



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

December 8, 2021

Mr. Larry Lucas  
National Institute of Standards and Technology  
Radiation Physics Division  
100 Bureau Drive, Stop 8462  
Gaithersburg, MD 20899

Reference No. 21-0087

Dear Mr. Lucas:

This letter is in response to your August 24, 2021, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to shipping paper requirements for radioactive materials. In your letter, you note that the “Symbol of radionuclide” column of the § 173.435 Table of  $A_1$  and  $A_2$  values of radionuclides sometimes includes additional information in parenthesis. As an example of this additional information, you cite “U-232 (slow lung absorption).” Specifically, you ask whether the additional information in parenthesis is required to be included on a shipping paper in accordance with § 172.203(d).

The answer is no. As required by § 172.203(d)(1), the description for a shipment of a Class 7 (radioactive) material must include the name of each radionuclide in the Class 7 (radioactive) material that is listed in § 173.435. Based on the example you provided in your letter, it is the opinion of this Office that the additional information in the parenthesis (i.e., slow lung absorption) is not considered part of the radionuclide name (i.e., Uranium or  $^{232}\text{U}$ ) and therefore, is not required to be indicated on the shipping paper.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Chief, Regulatory Review and Reinvention Branch  
Standards and Rulemaking Division

Wollcott

**From:** [INFOCNTR \(PHMSA\)](#)  
**To:** [Dodd, Alice \(PHMSA\)](#); [Hazmat Interps](#)  
**Subject:** FW: Request for a Letter of Interpretation  
**Date:** Wednesday, August 25, 2021 3:53:16 PM  
**Attachments:** [DOT LOI request.docx](#)

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21-0087

Good afternoon Alice,

Please see the attached request for a letter of interpretation. The requestor's contact information can be found in his request.

Please contact our office with any questions.

Thank you,

Sarah (HMIC)

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**From:** Lucas, Larry L. Dr. (Fed) <larry.lucas@nist.gov>  
**Sent:** Tuesday, August 24, 2021 9:51 PM  
**To:** INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>  
**Subject:** Request for a Letter of Interpretation

**CAUTION:** This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

24 August 2021

Hi. Please see the attachment.

Thank you,

Larry Lucas  
National Institute of Standards and Technology  
Radiation Physics Division  
100 Bureau Drive, Stop 8462  
Gaithersburg, MD 20899-8462

24 August 2021

My name is Larry Lucas. Part of my job is to assist with the shipment of Radioactive Materials. In doing that job, an ambiguity in the DOT requirements for the shipping paperwork has come up. I request a Letter of Interpretation to clarify the requirements.

One of the entries required on the shipping paperwork for Radioactive Material is given in 172.203:

49 CFR 172.203 Additional description requirements.

(d) *Radioactive material*. The description for a shipment of a Class 7 (radioactive) material must include the following additional entries as appropriate:

- (1) The name of each radionuclide in the Class 7 (radioactive) material that is listed in 173.435 of this subchapter. For . . . . .

The 'Symbol of radionuclide' as shown in Table 173.435 sometimes has additional information included in parentheses. For example, there are three entries given for U-232.

U-232 (fast lung absorption)

U-232 (medium lung absorption)

U-232 (slow lung absorption)

Is the additional information included in parentheses a part of 'the name of each radionuclide'?

It would appear that it is intended to be, since each of the entries has a different  $A_2$  value.

If so, then there are three different 'Symbol of radionuclide' for U-232, depending upon the lung absorption.

The question came up because of a shipment of U-232 that was rejected by a new inspector. The discussion raised the question of what the DOT intention is. One argument is that the additional information is essential to the proper determination of the hazard of the radioactive material, as evidenced by the fact that each entry has a different  $A_2$  value. Thus, the additional information is a part of the 'name of the radionuclide' and must be shown as such on the shipping paperwork. (But presumably is not required on the Class 7 label.) Others argue that they have been shipping uranium for years without the additional information in parentheses and the issue has never come up. (But, of course, there is always a first time.)

My perspective is that the additional information is intended to be a part of the 'name of each radionuclide'. If so, I request that there be a statement of some sort with Table 173.435 that says the additional information in parentheses is part of the 'name of each radionuclide' and is to be shown on the shipping paperwork as such.

Best regards,,

Larry Lucas  
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Radiation Physics Division  
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Gaithersburg, MD 20899-8462  
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