriate and do they represent the current state of knowledge? If not, what do you recommend?
3. Are the models comprehensive, accurate, and do they represent the current state of knowledge? Are they supported appropriately by citations?
 - a. Residential exposure?
 - b. Worker exposure?
 - c. Children's exposure?
 - d. Conceptual two-and three-dimensional?
4. Are the equations comprehensive, accurate, and do they represent the current state of knowledge? Are they supported appropriately by citations or derivations? If not, what do you recommend?
 - a. Residential exposures?
 - b. Worker exposures?
 - c. Two-and three-dimensional?
 - d. Are the equation variables adequately explained in terms of relative sensitivities?
 - e. Are the equation constants adequately explained and sourced?
5. Are the toxicological and exposure data comprehensive, appropriate, accurate, and do they represent the current state of knowledge? Are they supported appropriately by citations? Are they appropriate for residential and worker exposures?
6. Are the assumptions and data for children's exposure reasonable and supportable?
7. Are the exposure parameters and default values appropriate and based on supportable reasoning?
8. SPRGs for Settled Dust
 - a. Were appropriate exposure input parameters selected and logically supported to develop risk-based criteria?
 - b. Are children adequately protected by the risk-based criteria as developed?
 - c. Is the use of the external ground plane slope factor appropriate?
 - d. Is the use of the mechanical resuspension approach appropriate?
 - e. Is the use of the dissipation rate appropriate? Including a default input parameter of 0?
 - f. Is the settled dust portion of the SPRG calculator reasonably consistent with other relevant EPA Superfund guidance? Are there aspects of other Superfund guidance which should have been used or incorporated into the calculator?
9. SPRGs for 3-D External
 - a. Were appropriate exposure input parameters selected and logically supported to develop risk-based criteria?
 - b. Are children adequately protected by the risk-based criteria as developed?
 - c. Is the adjusted dose rate in for using the external slope factor on a contaminated urban street appropriate.
 - d. Is the use of the various (e.g., ground plane, 1 cm, 5 cm, 15 cm) external slope factors appropriate?
 - e. Is the 3-D external portion of the SPRG calculator reasonably consistent with other relevant EPA Superfund guidance? Are there aspects of other Superfund guidance which should have been used or incorporated into the calculator?
8. SPRGs for 2-D External
 - a. Were appropriate exposure input parameters selected and logically supported to develop risk-based criteria?
 - b. Are children adequately protected by the risk-based criteria as developed?

- c. Is the adjusted dose rate in for using the external slope factor on a contaminated slab.
 - d. Is the use of the various (e.g., ground plane, 1 cm, 5 cm, 15 cm) external slope factors appropriate?
9. Are the standard recommended default factors adequately explained, sourced, and reasonable?
 10. Are the radionuclides appropriate and does the ?
 11. Is there anything else you recommend for the User's Guide to improve it for its stated purpose?

C. Calculator

1. Are the results clearly explained and presented?
2. Are the results appropriately described and qualified (to the extent that they may be relied upon and defended)?
3. Do the results provide defensible explanation of how they were derived, or are they the result of a "black box"?
4. Is the 2-D external portion of the SPRG calculator reasonably consistent with other relevant EPA Superfund guidance? Are there aspects of other Superfund guidance which should have been used or incorporated into the calculator?
5. Are the radionuclides appropriate, and do the results adequately explain the variability among radionuclides?

D. Anything Else?

Is there anything else you would recommend to improve the SPRG's utility, accuracy, completeness, or supportability?