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American Nuclear Society

WITHDRAWN

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**mobile radioactive waste
processing systems**

an American National Standard

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ERRATA

American National Standard Mobile Radioactive Waste Processing Systems, ANSI/ANS-40.37-1993

Table 2, Equipment Codes, on page 25, contains a typographical error. Footnote d of the table refers the user to Appendix A, item #10.

The correct item number is **#8**. The corrected table appears below.

Table 2

Equipment Codes

Equipment	Design and Fabrication	Materials ^a	Welder Qualification and Procedures	Inspection and Testing
Pressure Vessels	ASME B&PVC, Section VIII, Division 1	ASME B&PVC, Section II	ASME B&PVC, Section IX	ASME B&PVC, Section VIII, Division 1
Atmospheric Tanks	ASME B&PVC, ^b Section III, Class 3; or API 650; or AWWA D-100 ^c	ASME B&PVC, ^c Section II	ASME B&PVC, Section IX	ASME B&PVC, ^b Section III, Class 3; or API 650; or AWWA D-100 ^c
0-15 PSIG Tanks	ASME B&PVC, ^b Section III, Class 3; or API 620 ^c	ASME B&PVC, ^c Section II	ASME B&PVC, Section IX	ASME B&PVC, ^b Section III, Class 3; or API 620 ^c
Heat Exchangers	ASME B&PVC, Section VIII, Division 1; and TEMA ^d	ASME B&PVC, Section II	ASME B&PVC, Section IX	ASME B&PVC, Section VIII, Division 1
Piping and Valves	ANSI B31.1	ASTM; and ASME B&PVC, Section II	ASME B&PVC, Section IX	ANSI B31.1
Pumps	Manufacturers' Standards ^e	ASME B&PVC, Section II; or Manufacturers' Standards	ASME B&PVC, Section IX (as required)	ASME B&PVC, ^b Section III, Class 3; or Hydraulic Institute

^a Manufacturers' material certificate of compliance with material specifications may be provided in lieu of certified material test reports. Cast, wrought, or malleable iron shall not be used.

^b ASME Code stamp, material traceability, and the quality assurance criteria of Appendix B to 10 CFR Part 50 are not required. Therefore, these components are not classified as ASME Code Class 3.

^c Fiberglass-reinforced plastic tanks may be used in accordance with appropriate articles of Section X of the ASME Boiler and Pressure Vessel Code for applications at ambient temperature.

^d See Appendix A, item # 8.

^e Manufacturers' standard for the intended service. Hydrotesting should be 1.5 times the design pressure.

**American National Standard
for Mobile Radioactive Waste
Processing Systems**

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Foreword

(This foreword is not a part of American National Standard for Mobile Radioactive Waste Processing Systems, ANSI/ANS-40.37-1993, but is included for information purposes only.)

A key aspect for the further development of nuclear technology is the effective management of low-level wastes generated during the facility operation. Fundamental to the effective management of radioactive wastes is the design, construction, and operation of radioactive waste processing systems. Recently, there has been substantial interest in the use of mobile radioactive waste processing systems which can be transported from facility to facility. In the evaluation of these systems, there are several important factors which need to be considered. These include public health and safety, worker safety, economics, and the conservation of disposal site resources.

Radioactive waste processing systems must meet regulatory requirements for effluent releases and worker safety. Furthermore, waste forms produced by these systems need to meet the disposal site requirements to ensure that the burial facility performance objectives will be met. Economic considerations—involving equipment capital and operating costs, setup costs, transportation costs, and disposal charges—also play an important role in the choices of systems.

It is the purpose of this standard to establish those technical factors that affect the ultimate choice, design, and operation of the mobile radioactive waste processing system. It is the intent of this standard to identify a basis for establishing uniform practices and minimum requirements for the design, fabrication, and operation of mobile radioactive waste processing systems as applied to nuclear facility operations (power, institutions, laboratories, and disposal sites).

This standard addresses the technical practices and requirements necessary for radioactive waste processing operations while maintaining consideration for reducing radiation exposures to the environment and facility operating personnel.

The committee recommends that the use of additional mobile radioactive waste processing equipment, as described in this standard, be weighed against tight administrative controls to reduce waste volume generation and produce an acceptable product. Administrative procedures should be the first step in controlling the quantity of radioactive waste generated at a nuclear facility. The second step is the proper use of radioactive waste equipment to handle and process low-level radioactive wastes prior to disposal.

This standard was prepared by Working Group ANS-40.37 of the Standards Committee of the American Nuclear Society, whose membership at the time of the standard's approval was as follows:

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Mobile Low-Level Radioactive Waste Processing Systems

1. Scope

This standard sets forth design, fabrication, and performance recommendations and requirements for Mobile Low-Level Radioactive Waste Processing (MRWP) systems (including components) for nuclear facilities. The purpose of this standard is to provide guidance to ensure that the MRWP systems are designed, fabricated, installed, and operated in a manner commensurate with the need to protect the health and safety of the public and plant personnel.

For the purpose of this standard, a nuclear facility MRWP system begins at the interface with a permanent plant system, or waste collection area, or both; it terminates at the interface where processed waste, or secondary waste, or both, is either returned to the facility, or removed from the facility, or both.¹

This standard refers throughout to vendors, system users, facility operators, and owners; however, these references are not intended to assign specific responsibilities of these parties for compliance with the requirements of this standard. These references are for convenience and are based on typical responsibilities of these parties. It is recognized that the facility owner, or operating license holder, or both, is ultimately responsible for compliance with these requirements. The body of this standard identifies both requirements and recommendations/guidelines for systems.²

2. Definitions

2.1 Limitations. The definitions that follow are of a restrictive nature for the purpose of this standard.

¹ Standards concerning permanent systems for processing radioactive waste are identified in Appendix A and are specifically referenced in this standard where applicable.

² Appendix B provides guidelines that are intended to be helpful to users who are designing and evaluating MRWP systems, interfacing MRWP systems for application at a facility, and designing facilities to interface with MRWP systems.

2.2 Glossary of Terms

compactible solid waste. Solid waste that can be compressed by applying external pressure less than 1000 psi.

dry, combustible solid waste. Solid waste, including materials that may contain incidental amounts of drainable liquids, that can be easily oxidized by conventional incineration techniques.

dry, noncombustible solid waste. Solid waste that cannot be easily oxidized by conventional incineration techniques.

gaseous waste. The waste streams of noncondensable fluids that are radioactively contaminated with gases, condensable vapors, entrained liquids, or particles.

interface requirements. Requirements pertaining to all the connections facilitating all mass and energy flow to and from an MRWP system. Also included are health, safety, and chemistry support requirements.

liquid radioactive waste. Aqueous solutions and slurries containing radioactive materials that result from the operation of a nuclear facility.

low-level radioactive waste (LLW). Radioactive waste that is not classified as either high-level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material (uranium or thorium tailings and waste) as defined in Section 11e (2) of the Atomic Energy Act of 1954, as amended [1].³

mixed waste. Low-level radioactive waste that is co-contaminated with hazardous waste.

mobile low-level radioactive waste processing (MRWP) system. Any radioactive waste processing system or component which is designed to be transportable and which is not permanently installed.

³ Numbers in brackets refer to corresponding numbers in Section 14, References.