



Standard Guide for Unrestricted Disposition of Bulk Materials Containing Residual Amounts of Radioactivity¹

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INTRODUCTION

The feasibility of recycling bulk material containing trace amounts of radioactive contamination depends on the dose to the public that could occur as a result. However, the assessment of this dose depends not only on the measurements of contaminants present, but also on the future use of the material and the pathways by which persons can be exposed. This guide provides a recommended approach to support a petition (to a regulatory agency) seeking approval for the recycle or disposal of the material outside of the radioactive materials regulatory control.

Since dose rate limits to the public have been established by regulation for decommissioning by NRC (25 mRem/y) and remediation sites by EPA (15 mRem/y), this guide provides an approach to demonstrate compliance with those regulations.

This guide describes the steps needed to implement recommendations for the development of a data package to support the petition and to serve as a permanent record.

1. Scope

1.1 This guide provides an approach for developing a basis for obtaining approval for release of bulk materials to be removed from a decontamination and decommissioning (D&D) or environmental remediation site from regulatory control. This would be addressed in the decommissioning plan (Guide E1281). Fig. 1 follows the logic described in the MARSAME for determining the materials that could be considered for release. Materials that negotiate this logic tree are referred to as “candidate for release based on dose.”

1.2 For purposes of this guide, bulk materials shall consist of, for example, building materials, concrete rubble, soils, and internally contaminated or activated equipment and facility components.

1.3 This guide is intended to apply to those equipment and materials to be removed from the site for their disposition as opposed to real property (buildings and grounds) that are to remain.

1.4 **Warning**—Breathing of asbestos dust is hazardous. Asbestos and asbestos products present demonstrated health

risks for users and for those with whom they come into contact. In addition to other precautions, when working with asbestos products, minimize the dust that results. For information on the safe use of chrysotile asbestos, refer to “Safe Use of Chrysotile Asbestos: A Manual on Preventive and Control Measures.”

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For a specific hazard see 1.4.

2. Referenced Documents

2.1 ASTM Standards:²

E2216 Guide for Evaluating Disposal Options for Concrete from Nuclear Facility Decommissioning

E1892 Guide for Preparing Characterization Plans for Decommissioning Nuclear Facilities

E1893 Guide for Selection and Use of Portable Radiological Survey Instruments for Performing In Situ Radiological Assessments to Support Unrestricted Release from Further Regulatory Controls

E1281 Guide for Nuclear Facility Decommissioning Plans

¹ This guide is under the jurisdiction of ASTM Committee E10 on Nuclear Technology and Applications and is the direct responsibility of Subcommittee E10.03 on Radiological Protection for Decontamination and Decommissioning of Nuclear Facilities and Components.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.