



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

OCT 12 2010

Mr. Stephen O'Connor
Director, Office of Packaging and Transportation,
and Office of Environmental Management
1000 Independence Avenue, SW
U.S. Department of Energy
Washington, DC 20595

Reference No. 10-0202

Dear Mr. O'Connor:

Thank you for your September 15, 2010 letter concerning a final rule we issued under Docket No. PHMSA-06-25736 (HM-231; 2/2/2010) entitled "Hazardous Materials; Miscellaneous Packaging Amendments" that became effective on October 1, 2010. The rule revises the definition for a bulk packaging under § 171.8 of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) by removing the phrase "no intermediate form of containment." You asked us to restore this phrase, stating its removal will adversely impact the transportation of radioactive material and radioactive waste packaging by causing them to be considered bulk packagings that require additional hazard communication.

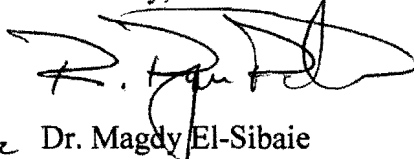
You also asked that PHMSA consider adverse impacts that may occur as the result of future regulatory changes to the bulk packaging definition and other matters affecting the safe transportation of radioactive materials in a proposed future rulemaking to harmonize the HMR's transport requirements for radioactive materials with the requirements in the 2005 edition of the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material (IAEA Regulations). In addition, you ask that PHMSA include the DOE in a timely manner in the interagency review process for all future rulemakings involving DOE activities.

On September 30, 2010, we published a final rule in the Federal Register under this docket that makes several editorial corrections and responds to one petition for reconsideration and four appeals we received in response to the February 2 final rule. The petitioner and two appellants requested that we restore the phrase "no intermediate form of containment" to the bulk packaging definition prescribed in § 171.8. In response to the petition and in agreement with your request, we reinstated this phrase in the September 30 final rule, effective as of October 1, 2010.

Regarding your request for DOT involvement in PHMSA rulemaking process, PHMSA attempts to obtain information from various sources, including on occasion entities that may be subject to and affected by the HMR. On a case by case basis, we will consider your

request to provide information in a future regulatory rulemaking action. Please note we received and considered your agency's comments, available at the "www.regulations.gov" website under Document Identification Number PHMSA-2006-25736-0015, in the development of the notice of proposed rulemaking issued under this docket.

Sincerely,

A handwritten signature in black ink, appearing to read "Dr. Magdy El-Sibaie", written over a horizontal line.

for Dr. Magdy El-Sibaie
Associate Administrator Office of Hazardous
Materials Safety



Department of Energy
Washington, DC 20585

September 15, 2010

Edmonson
§ 171.8, 173.427
Definition of Bulk
Packaging
10-0202

Mr. Magdy El-Sibaie, PhD
Associate Administrator for Hazardous Material Safety
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
East Building Second Floor (PH)
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590-0001

Dear Mr. El-Sibaie:

The United States Department of Energy (DOE) Office of Environmental Management's Office of Packaging and Transportation is submitting this Interagency Memorandum to request urgent reconsideration of implementation of Final Rule HM-231 as it relates to the new definition of bulk packaging with regard to packages containing radioactive materials in commercial transport.

We have determined that the definition of "bulk packaging" in 49 CFR 171 is significantly different than the definition proposed in the Notice of Proposed Rulemaking (NPRM) issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA) on September 1, 2006. The published change in defining criteria for bulk packaging would create an adverse impact on the transportation of radioactive material and radioactive waste as is supported by the attached analysis. We note that the International Vessel Operators Dangerous Goods Association and the Dangerous Goods Advisory Council have submitted petitions and appeals for reconsideration describing similar concerns regarding the new definition of "bulk packaging."

DOE ships hazardous materials including radioactive material and waste in support of its research and development, environmental cleanup, and national defense activities. During the last two fiscal years, DOE has transported 15,300 shipments of radioactive material and waste. During the first half of FY 2010, we have completed 8,000 shipments; this is a significant increase over the past 2 years. DOE follows or exceeds International and Federal requirements such as those of the International Atomic Energy Agency (IAEA) and the Department of Transportation (DOT) that apply to comparable commercial shipments. The published change in the bulk packaging definition would require additional unnecessary hazard communication, thus adding to confusion and ambiguity for certain packages containing radioactive material and radioactive waste.



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Dissemination

DOE requests PHMSA to consider the potential adverse impact of the published change in the criteria for bulk packaging as it relates to the transportation of radioactive materials and delay the effective implementation date currently scheduled for October 1, 2010. We also ask PHMSA to consider this issue during the forthcoming proposed rulemaking to harmonize DOT radioactive material transport requirements with the IAEA Regulations for Safe Transport of Radioactive Material (TS-R-1) 2005 edition. In the future, we would like to have an opportunity to provide comments to you in a timely manner through the interagency review process for rules that impact DOE activities.

If you need additional information, please contact me at (301) 903-7848, or Mr. Ashok Kapoor of my staff at (202) 586-8307, (e-mail: ashok.kapoor@hq.doe.gov).

Sincerely,


for

Stephen O' Connor

Director

Office of Packaging and Transportation

Office of Environmental Management

Attachment

cc: R. Boyle, DOT/PHMSA
C. Betts, DOT/PHMSA
N. Eisner, DOT/GC
F. Marcinowski, EM-40
A. Kapoor, EM-45

Attachment

**Analysis of Change in Bulk Packaging Definition Criteria on
Radioactive Material and Waste Transportation**

The United States Department of Energy (DOE) Office of Environmental Management's Office of Packaging and Transportation is requesting urgent reconsideration of implementation of Final Rule HM-231, as it relates to the new definition of bulk packaging with regard to packages containing radioactive materials in commercial transport.

Background

On September 1, 2006, a Notice of Proposed Rulemaking (NPRM), Docket number PHMSA-06-25736 (HM-231) was published. DOE submitted comments on the NPRM to DOT, PHMSA-06-25736-15. DOE strongly opposed the new definition of bulk packaging. The Pipeline and Hazardous Materials Safety Administration (PHMSA) published the final rulemaking on February 2, 2010. PHMSA acknowledged the strong opposition from DOE and other commenters to the proposed definitions for "bulk packaging" and "non-bulk packaging" and decided not to adopt the proposed definitions in the final rule.

However, significant words "with no intermediate form of containment" were omitted from the definition for bulk packaging in 49 CFR 171.8 by PHMSA without providing any opportunity for comments.

We also believe that rulemaking HM-231 is inconsistent with international standards in that the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material (referred to as TS-R-1) do not define radioactive material packaging in terms of "bulk" and "non-bulk". By delineating these terms, inconsistencies arise when trying to apply international standards without providing any added safety benefits.¹ In addition to the conflict between Department of Transportation (DOT) and IAEA regulations, DOT has also issued an interpretation (reference number: 01-0153) in which it is stated that DOT views radioactive material packaging as "non-bulk".

Impact Analysis

DOE ships hazardous materials including radioactive material, and waste in support of its research and development, environmental cleanup and national defense activities. During the last two fiscal years, DOE has transported 15,300

¹ We note that the International Vessel Operators Dangerous Goods Association and the Dangerous Goods Advisory Council have submitted petitions and appeals for reconsideration describing similar concerns regarding the new definition of "bulk packaging."

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shipments of radioactive material, transuranic waste, and other types of radioactive waste. It is DOE's policy to follow or exceed International and Federal requirements such as those of the IAEA and DOT that apply to comparable commercial shipments. Therefore, DOE operations pertaining to certain shipments will be significantly affected by the new definition. Several examples of the effects are:

1. Special provisions in the Hazardous Material Table have not been included for radioactive material packages for volumetric considerations. For example, venting on bulk packaging to reduce internal pressure is not allowed unless specifically authorized by a special provision for a particular hazardous material or referenced by the applicable bulk packaging specification in Part 178. Many existing designs of radioactive material packaging incorporate venting. In fact, the definition of radioactive material packaging in section 173.403 includes that packaging may include venting and pressure relief devices. A common packaging utilized by DOE facilities which incorporates vents is the Type A box. These boxes generally have a volume of approximately ninety cubic feet and will fall under the new definition of bulk. Most Type A boxes used for this type of material have nuclear filters as part of the design.
2. When the words ".....with no intermediate form of containment," were deleted from the rule, the status of certain radioactive material waste shipments was changed. For example, the high activity Type B packagings in use by the DOE for transporting radioactive transuranic mixed waste to the Waste Isolation Pilot Plant (WIPP), the TRUPACT-II, HalfPACT, and RH-TRU 72B cask became bulk packages. These packagings are doubly contained. Previously these packages were considered non-bulk and marking, labeling, and placarding was done according to applicable DOT regulations. The TRUPACT-II is 6009 liters (1,587.41 gallons), the HalfPACT 3,972 liters (1,049.29 gallons), and the RH-TRU 72 B 1,460 liters (385.69 gallons). Now classified as bulk, this requires a major change in marking, labeling, and placarding of these packages for shipment. The DOE estimates about 1200 shipments in FY 2011 using the TRUPACT-II's and HalfPACTs. The new rule will require 12 additional markings per shipment for a total of 14,400 additional labels in FY 2011. The labels will require about 30 minutes per shipment to install and about 1 hour to remove because to ship empty requires removal of the package marking. At least 4 of the labels on each shipment will not be normally visible. The total cost of this change to the TRU waste shipping program is expected to be about \$300,000 per year without any additional safety benefit. The bulk of the cost is due to the repair of damage to the protective coatings on the packagings caused by taking labels off. The TRU waste campaign will be completed in 2030. We expect similar cost impacts on certain other shipments of Type B packages.

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3. Communication requirements are further confused with this definition change. Another example is the shipment of the low activity radioactive waste in certain Type A or Industrial Packaging when the new bulk definition is applied. Placarding is only required for Radioactive Yellow III packages and those shipped in accordance with § 173.427 (b) (4) and (5) [and (c)]. Two recent interpretations, Reference numbers 09-0231 and 10-001 highlighted this confusion. The interpretations indicate that for “bulk” radioactive material packages shipped in accordance with § 173.427 (b) (4) or (5) a placard is required for both the package and the transport vehicle. Packaging once considered non-bulk is now considered bulk with the new definition. The preface of § 172.504 (a) specifies that a placard is required in accordance to Table 1 for “...bulk packaging...”. In addition, § 173.427 (a) (6) (v) requires the transport vehicle to be placarded in accordance with subpart F of part 172. The additional placarding requirement has caused considerable repetition for placarding for these types of shipments. For example: using the current loading configuration of 90 cubic foot metal boxes, which would meet the proposed definition of bulk, sixteen can be loaded on a 53’ flat bed truck. If all are shipped in accordance with § 173.427 (b) (4), one of the most utilized paragraphs for this type of shipment, the shipment would have 36 placards. The addition of placarding requirements on the package is an added cost in regard to personnel time and material costs with no additional safety or communication benefit.

In general, DOE has treated radioactive material packages as non-bulk in accordance with the aforementioned interpretation and the DOT definition of “intermediate packaging”. The DOT regulations for marking, labeling, and placarding all have specific sections to address the unique nature of radioactive materials. International regulations for marking and labeling are consistent with DOT “non-bulk” requirements. For example, international standards require that the proper shipping name and identification number preceded by the letters “UN” be marked on radioactive material packages. However, under DOT bulk marking requirements, these are not required. Thus, imposing bulk requirements on radioactive material packages creates inconsistency with international standards.

The flow-down of IAEA requirements into the U.S. domestic and international regulations is well recognized. According to the Regulatory Agenda, PHMSA and the Nuclear Regulatory Commission (NRC) plan to issue a Notice of Proposed Rulemaking to harmonize DOT radioactive material transport requirements with the 2005 edition of IAEA Regulations for Safety Transport of Radioactive Material (TS-R-1) sometime this year. Therefore, we recommend that PHMSA consider this issue in that proposed rulemaking.

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Conclusions

Changing the definition of bulk packaging will have consequences that DOT has yet to consider in totality relating to all types of hazardous materials. We urgently request DOT fully consider all consequences and inconsistencies that changing this definition will create prior to implementation of the bulk packaging definition to certain radioactive material packages. We also request a delay in implementation of the bulk packaging definition for radioactive material packaging and ask PHMSA to consider this issue during the forthcoming proposed rulemaking to harmonize domestic regulations with the IAEA Regulations for Safe Transport of Radioactive Material (TS-R-1) 2005 edition.

431625



Department of Energy
Washington, DC 20585

Docket Management System
U.S. Department of Transportation
400 Seventh Street, S.W., Room PL 402
Washington, D.C. 20590-0001

PHMSA-06-25736 (HM-231)-15

To Whom It May Concern:

The purpose of this letter is to provide comments on the September 1, 2006, notice of proposed rulemaking (NPRM), "*Hazardous Material; Miscellaneous Packaging Amendments*," Docket Number PHMSA-06-25736 (HM-231). This NPRM proposes to make miscellaneous amendments including those intended to clarify certain regulatory requirements specific to bulk and non-bulk packaging. We will provide you the following comments related to your proposed changes to bulk or non-bulk packaging, hazard communication and shipper's responsibility with regard to documentation requirements:

I. Proposed revisions/clarifications to definitions of bulk or non-bulk packaging

The Department of Energy (DOE) is concerned about the adverse impact of the following proposed revisions/clarification to the definition of bulk and non-bulk packaging for Hazardous Class 7, radioactive material. The proposed changes do not clarify current requirements associated with bulk or non-bulk packaging (e.g., *steel boxes*) used in the transportation of radioactive material and radioactive waste but further add confusion and ambiguity.

The NPRM proposes the following definitions for radioactive material (RAM) packaging:

Bulk packaging means:

(3) Any Industrial Packaging, Type A, Type B, Intermediate Bulk Container, Large Packaging, or non-specification packaging that has a volumetric capacity of greater than 450 L (119 gallons).

Non-bulk packaging means:

(3) Any Industrial Packaging, Type A, Type B, Intermediate Bulk Container, Large Packaging, or non-specification packaging that has a volumetric capacity of 450 liters (119 gallons) or less.

DOE is opposed to classifying Hazard Class 7 radioactive material and radioactive waste packages in a bulk or non-bulk category based on internal volumetric capacity because it is meaningless and doesn't reduce any risk to workers, emergency responders, the public and environment. For example: The



stainless steel Californium shipping packaging is of spherical shape consisting of two, ½-inch thick, 66-inch diameter hemispherical heads joined by a 6-inch cylindrical section, that has internal cylindrical containment volume capacity of 0.025 cubic feet (liters) to hold a maximum of 85 milligrams of radioactive content consisting of Californium-252. The outer containment shell volume of the packaging is 87.0 cubic feet. Based on proposed definition in the NPRM, this package could be classified as bulk or non-bulk, depending upon how “volumetric capacity” is interpreted. However, regardless of bulk or non-bulk classification, the package is a Type B package designed and tested to the performance based requirements commensurate with the risk imposed by the amount of Californium activity authorized in the package. Therefore, bulk or non-bulk packaging classification for Type A and Type B packaging is deceptive for the Class 7 material.

Another example: The TRUPACT II, a Type B stainless steel shipping container overpack that allows for up to (14) 55-gallon drums of transuranic waste to be shipped. The package is a right outside circular cylinder with outside dimensions of approximately 94 inches in diameter and 122 inches in height. Within the outer cylinder, there is an inner cylinder with a volumetric capacity of approximately 1,725 gallons or 230 cubic feet. Based upon more than a single inner drum, this will be a bulk packaging. As such, it will lose a significant amount of hazard communication under the proposed classification for these highly visible shipments of transuranic waste.

Moreover, the proposed volumetric capacity based packaging classification also contradicts the Department of Transportation (DOT)’s current efforts to harmonize domestic regulations with the International Atomic Energy Agency (IAEA) “*Regulations for the Safe Transport of Radioactive Material (TS-R-1)*.” Presently, during transport, the RAM packaging (*Industrial Packaging, Type A, and Type B*) provide the primary protection based on a graded approach that has been applied in the DOT and IAEA’s regulations to ensure the required level of package performance (*through design, testing, multiple layers of material confinement, marking, labeling, etc.*) that are commensurate with the potential hazard presented by the contents of the package. The placement of these packages in a bulk or non-bulk category is inconsistent with international regulations and particularly not meaningful for RAM because of the added confusion in packaging testing and marking requirements. Some instances of particular concern are the following:

Radioactive Materials

- Because the intermediate containment statement has been removed from the proposed bulk packaging definition, these packagings would require fewer hazardous communication information markings including reportable quantity indication, proper shipping name and shipper’s name and address.

- Under 173.24(g), venting on bulk packaging is allowed if authorized by a special provision. There are no special provisions which allow radioactive material packaging to be vented. Many packagings exist for radioactive material that are vented and are, in fact, required for some packaging per the design, testing and certification but this would not be listed in a Special Provisions.
- For low-specific activity (LSA) material, 173.427 (b) (4) specifies that the packaging conform to 173.24(a) (non-bulk). Most LSA packaging will be bulk by the new definition. This is a contradiction in the regulations and would need to be resolved.
- Which design elements constitute a new or different design for radioactive packagings (e.g., Industrial, Type A, and Type B packagings) such that testing and engineering evaluations will be required to prove compliance? For UN packagings, “*A Different Packaging*” is clearly defined in 178.601(c)(4), but no similar guidance is provided for radioactive packagings.
- Without performing an engineering evaluation and in order to physically prove compliance to 173.410 (f) for a new or different design of a bulk radioactive packaging, what are the testing criteria that should be used? There is no stated reference for bulk packagings to a vibration standard/test in 173.24b as exist for non-bulk packagings in 173.24a(a)(5).
- There are some restrictions placed on non-bulk/bulk packaging which are not compatible with radioactive material (*i.e. filling limits on non-bulk packaging for liquids refers to the specific gravity within the UN marking*). For example, in accordance with 173.24a (b)(1) an authorized Type A, non-bulk packaging that does not have UN markings would have limits for specific gravity of 1.2. Another example would be for an authorized Type A packaging with a tested gross weight of 120 pounds that is also UN-marked for 90 pound could only be loaded to 90 pounds per 173.24a (b)(2). (*This also appears in the bulk section, but references the specification plate which Type A packagings do not have*).

Non Radioactive Hazardous Material

The following concerns are related to non radioactive hazardous materials:

- Limitations on certain specification packaging volume will impact some packaging already in existence at DOE sites. This packaging will have to undergo additional requirements if determined to be a “Large Packaging”.
 - Manufacturers may also be confused when a limit (119 gallons) is placed on steel boxes which are UN specification packaging.
-

- Large packagings are indicated for PG III material unless specifically authorized for PG II or III. When will they be authorized?
- Bulk packaging stacking only allowed when tested and designated. However, there is not a marking requirement except for "Large packaging" which shows the stack strength. How will this be communicated to transporters?

II. Hazard Communication

There would be less hazard communication for the majority of high-level waste, low-level waste and spent fuel shipments under the proposed rule. For example, in case of TRUPACT II as a bulk shipping package under the proposed definition, the package would lose some present hazard communication requirements such as: marking of reportable quantity, proper shipping name, and shipper's name and address. This may result in not only confusion, but extensive re-training of workers and first emergency responders. This change will be very costly, and with arguably less safe than what is currently provided by present regulations.

DOE supports marking, labeling and placarding requirements for radioactive material packages; therefore requirements should be consistent with the IAEA's regulations (TS-R-1). The following is our specific concern with the proposed new requirement for drum marking:

Drum Marking

Presently, for drums with a gross mass of more than 30 kg (66 pounds), the markings or duplicate thereof, must appear on the top or on a side of the drum. In this NPRM, the DOT proposes to allow a lesser design standard (e.g., PG II) on the side or top marking than that which is required on the bottom (PG I) of the drum. The bottom marking must be of a permanent type.

This proposed change creates confusion, reduces safety and increases cost. If the packaging is loaded with hazardous material that required a container meeting PG I and that marking is only at the bottom, then based on the side/top view of lesser standard marking, any handler or inspector would believe the hazard material is improperly packaged and could result in additional handling of the package. An inspection of the bottom of the packaging would require additional handling of the package and increase in cost. This would also expose the inspector and material handler(s) to additional occupation hazards.

The present drum marking requirements are much safer and make more sense than the proposed changes in the NPRM.

III. Shipper's Responsibility-Documents Retention Requirements

This NRPM proposes to revise the shipper's responsibilities in Sec. 173.22(a)(4) to include the requirement to maintain a copy of the manufacturer notification, closure instructions, and supporting documentation for variations in selective testing of combination packaging for 375 days after offering the package for transportation.

In general DOE supports this additional shipper requirement to ensure that the necessary document retention closure instructions and supporting test documents are available and used. The NPRM is appropriate when shipping certain packages, e.g. non-bulk boxes or drums. However, the proposed rulemaking requires clarification. For example how does the DOT intend for this rulemaking to apply to gas cylinders, cargo tanks, or portable tanks?

Variation Documentation Requirements

In the preamble, a documentation requirement for variation packaging showing equivalence is discussed. The requirement in the preamble appears to only apply to variation 1. However, with the 173.22 (a) (4) changes, it appears that all variation packaging will have to show equivalence by a documented method. How detailed will the shipper documentation need to be (*i.e., will inner container sizes need to be described, a 1/2 liter bottle instead of a 1 liter bottle even though the box clearly indicates a variation packaging*)? We suggest DOT simplify variation document requirements to keep document retention costs at a minimum.

If you have any questions, please contact me at (202) 586-8548 or Ashok Kapoor of my office at (202) 586-8307.

Sincerely,



Dennis Ashworth
Director for Office of Transportation
Environmental Management

cc:
Dae Chung
Ashok Kapoor