

IN TRANSIT PHYSICAL PROTECTION OF CATEGORY 1 AND CATEGORY 2 QUANTITIES OF RADIOACTIVE MATERIAL AND 100 GRAMS OR LESS OF IRRADIATED REACTOR FUEL – NON-POWER REACTORS

Effective Date: 06/01/2020

PROGRAM APPLICABILITY: IMC 2545

This inspection procedure (IP) is applicable to all U.S. Nuclear Regulatory Commission (NRC) licensed non-power reactors that, as a condition of the Part 50 reactor license, transport aggregated category 1 or category 2 quantities of radioactive material. Transportation of irradiated reactor fuel in quantities less than or equal to 100 grams is also covered by this procedure.

81622-01 INSPECTION OBJECTIVE

The objective of this IP is to gather information to determine whether reasonable assurance exists that licensee activities, since the last inspection, were conducted in accordance with regulatory requirements in Title 10 of the *Code of Federal Regulations* (CFR) Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material."

- 01.01 Additional Transfer Requirements. To assure that the licensee has adequate protection for the transfer of category 1 or category 2 quantities of radioactive material or irradiated reactor fuel in quantities of 100 grams or less.
- 01.02 Shipments of Category 1 Quantities of Radioactive Material and Irradiated Reactor Fuel in Quantities of 100 grams or less. To assure that the licensee has adequate protection for shipments of category 1 quantities of radioactive material or irradiated reactor fuel in quantities of 100 grams or less.
- 01.03 Shipments of Category 2 Quantities of Radioactive Material. To assure that the licensee has adequate protection for shipments of category 2 quantities of radioactive material.

81622-02 INSPECTION REQUIREMENTS

02.01 Additional Transfer Requirements.

- a. For category 1 quantities of radioactive material or irradiated reactor fuel in quantities of 100 grams or less, verify that the licensee confirms and documents that the recipient is licensed to receive the material (type, form, and quantity) and is permitted to receive at the location requested for delivery. [10 CFR 37.71(a)]
- b. For category 2 quantities of radioactive material, verify that the licensee confirms and documents that the recipient is licensed to receive the material (type, form, and quantity). [10 CFR 37.71(b)]
- c. Verify that the licensee maintained verification documentation for three years. [10 CFR 37.71(d)]

02.02 Shipments of Category 1 Quantities of Radioactive Material and Irradiated Reactor Fuel in Quantities of 100 grams or less.

- a. Verify that the licensee preplanned and coordinated shipment arrival and departure times with the recipient. [10 CFR 37.73(a), 10 CFR 37.75(a)(1)]
- b. Verify that the licensee preplanned and coordinated shipment information with the Governor or Governor's designee of any State the shipment will pass to: discuss law enforcement escorts and identify safe havens. [10 CFR 37.73(a), 10 CFR 37.75(a)(2)]
- c. Verify that the licensee documented preplanning and coordination activities and retained a copy of the documentation for three years. [10 CFR 37.73(a), 10 CFR 37.75(a)(3), 10 CFR 37.75(e)]
- d. Verify that the licensee provided advance notification of the shipment and required shipment details to the NRC and each appropriate governor. [10 CFR 37.73(a), 10 CFR 37.77(a)]
- e. Verify that the licensee sent revision or cancellation notices prior to planned commencement of the shipment. [10 CFR 37.73(a), 10 CFR 37.77(c), 10 CFR 37.77(d)]
- f. Verify that the licensee maintained advance notification documentation for three years. [10 CFR 37.77(e)]
- g. For shipments by road, verify that the licensee established a movement control center, redundant communications, means for continuous and active position monitoring, and possesses written normal and contingency procedures. [10 CFR 37.73(a), 10 CFR 37.79(a)(1)]
- h. For shipments by rail, verify that the licensee established a communications center, means for position tracking, periodic reports at preset intervals to the communications center, and preplanned response procedures. [10 CFR 37.73(a), 10 CFR 37.79(b)(1)]

- i. Verify that the licensee immediately conducted an investigation upon the discovery that a category 1 shipment was lost or missing. [10 CFR 37.73(a), 10 CFR 37.79(c)]
- j. Verify that the licensee notified the appropriate LLEA and NRC Headquarters Operations Center within one hour of determining a category 1 shipment is lost or missing. [10 CFR 37.73(a), 10 CFR 37.81(a)]
- k. Verify that the licensee notified the appropriate LLEA and NRC Headquarters Operations Center as soon as possible upon discovery of any actual or attempted theft or diversion of a category 1 shipment or suspicious activities related to the theft or diversion of a category 1 shipment. [10 CFR 37.73(a), 10 CFR 37.81(c)]
- l. Verify that the licensee notified the appropriate LLEA and NRC Headquarters Operations Center as soon as possible upon recovery of any lost or missing category 1 shipment. [10 CFR 37.73(a), 10 CFR 37.81(e)]
- m. Verify that the licensee followed any initial event notification by a written report within 30 days. [10 CFR 37.73(a), 10 CFR 37.81(g)]
- n. Following submission of the written report, verify that the licensee provided any additional substantive information within 30 days of the licensee learning of the information. [10 CFR 37.73(a), 10 CFR 37.81(h)]

02.03 Shipments of Category 2 Quantities of Radioactive Material.

- a. Verify that the licensee coordinated shipment no-later-than arrival and expected arrival times with the recipient. [10 CFR 37.73(b), 10 CFR 37.75(b)]
- b. Verify that the recipient confirmed receipt of the shipment with the licensee or notified the licensee if the shipment did not arrive by the no-later-than arrival time. [10 CFR 37.73(a), 10 CFR 37.75(c)]
- c. Verify that the licensee promptly notified the recipient of a new no-later-than arrival time following determination that the shipment will arrive after the no-later-than arrival time. [10 CFR 37.73(a), 10 CFR 37.75(d)]
- d. Verify that the licensee maintained preplanning and coordination documentation for three years. [10 CFR 37.75(e)]
- e. For each licensee that ships by road or rail, verify that the licensee maintained constant control and/or surveillance and had immediate communications capability. [10 CFR 37.73(a), 10 CFR 37.79(a)(2), 10 CFR 37.79(b)(2)]
- f. For each licensee that delivers to a carrier for shipment by road or rail, verify that the licensee used a carrier with established package tracking systems, maintained constant control and/or surveillance, had immediate communications capability, and required an authorized signature prior to releasing the package for delivery. [10 CFR 37.73(a), 10 CFR 37.79(a)(3), 10 CFR 37.79(b)(2)]

- g. Verify that the licensee immediately conducted an investigation for any category 2 shipment that had not arrived by the designated no-later-than arrival time. [10 CFR 37.73(a), 10 CFR 37.79(c)]
- h. Verify that the licensee notified the NRC Headquarters Operations Center within four hours of determining a category 2 shipment is lost or missing. [10 CFR 37.73(a), 10 CFR 37.81(b)]
- i. Verify that the licensee immediately notified the NRC Headquarters Operations Center for any lost or missing category 2 shipment that had not been located and secured within 24 hours. [10 CFR 37.73(a), 10 CFR 37.81(b)]
- j. Verify that the licensee notified the NRC Headquarters Operations Center as soon as possible upon discovery of any actual or attempted theft or diversion of a category 2 shipment or suspicious activities related to the theft or diversion of a category 2 shipment. [10 CFR 37.73(a), 10 CFR 37.81(d)]
- k. Verify that the licensee notified the NRC Headquarters Operations Center as soon as possible upon recovery of any lost or missing category 2 shipment. [10 CFR 37.73(a), 10 CFR 37.81(f)]
- l. Verify that the licensee followed any initial event notification by a written report within 30 days. [10 CFR 37.73(a), 10 CFR 37.81(g)]
- m. Following submission of the written report, verify that the licensee provided any additional substantive information within 30 days of the licensee learning of the information. [10 CFR 37.73(a), 10 CFR 37.81(h)]

81622-03 INSPECTION GUIDANCE

This section is intended to provide guidance to assist the inspector in measuring the licensee's performance in each of the preceding sections. The statements below do not represent regulatory requirements, but are standards and methods by which the individual elements may be judged. The inspector should be aware that any written inspection notes, related to the specific details of how a licensee is in compliance with the regulatory requirements, could be security related and should be protected from unauthorized disclosure. Care should be exercised to avoid recording site-specific details and instead use general statements related to compliance with the regulations.

The regulatory requirements in 10 CFR Part 37 are prescriptive and, in almost all instances, require written documentation and records as evidence of compliance. Therefore, inspection activities should consist mostly of records review. The inspector should consider opportunities for observation of licensed activities relating to category 1 and category 2 quantities of material, when available.

The regulations in 10 CFR 73.35 for shipments of irradiated reactor fuel in quantities of 100 grams or less direct licensees to follow the requirements for category 1 quantities of radioactive material in accordance with Subpart D of 10 CFR Part 37.

Non-power reactor facilities typically generate, receive, possess, use, or transfer category 1 or category 2 quantities of radioactive materials in the form of sources, irradiators, or bulk quantities for commercial purposes (e.g., sealed sources, radiopharmaceuticals). Non-power reactor facilities do not typically have large components, robust structures, or system components containing activation products that would meet or exceed a category 2 threshold. However unlikely for non-power reactors, should such conditions exist, inspectors, in consultation with the Branch Chief, should refer to enforcement discretion in EGM-14-001 (ADAMS Accession No. ML14056A151).

NUREG-2155, "Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material,'" contains implementing guidance that may provide inspectors with additional information and insight on methods that the licensee could choose to use in order to meet the regulatory requirements. Manual Chapter 2800 also contains guidance regarding these types of material inspections. Considering the potential overlap in how the licensee implements the regulatory requirements in both 10 CFR Part 37 and 10 CFR Part 73, these security inspections should be conducted at the same interval and completed during the same visit, to the extent practicable.

81622-04 RESOURCE ESTIMATE

For planning purposes, the estimated, direct, onsite inspection effort to complete this inspection procedure is 24 hours. Actual inspection at any facility may require more or less effort depending on past inspection history, changes since the last inspection, conditions at the facility, and significance of the inspection findings.

81622-05 PROCEDURE COMPLETION

The inspection of each of the applicable areas described above will constitute completion of this procedure. This inspection procedure will be completed on a five (5) year frequency, with an allowable grace period of one (1) year. It is recommended that inspectors consider performing this procedure during every other security and safeguards inspection for non-power reactors, or every four (4) to six (6) years.

81622-06 REFERENCES

NUREG-2155, "Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material'"

NUREG-2166, "Physical Security Best Practices for the Protection of Risk-Significant Radioactive Material"

Manual Chapter 2545, "Research and Test Reactor Inspection Program"

Manual Chapter 2800, "Materials Inspection Program"

END

Attachment:

1. Revision History Sheet for IP 81622

Attachment 1 - Revision History for IP 81622

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
	ML19190A278 03/13/20 CN 20-015	Initial issue to support inspection of research and test reactor programs described in IMC 2545.	None	ML19205A354