

**U.S. NUCLEAR REGULATORY COMMISSION PLANS
RULEMAKING ON CLEARANCE OF MATERIALS AND EQUIPMENT
HAVING RESIDUAL RADIOACTIVITY**

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ABSTRACT

Clearance of radioactively contaminated solid materials by NRC licensees is currently carried out in many cases using the criteria in NRC Regulatory Guide (RG) 1.86, "Termination of Operating Licenses for Nuclear Reactors." RG 1.86 addresses only clearance of solid material having surface contamination. There is no NRC regulatory guidance for materials with volumetric contamination. While the doses to protect public health and safety were considered in RG 1.86 and the levels were deemed protective, no quantitative dose analysis by pathway was conducted as a basis for this guidance, and the dose levels are not uniform as calculated by modern methods. In a Commission paper dated February 19, 1998, the staff presented several regulatory options to the Commission for setting standards on clearance of materials and equipment having residual radioactivity. The Commission responded in a staff requirements memorandum (SRM) dated June 30, 1998. The Commission directed the staff to proceed independently of the U.S. Environmental Protection Agency (EPA) to promulgate a dose-based regulation for clearance of such materials and equipment. The SRM also includes direction concerning the conduct of the rulemaking process; and the nature, focus, and scope of the standard. The Commission directed that the work begin in fiscal year 1999. In response to this SRM, the staff is developing its proposed approach and schedule was forwarded to the Commission in January 1999. These plans include the development of an issues paper which will be used as the basis for discussions at a series of public meetings which are tentatively planned to begin in summer 1999. The staff recognizes that EPA has already made substantial progress in developing the technical basis for a similar rulemaking and the staff plans to coordinate efforts with EPA to optimize Federal efforts. In addition, the staff plans to solicit input from EPA and other Federal agencies through the Interagency Steering Committee on Radiation Standards at appropriate times during the rulemaking process.

INTRODUCTION:

The U.S. Nuclear Regulatory Commission (NRC) recently directed the NRC staff to initiate a rulemaking to establish standards for clearance of materials and equipment having residual radioactivity. The standards would establish maximum safe levels of residual radioactivity for unrestricted release of materials and equipment into the public domain. This paper discusses: (1) the planned rulemaking process; (2) the development of the rule's technical basis; (3) the rule's anticipated format and scope; (4) the development of an issues paper; (5) the use of a working group and steering group approach; and coordination with the U.S. Environmental Protection Agency (EPA).

BACKGROUND:

Clearance of radioactively contaminated solid materials by NRC licensees is currently carried out, in many cases, using the criteria in NRC Regulatory Guide (RG) 1.86, "Termination of Operating Licenses for Nuclear Reactors." RG 1.86 addresses only clearance of solid material having surface contamination. There is no NRC regulatory guidance for materials with volumetric contamination. While the doses to protect public health and safety were considered in RG 1.86 and the levels were deemed protective, no quantitative dose analysis by pathway was conducted as a basis for this guidance, and the dose levels are not uniform as calculated by modern methods. Clearance, using the criteria in RG 1.86, is normally authorized by specific license conditions. In addition, case specific analyses have been conducted.

In a Commission paper dated February 19, 1998 (SECY-98-028), the NRC staff requested the Commission's direction on regulatory options for setting standards on clearance of materials and equipment having residual radioactivity. The three options were: (1) continuing with current regulatory guidance and not conducting an NRC rulemaking; (2) supporting the EPA's promulgation of a standard and issuing conforming rules and/or guidance; and (3) proceeding independently to promulgate a dose-based regulation for clearance.

In an staff requirements memorandum (SRM) dated June 30, 1998, the Commission directed the staff to implement Option 3 and further directed that the effort should begin in FY 1999. In addition, the SRM directed the staff to: (1) pursue an enhanced participatory rulemaking process similar to the 10 CFR Part 35 (Part 35) revision process; (2) not develop a detectability standard but rather (using input from the International Atomic Energy Agency interim report, from analyses by NRC's contractor, and from ongoing practice with regard to naturally-occurring and accelerator-produced radioactive material (NORM)) focus on codified clearance levels above background for unrestricted use that are adequately protective of public health and safety; (3) base standards on realistic scenarios of health effects from low doses; and (4) develop a comprehensive rule applicable to all metals, equipment, and materials, although if problems that would delay completing the rulemaking arise in certain categories of materials, then a decision could be made to narrow the scope of the rule.

DISCUSSION:

In Option 3, which the Commission directed the staff to implement, NRC would proceed with rulemaking and develop dose-based uniform regulations for the clearance of materials and equipment having residual radioactivity. This paper discusses the rulemaking process which the staff intends to use in developing proposed and final rule packages.

Rulemaking Process

In developing the rule, the staff plans to supplement the agency's standard rule process by including enhanced participatory rulemaking activities, similar to the 10 CFR Part 35 revision

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process. These enhanced activities will begin prior to the start of the formal rulemaking process to solicit early public input on the major issues of the rulemaking. An issues paper will be prepared during this early stage to provide a starting point for the discussions at the public meetings (see discussion below). To facilitate Agreement State comments at an early stage, the staff has participation by Agreement state representatives on its working and steering groups for the rule (see discussion below).

In a manner similar to the Part 35 process, the staff's plan for enhanced public input will include use of the NRC's Internet home page as well as convening of facilitated public meetings at four different geographical locations. These public meetings will also serve as the scoping process for the proposed rule's environmental impact statement. The first public meeting is tentatively planned for summer 1999.

Development of Technical Basis

The technical basis for this rulemaking has been under development for several years. At this time, the technical basis consists of a literature research report and a draft NUREG on individual doses through various exposure pathways. The materials addressed in this technical basis include clearance of steel, copper, and aluminum bulk material and concrete rubble, as well as clearance of tools for reuse. Following NRC staff review of these documents, they will be issued as NUREG reports in advance of the public meetings.

Additional technical bases to be developed include analyses of collective doses based on exposures of populations to the pathways and considerations of costs and potential health impacts of alternate modes of material cleanup and/or disposal. Also, additional analyses will be needed to cover other materials, including soil, beyond that currently analyzed. Other technical analyses will be necessary in areas involved with implementing a rule (e.g., survey methods for volumetric contamination at very low radionuclide levels).

Anticipated Rule Format and Scope of Materials Covered by Rule

As directed in the June 30 SRM, the staff anticipates that the rule would include a dose criteria upon which the rule is based, and could also include a corresponding set of tables for cleared materials in Appendix B of 10 CFR 20, similar to those for air and water. These tables would be based on technical basis documents discussed above.

The June 30, 1998, SRM stated that all metals, materials, and equipment, including soil, should be covered in the rule, although it indicated that a narrower scope could be justified based on problems with applying the rule to certain categories of materials. As discussed above, the current technical basis includes a set of materials and equipment that makes up the large majority of material that would likely be considered for clearance at licensed NRC facilities, but does not include soils. The technical basis will be expanded to address other materials (e.g., soil) prior to developing the proposed rule.

Preparation of an Issues Paper

As discussed above, an issues paper will be prepared prior to the public meetings to provide a point for discussion of major issues. A similar process was used successfully for the public meetings for the recently completed license termination rule. At this time, the issues paper is in preparation and detailed discussion of the issues has not been completed, however the paper is expected to include those items noted in SECY-98-028 (i.e., what type of regulatory controls are necessary prior to clearance, e.g., should there be restricted release, and what types of materials should be included in the regulation), as well as use of European standards in developing this rule; and issues related to the rationale for the rule and the format of the rule.

Use of Working Group/Steering Group

The staff plans to use the working group approach to coordinate rulemaking development activities. This working group, which has been established, includes staff representatives from the NRC Offices of Nuclear Material Safety and Safeguards, Nuclear Regulatory Research, Nuclear Reactor Regulation, State Programs, and the General Counsel. The working group also includes a representative of the Agreement States. In addition, a steering group, made up of senior NRC staff and an Agreement State representative provide continuing and direct management consultation for the working group to expedite preparation of, and concurrence in, the issues paper and rulemaking packages. Use of a working group and a steering group is similar to the approach that was used for the license termination rule that was issued final in July 1997 and the revision of Part 35. Key group members are identified in Table I.

Table I - Key Rulemaking Group Members

Group	Name	Role	Phone Number
Steering Group	Donald Cool	Chair	(301) 415-7197
	Steve Collins	Agreement State Rep (IL)	(217) 785-6982
Working Group	Frank Cardile	Chair & Rulemaking Project Manager	(301) 415-6185
	Anthony Huffert	Technical Lead	(301) 415-6416
	Robert Meck	Research Lead	(301) 415-6205
	Giorgio Gnugnoli	Environmental Impact Statement/Regulatory Analysis Lead	(301) 415-7135
	Phyllis Sobel	Public Meeting Coordinator	(301) 415-6714
	Russ Meyer	Agreement State Rep (TX)	(512) 834-6688

Coordination with EPA

The June 30, 1998, SRM directed the staff to notify the EPA of the planned rulemaking action. The staff, in a letter from Carl Paperiello, NRC, to Lawrence Weinstock, EPA, dated August 20, 1998, described NRC's plans for rulemaking, acknowledged EPA's past work on technical underpinnings on clearance, and suggested seeking further input from EPA in an advisory capacity during NRC's rulemaking. Such an advisory capacity could include, for example, seeking EPA's comments on the issues paper, consideration of technical bases developed by EPA, and involvement in the public meetings. The staff plans to seek Commission approval on specific NRC-EPA interface issues.

SUMMARY

As directed by the Commission, the staff has initiated the development of rulemaking activities to establish standards for the clearance of radioactively contaminated materials and equipment. The process will include a series of public meetings to identify and discuss related issues prior to the promulgation of a proposed rule. An issues paper is being developed to provide a basis for discussion at the public meetings. In addition, a report on the technical basis for the rule will be available prior to the meetings.

REFERENCES

1. U.S. Nuclear Regulatory Commission, "Termination of Operating Licenses for Nuclear Reactors," Regulatory Guide 1.86.
2. U.S. Nuclear Regulatory Commission, "Regulatory Options for Setting Standards on Clearance of Materials and Equipment Having Residual Radioactivity," Commission Paper SECY-98-028, February 19, 1998.
3. U.S. Nuclear Regulatory Commission, "Staff Requirements - SECY-98-028 - Regulatory Options for Setting Standards on Clearance of Materials and Equipment Having Residual Radioactivity," June 30, 1998.
4. C.J. Paperiello, U.S. Nuclear regulatory Commission, letter to L. Weinstock, U.S. Environmental Protection Agency, August 20, 1998.