



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

1200 New Jersey Ave, SE
Washington, D.C. 20590

JAN 28 2011

Ms. Wendy S. Kennan
Radiation Safety Officer
Brachytherapy Calibrations
University of Wisconsin Radiation Calibration Laboratory
Accredited Dosimetry and Calibration Laboratory
B1002 Wisconsin Institutes for Medical Research
1111 Highland Avenue
Madison, WI 53705-2275

Reference No. 10-0040

Dear Ms. Kennan:

This is in response to your letter and subsequent telephone conversation with a member of my staff concerning radiation detectors your organization receives annually for recalibration from a number of clients and returns back to them. You state the detectors, some of which are permanently sealed, contain air or "UN 1008, Argon, compressed, 2.2 (non-flammable)" gas in an internal chamber or cylinder at a pressure that meets or exceeds 40.6 psia (25.9 psig or 1.8 atm) with no release device. You also state some clients ask if these detectors are unregulated when transported by motor vehicle or rail transport. You further ask at what pressure the detectors are regulated as a non-flammable compressed gas under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

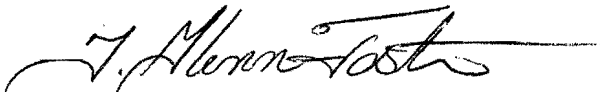
This agency previously authorized radiation detectors containing pressurized gas to be transported in Department of Transportation (DOT) specification and non-specification cylinders under the terms of a special permit and in conformance with §§ 173.302 or 173.306. We revised the HMR, effective October 1, 2010, to permit radiation detectors that contain Division 2.2 gas to be transported in non-specification packagings and, unless transported by aircraft, excepted from the hazard communication labeling and placarding requirements provided the devices are designed, packaged, and transported in accordance with the provisions prescribed in new § 173.310. (See Docket No. PHMSA-2009-0289 (HM-233A; 75 FR 27205)). Specifically, § 173.310 requires the radiation detectors to: 1) be single-trip, hermetically-sealed, welded, metal inside containers that will not fragment upon impact; 2) have a design pressure of 4.83 MPa (700 psig) or less and a capacity of 641 cubic inches (355 fluid ounces) or less; 3) have a burst pressure that is three times the design pressure or more if equipped with a pressure relief device and four times the design pressure or more if not equipped with a pressure relief device; 4) be shipped in a strong outer packaging capable of withstanding a 1.2 meter (4 foot) drop test without breaking the radiation detector or rupturing the outer package; and 5) be packed in a strong outer packaging or in equipment that provides a level of protection equivalent to that of a

strong outer packaging when shipped as part of other equipment. In addition, § 173.310 requires that each shipment of radiation detectors must be accompanied by emergency response information, and respondents at each emergency response telephone number for these devices must identify the receptacles that are not fitted with a pressure relief device and provide appropriate guidance on how to manage these devices when exposed to fire.

If the provisions of § 173.310 are not appropriate for the radiation detectors, the detectors must meet the DOT specification packaging requirements for the hazardous material they contain or meeting the Division 2.2 hazard class must be properly described, packaged in DOT specification packagings authorized for the hazardous material they contain, and marked and labeled in conformance with the requirements prescribed in the HMR for a non-flammable gas when intended or offered for transportation in commerce. Section 173.115(b) defines a Division 2.2, non-flammable, non-poisonous compressed gas as a liquefied or cryogenic gas that exerts in a packaging a gauge pressure of 200 kPa (29.0 psig/43.8 psia) or greater at 20 °C (68 °F). Radiation detectors that do not meet the definition of a DOT hazard class under the HMR are not regulated as a hazardous material.

I hope this satisfies your request.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Glenn Foster", with a long horizontal flourish extending to the right.

T. Glenn Foster
Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division



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January 29, 2010

U.S. DOT PHMSA
Office of Hazardous Materials Standards
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Edmonson
§ 172.101
§ 173.115
Exceptions
10-0040

I just finished the FedEx Dangerous Goods Shipper's Seminar. While there, I asked for clarification on a shipping issue, and the instructor suggested I contact Patrick Oppenheimer, Senior Manager-Safety Programs at FedEx Express. He delegated my question to a Senior Federal Express Hazardous Materials Manager, Thomas Leech.

His interpretation follows with a caveat:

“In accordance with the Hazardous Materials Regulations (HMR 49 CFR Part 173.22), it is the shipper’s responsibility to properly classify and describe hazardous materials/dangerous goods. However, based on the information provided, your interpretation is correct. Radiation detectors are subject to Class 2, Division 2.2 requirements when the pressure in the tube or chamber exceeds 300kPa (43.5 psia).”

I am asking for your interpretation on this matter.

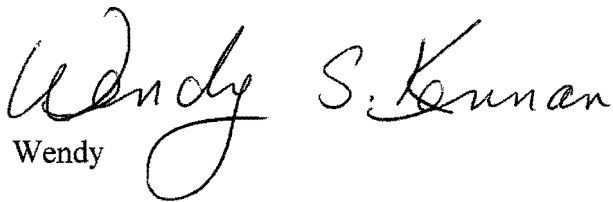
Our laboratory receives and ships out instruments used to detect and measure radiation. Some of these instruments are permanently sealed and contain either air or Argon under pressure.

We have followed 49CFR173.115 to define which instruments must be shipped as dangerous goods. As we understand it, an instrument which contains air or Argon under a pressure of 40.6 psia (25.9 psig or 1.8 atm) or more should be shipped as a dangerous good. [I have included the conversion to atmospheres because most of the manufacturers of these devices report pressure in atmospheres. We follow the information we can obtain from manufacturers regarding the pressure of these instruments.]

Again, these instruments are designed to hold the gas they contain-there is no release device.

Could you please help either confirm that we are shipping these devices correctly, or explain what we should be doing?

Thank you very much,


Wendy

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