



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

MAY 06 2008

Mr. Philip C. Rieke
Owner
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1200 New Jersey Avenue, SE
Washington, D.C. 20590

Ref. No.: 06-0274

Dear Mr. Rieke:

This is in response to your December 5, 2006 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to Class 7 (radioactive) materials. Your questions are paraphrased and answered below:

- Q1. If a non-hazardous solid object has a contamination level equal to or greater than the definition of "contamination" in § 173.403, but the total activity in the package is below the consignment limit in § 173.436, may the package be shipped as a non-regulated material?
- A1. The answer is yes. A solid object which is not radioactive that has contamination on its surface is not a "surface contaminated object (SCO)" unless it meets the definition of SCO in §173.403. In accordance with § 173.403, an SCO is defined as a solid object which is not itself radioactive but which has radioactive material distributed on its surface. Therefore, if the total consignment activity does not exceed the value specified in the table in § 173.436 or the value derived according to the instructions in § 173.433, it would not be regulated as a Class 7 (radioactive) material in transport. (The concept of (volume) activity concentration is not applicable to a surface distribution of radionuclides.)
- Q2. Would a packaging that previously had a radioactive contamination level equal to or greater than the definition of "contamination" in § 173.403, but did not meet the definition of a "Class 7 (radioactive) material," be regulated if it were used, without being decontaminated, to package a radioactive mixture (e.g., soil matrix) which does not meet the § 173.403 definition of a "radioactive material?"
- A2. If the activity concentration of the mixture is not greater than its exempt activity concentration, then the package would not be regulated as a Class 7 (radioactive) material, since the only activity concentration that can be compared to the exempt activity concentration is that of the mixture. The concept of (volume) activity concentration is not applicable to the surface distribution of radionuclides on the packaging.

If the activity concentration is greater than the exempt activity concentration but the total activity of the mixture is not greater than the exempt consignment activity, the total activity of the surface distribution of radionuclides on the packaging must be added to the total activity of the mixture. If the sum of these activities is greater than the exempt consignment limit, the package would be regulated as a Class 7 (radioactive) material. If the sum of these activities is less than the exempt consignment limit, and the package is the only package in the consignment, it would not be regulated as a Class 7 (radioactive) material. Finally, if the package and contents meet the definition of a Class 7 (radioactive) material, any contamination on the external surfaces of the package must satisfy as applicable, the requirements of § 173.443(a) or § 173.443(b) during transport.

Please note that the above response is based on an assumption that the radioactive contamination on the packaging has not been removed or otherwise altered before the radioactive mixture is placed in the packaging.

- Q3. Is it acceptable to transport a hazardous material in a package more stringent than required (e.g., placing a Packing group III material in a specification packaging rated for Packing group I materials; shipping limited quantity radioactive materials in a Type A packaging; or shipping Type A quantities in Type B packagings)?
- A3. The answer is yes. It is acceptable to package and transport a hazardous material in a more stringent package than required (e.g., a Packing Group I packaging may be used for a Packing Group II or III material and a Type B packaging may be used for a Type A quantity of material provided all of the performance criteria of the packaging can be met). Section 173.24a contains general requirements for packaging material in containers rated for higher hazard materials.
- Q4. If the answer to Q3 is yes, would shippers of Class 7 (radioactive) materials be required to change any specification package markings when using a packaging that is rated higher than that required for the material?
- A4. The answer is no, provided the basic description is consistent with the specification markings of the higher rated packaging. Alternatively, if a shipper chooses to use the basic description based on the actual contents, the packaging markings should be changed for consistency.

Q5. When shipping Class 7 (radioactive) materials, does the proper shipping name have to match up with the packaging or the contents?

A5. See A4.

I hope this information is helpful. If you have further questions, please do not hesitate to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles E. Betts". The signature is written in a cursive style with a large, prominent "C" and "B".

Charles E. Betts
Senior Transportation Regulations Specialist
Office of Hazardous Materials, Standards

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December 5, 2006

Mr. Edward T. Mazzullo, Director
Office of Hazardous Materials Standards
PHH-10
400 7th Street SW
Washington, DC 20590-0001

Dear Mr. Mazzullo,

I have a few questions to pose concerning the shipment of Class 7 (radioactive) materials. These questions have been raised with some regularity by some of my customers and while the current edition of 49 CFR, Parts 172 and 173 provide direction, these questions and some verbal guidance that has been received, leave some shippers a bit uneasy.

The first question was nearly addressed in a letter of interpretation (Reference No. 06-0002) concerning the definition of contamination in 173.403. It seems clear in that letter that material that exceeds the contamination thresholds in the definition must be regulated as Class 7. However this question pertains to the application of the definition of *radioactive material* in conjunction with the definition of *contamination* and the fact that there is no direction currently in the regulations as to when and how to apply one versus the other or one in conjunction with the other.

For example, a package contains non-radioactive objects with actual radioactive contamination equal to or greater than the definition of "contamination" as defined in 49CFR 173.403. The total activity in the package is below the consignment limits of 173.436. Assuming this package is the only package in the consignment, **may this package be shipped as non-regulated material, consistent with the definition of radioactive material?**

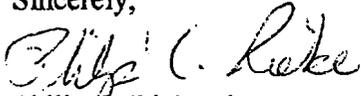
The second question is also related to the topic, but not answered in the previously referenced letter. An empty packaging is shipped back to the original shipper and it was found to be a surface contaminated object and regulated in transportation due to exceeding the definition of contamination. Then the original shipper reuses that packaging to ship a matrix that is not a surface contaminated object, but instead something that contains radioactive material (say a soil matrix), but does not exceed the limits according to the definition of radioactive material. **Would the package/shipment still be regulated as Class 7 in this case?**

Lastly, it is a common practice not only with Class 7 shippers, but hazardous material shippers of all types to over package their materials. For instance, shipping Acetone in a package rated to Packing Group I rather than Packing Group II and in the world of Class 7, shipping limited quantities in Type A packaging and also Type A quantities in Type B packagings. My understanding is that there is nothing wrong with over-packaging a material in transportation. If that is correct, **would it be required for Class 7 shippers to alter any package markings when over packaging?** When asking this question, it may actually require an answer to another question, that being **when shipping Class 7 materials, does the proper shipping name have to match up with the packaging?**

There has been some verbal guidance that if a shipper were to ship a limited quantity of Class 7 material in a Type A package, that the shipper should either delete or cover the Type A package markings or change the proper shipping name to match the package. This has also been the guidance when shipping a Type A quantity in a Type B package. This is a bit confusing and a contradiction to any other hazardous material. The confusion begins with what is a proper shipping name for? Is it to describe the packaging or to describe the contents within the package? If it is the latter, as with all other hazardous materials, why would anyone need to cover or delete any markings on the package? A Type A package is certainly an authorized package for a limited quantity just as a Packing Group I package is an authorized package for a Packing Group II material. Likewise a Type B packaging is an authorized packaging for a Type A quantity of material and is specifically authorized in 173.415.

I really appreciate your attention to these questions. As shipments involving these questions are ongoing, prompt attention to these questions would also be greatly appreciate.

Sincerely,



Philip C. Rieke, Owner

HMTC Training & Consulting