

### HANDLING, STORAGE, AND SHIPPING OF MATERIALS AND EQUIPMENT (PRE-LICENSING AND CONSTRUCTION)

PROGRAM APPLICABILITY: MC 2300

#### 78170-01 INSPECTION OBJECTIVES

01.01 To determine if adequate measures are established for the handling, storage, and shipping of material and equipment.

01.02 To determine if special protective environments, where required, have been established and are being maintained.

#### 78170-02 INSPECTION REQUIREMENTS

02.01 Handling, Storage, and Shipping Controls. Determine if adequate measures are established to control the handling, storage, shipping, cleaning, and preservation of material and equipment, to prevent damage or deterioration.

02.02 Special Equipment, Tools, and Environment. Determine if provisions are established for special equipment and handling tools. Determine if special protective environments (e.g., inert gas atmosphere, specific moisture-content levels, and temperature levels) have been specified and provided, as necessary, for particular products.

#### 78170-03 INSPECTION GUIDANCE

##### General Guidance

This inspection procedure applies to the implementation of the U. S. Department of Energy's (DOE's) quality assurance (QA) program during the design and construction of a geologic repository at Yucca Mountain. The DOE QA program is described in the QARD Manual, DOE/RW-0333P. This inspection procedure applies to SSCs important to safety; to design, characterization, and construction of barriers important to waste isolation; and to related activities described in the Safety Analysis Report.

Selection of areas for evaluation during inspections shall be based on the risk significance of the SSCs, related activities, and past performance. The scope of inspections should also consider the cumulative effect of failures related to low-risk-significant SSCs, regarding their potential effects on overall system performance and reliability.

### Specific Guidance

03.01 Handling, Storage, and Shipping Controls. Verify that procedures are established for the control of cleaning, special handling, storage, preservation, packaging and shipping of items, samples, materials, components and systems, in accordance with design and procurement requirements, work and inspection implementing documents, shipping instructions, or other specified documents, to preclude damage, loss, or deterioration from environmental conditions such as temperature or humidity. Verify that the procedures are being implemented by suitably trained personnel or as appropriate, qualified individuals, by reviewing training records of personnel responsible for these activities.

Verify that a process is in place to identify critical, sensitive, perishable, or high-value articles and that specific implementing documents have been developed, where required, for the handling, storage, cleaning, packaging, shipping, and preservation of the article.

Verify that provisions are established for the storage (including the control of shelf life) of chemicals, reagents, lubricants, and other consumable items.

Verify that measures are established to identify items requiring special marking and labeling and to ensure that the required marking and labeling are performed for the packaging, shipping, handling, and storage of items, as necessary, to adequately identify, maintain, and preserve the item. The marking and labeling shall indicate the presence of special environments or the need for special controls.

03.02 Special Equipment, Tools, and Environment. Verify that provisions are established for identifying requirements for special handling tools, for special equipment such as containers, accelerometers, and shock absorbers, and for special protective environments such as inert gas and specific moisture and temperature levels. Confirm that these special requirements are being implemented for selected items. Verify that provisions, such as procedural requirements, have been established to ensure the use of the special equipment and environments.

Verify that provisions are established for the use and control of special handling tools to ensure safe and adequate handling. This shall include provisions for inspecting and testing such tools and equipment at specified time intervals and in accordance with implementing documents, to verify that the tools and equipment are adequately maintained.

Verify that personnel who may be operating special handling or lifting equipment are experienced and trained to use the equipment.

78170-04 INSPECTION RESOURCES

An initial inspection of the handling, storage and shipping program may be conducted approximately 1 year before submittal of an application. This inspection will consist of one inspector on site for 1 week. Three weeks will be allocated for preparations for the inspection and documentation of the inspection. Four inspector-weeks will be allocated for implementation of the first inspection.

After the construction authorization is issued and construction starts, semiannual inspections of the program will be conducted by one inspector, for a total of 1 inspector-week per year.

Once construction is complete and the operating license is issued, an annual inspection will be conducted by one inspector for a total of 0.5 inspector-weeks per year.

#### 78170-05 REFERENCES

U.S Nuclear Regulatory Commission, NUREG-1804, "Yucca Mountain Review Plan," Draft Revision 2.

U.S Code of Federal Regulations, 10 CFR Part 63, "Disposal of High-Level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, Nevada."

U. S. Department of Energy, "Quality Assurance Requirements and Descriptions (QARD)," DOE/RW-0333P, Latest revision accepted by NRC.

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