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## **RULEMAKING ISSUE**

### **(Notation Vote)**

February 28, 2023

SECY-23-0020

FOR: The Commissioners

FROM: Daniel H. Dorman  
Executive Director for Operations

SUBJECT: PROPOSED RULE: COST-BENEFIT ANALYSIS FOR POWER REACTOR  
RADWASTE SYSTEMS (RIN-3150-AK75; NRC-2022-0048)

#### PURPOSE:

The purpose of this paper is to respond to revised Staff Requirements Memorandum (SRM)-SECY-17-0017, "Revised Staff Requirements—SECY-17-0017—Proposed Revision to NUREG-1530, 'Reassessment of NRC's Dollar Per Person-Rem Conversion Factor Policy,'" dated January 25, 2022 (Agencywide Documents Access and Management System Accession No. ML21347A839). This paper requests Commission approval to publish in the *Federal Register* (FR) the enclosed proposed rule (Enclosure 1) that would amend Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion 'As Low as is Reasonably Achievable' for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents," to Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), "Domestic Licensing of Production and Utilization Facilities." If approved, the staff will issue Draft Regulatory Guide (DG)-1411, "Cost-Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors" (ML22201A498), for comment concurrent with the proposed rule. This paper addresses no new commitments.

#### BACKGROUND:

The U.S. Nuclear Regulatory Commission (NRC) and its predecessor agency, the Atomic Energy Commission, have implemented a dollar per person-rem conversion factor for over four decades. The NRC uses the dollar per person-rem conversion factor in developing cost-benefit

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analyses to determine the monetary valuation of the consequences associated with averted radiological collective dose. The issue of assigning a monetary value to radiation dose in regulatory decision-making arose in 1974, during the hearing for a rulemaking addressing routine effluent releases from nuclear power reactors. The subsequent rule, “Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents” (40 FR 19439; May 5, 1975), established Appendix I to 10 CFR Part 50. Published studies that were mentioned in the rulemaking record gave values ranging from \$10 to \$980 per person-rem. The Commission decided to adopt, as an interim measure, the value of \$1,000 per person-rem for cost-benefit analyses. The NRC codified the \$1,000 per person-rem value in Appendix I to 10 CFR Part 50 for the evaluation of a radwaste system design and its related radiological effluent releases in the May 5, 1975, final rule.

### DISCUSSION:

The regulation in paragraph D of Section II, “Guides on design objectives for light-water-cooled nuclear power reactors licensed under 10 CFR part 50 or part 52 of this chapter,” of Appendix I to 10 CFR Part 50 requires that the applicant<sup>1</sup> include in the radwaste system all items of reasonably demonstrated technology that—when added to the system sequentially and in order of diminishing cost-benefit return, can form a favorable cost-benefit ratio—effect reductions in dose to the population located within 50 miles of the reactor. This regulation assigns values of “\$1,000 per total body man-rem and \$1,000 per man-thyroid rem (or such lesser values as may be demonstrated to be suitable in a particular case)” for use in the cost-benefit analysis.

This rulemaking would revise Appendix I to 10 CFR Part 50 to remove the “\$1,000 per total body man-rem and \$1,000 per man-thyroid-rem” cost-benefit criteria for radwaste system augments. The criteria would be replaced with a new requirement to use \$5,200 per person-rem in 2014 dollars. The rulemaking also would require that applicants for light-water-cooled nuclear power reactors under 10 CFR Part 50 and 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” calculate and use an updated dollar per person-rem conversion factor based on inflation and real income growth. NUREG-1530, Revision 1, “Reassessment of NRC’s Dollar Per Person-Rem Conversion Factor Policy,” issued February 2022 (ML22053A025), includes guidance that can be used to update the dollar per person-rem value annually, based on changes to inflation and real income growth. Using this approach, applicants will use a dollar per person-rem value that is based on the current calendar year, instead of codifying a constant value that may become outdated over time. The proposed rule establishes no new reporting or recordkeeping requirements.

The staff would also revise Regulatory Guide 1.110, Revision 1, “Cost-Benefit Analysis for Radwaste Systems for Light-Water-Cooled Nuclear Power Reactors” (ML13241A052), to provide a method for determining the current conversion factor and remove equipment cost tables that are no longer relevant. The guidance would be issued for public comment as DG-1411.

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<sup>1</sup> The introductory paragraph to section II of Appendix I to 10 CFR Part 50 states that the guides for design objectives set forth in this section may be used by an applicant for a construction permit, combined license, design approval, design certification, or manufacturing license.

REGULATORY ANALYSIS:

The staff prepared a draft regulatory analysis (Enclosure 2) to determine anticipated costs and benefits of the proposed rule. Relative to the no-action baseline, the staff estimates that the proposed rule would result in a net cost of (\$645,000) using a 7-percent discount rate and (\$692,000) using a 3-percent discount rate. As discussed in the draft regulatory analysis, the staff concluded that completely eliminating the conversion factor from the regulations and revising guidance without rulemaking were not viable options.

IMPLEMENTING GUIDANCE:

The staff plans to publish DG-1411 to support the implementation of the proposed requirements in this rulemaking. DG-1411 would be referenced in the preamble of the proposed rule and would be available for public comment along with the proposed rule and draft regulatory analysis.

BACKFITTING AND ISSUE FINALITY CONSIDERATIONS:

The NRC has determined that backfitting (10 CFR 50.109) and the issue finality provisions in 10 CFR Part 52 do not apply to this proposed rule because it would not involve any provisions that would impose backfits as defined in 10 CFR Chapter I or affect the issue finality of any approval issued under 10 CFR Part 52. The proposed rule would revise Appendix I to 10 CFR Part 50 by removing the requirement to use a conversion factor of \$1,000 per person-rem for cost-benefit analyses and adding a requirement to calculate and use an updated dollar per person-rem conversion factor that would be equal to \$5,200 per person-rem in 2014 dollars. The provisions in 10 CFR Part 50 and Part 52 do not require updates to the cost-benefit analyses for radwaste system designs after the designs have been approved. Therefore, the NRC has determined that the backfitting rule in 10 CFR 50.109, "Backfitting," and the issue finality provisions in 10 CFR Part 52 do not apply to this proposed rule because this amendment, if finalized, would not involve any provision that would either constitute backfitting, as that term is defined in 10 CFR Chapter I, or affect the issue finality of any approval issued under 10 CFR Part 52. For these reasons, neither a backfit analysis nor a discussion addressing the issue finality provisions in 10 CFR Part 52 was prepared for this proposed rule.

The NRC's determination on this matter is in accordance with Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests" (ML18093B087).

RULEMAKING INNOVATION RECOMMENDATION:

Based on the limited scope of this rulemaking activity, the staff recommends that the Commission delegate authority to the Executive Director for Operations (EDO) to issue the final rule, subject to the receipt of no significant adverse comments on the proposed rule. The staff will inform the Commission if any comments are identified as significant and adverse, thereby rescinding the request for delegation of authority.

RECOMMENDATION:

The staff recommends that the Commission approve the enclosed proposed rule (Enclosure 1) for publication in the *Federal Register*.

If the Commission approves publication of the proposed rule, the staff will complete the following activities:

- The staff will publish the proposed rule in the *Federal Register* for a 60-day public comment period.
- The staff will issue DG-1411 for comment concurrent with the publication of the proposed rule.
- The Office of Congressional Affairs will inform the appropriate congressional committees.
- The staff will work with the Office of Public Affairs on an appropriate public communication when the NRC publishes the proposed rule in the *Federal Register*.
- The staff will hold a public meeting during the comment period for the proposed rule.
- The EDO will sign the final rule for publication if the Commission delegates this authority.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection to the publication of the proposed rule. The Office of the Chief Financial Officer reviewed this package and has no concerns with the estimated resources in Enclosure 3 (nonpublic). The staff has informed the Advisory Committee on Reactor Safeguards (ACRS) of this rulemaking activity, and the ACRS has decided not to review this rulemaking.

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Enclosures:

1. Federal Register Notice
2. Regulatory Analysis
3. Estimated Resources  
(non-public)

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RADWASTE SYSTEMS (RIN 3150-AK75; NRC-2022-0048) DATED: February 28,  
2023

WITS: SRM-S17-0017-3

ADAMS Accession Nos.: PKG: ML22264A001; SECY: ML22264A002; FRN: ML22264A003; Draft  
Regulatory Analysis: ML22264A004; Resources: ML22264A005 \*via email SECY-012

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