



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 8, 2024

MEMORANDUM TO: Paul G. Krohn, Director  
Division of Radiological Safety and Security  
Region I

David Curtis, Director  
Division of Radiological Safety and Security  
Region III

Tamara E. Bloomer, Director  
Division of Radiological Safety and Security  
Region IV

FROM: Kevin Williams, Director  
Division of Materials Safety, Security, State  
and Tribal Programs  
Office of Nuclear Material Safety and  
Safeguards

A handwritten signature in black ink, appearing to read "K Williams".

Signed by Williams, Kevin  
on 05/08/24

SUBJECT: ISSUANCE OF INSPECTION AND LICENSING GUIDANCE ASSOCIATED WITH  
INTERPRETATION OF THE RADIOGRAPHY "TWO-PERSON" REQUIREMENTS IN  
TITLE 10 OF THE CODE OF REGULATIONS (10 CFR) SECTION 34.41(a).

Purpose:

The purpose of this memorandum is to notify the regions about the availability of inspection and licensing guidance to address the reinterpretation of Title 10 of the Code of Federal Regulations (10 CFR) Part 34.41(a) as directed by the Commission in SRM-S22-0059 - Rulemaking on Industrial Radiographic Operations and Training (PRM-34-6; NRC-2017-0022). As a result, the staff revised Inspection Procedure 87121, "Industrial Radiography Programs," and developed a supplement to NUREG-1556, Volume 2, Revision 1, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Industrial Radiography Licenses,"

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## Background:

On June 1, 2021, the NRC issued a notification of interpretation on industrial radiographic operations at temporary radiography jobsites and an Agreement State Compatibility Category change. The interpretation and Compatibility Category change were effective immediately ([86 FR 29173](#)).

The NRC has previously interpreted § 34.41(a) to require both the radiographer and the second qualified individual to maintain direct observation when radiographic operations are being conducted at a temporary jobsite. The regulation uses the term “observe” rather than “directly observe,” and also requires that the second individual “be capable of providing immediate assistance to prevent unauthorized entry.”

The NRC's interpretation has been that direct observation is required to ensure the second individual can provide immediate assistance. The two-person rule is intended to ensure that the second individual is able “. . . to take charge and secure the radioactive material, provide aid where necessary, and prevent access to radiation areas by unauthorized persons.” To achieve that purpose, the word “observe” is used to ensure that the second individual can determine when it is necessary to take charge or help the radiographer and prevent unauthorized entry.

Therefore, the NRC now interprets § 34.41 such that the requirements contained in the sentence, “[t]he additional qualified individual shall observe the operation and be capable of providing immediate assistance to prevent unauthorized entry” are met if the second qualified individual is in sufficiently close proximity to the operation and sufficiently aware of the ongoing activities to be able to provide assistance or take charge when necessary and to prevent unauthorized entry. Therefore, there are certain circumstances when the second individual may perform other tasks nearby so long as they are cognizant of the site-specific circumstances when radiographic operations are in progress to be able to provide immediate assistance.

## Discussion:

Staff in NMSS was tasked with the development of licensing and inspection guidance in response to SRM-S22-0059 - Rulemaking on Industrial Radiographic Operations and Training (PRM-34-6; NRC-2017-0022). NMSS staff worked collaboratively with staff in headquarters, Office of General Counsel, and the Agreement States in the development of licensing guidance and with regional staff with direct inspection expertise in the development of the inspection guidance.

### *Licensing guidance*

The licensing guidance supplements the information provided in NUREG-1556, Volume 2, Revision 1, “Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Industrial Radiography Licenses,” and should be used in addition to guidance in Section 8.10.9.3 of NUREG-1556, Volume 2, Revision 1. This guidance is to be used by applicants and licensees in the completion and submission of materials license applications and amendments for items containing byproduct material for radiographic operations. The supplemental guidance will be posted on the public website and is available in ADAMS with Accession Number [ML24115A012](#).

## *Inspection guidance*

Section 03.01 of Inspection Procedure IP 87121, "Industrial Radiography Programs," was revised to provide awareness of the 2021 interpretation of the regulatory requirement in 10 CFR 34.41(a) regarding the second radiographer observing operations to be capable of providing immediate assistance to prevent unauthorized entry. Therefore, there could be circumstances where the second radiographer<sup>1</sup> may rely on active surveillance or communication tools to monitor operations in real-time to both prevent unauthorized entry at the boundaries of a TJS and render immediate assistance to the primary radiographer, as needed. For example:

If the primary qualified radiographer can independently implement operating and emergency procedures as it relates to controlling access to radiographic areas, the second radiographer, at a minimum, needs to:

- be in close proximity to operations, and
- be in continuous two-way communication (video or audio) with the primary radiographer to immediately render assistance, if needed.

If the primary qualified radiographer cannot independently implement operating and emergency procedures as it relates to controlling access to radiographic areas, the second radiographer, at a minimum, needs to:

- be in close proximity to operations,
- be in continuous two-way communication (video or audio) with the primary radiographer to immediately render assistance if needed, and
- assist in monitoring the boundaries, as needed, to ensure the procedures are adequately implemented.

*\*In this situation, close proximity refers to a distance that would enable the second individual to immediately assist the primary qualified radiographer to prevent unauthorized entry to controlled areas, take control of the radiography camera, if needed, and maintain access controls.*

The staff also discussed scenarios or circumstances that an inspector may encounter in which this interpretation may be relevant when determining compliance with 10 CFR 34.41(a) such as radiography being performed in remote locations where the risk of radiation exposure to members of the public is low, such as pipeline work in unpopulated areas, work on a water tower or similar structure, where members of the public do not have access. To provide additional context, staff is sharing the following scenarios<sup>2</sup>:

- 1) Radiography is being performed at a remote temporary job site with excellent fields-of-view in all directions. The primary radiographer performs radiography while the second radiographer performs film development 50 yards away in the truck's slide-on rig. While in the truck, the second radiographer remains in constant communication via two-way radio with the primary radiographer throughout the exposure. The second radiographer remains in sufficient awareness of the operation through constant two-way communication with the primary radiographer and is in sufficient proximity in the truck to offer immediate assistance if needed.

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<sup>1</sup> Note that a TJS with multiple access points and/or levels may still need two or more individuals present to prevent unauthorized entry to boundaries.

<sup>2</sup> These do not represent an exhaustive list of scenarios.

- 2) Radiography work at a fixed location (that is not a permanent radiographic installation) where methods of visual surveillance may be employed to assist the second individual monitoring unauthorized entry to the boundaries, such as a remote video surveillance system, where the monitor is continuously observed by the second individual.
- 3) Radiography is being performed at a refinery complex, with multiple points-of-access<sup>3</sup> to the location where radiography is being performed. The primary radiographer performs the radiography on the roof/second level of an isolated structure. The second radiographer is outside the structure while monitoring an overhead drone to provide surveillance simultaneously of each point of access to the structure. In the event of an attempted or actual breach of the boundaries, the second radiographer can immediately contact the primary radiographer to cause the source to be shielded and can also render timely assistance to the primary radiographer if needed.
- 4) Radiography is being performed in an office building outside of normal business hours. The primary radiographer performs radiography on the 5<sup>th</sup> floor of the structure after clearing the building of all occupants. The second radiographer is on the first floor while monitoring the staircase and elevator entrances, which are the only access points to the higher floors. The second radiographer maintains awareness of the operation and communication with the primary radiographer through a video call on their phones. The second radiographer is available to assist the primary radiographer in a timely manner through the elevator or staircase in the event of an emergency.

The revised inspection procedure is available in the [NRC website](#) and in ADAMS with accession number [ML24128A234](#). Staff is encouraged to provide feedback at any time on inspection guidance during the implementation of the revised procedure in accordance with Inspection Manual Chapter 2800, Materials Inspection Program.

#### Feedback on inspection guidance

As part of the internal process to revise inspection procedures, staff responded to comments received in the draft IP 87121 in the comment resolution table ([ML24128A233](#)). In addition to the comments on the procedure, it should be noted that staff received additional feedback on the following aspects:

- (a) the vehicle to provide guidance – feedback indicated that an inspection procedure should not be the instrument to provide guidance for this interpretation since it is inconsistent with the level of detail included in the other inspection procedures. Therefore, it was suggested that detailed guidance that may assist in determining what is a violation or not should be removed from the procedure and this memo.

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<sup>3</sup> Note that a TJS with multiple access points and/or levels may still need two or more individuals present to prevent unauthorized entry to boundaries.

- (b) detailed examples provided in this memo and in the inspection procedure – feedback was mixed about including detailed examples or scenarios where the interpretation of 34.41(a) would be acceptable because the second radiographer would be in sufficient proximity and sufficiently aware of the radiographic operations. On one end, it was expressed that examples based on credible circumstances would be useful to the inspectors. Others believe that each radiographic setting is unique, and the scenarios provided are too specific. Inspectors would still need to evaluate compliance with the regulations and license commitments, including operating and emergency procedures, and that should be the ultimate scope of the guidance.

Staff evaluated this additional feedback together with the comments on the inspection procedure language changes. After careful consideration, the inspection procedure revision focuses on providing awareness of the 2021 Commission interpretation of the requirements in 10 CFR 34.41(a) and removed examples from the inspection procedure. Staff decided that examples in this memorandum could be useful for assisting in the determination of whether the second radiographer had sufficient awareness and proximity in accordance with the 2021 Commission interpretation. The examples and scenarios in this memorandum are providing additional guidance. Inspectors have complete discretion in determining whether the inspected activity comply with the requirements despite the scenarios described in this memorandum.

Conclusion:

Following Commission direction, staff developed inspection and licensing guidance addressing the interpretation of the requirements in 10 CFR 34.41 (a) in IP 87121 and NUREG-1556, Vol. 2, respectively. Staff should become familiar with the latest versions of these documents when inspecting and licensing industrial radiography licensees.

Should you have any questions concerning the information discussed in this memorandum, please contact me or Leira Cuadrado ([Leira.Cuadrado@nrc.gov](mailto:Leira.Cuadrado@nrc.gov)).

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ISSUANCE OF INSPECTION AND LICENSING GUIDANCE ASSOCIATED WITH INTERPRETATION OF THE RADIOGRAPHY "TWO-PERSON" REQUIREMENTS IN TITLE 10 OF THE CODE OF REGULATIONS (10 CFR) SECTION 34.41(a). DATE May 8, 2024

DISTRIBUTION: IP 87121, SRM-S22-0059-2

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**ADAMS Accession No.: ML24128A201; Memo ML24128A193**

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