



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

NOV 2 2006

Mr. Mark B. Hawk
Nuclear Science & Technology Division
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, TN 37831

Ref. No.: 06-0201

Dear Mr. Hawk:

This is in response to your letter concerning requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) for steel boxes and other types of radioactive material packagings used for the transport of low-level radioactive materials.

The requirements for steel boxes designed and fabricated to be used as IP-1, IP-2, or IP-3 and Type A packaging are contained in §§ 173.24, 173.24a, 173.410, 173.411 and 173.412, respectively. You ask several questions regarding these requirements. Your questions are paraphrased and answered as follows:

- Q1. What design elements of Class 7 (radioactive) packagings constitute a new or different design such that testing and engineering evaluations are required to prove conformance with the applicable design requirements of §§ 173.410, 173.411, and 173.412?
- A1. A package that differs from a previously qualified design type in structural design, size material of construction, wall thickness, or manner of construction is subject to engineering evaluations and testing in the same manner as the original packaging. A change in the package contents (i.e., activity amount, form of material, etc.) that differs from that previously qualified would also be subject to the same package content evaluations and testing as the original. Regarding demonstration of compliance, packages for radioactive materials must comply with the requirements in § 173.461.
- Q2. What vibration test should be used to ensure a package complies with the requirements in § 173.410(f)? Is there a different vibration standard for bulk and non-bulk packages?
- A2. Section 173.410(f) states that a package must be capable of withstanding the effects of acceleration, vibration, or vibration resonance that occur under normal



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173.410
173.461

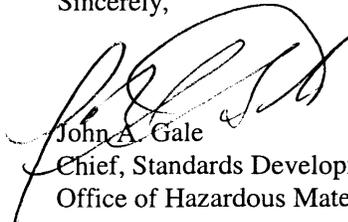
conditions of transportation without any reduction in the effectiveness of the package. The section does not prescribe a specific standard to which bulk or non-bulk packages must conform. It is the responsibility of the shipper to ensure that any package constructed in accordance with § 173.410 maintains its integrity under normal conditions of transportation and repeated use. In addition, all non-bulk packages are subject to the general packaging requirements in § 173.24a and in accordance with paragraph (a)(5) must be capable of withstanding, without rupture or leakage, the vibration test in § 178.608.

Q3. Section 173.410(f) refers to general package and packaging requirements contained in § 173.24 and general non-bulk and bulk package and packaging requirements in §§ 173.24a and 173.24b, respectively. Are the terms “bulk,” “non-bulk,” and “IBC” applicable to Class 7 packages and packagings? If these terms do apply, are all of the requirements throughout the HMR (i.e., marking) for each term applicable?

A3. The terms “bulk” and “non-bulk” are applicable to packagings used for the transportation of Class 7 materials. However, the packaging and hazard communication requirements specific to shipments of Class 7 materials supersede the packaging and hazard communication requirements that apply to other classes of hazardous materials. See, for example, the specific marking requirements for packages of Class 7 materials in § 172.310 and labeling requirements for packages of Class 7 materials in § 172.403.

I hope this information is helpful. Please contact us if you require additional assistance.

Sincerely,



John A. Gale
Chief, Standards Development
Office of Hazardous Materials Standards

OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Supko
§173.410
§173.461
Packagings
06-0201

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September 1, 2006

Edward T. Mazzullo, DHM-10
Director, Office of Hazardous Materials Standards
Pipeline and Hazardous Materials Safety Administrator
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590-001
Attention: DHM-10

Dear Mr. Mazzullo:

This letter is requesting clarifications associated with steel boxes and other types of radioactive material packagings that are commonly used to transport low-level radioactive materials for disposal. Throughout the United States, steel boxes of various volumes (45 cubic feet to over 120 cubic feet) are designed to contain payloads of approximately 10,000 pounds. These steel boxes are designed and fabricated to meet the requirements for industrial packagings (IP-1, IP-2, and IP-3) per §173.411, as well as the requirements for Type A packages per §173.412.

It is requested that clarifications to the questions below associated with these types of packagings be provided.

Question 1

What design elements of radioactive packagings constitute a new or different design such that testing and engineering evaluations are required to prove compliance to the applicable design requirements of §173.410, §173.411, and §173.412? Fabricators of these boxes are continually improving and changing various features and design elements but are uncertain as to whether these improvements/changes constitute new designs.

Question 2

For new or different designs of radioactive packagings that do not have any historical data that proves the designs are capable of withstanding the effects of acceleration and vibration per §173.410(f), what vibration standard/test should be used to prove compliance? It is noted that §173.410 (f) references §173.24, §173.24a, and §173.24b. Of these three sections only §173.24a for non-bulk packagings identifies a vibration standard – §178.608. Does the Hazardous Material Regulations (HMR) only require a vibration test for non-bulk packagings? If not, what regulatory requirements for a vibration standard/test should be used to prove compliance for bulk packagings?

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Question 3

Since §173.410(f) refers to non-bulk and bulk requirements found in §173.24, 24a, and 24b, respectively, should it be assumed by users of the HMR that the terms “non-bulk” and “bulk” are applicable to radioactive packagings? Is the term “intermediate bulk container” applicable to radioactive packagings? If these terms are applicable and a radioactive packaging meets the definitions of “non-bulk”, “bulk”, or “intermediate bulk container”, do all of the requirements throughout the HMR (i.e., marking requirements) for each term have to be met?

Your clarification of these issues would be appreciated!

Sincerely,



Mark B. Hawk
Oak Ridge National Laboratory

cc: M. B. Hawk