

American Nuclear Society

solid radioactive waste processing system for light-water-cooled reactor plants

an American National Standard

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REAFFIRMED

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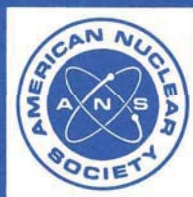
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for Light-Water-Cooled Reactor Plants**

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Foreword

(This Foreword is not part of American National Standard for Solid Radioactive Waste Processing System for Light-Water-Cooled Reactor Plants.)

A major aspect of nuclear power plant operation is management of the solid radioactive waste generated as a by-product of commercial nuclear power. The development of facilities and equipment to handle and process solid radioactive waste has provided the nuclear industry with the capability to ensure that shipments of radioactive solid wastes are packaged in accordance with applicable regulatory requirements for transportation and disposal.

It is the purpose of this standard to identify acceptable practices and minimum requirements for the design, construction, and performance of solid radioactive waste processing systems; to reduce radiation exposures to operating personnel; and to reduce the probability of releases of radioactivity from accidents. It is not the intent of this standard to develop a "standard system" for processing solid radioactive waste; it is clearly recognized that there is a wide variety of systems and equipment in use, and others are continually being developed. In addition, the criteria specified in this standard are applicable to the in-plant solid radioactive waste processing system and the temporary (up to 30 days of anticipated normal waste generation) storage of packaged radioactive waste ready for shipment. This standard is not intended to address the interim storage (up to 5 years) of radioactive waste.

A number of designs, concepts, operating system histories, and practices were reviewed in the preparation of this standard. In addition, applicable U.S. Nuclear Regulatory Commission (NRC) Regulations, Standard Review Plans, Regulatory Guides, and Branch Technical Positions were considered. It is not intended that this standard limit the development or application of alternate methods of processing, provided that such alternate methods meet the design and performance requirements of this standard.

Various quantities of solid radioactive waste are generated by operation and maintenance activities and are dependent on several factors, including design conditions, type of equipment, equipment arrangements, and operating philosophy. The origin (input sources); the normal expected (averages); the maximum (short-term) quantities; and the method of handling, processing, and disposing of these wastes are the subjects of this standard.

The requirements of this standard consider that the solid radioactive waste processing system is operated on a level commensurate with other facility operations. This standard establishes the minimum quality requirements for the design, construction, and performance of the system.

The Appendixes are not a part of this standard. However, the Appendixes are intended to provide useful information and guidance when considering design, construction, and operation of a solid radioactive waste system. Appendix A, Federal Regulations and State Compacts, provides a necessary reference source and overview of federal and state regulations affecting solid radwaste management. Appendix B, Testing for Free Liquids in Solidified Matrices, discusses the criteria necessary for meeting free liquid requirements in radioactive waste containers. Appendix C, Mixed Waste Management, provides the information necessary to define, treat, store, and dispose of radioactive waste having hazardous waste properties. Appendix D, Alternative Solidification Technologies, presents alternative technologies for solidification that should be considered when selecting a solid radioactive waste system. Appendix E, Product Quality Control Requirements, provides guidance for the implementation of Title 10, "Energy," Code of Federal Regulations, Part 61, "Waste Form and Stability."

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