
Regulatory Analysis for Instructions for Completing the NRC's Uniform Low-Level Radioactive Waste Manifest

(Proposed Revision 3 of NUREG/BR-0204)

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Division of Rulemaking



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ABBREVIATIONS AND ACRONYMS

ADAMS	Agencywide Documents Access and Management System
C-14	carbon isotope with an atomic mass of 14
CFR	<i>Code of Federal Regulations</i>
H-3	hydrogen isotope with an atomic mass of 3, tritium
I-129	iodine isotope with an atomic mass of 129
NRC	U.S. Nuclear Regulatory Commission
RIS	regulatory information summary
Tc-99	technetium isotope with an atomic mass of 99

1 Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering revising NUREG/BR-0204, "Instructions for Completing the NRC's Uniform Low-Level Radioactive Waste Manifest," Revision 2, issued July 1998, to provide updated instructions for completing NRC Form 540, "Uniform Low-Level Radioactive Waste Manifest—Shipping Paper"; NRC Form 541, "Uniform Low-Level Radioactive Waste Manifest—Container and Waste Description"; and NRC Form 542, "Uniform Low-Level Radioactive Waste Manifest—Manifest Index and Regional Compact Tabulation." In addition, NUREG/BR-0204 currently does not reflect the information contained in Regulatory Issue Summary 2015-02 (RIS-15-02), "Reporting of H-3, C-14, Tc-99, and I-129 on the Uniform Waste Manifest," dated February 18, 2015; reference the current U.S. Department of Transportation regulations; or contain an industry-requested clarification to the certification statement on NRC Form 540. Revising NUREG/BR-0204 could result in a more accurate accounting of hard-to-detect isotopes (e.g., tritium (H-3), carbon-14 (C-14), technetium-99 (Tc-99), and iodine-129 (I-129)) disposed of in licensed low-level radioactive waste disposal facilities.

2 Objectives

The objectives of this regulatory action are to revise NRC guidance to provide updated instructions, to make changes that conform to information in RIS-15-02, and to provide licensees with clear instructions for completing NRC Forms 540, 541, and 542 for low-level radioactive waste intended for ultimate disposal at a licensed low-level radioactive waste disposal facility.

3 Identification and Analysis of Alternative Approaches

The NRC staff considered the following three alternative approaches:

- (1) Do not revise NUREG/BR-0204.
- (2) Withdraw NUREG/BR-0204.
- (3) Revise NUREG/BR-0204 to update the guidance.

3.1 Alternative 1: Do Not Revise NUREG/BR-0204

Under this alternative, the NRC would not revise the guidance and would retain the current guidance. If the NRC does not take action, there would be no changes in costs or benefit to the public, licensees, Agreement States, or the NRC. However, the "no-action" alternative would not address industry-identified concerns with the current version of NUREG/BR-0204 related to reporting hard-to-detect isotopes and the applicability of the certification statement on NRC Form 540 when the waste is shipped to an intermediary site (processor) before disposal. The NRC and Agreement State licensees would continue to use the guidance in NUREG/BR-0204, Revision 2, to complete NRC Forms 540, 541, and 542 for low-level radioactive waste intended for ultimate disposal at a licensed low-level radioactive waste disposal facility. This alternative is considered the "no-action" alternative and provides a baseline condition from which other alternatives will be assessed.

3.2 Alternative 2: Withdraw NUREG/BR-0204

Under this alternative, the NRC would withdraw NUREG/BR-0204. This would eliminate the concern about NUREG/BR-0204 not reflecting the information in RIS-15-02, identified above. However, it would also eliminate the only readily available guidance to NRC and Agreement State licensees on completing the forms required by Appendix G, "Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, "Standards for Protection against Radiation." Although this alternative would cost less to implement than Alternative 3, eliminating instructions for completing NRC forms could result in (1) licensees needing additional time to complete the forms correctly, (2) inconsistent and inefficient recordkeeping, and (3) potential safety impacts, as low-level radioactive waste disposal sites use these records in their performance assessments. Because of these unintended consequences, the NRC does not believe this is a viable alternative.

3.3 Alternative 3: Revise NUREG/BR-0204

Under this alternative, the NRC would revise NUREG/BR-0204 to incorporate the information contained in RIS-15-02, to reference the current U.S. Department of Transportation regulations, and add the industry-requested clarification to the certification statement on NRC Form 540. By doing so, the NRC would ensure that the NUREG/BR-0204 guidance is current and clear, accurately reflects the NRC staff's position, and incorporates industry input.

The impact to the NRC would be the costs associated with drafting the revised guidance, requesting and resolving public comments on the revision, and issuing revision 3 of NUREG/BR-0204. The impact to the public and industry would be the voluntary costs associated with reviewing and providing comments to the NRC during the public comment period. Additional industry impacts may include revising current work processes or software to adapt to the updated reporting forms. The NRC assumes that existing software licensing fees would cover these minor reporting changes such that there would not be any incremental software costs to licensees that choose to fill out the forms using commercial software packages. The NRC expects that, after the initial adjustment to the revised guidance, NRC and Agreement State licensees would gain in efficiency as a result of having clear and accurate instructions to prepare NRC Forms 540, 541, and 542. NRC and Agreement State licensees would also benefit from a more accurate accounting of hard-to-detect isotopes (e.g., H-3, C-14, Tc-99, and I-129) that are disposed of in licensed low-level radioactive waste disposal facilities. Additionally, disposal facilities and other entities use the information in NRC Forms 540, 541, and 542 to perform risk assessments for waste disposal. The revised guidance would result in gathering better and more accurate information as the waste is disposed, which would greatly reduce the burden of collecting the information later when performing these risk assessments.

4 Conclusion and Decision Rationale

Based on this regulatory analysis, the NRC staff concludes that Alternative 3, revising NUREG/BR-0204 to incorporate RIS-15-02, is the best option. This action is supported by the industry and will enhance the NRC and Agreement State licensees' ability to record the correct information on NRC Forms 540, 541, and 542.

The revision of NUREG/BR-0204 could also lead to cost savings for the industry, as the revision to NUREG/BR-0204 would include the use of indirect methods to determine inventories of hard-to-detect isotopes as presented in RIS-15-02. Moreover, accurate reporting of these

radionuclides' activities is important for better decisionmaking on the disposal of low-level radioactive waste. Overestimation of disposal site inventory could lead to premature loss of disposal system capacity, whereas underestimation of inventory could lead to public health and safety concerns. The revised guidance would result in gathering better and more accurate information as the waste is disposed, which would greatly reduce the burden of collecting the information when performing risk assessments.

5 Reference

U.S. Code of Federal Regulations (CFR), "Standards for Protection against Radiation, Part 20, Title 10, "Energy."

U.S. Nuclear Regulatory Commission (NRC), "Reporting of H-3, C-14, Tc-99, and I-129 on the Uniform Waste Manifest," RIS-15-02, February 18, 2015. ADAMS Accession No. ML14272A217.

NRC Form 540, "Uniform Low-Level Radioactive Waste Manifest—Shipping Paper." ADAMS Accession No. ML071870172.

NRC Form 541, "Uniform Low-Level Radioactive Waste Manifest—Container and Waste Description." ADAMS Accession No. ML071870172.

NRC Form 542, "Uniform Low-Level Radioactive Waste Manifest—Manifest Index and Regional Compact Tabulation." ADAMS Accession No. ML071870172.

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