



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

AUG 30 2019

Brett Kempfues  
Radiation Safety Specialist  
VEGA Americas, Inc.  
4141 Rosslyn Drive  
Cincinnati, OH 45209

Reference No. 19-0070

Dear Mr. Kempfues:

This letter is in response to your May 31, 2019, letter and subsequent phone conversation requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to Fixed Industrial Nuclear Gauges (i.e., gauges) as radioactive instruments or articles. Specifically, you indicate that your company is a manufacturer and distributor of these gauges and provide the following details on these gauges:

- They are used in a number of industries for density, level and weight measurements;
- They are used to house and shield a Special Form source capsule;
- As detailed in a subsequent phone conversation, when offered for transportation, the gauges are shipped individually and either placed in a strong outer packaging, such as a box or crate, or affixed to a pallet;
- During transportation, the gauge strictly serves as a shielded container; and
- After transportation, the gauge acts as one part of the measurement system when installed and in operation.

We have paraphrased and answered your questions as follows:

- Q1. You ask whether the gauge can be considered a radioactive instrument or article, subject to the activity limits in Table 4 of § 173.425 and the excepted packaging requirements in § 173.424.
- A1. The answer depends on the type of packaging used to transport the gauge. As defined in § 173.403, a package means “the packaging together with its radioactive contents as presented for transport.” Furthermore, paragraph (1) in the definition of “package” indicates that an “Excepted package” means “a package together with its excepted Class 7 (radioactive) materials as specified in §§ 173.421-173.426 and 173.428.” When offered for transportation in a packaging such as a box or crate, the box or crate meets the definition of a packaging for an excepted package. However, when the gauge is strapped to a pallet, the pallet is not considered a packaging for the purposes of §§ 173.403 and 173.424. Please note that in both scenarios any hazard communication (i.e., required

markings and labels) is required to be placed on the packaging, meaning if shipped on a pallet, the hazard communication is required to be placed on the gauge.

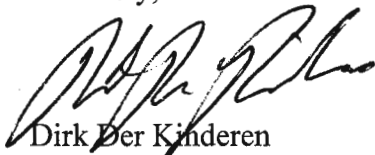
Furthermore, as defined in § 173.403, a radioactive instrument or article means “any manufactured instrument or article such as an instrument, clock, electronic tube, or apparatus, or similar instrument or article having Class 7 (radioactive) material in gaseous or non-dispersible solid form as a component part.” Radioactive instruments or articles are classified as “UN2911, Radioactive material, excepted package-instruments *or* articles, 7,” subject to activity limits in § 173.425, and packing requirements in §§ 173.422 and 173.424 (as also identified by the section titles). Therefore, in the scenario when the gauge is shipped in a packaging, it can be classified as “UN2911, Radioactive material, excepted package-instruments *or* articles, 7,” subject to the activity limits in § 173.425 and packaging requirements in § 173.424. Conversely, when strapped to a pallet, there is no packaging for the gauge, and therefore, it does not meet the definition of a radioactive instrument or article within an excepted package.

- Q2. You ask whether the requirements of § 173.424 apply to the transportation of the gauge when it does not meet the definition of a radioactive instrument or article (i.e., gauge strapped to a pallet).
- A2. The answer is no. Section 173.424 only applies to the transportation of radioactive instrument and articles.
- Q3. You ask whether the radiation level limit for any unpackaged instrument or article in § 173.424(d) and the radiation level limit on the external surface of a packaging bearing the instrument or article in § 173.424(f) apply to the transportation of the gauge when it meets the definition of a radioactive instrument or article (i.e., gauge packaged in a strong outer packaging).

- A3. The answer is yes. To be offered as a radioactive instrument or article, all of the requirements in § 173.424, including paragraphs (d) and (f), need to be met. To meet § 173.424(d), the radiation level at 10 cm (4 in) from any point on the external surface of any unpackaged instrument or article may not exceed 0.1 mSv/hour (10 mrem/hour), even when the gauge is placed in the strong outer packaging. To meet § 173.424(f), the radiation level at any point on the external surface of a package bearing the article or instrument may not exceed 0.005 mSv/hour (0.5 mrem/hour), or, for exclusive use domestic shipments, 0.02 mSv/hour (2 mrem/hour). If the requirements of § 173.424 cannot be met, the gauge may be shipped under a different description (i.e., UN identification number, proper shipping name, packaging requirements) such as “UN3332, Radioactive material, Type A packaging, special form *non fissile or fissile-excepted, 7.*”

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

Sincerely,



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

*Heiler*

*19-0070*

**Dodd, Alice (PHMSA)**

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**From:** INFOCNTR (PHMSA)  
**Sent:** Tuesday, June 04, 2019 11:30 AM  
**To:** Hazmat Interps  
**Subject:** FW: Request for Interpretation  
**Attachments:** Request for PHMSA Interpretation.pdf

Hello Alice and Ikeya,

Attached is a letter of interpretation request.

Thanks,

Jonathon, HMIC

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To Whom It May Concern:

Attached is a letter of request for an interpretation of regulations. Please review at your earliest convenience and please do not hesitate to contact me if there are any questions or if you desire further detail. Thank you for your time and consideration.

Regards,

**Brett Kemp hues**  
Radiation Safety Specialist

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Looking Forward

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May 31, 2019

Subject: Request for Regulatory Interpretation

Attn: Pipeline and Hazardous Materials Safety Administration  
US Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Please accept this letter as a request for formal interpretation from your office. VEGA Americas, Inc. is a manufacturer and distributor of Fixed Industrial Nuclear Gauges used in a number of industries for density, level and weight measurements. These gauges are used to house and shield a Special Form source capsule making them safe for use, storage and transportation. The gauge is strictly a shielded container for safe transport during shipment but acts as one part of the measurement system when installed and in operation. Operational parts such as the shutter mechanism allow the beam of radiation to be open or closed and can be collimated to direct the radiation beam to a desired location to gain a measurement reading.

Would one of our Fixed Industrial Nuclear Gauges be considered a Radioactive Instrument or Article when determining the activity limit from Table 4 of 49 CFR 173.425 when shipping as an excepted package for limited quantities of Class 7 material?

Furthermore, if the determination finds that our gauges are not to be considered Radioactive Instruments or Articles and therefore subject the activity limit of  $10^{-3}$  of the  $A_1$  quantity, would the requirements of section 173.424 need to be enforced?

Conversely, if they are deemed to be Radioactive Instruments and Articles and subject to the activity limit of  $10^{-2}$  of the  $A_1$  quantity and subject to the requirements of section 173.424, what is the determination of subsection (d) of this section? Does the radiation level limit of 10 mrem/hour at a distance of 4 inches from the external surface of any unpackaged instrument or article need to be enforced if the instrument or article is enclosed in some form of packaging and the radiation level on the external surface of that packaging does not exceed the limits in subsection (f) of this same section?

Your written response to this request is greatly appreciated. If you require any further information regarding this request please feel free to contact me at [b.kemphues@vega.com](mailto:b.kemphues@vega.com) or by phone at 513-527-6125.

Sincerely,



Brett Kemphues  
Radiation Safety Specialist  
VEGA Americas, Inc.