

June 7, 2000

MEMORANDUM TO: David L. Meyer, Chief
Rules and Directives Branch
Division of Administrative Services
Office of Administration

FROM: Robert A. Nelson, Acting Chief **/RA/**
Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: PUBLICATION OF SUPPLEMENTAL INFORMATION CONCERNING
THE USE OF SCREENING VALUES TO DEMONSTRATE
COMPLIANCE WITH THE FINAL RULE ON RADIOLOGICAL CRITERIA
FOR LICENSE TERMINATION

Attached please find one signed original of the subject Federal Register notice for your transmittal to the Office of the Federal Register for publication. Also, attached are five copies of the signed notice and a 3.5" diskette with the notice in WordPerfect.

Attachments:

1. One signed original FRN
2. Five copies of signed FRN
3. 3.5" diskette of FRN

CONTACT: Robert A. Nelson, NMSS/DWM
(301) 415-7298

U.S. NUCLEAR REGULATORY COMMISSION
USE OF SCREENING VALUES TO DEMONSTRATE
COMPLIANCE WITH THE FINAL RULE ON
RADIOLOGICAL CRITERIA FOR LICENSE TERMINATION

Purpose: This notice provides supplemental information to clarify the criteria for using screening values to demonstrate compliance with the Nuclear Regulatory Commission's (NRC) Final Rule on Radiological Criteria for License Termination (License Termination Rule (LTR)) which was issued on July 21, 1997, (62 FR 39058).

Background: Acceptable license termination screening values of common radionuclides for building surface contamination were published in the Federal Register on November 18, 1998 (63 FR 64132). Screening values of common radionuclides for surface soil contamination were published in the Federal Register on December 7, 1999 (64 FR 68395). As discussed in these notices, NRC's DandD computer code provides a method for calculating screening values for radionuclides in soil, and screening values for contamination on building surfaces. NRC used the DandD methodology to derive the building surface contamination screening values in Table 1 of the November 18, 1998, notice and the surface soil contamination screening values in Table 3 of the December 7, 1999, notice. These screening values correspond to levels of radionuclide contamination that would be deemed in compliance with the unrestricted use dose limit in 10 CFR 20.1402 (i.e., 0.25 milliSievert/year, (25 millirem/year)). The values correspond to screening "derived concentration guidelines" (DCGLs) for each specific radionuclide based on the methodology described in NRC's draft Regulatory Guide "Demonstrating Compliance with the Radiological Criteria for License Termination" (DG-4006). After these screening values were published, several questions arose concerning conditions or criteria under which the screening values would apply. Criteria for determining the applicability of these screening values is provided in the following section.

Supplemental Information: Sites with surface soil contamination levels below those listed in Table 3 of the December 7, 1999, notice will be deemed acceptable for release for unrestricted use provided that:

1. Residual radioactivity has been reduced to levels that are "as low as is reasonably achievable" (ALARA);
2. The residual radioactivity is contained in the top layer of the surface soil (i.e., a thickness of approximately 15 centimeters);
3. The unsaturated zone and the groundwater are initially free of radiological contamination; and
4. The vertical saturated hydraulic conductivity at the specific site is greater than the infiltration rate. (Refer to NUREG/CR-5512, Vol.1, "Residual Radioactive Contamination from Decommissioning, Technical Basis for Translating Contamination Levels to Annual Total Effective Dose Equivalent, Final Report, October 1992" for additional information.)

Buildings with surface contamination levels below those listed in Table 1 of the November 18, 1998, notice will be deemed acceptable for release for unrestricted use provided that:

1. Residual radioactivity has been reduced to levels that are ALARA;
2. The residual radioactivity is contained in the top layer of the building surface (i.e., there is no volumetric contamination);
3. The fraction of removable surface contamination does not exceed 0.1. (For cases when the fraction of removable contamination is undetermined or higher than 0.1, users may assume, for screening purposes, that 100 percent of the surface contamination is removable, and therefore the screening values should be decreased by a factor of 10.)

For radionuclides not listed in the Tables 1 and 3, the latest version of the DandD code may be used, without modification of the default values, to derive screening values. However,

because the current version of DandD (i.e., version 1) is overly conservative, and DandD version 2 is under development, NUREG/CR-5512, Vol. 3, "Residual Radioactive Contamination From Decommissioning, Parameter Analysis, Draft Report for Comment, October 1999," may be used to determine acceptable screening values. Specifically, Table 5.19 (using a $P_{crit} = 0.90$) may be used for building surface contamination screening values and Table 6.91 (using a $P_{crit} = 0.10$) may be used for surface soil screening values.

For site-specific analyses, licensees may use models other than DandD to demonstrate compliance with the LTR provided they can demonstrate that the model and parameters used in that model are appropriate for the site.

For mixtures of radionuclides in soil or on building surfaces, the "sum of fractions" rule applies (see 10 CFR Part 20, Appendix B, Note 4).

The NRC staff intends to include Tables 1 and 3 and these criteria governing their use in the Standard Review Plan for decommissioning. Comments on this approach may be submitted within 30 days from the date of this notice to the Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For further information: Contact Dr. Rateb (Boby) Abu-Eid, Environmental and Performance Assessment Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Telephone: (301) 415-5811; fax: (301) 415-5398; or email: bae@nrc.gov.

Dated at Rockville, Maryland, this 7th day of June 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Nelson, Acting Chief
Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

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