

## PART 37 PHYSICAL PROTECTION OF BYPRODUCT MATERIAL

### PRELIMINARY DRAFT LANGUAGE

(October 2008)

The Nuclear Regulatory Commission (NRC) is making available preliminary draft proposed rule language to amend its regulations to add a new part 37 to Title 10 of the Code of Federal Regulations. This new part 37 will contain the security (physical protection) requirements that are designed to provide reasonable assurance of preventing the theft or diversion of category 1 and category 2 quantities of radioactive material. The new provisions will address background checks, fingerprinting, access control, physical security during use, and physical security during any transport of category 1 and category 2 quantities of material. At this time the staff is only posting the preliminary draft language for the physical protection of the material while it is being transported. These requirements will be contained in subpart D of the new Part 37.

The availability of the preliminary draft rule language is intended to inform stakeholders of the current status of the NRC's activities and solicit public comments on the information at this time. The NRC will review and consider any comments received for information only; the NRC will not respond to any comments received at this pre-rulemaking stage. As appropriate, the Statements of Consideration for the proposed rule will briefly discuss any substantive changes made to the draft preliminary proposed rule language as a result of comments received. Once published as a proposed rule, stakeholders will have an opportunity to comment on the proposed rule language and the NRC will respond to any such comments in the Statements of Consideration for the final rule.

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### **§ 37.3 Definitions.**

As used in this part:

*Agreement State* means any state with which the Atomic Energy Commission or the Nuclear Regulatory Commission has entered into an effective agreement under subsection 274b. of the Act. *Non-agreement State* means any other State;

*Category 1 quantities of radioactive material* means quantities of radioactive material meeting or exceeding the category 1 threshold limit in Table 1 of Appendix A of this part.

*Category 2 quantities of radioactive material* means quantities of radioactive material meeting or exceeding the category 2 threshold limit but less than the category 1 threshold limit in Table 1 of Appendix A of this part.

*Commission* means the Nuclear Regulatory Commission or its duly authorized representatives.

*Lost or missing licensed material* means licensed material whose location is unknown. It includes material that has been shipped but has not reached its destination and whose location cannot be readily traced in the transportation system.

*No-later-than arrival time* means the date and time that the shipping licensee and receiving licensee have established as the time at which an investigation will be initiated if the shipment has not arrived at the receiving facility.

*State* means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

## Subpart D – Physical Protection in Transit

### **§ 37.99 Additional requirements for transfer of category 1 quantities of radioactive material.**

Notwithstanding the requirements in §§ 30.41, 70.42, or 76.83, any licensee transferring category 1 quantities of radioactive material to a specific licensee of the Commission or an Agreement State must comply with the following:

(a) Before transferring category 1 quantities of radioactive material, the licensee transferring the material shall verify with the license issuing authority that the transferee's license

authorizes the receipt of the type, form, and quantity of radioactive material to be transferred and verify that the delivery address of the transferee is valid.

(b) If an order is to be shipped to an address different from a previously validated address, the transferor must validate the address with the license issuing authority. The licensee shall document the validation and keep a copy of the documentation as a record for 3 years.

(c) The transferor must verify with the transferee and the license issuing authority any unusual orders or changes that depart from historical patterns of ordering by an existing licensee customer. The transferor shall document the verification and keep a copy of the documentation as a record for 3 years.

**§ 37.101 Physical protection of category 1 and category 2 quantities of radioactive material during transit.**

(a) For shipments of category 1 quantities of radioactive material, each shipping licensee shall comply with the requirements for physical protection contained in §§ 37.103(a) and (c); 37.105; 37.107 (a)(1), (b)(1), (c) and (d)(1); and 37.109(a), (c) (e), (g) and (h).

(b) For shipments of category 2 quantities of radioactive material, each shipping licensee shall comply with the requirements for physical protection contained in §§ 37.103(b) and (c); 37.107(a)(2), (b)(2), and (d)(2); and 37.109(b)(2), (d), (f), (g), and (h). For those shipments of category 2 quantities of radioactive material that meet the criteria of § 71.97(b) of this chapter, the shipping licensee shall also comply with the advance notification provisions of § 71.97.

(c) The shipping licensee shall be responsible for meeting the requirements of this subpart unless the receiving licensee has agreed in writing to arrange for the in-transit physical protection required under this subpart.

(d) Each licensee that imports category 1 quantities of radioactive material shall comply with the requirements for physical protection contained in §§ 37.103(a)(2) and (c); 37.105; 37.107(a)(1), (b)(1), (c), and (d)(1); and 37.109(a), (c), (e), (g), and (h).

(e) Each licensee that imports category 2 quantities of radioactive material shall comply with the requirements for physical protection during transit contained in §§ 37.103(c); 37.107(a)(2), (b)(2), and (d)(2); and 37.109(b)(2), (d), (f), (g), and (h).

**§ 37.103 Preplanning and coordination of shipment of category 1 or 2 quantities of radioactive material.**

(a) Each licensee that plans to transport, or deliver to a carrier for transport, licensed material that is a category 1 quantity of radioactive material for transport of the material outside the confines of the licensee's facility or other place of use or storage shall:

(1) Preplan and coordinate shipment arrival, including the no-later-than arrival time, and departure times with the receiving licensee; and

(2) Preplan and coordinate shipment information with the governor or the governor's designee of the States through which the shipment will pass to:

(i) Ensure minimal delays;

(ii) Discuss the States' intention to provide law enforcement escorts;

(iii) Arrange for positional information sharing when requested; and

(iv) Identify Highway Route Control Quantity shipments and safe havens.

(b) Each licensee that plans to transport, or deliver to a carrier for transport, licensed material that is a category 2 quantity of radioactive material outside the confines of the licensee's facility or other place of use or storage shall verify and document the shipment no-later-than arrival time and the actual shipment arrival with the receiving licensee. Verification may be made by e-mail, fax, or written documentation of a verbal conversation.

(c) Each licensee who receives a shipment of a category 1 or category 2 quantity of radioactive material shall immediately notify the shipping licensee of the arrival of the shipment at its destination.

**§ 37.105 Advance notification of shipment of category 1 quantities of radioactive material.**

As specified in paragraphs (a) and (b) of this section, each licensee shall provide advance notification to the governor of a State, or the governor's designee, of the shipment of licensed material in a category 1 quantity, through or across the boundary of the State, before the transport, or delivery to a carrier, for transport of the licensed material outside the confines of the licensee's facility or other place of use or storage. The contact information, including telephone and mailing addresses, of governors and governors' designees, is available on the NRC website at <http://nrc-stp.ornl.gov/special/designee.pdf>. A list of the contact information is also available upon request from the Director, Division of Intergovernmental Liaison and Rulemaking, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

(a) *Procedures for submitting advance notification.* (1) The notification must be made in writing to the office of each appropriate governor or governor's designee and to the NRC's Director, Division of Security Policy, Office of Nuclear Security and Incident Response.

(2) A notification delivered by mail must be postmarked at least 7 days before transport of the shipment commences at the shipping facility.

(3) A notification delivered by any other means than mail must reach the office of the governor or the governor's designee at least 4 days before transport of a shipment within or through the state.

(b) *Information to be furnished in advance notification of shipment.* Each advance notification of shipment of category 1 quantities of radioactive material must contain the following information, if available at the time of notification:

- (1) The name, address, and telephone number of the shipper, carrier, and receiver of the category 1 radioactive material and the license number of the shipper and receiver;
- (2) A description of the radioactive material contained in the shipment, including the radionuclides and quantity;
- (3) The point of origin of the shipment and the estimated time and date that shipment will commence;
- (4) The estimated time and date that the shipment is expected to enter each State along the route;
- (5) The estimated time and date of arrival of the shipment at the destination; and
- (6) A point of contact, with a telephone number, for current shipment information.

(c) *Revision notice.* (1) The licensee shall provide any information not previously available at the time of the initial notification, as soon as the information becomes available, to a responsible individual in the office of the governor of the State or of the governor's designee and to the NRC's Director of Security Policy, Office of Nuclear Security and Incident Response.

(2) A licensee who finds that schedule information previously furnished to a governor or governor's designee, in accordance with this section, will not be met, shall promptly telephone a responsible individual in the office of the governor of the State or of the governor's designee and inform that individual of the extent of the delay beyond the schedule originally reported. The licensee shall also notify the NRC's Director, Division of Security Policy, Office of Nuclear Security and Incident Response.

(d) *Cancellation notice.* Each licensee who cancels a shipment for which advance notification has been sent shall send a cancellation notice to the governor of each State or to the governor's designee previously notified and to the NRC's Director, Division of Security Policy, Office of Nuclear Security and Incident Response. The licensee shall state in the notice that it is a cancellation and identify the advance notification that is being canceled.

(e) *Records.* The licensee shall retain a copy of the advance notification, and any revision and cancellation notices as a record for 3 years.

(f) *Protection of Information.* State officials, state employees, and other individuals, whether or not licensees of the Commission or an Agreement State, who receive schedule information of the kind specified in § 37.105(b) shall protect that information against unauthorized disclosure.

### **§ 37.107 Requirements for physical protection of category 1 and 2 quantities of radioactive material during shipment.**

(a) *Shipments by road.* (1) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a category 1 quantity of radioactive material shall:

(i) Use carriers that have established movement control centers that maintain periodic position information from a remote location. These control centers must monitor shipments 24 hours a

day, 7 days a week, and have the ability to immediately communicate an emergency to appropriate law enforcement agencies.

(ii) Establish redundant communications allowing the transport to contact the escort vehicle (when used) and movement control center at all times. Alternate communications should not be subject to the same interference factors as the primary communication.

(iii) Ensure that shipments are continuously and actively monitored by a telemetric position monitoring system or an alternative tracking system reporting to a movement control center. A movement control center shall provide positive confirmation of the location, status, and control over the shipment. The movement control center shall implement preplanned procedures in response to deviations from the authorized route or a notification of actual, attempted, or suspicious activities related to the theft, loss, or diversion of a shipment. These procedures will include, but not be limited to, the identification of and contact information for the appropriate local law enforcement agency (LLEA) along the shipment route.

(iv) Provide an individual to accompany the driver for those highway shipments with a driving time period greater than the maximum number of allowable hours of service in a 24-hour duty day as established by the Department of Transportation Federal Motor Carrier Safety Administration. The accompanying individual may be another driver.

(2) Each licensee who delivers to a carrier for transport, in a single shipment, a category 2 quantity of radioactive material shall:

(i) Use carriers that have established package tracking systems. An established package tracking system is a documented, proven, and reliable system routinely used to transport objects of value. In order for a package tracking system to maintain constant control and/or surveillance, the package tracking system must allow the shipper or transporter to identify when and where the package was last and when it should arrive at the next point of control.

(ii) Use carriers that maintain constant control and/or surveillance during transit and have the capability for immediate communication to summon appropriate response or assistance; and

(iii) Use carriers that have established tracking systems that require an authorized signature prior to releasing the package for delivery or return.

(b) *Shipments by rail.* (1) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a category 1 quantity of radioactive material shall:

(i) Ensure that rail shipments are monitored by a telemetric position monitoring system or an alternative tracking system reporting to the licensee, third-party, or railroad communications center. The communications center shall provide positive confirmation of the location of the shipment and its status. The communication center shall implement preplanned procedures in response to deviations from the authorized route or to a notification of actual, attempted, or suspicious activities related to the theft or diversion of a shipment. These procedures will include, but not be limited to, the identification of and contact information for the appropriate LLEA along the shipment route.

(ii) Implement an NRC-approved monitoring plan that is designed to prevent the use of the shipment for malevolent purposes while the shipment is in the classification yard.

(iii) Ensure that periodic reports to the communication center are made at preset intervals.

(2) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a category 2 quantity of radioactive material shall:

(i) Use carriers that have established package tracking systems. An established package tracking system is a documented, proven, and reliable system routinely used to transport objects of value. In order for a package tracking system to maintain constant control and/or surveillance, the package tracking system must allow the shipper or transporter to identify when and where the package was last and when it should arrive at the next point of control.

(ii) Use carriers that maintain constant control and/or surveillance during transit and have the capability for immediate communication to summon appropriate response or assistance; and

(iii) Use carriers that have established tracking systems that require an authorized signature prior to releasing the package for delivery or return.

(c) *Procedures.* (1) Each licensee who makes arrangements for the shipment of category 1 quantities of radioactive material shall develop normal and contingency licensee written procedures to address:

(i) Notifications;

(ii) Communications protocols. Communication protocols must include a strategy for the use of authentication and duress codes and provisions for refueling or other stops, detours, and locations where communication is expected to be temporarily lost;

(iii) Loss of communications; and

(iv) Response to actual, attempted, or suspicious activities related to the theft or diversion of a shipment.

(2) Each licensee who makes arrangements for the shipment of category 1 quantities of radioactive material shall ensure that drivers, accompanying personnel, train crew, and movement control center personnel are appropriately trained in and understand normal and contingency procedures.

(d) *Investigations.* (1) Each licensee who makes arrangements for the shipment of category 1 quantities of radioactive material shall immediately conduct an investigation, in coordination with the receiving licensee, of any shipment that is lost or unaccounted for after the designated no-later-than arrival time in the advance notification.

(2) Each licensee who makes arrangements for the shipment of category 2 quantities of radioactive material shall immediately conduct an investigation, in coordination with the receiving licensee, to determine the location of the licensed material if the shipment does not arrive by the no-later-than arrival time.

### **§ 37.109 Reporting of events.**

(a) The shipping licensee shall notify the appropriate local law enforcement agency (LLEA), the NRC Operations Center (301 816-5100), and the license issuing authority, immediately of its determination that a shipment of category 1 radioactive material is lost or missing. The appropriate LLEA would be the law enforcement agency in the area of the shipment's last confirmed location. During the investigation, the shipping licensee will provide agreed upon updates to the NRC Operations Center on the status of the investigation.

(b) The shipping licensee shall immediately notify the NRC Operations Center (301 816-5100) when it is determined that the shipment of category 2 radioactive material is lost or missing. If, after 24 hours of investigating, the location of the licensed material still cannot be determined, the radioactive material shall be deemed missing and the licensee shall again immediately notify the NRC Operations Center.

(c) The shipping licensee, as soon as possible upon discovery of any actual, attempted or suspicious activities related to the theft or diversion of a shipment of category 1 quantity of radioactive material, shall notify the designated LLEA along the shipment route. As soon as possible after notifying the LLEA, the licensee shall notify the NRC Operations Center and the license issuing authority upon discovery of any actual, attempted, or suspicious activities related to the theft or diversion of a shipment of category 1 radioactive material.

(d) The shipping licensee, as soon as possible upon discovery of any actual, attempted or suspicious activities related to the theft or diversion of a shipment of category 2 quantity of radioactive material, shall notify the NRC Operations Center.

(e) The shipping licensee shall notify the NRC Operations Center, the license issuing authority, and the LLEA upon recovery of any lost or missing category 1 quantities of radioactive material.

(f) The shipping licensee shall notify the NRC Operations Center upon recovery of any lost or missing category 2 quantities of radioactive material.

(g) The initial telephonic notification must be followed within a period of 60 days by a written report submitted to the NRC by an appropriate method listed in § 37.5. In addition, the licensee shall provide one copy of the written report addressed to the Director, Division of Security Policy, Office of Nuclear Security and Incident Response. The report must include sufficient information for NRC analysis and evaluation.

(h) Subsequent to filing the written report, the licensee shall also report any additional substantive information on the loss or theft within 30 days after the licensee learns of such information.

### **Appendix A to Part 37—Category 1 and Category 2 Radioactive Materials**

Table 1 – Category 1 and Category 2 Threshold Limits<sup>1</sup>

The Terabecquerel (TBq) values are the regulatory standard. The curie (Ci) values specified are obtained by converting from the TBq value. The curie values are provided for practical usefulness only and are rounded after conversion.

<b>Radioactive material</b>	<b>Category 1 (TBq)</b>	<b>Category 1 (Ci)</b>	<b>Category 2 (TBq)</b>	<b>Category 2 (Ci)</b>
Americium-241	60	1,600	0.6	16
Americium-241/Be	60	1,600	0.6	16
Californium-252	20	540	0.2	5.4
Cobalt-60	30	810	0.3	8.1
Curium-244	50	1,400	0.5	14
Cesium-137	100	2,700	1	27
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,200	0.8	22
Plutonium-238	60	1,600	0.6	16
Plutonium-239/Be	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226	40	1,100	0.4	11
Selenium-75	200	5,400	2	54
Strontium-90	1,000	27,000	10	270
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81

<sup>1</sup>Calculations Concerning Multiple Sources or Multiple Radionuclides

The "sum of fractions" methodology for evaluating combinations of multiple sources or multiple radionuclides, is to be used in determining whether a facility or activity meets or exceeds the threshold limits and is thus subject to the physical requirements of this part.

I. If multiple sources and/or multiple radionuclides are present in a facility or activity, the sum of the fractions of the activity of each of the radionuclides must be determined to verify the facility or activity is less than the Category 1 or 2 limits of Table 1, as appropriate. Otherwise, if the calculated sum of the fractions ratio, using the following equation, is greater than or equal to 1.0, then the facility or activity meets or exceeds the threshold limits of Table 1 and the applicable physical provisions of this part apply.

II. Use the equation below to calculate the sum of the fractions ratio by inserting the actual activity of the applicable radionuclides from Table 1 or of the individual sources (of the same radionuclides from Table 1) in the numerator of the equation and the corresponding threshold activity limit from the Table 1 in the denominator of the equation. Sum of the fraction calculations must be performed in metric values (i.e., TBq) and the numerator and denominator values must be in the same units.

$R_1$  = activity for radionuclides or source number 1

$R_2$  = activity for radionuclides or source number 2

$R_N$  = activity for radionuclides or source number n

$AR_1$  = activity limit for radionuclides or source number 1

$AR_2$  = activity limit for radionuclides or source number 2

$AR_N$  = activity limit for radionuclides or source number n

$$\sum_1^n \left[ \frac{R_1}{AR_1} + \frac{R_2}{AR_2} + \frac{R_n}{AR_n} \right] \geq 1.0$$