

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555

November 23, 2004

**NRC REGULATORY ISSUE SUMMARY 2004-17:  
REVISED DECAY-IN-STORAGE PROVISIONS FOR THE STORAGE OF  
RADIOACTIVE WASTE CONTAINING BYPRODUCT MATERIAL**

**ADDRESSEES**

All licensees regulated under 10 CFR Parts 30, 32, 33, and 50.

**INTENT**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform all addressees of changes to the policy for authorizing decay-in-storage requirements for radioactive waste containing byproduct material with half-lives of less than 120 days. No specific action or written response is required.

**BACKGROUND**

In October 2002, the revised regulations in 10 CFR Part 35, "Medical Use of Byproduct Material," became effective. Revised 10 CFR 35.92, "Decay-in-storage," included a significant change in that the requirement to hold radioactive waste for a period of ten half lives prior to disposal was eliminated. The revised regulation is more risk-informed and performance based and does not require a specific holding period prior to disposal of radioactive waste, as long as a final survey determines that the exposure rates of the waste cannot be distinguished from the background radiation levels. Currently, many licensees have license conditions that impose more restrictive requirements on decay-in-storage of their non-medical waste (e.g., research and development) than the regulatory requirements for medical waste. As a result, several licensees have requested that their licenses be amended to allow for the storage and processing of their non-medical byproduct material waste in accordance with the new, less restrictive requirements in Part 35.

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## SUMMARY OF ISSUE

The NRC staff reviewed the amendment requests and agrees that this non-medical, byproduct material waste can be safely stored and processed in accordance with the criteria in Part 35. As a result, the staff has updated the standard license condition used to authorize decay-in-storage of waste to permit greater flexibility by eliminating the requirement for a specific holding period prior to disposal.

The staff has revised the standard license condition to incorporate the following requirements of Section 35.92:

- The waste must contain radionuclides having a physical half-life of less than 120 days;
- The waste must be held in storage until the radiation exposure rate cannot be distinguished from background radiation levels;
- The waste must be monitored at the container's surface and with no interposed shielding;
- The waste must be monitored with an appropriate radiation detection instrument set at its most sensitive scale;
- The licensee must obliterate or remove all radiation labels<sup>1</sup>; and
- Records of the disposal are maintained.

Low levels of some beta emitters, such as sulfur-35, are difficult to detect. Therefore, to assure that the requirement that waste is held in storage until the radiation exposure rate cannot be distinguished from background levels is met, licensees should perform surveys for these materials in a low background radiation area. Furthermore, licensees must carefully select the appropriate instrument, and must ensure it is properly calibrated. For guidance on selecting the proper radiation detection equipment and ensuring it is properly calibrated, licensees may refer to NUREG 1556, Volume 7, Appendix M, "Consolidated Guidance About Materials Licenses - Program Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope." This document is accessible at the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/>.

All new licenses granted under 10 CFR Parts 30, 32, and 33, listing byproduct material with half-lives less than 120 days, will be issued with the authority to process waste in accordance with the new decay-in-storage provision. All existing 10 CFR Part 30, 32, and 33 licenses will be written to incorporate the decay-in-storage provision at the time of license renewal or amendment, whichever occurs first. However, licensees who desire to utilize the new decay-in-storage provisions immediately must promptly submit an amendment request and receive the amended license prior to implementation.

The NRC staff has considered whether the provisions of the decay-in-storage option would be applicable to reactor licensees and believes this option would present some difficulties to them. Power reactors generate a mix of byproduct materials which have a wide range of half-lives. Because of these mixtures, a power reactor licensee would have to separate out the short half-life materials from the long half-life materials. This is generally not cost-effective. Although

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<sup>1</sup> An exception to this requirement is labels on materials that are within containers and that will be managed as biomedical waste after release from the licensee.

research and test reactors (RTRs) also generate mixed byproduct materials with a wide range of half-lives, some RTRs generate byproduct materials that are more distinct and are short lived. Notwithstanding these considerations, should reactor licensees desire to pursue the decay-in-storage option, the provisions of this RIS would be applicable to such reactor licensees.

#### **PAPERWORK REDUCTION ACT STATEMENT**

This RIS requires no information collection.

This RIS requires no specific action nor written response. If you have questions about this RIS, please contact one of the technical contacts listed below, or the appropriate regional office.

**/RA/**

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 NRC REGULATORY ISSUE SUMMARIES

Regulatory Issue Summary No.	Subject	Date of Issuance	Issued to
2004-16	Use of Later Editions and Addenda to ASME Code Section XI For Repair/Replacement Activities	10/19/2004	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2004-15	Emergency Preparedness Issues: Post 9/11	10/18/2004	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2004-14	Focusing Resources in the Office of Nuclear Reactor Regulation as a Result of Review of Security Plan Changes	09/20/2004	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2004-13	Consideration of Sheltering in Licensee's Range of Protective Action Recommendations	08/02/2004	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

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