



U.S. Department  
of Transportation

1200 New Jersey Avenue SE  
Washington, DC 20590

**Pipeline and Hazardous  
Materials Safety  
Administration**

JUN 17 2015

Celia Rajkovich, RRPT  
Radiation Health Physicist  
Bureau of Radiation Protection  
Southwest Regional Office  
400 Waterfront Drive  
Pittsburgh, PA 15222

Ref. No. 14-0242

Dear Ms. Rajkovich:

This responds to your December 17, 2014 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask for interpretation on completing a shipping paper when transporting a Radioactive Yellow-III labeled package placed inside a Yellow-II labeled rigid overpack.

At the request of a member of my staff, you provided the following additional information about the Yellow-III labeled package: it contains a radiography camera with 150 Curies of solid metal Ir-192, UN 2916 special form. You also indicate the camera is in its own package, Type B(U), which weighs 50 pounds. The radiation level on the camera is 55 mrem/hr with a transport index (TI) of 2. Finally, the package is packed in a rigid overpack (ammo box) at the Yellow-II level (i.e., equal to or less than 50 mrem/hr and a transport index (TI) not more than 1).

For a Class 7 radioactive material, § 172.202(a) of the HMR requires the description of the hazardous material on the shipping paper to include the UN identification number, the proper shipping name, the hazard class, the total quantity by activity of material covered by the description, and the number and type of packages. Note that because the package type is part of the proper shipping name it need not be repeated but only the number included (i.e., one).

Section 172.203(c) requires additional information for hazardous substances. Specifically, for a radionuclide that is a hazardous substance based on exceeding the reportable quantity listed in Table 2 to Appendix A of § 172.102, the letters "RQ" must be included before or after the basic description. It is our understanding that 150 Curies exceeds the reportable quantity for Ir-192, thus, the shipping paper must include the letters "RQ."

Section 172.203(d) requires additional radioactive material information to be included on the shipping paper depending on the circumstances of the shipment. Based on our understanding of your situation, § 172.203(d) requires the name of the radionuclide, the activity in SI units (and may include customary units in parentheses) contained in the package, the category label, and the TI assigned to the package to be included on the shipping paper. However, we recommend that you review § 172.203(d)(1)-(10) to ensure all required information is included. For instance, for an export shipment you may be subject to a notation of the International Atomic Energy Agency package identification marking. Note also that § 172.202(a)(5) requires the total quantity by activity in applicable units whereas § 172.203(d) requires the activity per package in SI units. Because you are shipping only one package, you need not repeat the activity as part of the description.

Therefore, based on the information for the radiography camera scenario you provided, the following would be examples of an acceptable shipping description on the shipping paper:

1, RQ, UN 2916, Radioactive material, Type B(U) package, 7, Ir-192, 5.55 TBq (150 Ci), Radioactive Yellow-III, and TI=2

or

1, RQ, UN 2916, Radioactive material, Type B(U) package, 7, Ir-192, 5.55 TBq (150 Ci), Radioactive Yellow-II, and TI=X [Where X was not specified in the information you provided but was stated as being less than 1].

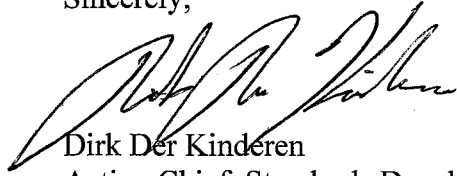
In the first example, the labeling information required for the overpack under § 172.403(h) is not required to be included on the shipping paper.

Please note the reasoning for selection of the Yellow-II and TI of less than 1 notation on the shipping paper in the second example is as follows. Although § 172.203(d)(4) and (5) requires the category of label and the transport index assigned to each package in the shipment bearing Yellow-II or Yellow-III labels, the definition of package in § 173.403 means the packaging together with its radioactive contents as presented for transport. In your example, the package has been overpacked when presented for transport and due to some shielding and increased distance provided by the overpack, the radiation levels outside the overpack are also appropriate values to use to convey the external radiological hazard during routine transport. However, it should also be noted that the individual package(s) within an overpack must still be labeled appropriately, so as to convey hazard communications such as in the event of a possible incident or partial unloading scenario. Therefore, in the example you provided, the overpack would be labeled as Yellow-II in accordance with § 172.403(h)(3) and (4) and, because § 172.403(h)(5) mandates placarding based on the aforementioned overpack labeling, then the shipping paper description could be based on the overpack labeling as well so as to provide consistent hazard communications throughout and reduce the possibility of frustration of the shipment. We recognize that the use of the overpack radiation levels is not as readily apparent from a human factors perspective as it perhaps could be in § 172.203(d)(4) and (5), which do not

specifically cite “overpack” in addition to “package” at present, and we may clarify the requirement in a future rulemaking.

I hope this answers your inquiry. If you need additional assistance, please call this Office at 202-366-8553.

Sincerely,

A handwritten signature in black ink, appearing to read "Dirk Der Kinderen". The signature is fluid and cursive, with a large initial "D" and "K".

Dirk Der Kinderen  
Acting Chief, Standards Development Branch  
Standards and Rulemaking Division

Boodhe  
§172.202  
Shipping Papers  
14-0242

**Dodd, Alice (PHMSA)**

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**From:** Ciccarone, Michael CTR (PHMSA)  
**Sent:** Wednesday, December 17, 2014 4:51 PM  
**To:** Hazmat Interps  
**Subject:** FW: seeking a letter of interpretation for radioactive material transportation

Shante/Alice,

Please submit this for a formal letter of interpretation. Ms. Rajkovich spoke with Shelby in the HMIC.

Thanks,

Mike

-----Original Message-----

**From:** Rajkovich, Celia [<mailto:crajkovich@pa.gov>]  
**Sent:** Wednesday, December 17, 2014 2:22 PM  
**To:** PHMSA HM InfoCenter  
**Subject:** seeking a letter of interpretation for radioactive material transportation

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

I am seeking a letter of interpretation in regard to completion of shipping papers when transporting a Class 7 Radioactive Yellow III Labeled package (such as a radiography camera) inside a Yellow II labeled rigid over pack. Please advise of the correct complete wording on the shipping paper.

Thank you for your time,

Celia Rajkovich, RRPT  
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14-0242

Casals  
8/24  
email  
12/31/54

Fr 192,50 Curies

Solid Metal

HAM special form UN3332

USA Type B Package (camera in its own package)

50 pounds

Kad level on camera 55 mrem

TI = 2

Y III

in rigid overpack (ammo box) Y II Kad level  
outside ammo box < 50 mrem TI < 1

no placards on back of pickup truck

UN3332, Radioactive material, Type A package,  
special form, 7,

non-fissile & fissile exempted

A56, W7, U8

173,415

173,476 (d)