



# Oregon

Theodore R. Kulongoski, Governor

Department of Human  
Services

Public Health

Division

Environmental Public  
Health

Radiation Protection  
Services

800 NE Oregon Street, Suite 640  
Portland, OR 97232-2162



March 1, 2010

Terrence Reis, Deputy Director  
Division Materials Safety and State Agreements  
Office of Federal and State Materials and  
Environmental Management Programs  
U.S. Nuclear Regulatory Commission  
T8-E24  
Washington, D.C. 20555-0001

Dear Mr. Reis:

Enclosed is a copy of the final revisions to the State of Oregon, Radiation Protections Services Section, Oregon Administrative Rules. The grayed areas found in the attached compatibility chart show the changes made created by the comments received from the first review. These final revisions have been submitted to the State of Oregon, Secretary of State Office for final rules.

<u>Rats ID</u>	<u>Title</u>	<u>State Section</u>
• 2004-1	IAEA Transportation Safety Standards	Division 118

We believe that adoption of these rules satisfies the compatibility and health and safety categories established in the Office of Federal and State Materials and Environmental Management Programs (FSME) Procedure SA-200.

If you have any questions, please feel free to contact me at (971) 673-0500 or email me @ [Todd.s.carpenter@state.or.us](mailto:Todd.s.carpenter@state.or.us)

Sincerely,

Todd S. Carpenter  
Licensing Manager

*“Assisting People to Become Independent, Healthy and Safe”*  
An Equal Opportunity Employer



**Final Published Rule Revision for RATS 2004-1**  
**Final Oregon Administrative Rules**  
**IAEA Transportation Safety Standards**

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**Part 71.0**  
**333-118-0010**

**Purpose and Scope**

The rules in this division apply to any licensee authorized by specific or general license to receive, possess, use, or transfer licensed material, if the licensee delivers that material to a carrier for transport, transports the material outside the site of usage as specified in the license, or transports that material on public highways. No provision of this part authorizes possession of licensed material.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

Hist.: HD 1-1991, f. & cert. ef. 1-8-91; PH 4-2007, f. & cert. ef. 3-1-07; PH 14-2008, f. & cert. ef. 9-15-08

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**Part 71.3**  
**333-118-0030**

**Requirement for License**

No person shall transport radioactive material or deliver radioactive material to a carrier for transport except as authorized in a general or specific license issued by the Agency or as exempted in OAR 333-118-0040.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

Hist.: HD 1-1991, f. & cert. ef. 1-8-91; PH 4-2007, f. & cert. ef. 3-1-07

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**Part 71.4**  
**333-118-0020**

**Definitions**

As used in this division, the following definitions apply:

(1) "A1" means the maximum activity of special form radioactive material permitted in a Type A package. This value is either listed in Appendix A to 10 CFR Part 71, Table A-1, or may be derived in accordance with the procedures prescribed in Appendix A to 10 CFR Part 71.

(2) "A2" means the maximum activity of radioactive material, other than special form material, LSA, and SCO material, permitted in a Type A package. This value is either

listed in Appendix A to 10 CFR Part 71, Table A-1, or may be derived in accordance with the procedures prescribed in Appendix A to 10 CFR Part 71.

(3) "Carrier" means a person engaged in the transportation of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.

(4) "Closed transport vehicle" means a transport vehicle equipped with a securely attached exterior enclosure that during normal transportation restricts the access of unauthorized persons to the cargo space containing the radioactive material. The enclosure may be either temporary or permanent but shall limit access from top, sides, and ends. In the case of packaged materials, it may be of the "see-through" type.

(5) "Consignment" means each shipment of a package or groups of packages or load of radioactive material offered by a shipper for transport.

(6) "Conveyance" means for transport by public highway or rail any transport vehicle or large freight container; or for transport by water any vessel, or any hold, compartment, or defined deck area of a vessel including any transport vehicle on board the vessel; or for transport by aircraft.

(7) "Criticality Safety Index (CSI)" means the dimensionless number (rounded up to the next tenth) assigned to and placed on the label of a fissile material package, to designate the degree of control of accumulation of packages containing fissile material during transportation. Determination of criticality safety index is described in 10 CFR 71.22, 71.23, and 71.59.

(8) "Deuterium" means for the purposes of 10 CFR Parts 71.15 and 71.22, deuterium and any deuterium compounds, including heavy water, in which the ratio of deuterium atoms to hydrogen atoms exceeds 1:5000.

(9) "Exclusive use" means the sole use of a conveyance by a single consignor and for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor or consignee. The consignor and the carrier must ensure that any loading or unloading is performed by personnel having radiological training and resources appropriate for safe handling of the consignment. The consignor must issue specific instructions, in writing, for maintenance of exclusive use shipment controls, and include them with the shipping paper information provided to the carrier by the consignor.

NOTE: The term "exclusive use" is used interchangeably with the terms "sole use" or "full load" in other regulations, such as Title 49 of the Code of Federal Regulations.

(10) "Fissile material" means the radionuclides plutonium-239, plutonium-241, uranium-233, and uranium-235, or any combination of these radionuclides. Fissile material means the fissile nuclides themselves, not material containing fissile nuclides. Unirradiated natural uranium and depleted uranium, and natural uranium or depleted uranium that has been irradiated in thermal reactors only, are not included in this definition. Certain exclusions from fissile material controls are provided in 10 CFR 71.15. NOTE:

Department jurisdiction is limited to special nuclear material in quantities not sufficient to form a critical mass as defined in division 100 of this chapter.

(11) "Fissile material package" means a fissile material packaging together with its fissile material contents.

(12) "Graphite" means for the purposes of 10 CFR 71.15 and 71.22 and graphite with a boron equivalent content less than five parts per million and density greater than 1.5 grams per cubic centimeter.

(13) "Licensed material" means radioactive or special nuclear material received, possessed, used, or transferred under a general or specific license issued by the Department.

NOTE: The definition of licensed material in this division is used in the same way as in 49 CFR 173.403.

(14) "Low specific activity (LSA) material" means radioactive material with limited specific activity that is nonfissile or is excepted under 10 CFR 71.15, and that satisfies the descriptions and limits set forth below. Shielding materials surrounding the LSA material may not be considered in determining the estimated average specific activity of the package contents. LSA material must be in one of three groups:

(a) LSA-I:

(A) Ores containing only naturally occurring radionuclides (e.g., uranium, thorium) that are not intended to be processed for the use of these radionuclides;

(B) Solid unirradiated natural uranium, depleted uranium, natural thorium, or their solid or liquid compounds or mixtures;

(C) Radioactive material, other than fissile material, for which the A2 value is unlimited; or

(D) Other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the value for exempt material activity concentration determined in accordance with 10 CFR 71, Appendix A.

(b) LSA-II:

(A) Water with tritium concentration up to 0.8 TBq/liter (20.0 Ci/liter); or

(B) Material in which the radioactive material is distributed throughout, and the average specific activity does not exceed  $10^{-4}$  A2/g for solids and gases, and  $10^{-5}$  A2/g for liquids.

(c) LSA-III. Solids (e.g., consolidated wastes, activated materials) in which:

(A) The radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.);

(B) The radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble material, so that, even under loss of packaging, the loss of radioactive material per package by leaching, when placed in water for seven days, would not exceed  $1\text{E-}1$  A2; and

(C) The estimated average specific activity of the solid does not exceed  $2\text{E-}3$  A2 per gram.

(15) "Low toxicity alpha emitters" means natural uranium, depleted uranium, natural thorium; uranium-235, uranium-238, thorium-232, thorium-228 or thorium-230 when contained in ores or physical or chemical concentrates or tailings; or alpha emitters with a half-life of less than 10 days.

(16) "Natural thorium" means thorium with the naturally occurring distribution of thorium isotopes (essentially 100 weight percent thorium-232).

(17) "Normal form radioactive material" means radioactive material that has not been demonstrated to qualify as "special form radioactive material".

(18) "Package" means the packaging together with its radioactive contents as presented for transport.

(a) Fissile material package or Type AF package, Type BF package, Type B(U)F package, or Type B(M)F package means a fissile material packaging together with its fissile material contents.

(b) Type A package means a Type A packaging together with its radioactive contents. A Type A package is defined and must comply with the DOT regulations in 49 CFR part 173.

(c) Type B package means a Type B packaging together with its radioactive contents. On approval, a Type B package design is designated by NRC as B(U) unless the package has a maximum normal operating pressure of more than 700 kPa (100 lbs/in<sup>2</sup>) gauge or a pressure relief device that would allow the release of radioactive material to the environment under the tests specified in 10 CFR 71.73 (hypothetical accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval of international shipments. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, see DOT regulations in 49 CFR Part 173. A Type B package approved before September 6, 1983, was designated only as Type B. Limitations on its use are specified in 10 CFR 71.19.

(19) "Packaging" means the assembly of components necessary to ensure compliance with the packaging requirements of 10 CFR Part 71.4. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The vehicle, tie-down system, and auxiliary equipment may be designated as part of the packaging.

(20) "Regulations of the U.S. Department of Transportation" means the regulations in 49 CFR Parts 100-189 and Parts 390-397.

(21) "Regulations of the U.S. Nuclear Regulatory Commission" means the regulations in 10 CFR 71.

(22) "Special form radioactive material" means radioactive material that satisfies the following conditions:

(a) It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule;

(b) The piece or capsule has at least one dimension not less than five millimeters (0.2 inch.); and

(c) It satisfies the requirements of 10 CFR Part 71.75. A special form encapsulation designed in accordance with the requirements of 10 CFR Part 71.4 in effect on June 30, 1983 (see 10 CFR Part 71, revised as of January 1, 1983), and constructed before July 1, 1985 and a special form encapsulation designed in accordance with the requirements of 10 CFR Part 71.4 in effect on March 31, 1996 (see 10 CFR Part 71, revised as of January 1, 1983), and constructed before April 1, 1998, may continue to be used. Any other special form encapsulation must meet the specifications of this definition.

(23) "Specific activity" of a radionuclide means the radioactivity of a radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the radioactivity per unit mass of the material.

(24) "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.

(25) "Surface contaminated object" (SCO) means a solid object that is not itself classed as radioactive material, but which has radioactive material distributed on any of its surfaces. SCO must be in one of two groups with surface activity not exceeding the following limits:

(a) SCO-I: a solid object on which:

(A) The non-fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4 Bq/cm<sup>2</sup> (10<sup>-4</sup> microcurie/cm<sup>2</sup>) for beta, gamma and low toxicity alpha emitters, or 0.4 Bq/cm<sup>2</sup> (10<sup>-5</sup> microcurie/cm<sup>2</sup>) for all other alpha emitters;

(B) The fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4x10<sup>4</sup> Bq/cm<sup>2</sup> (1.0 microcurie/cm<sup>2</sup>) for beta, gamma and low toxicity alpha emitters, or 4x10<sup>3</sup> Bq/cm<sup>2</sup> (0.1 microcurie/cm<sup>2</sup>) for all other alpha emitters; and

(C) The non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4x10<sup>4</sup> Bq/cm<sup>2</sup> (1 microcurie/cm<sup>2</sup>) for beta, gamma and low toxicity alpha emitters, or 4x10<sup>3</sup> Bq/cm<sup>2</sup> (0.1 microcurie/cm<sup>2</sup>) for all other alpha emitters.

(b) SCO-II: a solid object on which the limits for SCO-I are exceeded and on which:

(A) The nonfixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 400 Bq/cm<sup>2</sup> (10<sup>-2</sup> microcurie/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters or 40 Bq/cm<sup>2</sup> (10<sup>-3</sup> microcurie/cm<sup>2</sup>) for all other alpha emitters;

(B) The fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 8 x 10<sup>5</sup> Bq/cm<sup>2</sup> (20 microcuries/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 8 x 10<sup>4</sup> Bq/cm<sup>2</sup> (2 microcuries/cm<sup>2</sup>) for all other alpha emitters; and

(C) The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 8 x 10<sup>5</sup> Bq/cm<sup>2</sup> (20 microcuries/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 8 x 10<sup>4</sup> Bq/cm<sup>2</sup> (2 microcuries/cm<sup>2</sup>) for all other alpha emitters.

(26) "Transport index (TI)" means the dimensionless number, (rounded up to the next tenth) placed on the label of a package to designate the degree of control to be exercised by the carrier during transportation. The transport index is the number determined by multiplying the maximum radiation level in millisievert (mSv) per hour at one meter (3.3 ft) from the external surface of the package by 100 (equivalent to the maximum radiation level in millirem per hour at one meter (3.3 ft)).

(27) "Type A quantity" means a quantity of radioactive material, the aggregate radioactivity of which does not exceed A1 for special form radioactive material or A2 for normal form radioactive material, where A1 and A2 are given in 10 CFR Part 71 Appendix A or may be determined by procedures described in 10 CFR Part 71 Appendix A.

(28) "Type A package" means a packaging that, together with its radioactive contents limited to A1 or A2 as appropriate, meets the requirements of 49 CFR 173.410 and 173.412 and is designed to retain the integrity of containment and shielding under normal conditions of transport as demonstrated by the tests set forth in 173.465 or 173.466, as appropriate.

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(29) "Type B package" means a Type B packaging together with its radioactive contents. NOTE: A type B package design is designated as B(U) or B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, refer to 49 CFR Part 173. A Type B package approved prior to September 6, 1983, was designated only as Type B. Limitations on its use are specified in OAR 333-118-0035.

(30) "Type B packaging" means a packaging designed to retain the integrity of containment and shielding when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10 CFR Part 71.

(31) "Type B quantity" means a quantity of radioactive material greater than Type A quantity.

NOTE: 10 CFR Part 71 Appendix A referred to or incorporated by reference in this rule is attached to this division or available from the Department.

(32) "Unirradiated uranium" means uranium containing not more than  $2E+3$  Bq of plutonium per gram of uranium-235, not more than  $9E+6$  Bq of fission products per gram of uranium-235, and not more than  $5E-3$  g of uranium-236 per gram of uranium-235.

(33) "Uranium -- natural, depleted, enriched":

(a) "Natural uranium" means uranium isotopes with the naturally occurring distribution of uranium, isotopes (which is approximately 0.711 weight percent uranium-235, and the remainder by weight essentially uranium-238).

(b) "Depleted uranium" means uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

(c) "Enriched uranium" means uranium containing more uranium-235 than the naturally occurring distribution of uranium isotopes.

[ED. NOTE: Appendices referenced are available from the agency.]

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

## Part 71.5

### 333-118-0050

#### Transportation of Licensed Material

(1) Each licensee who transports licensed material outside the site of usage, as specified in the Department license, or where transport is on public highways, or who delivers licensed material to a carrier for transport shall:

(a) Comply with the applicable requirements, appropriate to the mode of transport, of the regulations of the U.S. Department of Transportation in 49 CFR Parts 107, 171-180, and 390-397, appropriate to the mode of transportation. The licensee shall particularly note the regulations of U.S. Department of Transportation in the following areas:

(A) Packaging -- 49 CFR Part 173: Subparts A, B and I.

(B) Marking and labeling -- 49 CFR Part 172: Subpart D, 172.400 through 172.407, and 172.436 through 172.441, of Subpart E.

(C) Placarding -- 49 CFR Part 172: Subpart F, especially 172.500 through 172.519, and 172.556, and Appendices B and C.

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- (D) Accident reporting -- 49 CFR Part 171: 171.15 and 171.16.
- (E) Shipping papers and emergency information -- 49 CFR Part 172: Subparts C and G.
- (F) Hazardous material employee training -- 49 CFR Part 172: Subpart H.
- (G) Security plans -- 49 CFR Part 172: Subpart I
- (H) Hazardous material shipper/carrier registration -- 49 CFR Part 107: Subpart G.

(b) The licensee also shall comply with applicable U.S. Department of Transportation regulations pertaining to the following modes of transportation:

- (A) Rail -- 49 CFR Part 174: Subparts A through D and K.
- (B) Air -- 49 CFR Part 175.
- (C) Vessel -- 49 CFR Part 176: Subparts A through F and M.
- (D) Public highway -- 49 CFR Part 177 and Parts 390 through 397.

(c) Assure that any special instructions needed to safely open the package are sent to or have been made available to the consignee.

(2) If, for any reason, the regulations of the U.S. Department of Transportation are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of 49 CFR Parts 170 through 189 appropriate to the mode of transport and to the same extent as if the shipment were subject to the regulations.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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## **Part 71.8 and 71.13**

### **333-118-0051**

#### **Deliberate Misconduct**

(1) This rule applies to any:

- (a) Licensee;
- (b) Certificate holder;
- (c) Quality assurance program approval holder;
- (d) Applicant for a license, certificate, or quality assurance program approval;
- (e) Contractor (including a supplier or consultant) or subcontractor, to any person identified in subsection (1)(d) of this section; or
- (f) Employees of any person identified in subsections (1)(a) through (e) of this rule.

(2) A person identified in subsections (1)(a) through (f) of this rule who knowingly provides to an entity any components, materials, or other goods or services that relate to a licensee's, certificate holder's, quality assurance program approval holder's, or applicant's activities subject to this rule may not:

- (a) Engage in deliberate misconduct that causes or would have caused, if not detected, a licensee, certificate holder, quality assurance program approval holder, or any applicant to be in violation of any rule, regulation, or order; or any term, condition or limitation of any license, certificate, or approval issued by the Department; or
- (b) Submit to the Department, a licensee, a certificate holder, quality assurance program approval holder, an applicant for a license, certificate or quality assurance program approval, or a licensee's, applicant's, certificate holder's, or quality assurance program approval holder's contractor or subcontractor, information that the person knows to be incomplete or inaccurate.

(3) A person who violates section (2) of this rule may be subject to enforcement action by the Department.

(4) For the purposes of section (2) of this rule, deliberate misconduct means an intentional act or omission that the person knows:

(a) Would cause a licensee, certificate holder, quality assurance program approval holder, or applicant for a license, certificate, or quality assurance program approval to be in violation of any rule, regulation, or order; or any term, condition, or limitation of any license or certificate issued by the Department; or

(b) Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, certificate holder, quality assurance program approval holder, applicant, or the contractor or subcontractor of any of them.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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#### **Part 71.14**

##### **333-118-0052**

###### **Exemption for Low Level Materials**

A licensee is exempt from all the requirements of division 118 with respect to shipment or carriage of the following low-level materials:

(1) Natural material and ores containing naturally occurring radionuclides that are not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the values specified in 10 CFR Parts 71, Appendix A, Table A-2.

(2) Materials for which the activity concentration is not greater than the activity concentration values specified in 10 CFR Parts 71, Appendix A, Table A-2, or for which the consignment activity is not greater than the limit for an exempt consignment found in 10 CFR Parts 71, Appendix A, Table A-2.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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#### **Part 71.15**

##### **333-118-0053**

###### **Exemption from Classification as Fissile Material**

(1) Fissile material meeting the requirements of at least one section of this rule are exempt from classification as fissile material and from the fissile material package standards of 10 CFR Parts 71.55 and 71.59, but are subject to all other requirements of this rule, except as noted.

(a) Individual package containing two grams or less fissile material.

(b) Individual or bulk packaging containing 15 grams or less of fissile material provided the package has at least 200 grams of solid nonfissile material for every gram of fissile material. Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass for solid nonfissile material.

(c) Low concentrations of solid fissile material commingled with solid nonfissile material, provided that:

(A) There is at least 2000 grams of solid nonfissile material for every gram of fissile material; and

(B) There is no more than 180 grams of fissile material distributed within 360 kg of contiguous nonfissile material.

(d) Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass of solid nonfissile material.

(e) Uranium enriched in uranium-235 to a maximum of one percent by weight, and with total plutonium and uranium-233 content of up to one percent of the mass of uranium-235, provided that the mass of any beryllium, graphite, and hydrogenous material enriched in deuterium constitutes less than five percent of the uranium mass.

(f) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of two percent by mass, with a total plutonium and uranium-233 content not exceeding 0.002 percent of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of two. The material must be contained in at least a DOT Type A package.

(g) Packages containing, individually, a total plutonium mass of not more than 1000 grams, of which not more than 20 percent by mass may consist of plutonium-239, plutonium-241, or any combination of these radionuclides.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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## **Part 17.17**

### **General Licenses**

#### **333-118-0070**

##### **General License: Nuclear Regulatory Commission-Approved Packages**

(1) A general license is hereby issued to any licensee of the Department to transport, or to deliver to a carrier for transport, licensed material in a package for which a license, Certificate of Compliance (CoC), or other approval has been issued by the U.S. Nuclear Regulatory Commission.

(2) This general license applies only to a licensee who:

(a) Has a quality assurance program approved by the Nuclear Regulatory Commission as satisfying the provisions of 10 CFR Part 71, Subpart H and applicable requirements in OAR 333-118-0200;

(b) Has a copy of the specific license, certificate of compliance, or other approval by the Nuclear Regulatory Commission of the package and has the drawings and other documents referenced in the approval relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment;

(c) Complies with the terms and conditions of the license, certificate, or other approval by the Nuclear Regulatory Commission, as applicable, and the applicable requirements of division 118; and

(d) Prior to the licensee's first use of the package, has registered with the U.S. Nuclear Regulatory Commission outlined in 10 CFR Part 71.17.

(3) The general license in section (1) of this rule applies only when the package approval authorizes use of the package under this general license.

(4) For previously approved Type B packages which are not designated as either B(U) or B(M) in the Certificate of Compliance, this general license is subject to additional restrictions in OAR 333-118-0080. For a Type B or fissile material package, the design of which was approved by Nuclear Regulatory Commission before April 1, 1996, the general license is subject to additional restrictions of OAR 333-118-0080.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.20**  
**333-118-0090**

**General License: U.S. Department of Transportation Specification Container**

(1) A general license is issued to any licensee of the Agency to transport, or to deliver to a carrier for transport, licensed material in a specification container containing a fissile material or a Type B quantity of radioactive material as specified in 49 CFR Parts 173 and 178.

(2) This general license applies only to a licensee who has a quality assurance program required by OAR 333-118-0200 and approved by the Agency.

(a) Has a copy of the specification;

(b) Complies with the terms and conditions of the specification and the applicable requirements of division 118; and

(c) Has a quality assurance program required by OAR 333-118-0200.

(3) The general license in this rule is subject to the limitation that the specification container may not be used for a shipment to a location outside the United States except by multilateral approval as defined in 49 CFR 173.403.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

Hist.: HD 1-1991, f. & cert. ef. 1-8-91; PH 3-2003, f. & cert. ef. 3-27-03; PH 31-2004(Temp), f. & cert. ef. 10-8-04 thru 4-5-05; PH 36-2004, f. & cert. ef. 12-1-04; PH 4-2007, f. & cert. ef. 3-1-07

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**Part 71.21**  
**333-118-0100**

**General License: Use of Foreign Approved Package**

(1) A general license is issued to any licensee of the Agency to transport, or to deliver to a carrier for transport, licensed material in a package the design of which has been approved in a foreign national competent authority certificate which has been revalidated by the U.S. Department of Transportation as meeting the applicable requirements of 49 CFR 171.12.

(2) This general license applies only to international shipments.

(3) This general license applies only to a licensee who:

(a) Has a copy of the applicable certificate, the revalidation, and the drawings and other documents referenced in the certificate relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment;

(b) Complies with the terms and conditions of the certificate and revalidation and with the applicable requirements of this division.

(c) Has a quality assurance program approved by the Nuclear Regulatory Commission.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

Hist.: HD 1-1991, f. & cert. ef. 1-8-91; PH 3-2003, f. & cert. ef. 3-27-03; PH 31-2004(Temp), f. & cert. ef. 10-8-04 thru 4-5-05; PH 36-2004, f. & cert. ef. 12-1-04; PH 4-2007, f. & cert. ef. 3-1-07

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**Part 71.22**  
**333-118-0110**

**General License: Fissile Material**

A general license is issued to any licensee of the Department to transport fissile material, or to deliver fissile material to a carrier for transport, if the material is shipped in accordance with 10 CFR Part 71.22.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.23**  
**333-118-0120**

**General License: Plutonium Beryllium Special Form Material** A general license is issued to any licensee of the Department to transport fissile material in the form of

plutonium-beryllium (Pu-Be) special form sealed sources, or to deliver Pu-Be sealed sources to a carrier for transport, if the material is shipped in accordance with 10 CFR Part 71.23.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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Part 71.47

**333-118-0125**

**External Radiation Standards for All Packages**

Each package of radioactive materials offered for transportation must be designed and prepared for shipment so that under conditions normally incident to transportation the radiation level does not exceed 2 mSv/h (200 mrem/h) at any point on the external surface of the package, and the transport index does not exceed 10. A package that exceeds the radiation level must be transported by exclusive use shipment only, and the radiation levels for such shipment must be in accordance with 10 CFR Part 71.47.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 – 453.807

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**Part 71.83**

**Operating Controls and Procedures**

**333-118-0140**

**Preliminary Determinations**

Prior to the first use of any packaging for the shipment of radioactive material:

- (1) The licensee shall show that there are no cracks, pinholes, uncontrolled voids, or other defects that could significantly reduce the effectiveness of the packaging;
- (2) Where the maximum normal operating pressure will exceed 35 kilopascals (five pounds per square inch (psi)) gauge, the licensee shall test the containment system at an internal pressure at least 50 percent higher than the maximum normal operating pressure to show that the system will maintain its structural integrity at that pressure;
- (3) The licensee shall determine that the packaging meets 10 CFR Part 71.85(b); and
- (4) The licensee shall conspicuously and durably mark the packaging with its model number, serial number, gross weight, and a package identification number as assigned by the U.S. Nuclear Regulatory Commission.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.85**

**333-118-0140**

**Preliminary Determinations**

Prior to the first use of any packaging for the shipment of radioactive material:

- (1) The licensee shall show that there are no cracks, pinholes, uncontrolled voids, or other defects that could significantly reduce the effectiveness of the packaging;

(2) Where the maximum normal operating pressure will exceed 35 kilopascals (five pounds per square inch (psi) gauge, the licensee shall test the containment system at an internal pressure at least 50 percent higher than the maximum normal operating pressure to show that the system will maintain its structural integrity at that pressure;

(3) The licensee shall determine that the packaging has been fabricated in accordance with the design approved by the U.S. Nuclear Regulatory Commission; and

(4) The licensee shall conspicuously and durably mark the packaging with its model number, serial number, gross weight, and a package identification number as assigned by the U.S. Nuclear Regulatory Commission.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

Hist.: HD 1-1991, f. & cert. ef. 1-8-91; PH 3-2003, f. & cert. ef. 3-27-03; PH 31-2004(Temp), f. & cert. ef. 10-8-04 thru 4-5-05; PH 36-2004, f. & cert. ef. 12-1-04; PH 4-2007, f. & cert. ef. 3-1-07

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## **Part 71.87**

### **333-118-0150**

#### **Routine Determinations**

Prior to each shipment of licensed material, the licensee shall ensure that the package with its contents satisfies the applicable requirements of this division and of the license. The licensee shall determine that:

- (1) The package is proper for the contents to be shipped.
- (2) The package is in unimpaired physical condition except superficial defects such as marks or dents.
- (3) Each closure device of the packaging, including any required gasket, is properly installed and secured and free of defects.
- (4) Any system for containing liquid is adequately sealed and has adequate space or other specified provision for expansion of the liquid.
- (5) Any pressure relief device is operable and set in accordance with written procedures.
- (6) The package has been loaded and closed in accordance with written procedures.
- (7) Any structural part of the package which could be used to lift or tie down the package during transport is rendered inoperable for that purpose unless it satisfies design requirements specified in 10 CFR 71.45.
- (8) For fissile material, any moderator or neutron absorber, if required, is present and in proper condition.
- (9) The level of non-fixed (removable) radioactive contamination on the external surfaces of each package offered for shipment is as low as reasonably achievable and within the limits specified in Department of Transportation regulations outlined in 49 CFR Part 173.443.
  - (a) External radiation levels around the package and around the vehicle, if applicable, will not exceed the limits specified in 10 CFR Part 71.47 at anytime during transportation; and

(b) Accessible package surface temperatures will not exceed the limits specified in 10 CFR Part 71.43(g) at any time during transportation.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.88**

**333-118-0160**

**Air Transport of Plutonium**

(1) Notwithstanding the provisions of any general licenses and notwithstanding any exemptions stated directly in this division or included indirectly by citation of the U.S. Department of Transportation regulations 49 CFR Chapter I, as may be applicable, the licensee shall assure that plutonium in any form is not transported by air, or delivered to a carrier for air transport, unless:

(a) The plutonium is contained in a medical device designed for individual human application;

(b) The plutonium is contained in a material in which the specific activity is less than or equal to the activity concentration values for plutonium specified in 10 CFR Part 71, Appendix A, Table A-2 and in which the radioactivity is essentially uniformly distributed;

(c) The plutonium is shipped in a single package containing no more than an A2 quantity of plutonium in any isotope or form and is shipped in accordance with OAR 333-118-0050 and 10 CFR Part 71.5; or

(d) The plutonium is shipped in a package specifically authorized for the shipment of plutonium by air in the Certificate of Compliance for that package issued by the Nuclear Regulatory Commission.

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(2) Nothing in OAR 333-118-0160(1)(a) is to be interpreted as removing or diminishing the requirements in 10 CFR Part 73.24.

(3) For a shipment of plutonium by air, which is subject to OAR 333-118-0160(1)(d), the licensee shall, through special arrangement with the carrier, require compliance with 49 CFR 175.704, U.S. Department of Transportation regulations applicable to the air transport of plutonium.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.89**

**333-118-0162**

**Opening Instructions**

Before delivery of a package to a carrier for transport, the licensee shall ensure that any special instructions needed to safely open the package have been sent to, or otherwise made available to, the consignee for the consignee's use in accordance with 10 CFR 20.1906(e).

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.97**

**333-118-0190**

**Advance Notification of Transport of Nuclear Waste**

(1) Each licensee shall provide advance notification to the Governor of the State of Oregon or designee of the shipment of licensed material through or across the boundary of the state before the transport or delivery to a carrier for transport of licensed material outside the confines of the licensee's plant or other place of storage. **NOTE:** A list of the mailing addresses of the governors and governors' designees is available upon request from the Director, Office of State, Local, and Indian Tribe Programs, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

(2) Nuclear waste transports shall be transported as specified in 10 CFR Part 71.97.

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Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

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**Part 71.101 – 71.137**

**Quality Assurance**

**333-118-0200**

**Quality Assurance Requirements**

(1), Each licensee shall establish and maintain a Quality Assurance program specified by the Nuclear Regulatory Commission, 10 CFR, Subpart H, Parts 71.101 through 71.137.

(2) Licensees shall provide the Department their Quality Assurance program or plans for review and approval by the Department.

Stat. Auth.: ORS 453.635

Stats. Implemented: ORS 453.605 - 453.807

**Compatibility with IAEA Transportation Safety Standards (TS-R-1) and Other Transportation Safety Amendments  
(69 FR 3697, 58038 January 26, 2004) RATS ID 2004-1 Effective date 10/1/04  
Due for State adoption: October 1, 2007**

<b>Change to NRC Section</b>	<b>Title</b>	<b>State Section</b>	<b>Compatibility Category</b>	<b>Summary of Change To CFR</b>	<b>Difference Yes/No</b>	<b>Significant Yes/No</b>	<b>If a Difference, Why Or Why Not was a Comment Generated?</b>
§71.0	Purpose and scope.		D	N/A	N/A		
§71.0 (c)	Purpose and scope.		[B]  <b>333-118-0010</b>	<b>Amended Paragraph (c):</b> (c) The regulations in this part apply to any licensee authorized by specific or general license issued by the Commission to receive, possess, use, or transfer licensed material, if the licensee delivers that material to a carrier for transport, transports the material outside the site of usage as specified in the NRC license, or transports that material on public highways. No provision of this part authorizes possession of licensed material.			
§71.1	Communications and records.		D	N/A	N/A		
§71.2	Interpretations.		D	N/A	N/A		
§71.3	Requirement for license.		[B]  <b>333-118-0030</b>	Except as authorized in a general license or a specific license issued by the			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0030	Commission, or as exempted in this part, no licensee may— (a) Deliver licensed material to a carrier for transport; or (b) Transport licensed material.			
§71.4	Definitions.		[B] 333-118-0020(1)	<b>Amended Definition:</b> A <sub>1</sub> means the maximum activity of special form radioactive material permitted in a Type A package. This value is either listed in Appendix A, Table A-1, of this part, or may be derived in accordance with the procedures prescribed in Appendix A of this part.			
§71.4	Definitions.		[B] 333-118-0020(2)	<b>Amended Definition:</b> A <sub>2</sub> means the maximum activity of radioactive material, other than special form material, LSA, and SCO material, permitted in a Type A package. This value is either listed in Appendix A, Table A-1, of this part, or may be derived in accordance with the procedures prescribed in Appendix A of this part.			
§71.4	Definitions.		[B] 333-118-0020(3)	<b>Amended Definition:</b> Carrier means a person engaged in the transportation			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
				of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.			
§71.4	Definitions.		D- for those States which have no licensees that use Type B packages. or [B]- for those States which have licensees that use Type B packages.  <b>N/A</b>	<b>Amended Definition:</b> Certificate holder means a person who has been issued a certificate of compliance or other package approval by the Commission.			
§71.4	Definitions.		D- for those States which have no licensees that use Type B packages. or [B]- for those States which have licensees that use Type B packages.  <b>N/A</b>	<b>Amended Definition:</b> Certificate of Compliance (CoC) means the certificate issued by the Commission under subpart D of this part which approves the design of a package for the transportation of radioactive material.			
§71.4	Definitions.		D <b>Did not add</b>	<b>Amended Definition:</b> Close reflection by water	N/A		
§71.4	Definitions.		[B]	<b>Amended Definition:</b>			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(5)	Consignment means each shipment of a package or groups of packages or load of radioactive material offered by a shipper for transport.			
§71.4	Definitions.		D Did not add	<b>Amended Definition:</b> Containment system	N/A		
§71.4	Definitions.		[B] 333-118-0020(6)	<b>Amended Definition:</b> Conveyance means: (1) For transport by public highway or rail any transport vehicle or large freight container; (2) For transport by water any vessel, or any hold, compartment, or defined deck area of a vessel including any transport vehicle on board the vessel; and (3) For transport by any aircraft.			
§71.4	Definitions.		[B] 333-118-0020(7)	<b>Amended Definition:</b> Criticality Safety Index (CSI) means the dimensionless number (rounded up to the next tenth) assigned to and placed on the label of a fissile material package, to designate the degree of control of accumulation of packages containing fissile material			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
				during transportation. Determination of the criticality safety index is described in §§ 71.22, 71.23, and 71.59.			
§71.4	Definitions.		B 333-118-0020(8)  333-118-0020(8)	<b>Amended Definition:</b> Deuterium means, for the purposes of §§ 71.15 and 71.22, deuterium and any deuterium compounds, including heavy water, in which the ratio of deuterium atoms to hydrogen atoms exceeds 1:5000.	N/A		
§71.4	Definitions.		D Did not add	<b>Amended Definition:</b> DOT	N/A		
§71.4	Definitions.		[B] 333-118-0020(9)	<b>Amended Definition:</b> Exclusive use means the sole use by a single consignor of a conveyance for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor or consignee. The consignor and the carrier must ensure that any loading or unloading is performed by personnel having radiological training and resources appropriate for safe handling of the consignment. The consignor must issue specific			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
				instructions, in writing, for maintenance of exclusive use shipment controls, and include them with the shipping paper information provided to the carrier by the consignor.			
§71.4	Definitions.		[B] <b>333-118-0020(10)</b>	<b>Amended Definition:</b> Fissile material means the radionuclides uranium-233, uranium-235, plutonium-239, and plutonium-241, or any combination of these radionuclides. Fissile material means the fissile nuclides themselves, not material containing fissile nuclides. Unirradiated natural uranium and depleted uranium and natural uranium or depleted uranium that has been irradiated in thermal reactors only, are not included in this definition. Certain exclusions from fissile material controls are provided in § 71.15.			
§71.4	Definitions.		B <b>333-118-0020(12)</b>	<b>Amended Definition:</b> Graphite means, for the purposes of §§ 71.15 and 71.22, graphite with a boron equivalent content less than 5 parts per million and density greater than 1.5 grams per cubic centimeter.	N/A		

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
§71.4	Definitions.		[D] 333-118-0020(13)	<b>Amended Definition:</b> Licensed material	N/A		
§71.4	Definitions.		[B] 333-118-0020(14)  333-118-0020(14)	<b>Amended Definition:</b> Low Specific Activity (LSA) material means radioactive material with limited specific activity which is nonfissile or is excepted under § 71.15, and which satisfies the descriptions and limits set forth below. Shielding materials surrounding the LSA material may not be considered in determining the estimated average specific activity of the package contents. LSA material must be in one of three groups: (1) LSA—I. (i) Uranium and thorium ores, concentrates of uranium and thorium ores, and other ores containing naturally occurring radioactive radionuclides which are not intended to be processed for the use of these radionuclides; (ii) Solid unirradiated natural uranium or depleted uranium or natural thorium or their solid or liquid compounds or mixtures; (iii) Radioactive material for which the A2 value is			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(14)	<p>unlimited; or</p> <p>(iv) Other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the value for exempt material activity concentration determined in accordance with Appendix A.</p> <p>(2) LSA—II.</p> <p>(i) Water with tritium concentration up to 0.8 TBq/liter (20.0 Ci/liter); or</p> <p>(ii) Other material in which the activity is distributed throughout and the average specific activity does not exceed 10<sup>-4</sup> A2/g for solids and gases, and 10<sup>-5</sup>A2/g for liquids.(3) LSA—III. Solids (e.g., consolidated wastes, activated materials), excluding powders, that satisfy the requirements of § 71.77, in which:</p> <p>(i) The radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.);</p> <p>(ii) The radioactive material is relatively insoluble, or it is</p>			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(14)	intrinsically contained in a relatively insoluble material, so that even under loss of packaging, the loss of radioactive material per package by leaching, when placed in water for 7 days, would not exceed 0.1 A2; and (iii) The estimated average specific activity of the solid does not exceed $2 \times 10^{-3}$ A2/g.			
§71.4	Definitions.		[B] 333-118-0020(15)	<b>Amended Definition:</b> Low toxicity alpha emitters means natural uranium, depleted uranium, natural thorium; uranium-235, uranium- 238, thorium-232, thorium-228 or thorium-230 when contained in ores or physical or chemical concentrates or tailings; or alpha emitters with a half-life of less than 10 days.	N/A		
§71.4	Definitions.		D Did not add	<b>Amended Definition:</b> Maximum normal operating pressure	N/A		
§71.4	Definitions.		[B] 333-118-0020(16)	<b>Amended Definition:</b> Natural thorium means thorium with the naturally occurring distribution of thorium isotopes (essentially			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
				100 weight percent thorium-232).			
§71.4	Definitions.		[B] <b>333-118-0020(17)</b>	<b>Amended Definition:</b> Normal form radioactive material means radioactive material that has not been demonstrated to qualify as “special form radioactive material.”			
§71.4	Definitions.		D <b>Did not add</b>	<b>Amended Definition:</b> Optimum interspersed hydrogenous moderation	N/A		
§71.4	Definitions.		[B] <b>333-118-0020(18)</b>	<b>Amended Definition:</b> Package means the packaging together with its radioactive contents as presented for transport. (1) Fissile material package or Type AF package, Type BF package, Type B(U)F package, or Type B(M)F package means a fissile material packaging together with its fissile material contents. (2) Type A package means a Type A packaging together with its radioactive contents. A Type A package is defined and must comply with the DOT regulations in 49 CFR part 173.			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(18)	<p>(3) Type B package means a Type B packaging together with its radioactive contents. On approval, a Type B package design is designated by NRC as B(U) unless the package has a maximum normal operating pressure of more than 700 kPa (100 lbs/in<sup>2</sup>) gauge or a pressure relief device that would allow the release of radioactive material to the environment under the tests specified in § 71.73 (hypothetical accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral approval of international shipments; B(M) refers to the need for multilateral approval of international shipments. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, see DOT regulations in 49 CFR Part 173. A Type B package approved before September 6, 1983, was designated only as Type B. Limitations on its use are specified in § 71.19.</p>			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
§71.4	Definitions.		[B]  333-118-0020(19)          333-118-0020(19)	<b>Amended Definition:</b> Packaging means the assembly of components necessary to ensure compliance with the packaging requirements of this part. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The vehicle, tiedown system, and auxiliary equipment may be designated as part of the packaging.			
§71.4	Definitions.		[B]  333-118-0020(22)(c)	<b>Amended Definition:</b> Special form radioactive material means radioactive material that satisfies the following conditions: (1) It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule; (2) The piece or capsule has at least one dimension not less than 5 mm (0.2 in); and (3) It satisfies the requirements of § 71.75. A special form encapsulation designed in accordance with			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(22)(c)	the requirements of § 71.4 in effect on June 30, 1983 (see 10 CFR part 71, revised as of January 1, 1983), and constructed before July 1, 1985, and a special form encapsulation designed in accordance with the requirements of § 71.4 in effect on March 31, 1996 (see 10 CFR part 71, revised as of January 1, 1983), and constructed before April 1, 1998, may continue to be used. Any other special form encapsulation must meet the specifications of this definition.			
§71.4	Definitions.		[B] 333-118-0020(23)	<b>Amended Definition:</b> Specific activity of a radionuclide means the radioactivity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the radioactivity per unit mass of the material.			
§71.4	Definitions.		D Did not add	<b>Amended Definition:</b> Spent nuclear fuel or Spent fuel	N/A		
§71.4	Definitions.		D Did not add	<b>Amended Definition:</b> State	N/A		

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
§71.4	Definitions.		<p>333-118-0020(25)</p> <p>333-118-0020(25)</p>	<p><b>Amended Definition:</b>  Surface Contaminated Object (SCO) means a solid object that is not itself classed as radioactive material, but which has radioactive material distributed on any of its surfaces. SCO must be in one of two groups with surface activity not exceeding the following limits:  (1) SCO-I: A solid object on which:  (i) The nonfixed contamination on the accessible surface averaged over 300 Cm<sup>2</sup> (or the area of the surface if less than 300 Cm<sup>2</sup>) does not exceed 4 Bq/Cm<sup>2</sup> (10<sup>-4</sup> microcurie/Cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 0.4 Bq/Cm<sup>2</sup> (10<sup>-5</sup> microcurie/Cm<sup>2</sup>) for all other alpha emitters;  (ii) The fixed contamination on the accessible surface averaged over 300 Cm<sup>2</sup> (or the area of the surface if less than 300 Cm<sup>2</sup>) does not exceed 4 × 10<sup>-4</sup> Bq/Cm<sup>2</sup> (1.0 microcurie/Cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 4 × 10<sup>3</sup> Bq/Cm<sup>2</sup> (0.1 microcurie/Cm<sup>2</sup>) for all other alpha emitters; and</p>			<p><b>Made corrections for final rules as outlined by “Comments on Oregon Final Regulations” 333-118-0020(25)(b)(A)</b></p>

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(25)	<p>(iii) The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 Cm<sup>2</sup> (or the area of the surface if less than 300 Cm<sup>2</sup>) does not exceed <math>4 \times 10^4</math> Bq/Cm<sup>2</sup> (1 microcurie/Cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or <math>4 \times 10^3</math> Bq/Cm<sup>2</sup> (0.1 microcurie/Cm<sup>2</sup>) for all other alpha emitters.</p> <p>(2) SCO-II: A solid object on which the limits for SCO-I are exceeded and on which:</p> <p>(i) The nonfixed contamination on the accessible surface averaged over 300 Cm<sup>2</sup> (or the area of the surface if less than 300 Cm<sup>2</sup>) does not exceed 400 Bq/Cm<sup>2</sup> (10<sup>-2</sup> microcurie/Cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters or 40 Bq/Cm<sup>2</sup> (10<sup>-3</sup> microcurie/Cm<sup>2</sup>) for all other alpha emitters;</p> <p>(ii) The fixed contamination on the accessible surface averaged over 300 Cm<sup>2</sup> (or the area of the surface if less than 300 Cm<sup>2</sup>) does not exceed <math>8 \times 10^5</math> Bq/Cm<sup>2</sup> (20 microcuries/Cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or <math>8 \times 10^4</math> Bq/Cm<sup>2</sup></p>			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(25)	(2 microcuries/Cm <sup>2</sup> ) for all other alpha emitters; and (iii) The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 Cm <sup>2</sup> (or the area of the surface if less than 300 2) does not exceed $8 \times 10^5$ Bq/Cm <sup>2</sup> (20 microcuries/Cm <sup>2</sup> ) for beta and gamma and low toxicity alpha emitters, or $8 \times 10^4$ Bq/Cm <sup>2</sup> (2 microcuries/Cm <sup>2</sup> ) for all other alpha emitters.			
§71.4	Definitions.		[B] 333-118-0020(26)	<b>Amended Definition:</b> Transport index (TI) means the dimensionless number (rounded up to the next tenth) placed on the label of a package, to designate the degree of control to be exercised by the carrier during transportation. The transport index is the number determined by multiplying the maximum radiation level in millisievert (mSv) per hour at 1 meter (3.3 ft) from the external surface of the package by 100 (equivalent to the maximum radiation level in millirem per hour at 1 meter (3.3 ft)).			
§71.4	Definitions.		[B]	<b>Amended Definition:</b>			

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
			333-118-0020(27)	Type A quantity means a quantity of radioactive material, the aggregate radioactivity of which does not exceed A1 for special form radioactive material, or A2, for normal form radioactive material, where A1 and A2 are given in Table A-1 of this part, or may be determined by procedures described in Appendix A of this part.			
§71.4	Definitions.		[B] 333-118-0020(31)	<b>Amended Definition:</b> Type B quantity means a quantity of radioactive material greater than a Type A quantity.			
§71.4	Definitions.		[B] 333-118-0020(32)	<b>Amended Definition:</b> Unirradiated uranium means uranium containing not more than $2 \times 10^3$ Bq of plutonium per gram of uranium-235, not more than $9 \times 10^6$ Bq of fission products per gram of uranium-235, and not more than $5 \times 10^{-3}$ g of uranium-236 per gram of uranium-235.			
§71.4	Definitions.		[B]	<b>Amended Definition:</b> Uranium—natural, depleted,			

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			<p>333-118-0020(33)</p> <p>333-118-0020(33)</p>	<p>enriched:</p> <p>(1) Natural uranium means uranium with the naturally occurring distribution of uranium isotopes (approximately 0.711 weight percent uranium-235 and the remainder by weight essentially uranium-238).</p> <p>(2) Depleted uranium means uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.</p> <p>(3) Enriched uranium means uranium containing more uranium-235 than the naturally occurring distribution of uranium isotopes.</p>			
§71.5	Transportation of licensed material.		<p>[B]</p> <p>333-118-0050</p>	<p><b>Amended Section:</b></p> <p>(a) Each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the DOT regulations in 49 CFR parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport. (1) The licensee</p>			<p><b>Corrections are made to 333-118-0050(1)(a)(B) rather than to 333-118-0050(E) as outlined in the final rule report.</b></p>

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			333-118-0050	<p>shall particularly note DOT regulations in the following areas: (i) Packaging--49 CFR part 173: subparts A, B, and I. (ii) Marking and labeling--49 CFR part 172: subpart D; and Sec. Sec. 172.400 through 172.407 and Sec. Sec. 172.436 through 172.441 of subpart E. (iii) Placarding--49 CFR part 172: subpart F, especially Sec. Sec. 172.500 through 172.519 and 172.556; and appendices B and C. (iv) Accident reporting--49 CFR part 171: Sec. Sec. 171.15 and 171.16. (v) Shipping papers and emergency information--49 CFR part 172: subparts C and G. (vi) Hazardous material employee training--49 CFR part 172: subpart H. (vii) Security plans--49 CFR part 172: subpart I. (viii) Hazardous material shipper/carrier registration--49 CFR part 107: subpart G. (2) The licensee shall also note DOT regulations pertaining to the following modes of transportation: (i) Rail--49 CFR part 174: subparts A through D and K. (ii) Air--49 CFR part 175. (iii) Vessel--49 CFR part 176: subparts A through F and M. (iv) Public</p>			

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			333-118-0050	Highway--49 CFR part 177 and parts 390 through 397. (b) If DOT regulations are not applicable to a shipment of licensed material, the licensee shall conform to the standards and requirements of the DOT specified in paragraph (a) of this section to the same extent as if the shipment or transportation were subject to DOT regulations. A request for modification, waiver, or exemption from those requirements, and any notification referred to in those requirements, must be filed with, or made to, the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.			
§71.6	Information collection requirements: OMB approval.		D Did not add	N/A	N/A		
§71.7	Completeness and accuracy of information		D Did not add	N/A	N/A		
§71.8	Deliberate misconduct.		C New Rule	<b>Amended Section:</b> (a) This section applies to			



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			<p align="center"><b>New Rule 333-118-0051</b></p>	<p>holder, or any applicant to be in violation of any rule, regulation, or order; or any term, condition or limitation of any license, certificate, or approval issued by the Commission; or</p> <p>(2) Deliberately submit to the NRC, a licensee, a certificate holder, quality assurance program approval holder, an applicant for a license, certificate or quality assurance program approval, or a licensee's, applicant's, certificate holder's, or quality assurance program approval holder's contractor or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to the NRC.</p> <p>(c) A person who violates paragraph (b)(1) or (b)(2) of this section may be subject to enforcement action in accordance with the procedures in 10 CFR part 2, subpart B.</p> <p>(d) For the purposes of paragraph (b)(1) of this section, deliberate misconduct</p>			

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			<p align="center"><b>New Rule 333-118-0051</b></p>	<p>by a person means an intentional act or omission that the person knows:(1) Would cause a licensee, certificate holder, quality assurance program approval holder, or applicant for a license, certificate, or quality assurance program approval to be in violation of any rule, regulation, or order; or any term, condition, or limitation of any license or certificate issued by the Commission; or (2) Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, certificate holder, quality assurance program approval holder, applicant, or the contractor or subcontractor of any of them.</p>			
§71.9	Employee protection.		<p align="center"><b>D Did not add</b></p>	N/A	N/A		
§71.10	Public inspection of application		<p align="center"><b>D Did not add</b></p>	N/A	N/A		
§71.11				[Reserved]			
§71.12	Specific exemptions.		<p align="center"><b>D Did not add</b></p>	N/A	N/A		

Change to NRC Section	Title	State Section	Compatibility Category	Summary of Change To CFR	Difference Yes/No	Significant Yes/No	If a Difference, Why Or Why Not was a Comment Generated?
§71.13	Exemption of physicians.		[B]  <b>New Rule 333-118-0051(4)</b>	<b>Amended Section:</b> Any physician licensed by a State to dispense drugs in the practice of medicine is exempt from § 71.5 with respect to transport by the physician of licensed material for use in the practice of medicine. However, any physician operating under this exemption must be licensed under 10 CFR part 35 or the equivalent Agreement State regulations.			
§71.14 (a)	Exemption for low-level materials.		[B]  <b>New Rule 333-118-0052</b>	<b>Amended Paragraph:</b> (a) A licensee is exempt from all the requirements of this part with respect to shipment or carriage of the following low-level materials: (1) Natural material and ores containing naturally occurring radionuclides that are not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the values specified in Appendix A, Table A-2, of this part. (2) Materials for which the activity concentration is not greater than the activity			

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				concentration values specified in Appendix A, Table A-2 of this part, or for which the consignment activity is not greater than the limit for an exempt consignment found in Appendix A, Table A-2, of this part.			
§71.14 (b)	Exemption for low-level materials.		NRC	<p><b>Amended Paragraph:</b>  (b) A licensee is exempt from all the requirements of this part, other than §§ 71.5 and 71.88, with respect to shipment or carriage of the following packages, provided the packages do not contain any fissile material, or the material is exempt from classification as fissile material under § 71.15:  (1) A package that contains no more than a Type A quantity of radioactive material;  (2) A package transported within the United States that contains no more than 0.74 TBq (20 Ci) of special form plutonium-244; or  (3) The package contains only LSA or SCO radioactive material, provided—</p>			

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				<p>(i) That the LSA or SCO material has an external radiation dose of less than or equal to 10 mSv/h (1 rem/h), at a distance of 3 m from the unshielded material; or</p> <p>(ii) That the package contains only LSA-I or SCO-I material.</p>			
§71.15	Exemption from classification as fissile material.		<p>[B]</p> <p><b>New rule 333-118-0053</b></p>	<p><b>Amended Paragraph:</b>  Fissile material meeting the requirements of at least one of the paragraphs (a) through (f) of this section are exempt from classification as fissile material and from the fissile material package standards of §§ 71.55 and 71.59, but are subject to all other requirements of this part, except as noted.</p> <p>(a) Individual package containing 2 grams or less fissile material.</p> <p>(b) Individual or bulk packaging containing 15 grams or less of fissile material provided the package has at least 200 grams of solid nonfissile material for every</p>			

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			<p align="center"><b>New Rule 333-118-0053</b></p>	<p>gram of fissile material. Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass for solid nonfissile material.</p> <p>(c)(1) Low concentrations of solid fissile material commingled with solid nonfissile material, provided that:</p> <p>(i) There is at least 2000 grams of solid nonfissile material for every gram of fissile material, and</p> <p>(ii) There is no more than 180 grams of fissile material distributed within 360 kg of contiguous nonfissile material.</p> <p>(2) Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass of solid nonfissile material.</p> <p>(d) Uranium enriched in uranium-235 to a maximum of 1 percent by weight, and with total plutonium and uranium-233 content of up to 1 percent of the mass of uranium-235,</p>			

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			<p align="center"><b>New Rule 333-118-0053</b></p>	<p>provided that the mass of any beryllium, graphite, and hydrogenous material enriched in deuterium constitutes less than 5 percent of the uranium mass.</p> <p>(e) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2 percent by mass, with a total plutonium and uranium-233 content not exceeding 0.002 percent of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2. The material must be contained in at least a DOT Type A package.</p> <p>(f) Packages containing, individually, a total plutonium mass of not more than 1000 grams, of which not more than 20 percent by mass may consist of plutonium-239, plutonium-241, or any combination of these radionuclides.</p>			



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			333-118-0070	<p>certificate, or other approval, as applicable, and the applicable requirements of subparts A, G, and H of this part; and</p> <p>(3) Before the licensee's first use of the package, submits in writing to:  ATTN: Document Control Desk, Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards, using an appropriate method listed in § 71.1(a), the licensee's name and license number and the package identification number specified in the package approval.</p> <p>(d) This general license applies only when the package approval authorizes use of the package under this general license.</p> <p>(e) For a Type B or fissile material package, the design of which was approved by NRC before April 1, 1996, the general license is subject to the additional restrictions of § 71.19.</p>			
§71.18				[Reserved]			
§71.20	General license: DOT		[B]	<b>Amended Section:</b> (a) A general license is issued			



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				<p>the United States, except by multilateral approval, as defined in DOT regulations at 49 CFR 173.403.</p> <p>(e) This section expires October 1, 2008.</p>			
§71.21	General license: Use of foreign approved package.		<p>[B]</p> <p><b>333-118-0100</b></p> <p><b>333-118-0100</b></p>	<p><b>Amended Paragraph:</b></p> <p>(a) A general license is issued to any licensee of the Commission to transport, or to deliver to a carrier for transport, licensed material in a package, the design of which has been approved in a foreign national competent authority certificate, that has been revalidated by DOT as meeting the applicable requirements of 49 CFR 171.12.</p> <p>(b) Except as otherwise provided in this section, the general license applies only to a licensee who has a quality assurance program approved by the Commission as satisfying the applicable provisions of subpart H of this part.</p> <p>(c) This general license applies only to shipments made to or from locations</p>			

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			333-118-0100	<p>outside the United States.</p> <p>(d) This general license applies only to a licensee who—</p> <p>(1) Has a copy of the applicable certificate, the revalidation, and the drawings and other documents referenced in the certificate, relating to the use and maintenance of the packaging and to the actions to be taken before shipment; and</p> <p>(2) Complies with the terms and conditions of the certificate and revalidation, and with the applicable requirements of subparts A, G, and H of this part. With respect to the quality assurance provisions of subpart H of this part, the licensee is exempt from design, construction, and fabrication considerations.</p>			
§71.22	General license: Fissile material.		[B]  333-118-0110	<p><b>Amended Section:</b>  <b>REFERENCE 10CFR71 for Tables 71-1 and 71-2</b>  (a) A general license is issued to any licensee of the Commission to transport fissile material, or to deliver fissile material to a carrier for transport, if the material is</p>			

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			333-118-0110	<p>shipped in accordance with this section. The fissile material need not be contained in a package which meets the standards of subparts E and F of this part; however, the material must be contained in a Type A package. The Type A package must also meet the DOT requirements of 49 CFR 173.417(a).</p> <p>(b) The general license applies only to a licensee who has a quality assurance program approved by the Commission as satisfying the provisions of subpart H of this part.</p> <p>(c) The general license applies only when a package's contents:</p> <p>(1) Contain less than a Type A quantity of fissile material; and</p> <p>(2) Contain less than 500 total grams of beryllium, graphite, or hydrogenous material enriched in deuterium.</p> <p>(d) The general license applies only to packages containing fissile material that are labeled with a CSI which:</p> <p>(1) Has been determined in</p>			

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			333-118-0110	<p>accordance with paragraph (e) of this section;(2) Has a value less than or equal to 10; and (3) For a shipment of multiple packages containing fissile material, the sum of the CSIs must be less than or equal to 50 (for shipment on a nonexclusive use conveyance) and less than or equal to 100 (for shipment on an exclusive use conveyance).</p> <p>(e)(1) The value for the CSI must be greater than or equal to the number calculated by the following equation:</p> $CSI = 10 \left[ \frac{\text{grams of } ^{235}\text{U}}{X} + \frac{\text{grams of } ^{233}\text{U}}{Y} + \frac{\text{grams of Pu}}{Z} \right]$ <p>(2) The calculated CSI must be rounded up to the first decimal place;  (3) The values of X, Y, and Z used in the CSI equation must be taken from Tables 71-1 or 71-2, as appropriate;  (4) If Table 71-2 is used to obtain the value of X, then the values for the terms in the equation for uranium-233 and plutonium must be assumed to be zero; and  (5) Table 71-1 values for X, Y, and Z must be used to</p>			

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				<p>determine the CSI if:</p> <ul style="list-style-type: none"> <li>(i) Uranium-233 is present in the package;</li> <li>(ii) The mass of plutonium exceeds 1 percent of the mass of uranium-235;</li> <li>(iii) The uranium is of unknown uranium-235 enrichment or greater than 24 weight percent enrichment; or</li> <li>(iv) Substances having a moderating effectiveness (i.e., an average hydrogen density greater than H<sub>2</sub>O) (e.g., certain hydrocarbon oils or plastics) are present in any form, except as polyethylene used for packing or wrapping.</li> </ul>			
§71.23	General license: Plutonium beryllium special form material.		[B] <b>333-118-0120</b>	<p><b>Amended Paragraph:</b></p> <p>(a) A general license is issued to any licensee of the Commission to transport fissile material in the form of plutonium-beryllium (Pu-Be) special form sealed sources, or to deliver Pu-Be sealed sources to a carrier for transport, if the material is shipped in accordance with this section. This material need not be contained in a package which meets the standards of subparts E and F of this part; however, the material must be contained in</p>			

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			<p data-bbox="579 964 768 992"><b>333-118-0110</b></p> <p data-bbox="562 1068 785 1198"><b>Chart needs to reflect 333-118-0120 rather than 333-118-0110</b></p>	<p data-bbox="825 318 1220 443">a Type A package. The Type A package must also meet the DOT requirements of 49 CFR 173.417(a).</p> <p data-bbox="825 483 1213 711">(b) The general license applies only to a licensee who has a quality assurance program approved by the Commission as satisfying the provisions of subpart H of this part.</p> <p data-bbox="825 751 1224 841">(c) The general license applies only when a package's contents:</p> <p data-bbox="825 849 1220 1149">(1) Contain less than a Type A quantity of material; and  (2) Contain less than 1000 g of plutonium, provided that: plutonium-239, plutonium-241, or any combination of these radionuclides, constitutes less than 240 g of the total quantity of plutonium in the package.</p> <p data-bbox="825 1190 1220 1515">(d) The general license applies only to packages labeled with a CSI which:</p> <p data-bbox="825 1287 1220 1385">(1) Has been determined in accordance with paragraph (e) of this section;</p> <p data-bbox="825 1393 1182 1450">(2) Has a value less than or equal to 100; and</p> <p data-bbox="825 1458 1203 1515">(3) For a shipment of multiple packages containing Pu-Be</p>			

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				<p>sealed sources, the sum of the CSIs must be less than or equal to 50 (for shipment on a nonexclusive use conveyance) and less than or equal to 100 (for shipment on an exclusive use conveyance).</p> <p>(e)(1) The value for the CSI must be greater than or equal to the number calculated by the following equation:</p> $CSI = 10 \left[ \frac{\text{grams of } ^{239}\text{Pu} + \text{grams of } ^{241}\text{Pu}}{24} \right];$ <p>and</p> <p>(2) The calculated CSI must be rounded up to the first decimal place.</p>			
§71.24				[Reserved]			
§71.25				[Reserved]			
§71.47	External radiation standards for all packages		<p>[B]</p> <p><b>New Rule</b> <b>333-118-0125</b></p>	<p><b>Amended Paragraph:</b></p> <p>(a) Except as provided in paragraph (b) of this section, each package of radioactive materials offered for transportation must be designed and prepared for shipment so that under conditions normally incident to transportation the radiation</p>			

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			<p align="center"><b>New Rule 333-118-0125</b></p>	<p>level does not exceed 2 mSv/h (200 mrem/h) at any point on the external surface of the package, and the transport index does not exceed 10.</p> <p>(b) A package that exceeds the radiation level limits specified in paragraph (a) of this section must be transported by exclusive use shipment only, and the radiation levels for such shipment must not exceed the following during transportation:  (1) 2 mSv/h (200 mrem/h) on the external surface of the package, unless the following conditions are met, in which case the limit is 10 mSv/h (1000 mrem/h):  (i) The shipment is made in a closed transport vehicle;  (ii) The package is secured within the vehicle so that its position remains fixed during transportation; and  (iii) There are no loading or unloading operations between the beginning and end of the transportation;  (2) 2 mSv/h (200 mrem/h) at any point on the outer surface of the vehicle, including the top and underside of the vehicle; or in the case of a flat-bed style</p>			

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			<p align="center"><b>New Rule 333-118-0125</b></p>	<p>vehicle, at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load or enclosure, if used, and on the lower external surface of the vehicle; and</p> <p>(3) 0.1 mSv/h (10 mrem/h) at any point 2 meters (80 in) from the outer lateral surfaces of the vehicle (excluding the top and underside of the vehicle); or in the case of a flat-bed style vehicle, at any point 2 meters (6.6 feet) from the vertical planes projected by the outer edges of the vehicle (excluding the top and underside of the vehicle); and</p> <p>(4) 0.02 mSv/h (2 mrem/h) in any normally occupied space, except that this provision does not apply to private carriers, if exposed personnel under their control wear radiation dosimetry devices in conformance with 10 CFR 20.1502.</p> <p>(c) For shipments made under the provisions of paragraph (b) of this section, the shipper shall provide specific written instructions to the carrier for maintenance of the exclusive use shipment controls. The</p>			

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				<p>instructions must be included with the shipping paper information.</p> <p>(d) The written instructions required for exclusive use shipments must be sufficient so that, when followed, they will cause the carrier to avoid actions that will unnecessarily delay delivery or unnecessarily result in increased radiation levels or radiation exposures to transport workers or members of the general public.</p>			
§71.53				[Reserved]			
§71.81	Applicability of operating controls and procedures.		D	N/A	N/A		
§71.83	Assumptions as to unknown properties.		<p>[B]</p> <p><b>333-118-0130</b></p>	<p><b>Amended Section:</b>  When the isotopic abundance, mass, concentration, degree of irradiation, degree of moderation, or other pertinent property of fissile material in any package is not known, the licensee shall package the fissile material as if the unknown properties have credible values that will cause the maximum neutron multiplication.</p>			



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				in accordance with the design approved by the Commission.			
§71.87	Routine determinations.		<p data-bbox="579 418 768 516">[B] 333-118-0150</p> <p data-bbox="579 1101 768 1133">333-118-0150</p>	<p data-bbox="821 418 1230 881"><b>Amended Section:</b> Before each shipment of licensed material, the licensee shall ensure that the package with its contents satisfies the applicable requirements of this part and of the license. The licensee shall determine that -- (a) The package is proper for the contents to be shipped; (b) The package is in unimpaired physical condition except for superficial defects such as marks or dents;</p> <p data-bbox="821 922 1230 1084">(c) Each closure device of the packaging, including any required gasket, is properly installed and secured and free of defects;</p> <p data-bbox="821 1125 1230 1287">(d) Any system for containing liquid is adequately sealed and has adequate space or other specified provision for expansion of the liquid;</p> <p data-bbox="821 1328 1230 1450">(e) Any pressure relief device is operable and set in accordance with written procedures;</p> <p data-bbox="821 1490 1230 1515">(f) The package has been</p>			

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			333-118-0150	<p>loaded and closed in accordance with written procedures;</p> <p>(g) For fissile material, any moderator or neutron absorber, if required, is present and in proper condition;</p> <p>(h) Any structural part of the package that could be used to lift or tie down the package during transport is rendered inoperable for that purpose, unless it satisfies the design requirements of § 71.45;</p> <p>(i) The level of non-fixed (removable) radioactive contamination on the external surfaces of each package offered for shipment is as low as reasonably achievable, and within the limits specified in DOT regulations in 49 CFR 173.443;</p> <p>(j) External radiation levels around the package and around the vehicle, if applicable, will not exceed the limits specified in § 71.47 at any time during transportation; and</p>			



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			333-118-0160	<p>in a single package containing no more than an A<sub>2</sub> quantity of plutonium in any isotope or form, and is shipped in accordance with § 71.5; or</p> <p>(4) The plutonium is shipped in a package specifically authorized for the shipment of plutonium by air in the Certificate of Compliance for that package issued by the Commission.</p> <p>(b) Nothing in paragraph (a) of this section is to be interpreted as removing or diminishing the requirements of § 73.24 of this chapter.</p> <p>(c) For a shipment of plutonium by air which is subject to paragraph (a)(4) of this section, the licensee shall, through special arrangement with the carrier, require compliance with 49 CFR 175.704, U.S. Department of Transportation regulations applicable to the air transport of plutonium.</p>			
§71.89	Opening instructions.		<p>[B]</p> <p><b>New Rule</b> 333-118-0162</p>	<p><b>Amended Section:</b> Before delivery of a package to a carrier for transport, the licensee shall ensure that any special instructions needed to</p>			

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				safely open the package have been sent to, or otherwise made available to, the consignee for the consignee's use in accordance with 10 CFR 20.1906(e).			
§71.91	Records.		D	N/A	N/A		
§71.93	Inspection and tests.		D	N/A	N/A		
§71.95	Reports.		D	N/A	N/A		
§71.97	Advance notification of shipment of irradiated reactor fuel and nuclear waste.		B  333-118-0190  333-118-0190	<p><b>Amended Section:</b>  (a) As specified in paragraphs (b), (c) and (d) 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, through, or across the boundary of the State, before the transport, or delivery to a carrier, for transport, of licensed material outside the confines of the licensee's plant or other place of use or storage.</p> <p>(b) Advance notification is required under this section for shipments of irradiated reactor fuel in quantities less than that</p>			

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			333-118-0190	<p>subject to advance notification requirements of § 73.37(f) of this chapter. Advance notification is also required under this section for shipment of licensed material, other than irradiated fuel, meeting the following three conditions:</p> <p>(1) The licensed material is required by this part to be in Type B packaging for transportation;(2) The licensed material is being transported to or across a State boundary en route to a disposal facility or to a collection point for transport to a disposal facility; and</p> <p>(3) The quantity of licensed material in a single package exceeds the least of the following:</p> <p>(i) 3000 times the <math>A_1</math> value of the radionuclides as specified in appendix A, Table A-1 for special form radioactive material;</p> <p>(ii) 3000 times the <math>A_2</math> value of the radionuclides as specified in appendix A, Table A-1 for normal form radioactive material; or</p> <p>(iii) 1000 TBq (27,000 Ci).</p> <p>(c) Procedures for submitting advance notification. (1) The</p>			

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			333-118-0190	<p>notification must be made in writing to the office of each appropriate governor or governor's designee and to the Director, Division of Nuclear Security, Office of Nuclear Security and Incident Response.</p> <p>(2) A notification delivered by mail must be postmarked at least 7 days before the beginning of the 7-day period during which departure of the shipment is estimated to occur.</p> <p>(3) A notification delivered by any other means than mail must reach the office of the governor or of the governor's designee at least 4 days before the beginning of the 7-day period during which departure of the shipment is estimated to occur.</p> <p>(i) A list of the names and mailing addresses of the governors' designees receiving advance notification of transportation of nuclear waste was published in the Federal Register on June 30, 1995 (60 FR 34306).</p> <p>(ii) The list will be published annually in the Federal Register on or about June 30 to reflect any changes in</p>			

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			333-118-0190	<p>information.</p> <p>(iii) A list of the names and mailing addresses of the governors' designees is available on request from the Director, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.</p> <p>(4) The licensee shall retain a copy of the notification as a record for 3 years.</p> <p>(d) Information to be furnished in advance notification of shipment. Each advance notification of shipment of irradiated reactor fuel or nuclear waste must contain the following information:</p> <p>(1) The name, address, and telephone number of the shipper, carrier, and receiver of the irradiated reactor fuel or nuclear waste shipment;</p> <p>(2) A description of the irradiated reactor fuel or nuclear waste contained in the shipment, as specified in the regulations of DOT in 49 CFR 172.202 and 172.203(d);</p> <p>(3) The point of origin of the shipment and the 7-day period during which departure of the shipment is estimated to occur;</p>			

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				(4) The 7-day period during which arrival of the shipment at State boundaries is estimated to occur; (5) The destination of the shipment, and the 7-day period during which arrival of the shipment is estimated to occur; and (6) A point of contact, with a telephone number, for current shipment information.			
§71.00	Violations		D	N/A	N/A		
§71.100	Criminal penalties.		D	N/A	N/A		
§71.101 (a), (b), (c)(1)	Quality assurance requirements.		D for those States which have no users of Type B packages-other than Industrial Radiography  C for those States which have users of Type B packages-other than Industrial Radiography.** **Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial	<b>Amended Paragraphs (a), (b)&amp;(c)(1):</b> (a) Purpose. This subpart describes quality assurance requirements applying to design, purchase, fabrication, handling, shipping, storing, cleaning, assembly, inspection, testing, operation, maintenance, repair, and modification of components of packaging that are important to safety. As used in this subpart, "quality assurance" comprises all those planned and systematic actions necessary to provide		333-118-0200	

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			<p>radiography Type B Package users are covered by 10 CFR 34.31(b). It is also indicated that this section satisfies § 71.12 (b) and thus would satisfy those sections referenced in this provision (§§ 71.101 through 71.137)</p>	<p>adequate confidence that a system or component will perform satisfactorily in service. Quality assurance includes quality control, which comprises those quality assurance actions related to control of the physical characteristics and quality of the material or component to predetermined requirements. The licensee, certificate holder, and applicant for a CoC are responsible for the quality assurance requirements as they apply to design, fabrication, testing, and modification of packaging. Each licensee is responsible for the quality assurance provision which applies to its use of a packaging for the shipment of licensed material subject to this subpart.  (b) Establishment of program. Each licensee, certificate holder, and applicant for a CoC shall establish, maintain, and execute a quality assurance program satisfying each of the applicable criteria of §§ 71.101 through 71.137 and satisfying any specific provisions that are applicable to the licensee's activities including procurement of</p>	<div data-bbox="1331 1078 1570 1140" style="border: 1px solid black; padding: 2px; display: inline-block;">333-118-0200</div>		

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				<p>packaging. The licensee, certificate holder, and applicant for a CoC shall execute the applicable criteria in a graded approach to an extent that is commensurate with the quality assurance requirement's importance to safety.</p> <p>(c) Approval of program.</p> <p>(1) Before the use of any package for the shipment of licensed material subject to this subpart, each licensee shall obtain Commission approval of its quality assurance program. Using an appropriate method listed in § 71.1(a), each licensee shall file a description of its quality assurance program, including a discussion of which requirements of this subpart are applicable and how they will be satisfied, by submitting the description to: ATTN: Document Control Desk, Director, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards.</p>			
§71.101 (c)(2), (d)&(e)	Quality assurance requirements.		NRC	<p><b>Amended Paragraphs (c)(2), (d)&amp;(e):</b>  (c)(2) Before the fabrication, testing, or modification of any</p>			

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				<p>package for the shipment of licensed material subject to this subpart, each licensee, certificate holder, or applicant for a CoC shall obtain Commission approval of its quality assurance program. Each certificate holder or applicant for a CoC shall, in accordance with § 71.1, file a description of its quality assurance program, including a discussion of which requirements of this subpart are applicable and how they will be satisfied.</p> <p>(d) Existing package designs. The provisions of this paragraph deal with packages that have been approved for use in accordance with this part before January 1, 1979, and which have been designed in accordance with the provisions of this part in effect at the time of application for package approval. Those packages will be accepted as having been designed in accordance with a quality assurance program that satisfies the provisions of paragraph (b) of this section.</p> <p>(e) Existing packages. The provisions of this paragraph deal with packages that have</p>			

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				<p>been approved for use in accordance with this part before January 1, 1979, have been at least partially fabricated before that date, and for which the fabrication is in accordance with the provisions of this part in effect at the time of application for approval of package design. These packages will be accepted as having been fabricated and assembled in accordance with a quality assurance program that satisfies the provisions of paragraph (b) of this section.</p>			
§71.101 (f)	Quality assurance requirements.		D	<p><b>Amended Paragraph (f):</b>  (f) Previously approved programs. A Commission-approved quality assurance program that satisfies the applicable criteria of subpart H of this part, Appendix B of part 50 of this chapter, or subpart G of part 72 of this chapter, and that is established, maintained, and executed regarding transport packages, will be accepted as satisfying the requirements of paragraph (b) of this section. Before first use, the licensee, certificate holder, and applicant for a CoC shall notify the NRC, in</p>	N/A		

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				accordance with § 71.1, of its intent to apply its previously approved subpart H, Appendix B, or subpart G quality assurance program to transportation activities. The licensee, certificate holder, and applicant for a CoC shall identify the program by date of submittal to the Commission, Docket Number, and date of Commission approval.			
§71.101 (g)	Quality assurance requirements.		C	<b>Amended Paragraph (g):</b> (g) Radiography containers. A program for transport container inspection and maintenance limited to radiographic exposure devices, source changers, or packages transporting these devices and meeting the requirements of § 34.31(b) of this chapter or equivalent Agreement State requirement, is deemed to satisfy the requirements of §§ 71.17(b) and 71.101(b).			
§71.103 (a)	Quality assurance organization.  <b>333-118-0200</b>		[C] for those States which have users of Type B packages-other than Industrial Radiography	<b>Amended Paragraph (a):</b> (a) The licensee <sup>2</sup> , certificate holder, and applicant for a CoC shall be responsible for the establishment and execution of the quality assurance program. The			

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	333-118-0200		<p>D otherwise</p> <p>**Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)</p>	<p>licensee, certificate holder, and applicant for a CoC may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part of the quality assurance program, but shall retain responsibility for the program. These activities include performing the functions associated with attaining quality objectives and the quality assurance functions.</p> <p>-----<sup>2</sup> While the term “licensee” is used in these criteria, the requirements are applicable to whatever design, fabrication, assembly, and testing of the package is accomplished with respect to a package before the time a package approval is issued.</p>			
§71.103 (b)	Quality assurance organization.  333-118-0200		<p>C for those States which have users of Type B packages-other than Industrial Radiography</p> <p>D otherwise</p>	<p><b>Amended Paragraph (b):</b> (b) The quality assurance functions are— (1) Assuring that an appropriate quality assurance program is established and effectively executed; and (2) Verifying, by procedures</p>			



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	333-118-0200			<p>of activity being performed, and the location or locations where activities are performed, the organizational structure for executing the quality assurance program may take various forms, provided that the persons and organizations assigned the quality assurance functions have the required authority and organizational freedom.</p> <p>(f) Irrespective of the organizational structure, the individual(s) assigned the responsibility for assuring effective execution of any portion of the quality assurance program, at any location where activities subject to this section are being performed, must have direct access to the levels of management necessary to perform this function.</p>			
§71.105 (a), (c)&(d)	Quality assurance program.  333-118-0200		<p>C for those States which have users of Type B packages-other than Industrial Radiography**</p> <p>D otherwise</p>	<p><b>Amended Paragraphs (a), (c)&amp;(d):</b>  (a) The licensee, certificate holder, and applicant for a CoC shall establish, at the earliest practicable time consistent with the schedule for accomplishing the activities, a quality assurance</p>			

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	333-118-0200		<p>**Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)</p>	<p>program that complies with the requirements of §§ 71.101 through 71.137. The licensee, certificate holder, and applicant for a CoC shall document the quality assurance program by written procedures or instructions and shall carry out the program in accordance with those procedures throughout the period during which the packaging is used. The licensee, certificate holder, and applicant for a CoC shall identify the material and components to be covered by the quality assurance program, the major organizations participating in the program, and the designated functions of these organizations.(c) The licensee, certificate holder, and applicant for a CoC shall base the requirements and procedures of its quality assurance program on the following considerations concerning the complexity and proposed use of the package and its components:  (1) The impact of malfunction or failure of the item to safety;  (2) The design and fabrication complexity or uniqueness of</p>			

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	333-118-0200			<p>the item;</p> <p>(3) The need for special controls and surveillance over processes and equipment;</p> <p>(4) The degree to which functional compliance can be demonstrated by inspection or test; and</p> <p>(5) The quality history and degree of standardization of the item.</p> <p>(d) The licensee, certificate holder, and applicant for a CoC shall provide for indoctrination and training of personnel performing activities affecting quality, as necessary to assure that suitable proficiency is achieved and maintained. The licensee, certificate holder, and applicant for a CoC shall review the status and adequacy of the quality assurance program at established intervals. Management of other organizations participating in the quality assurance program shall review regularly the status and adequacy of that part of the quality assurance program they are executing.</p>			
§71.105	Quality		[C]	<b>Amended Paragraph (b):</b>			



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				skills to attain the required quality, and the need for verification of quality by inspection and test.			
§71.127	Handling, storage, and shipping control.  <b>333-118-0200</b>          <b>333-118-0200</b>		[C]- for those States which have users of Type B packages-other than Industrial Radiography**  D otherwise  **Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)	<b>Amended Section:</b> The licensee, certificate holder, and applicant for a CoC shall establish measures to control, in accordance with instructions, the handling, storage, shipping, cleaning, and preservation of materials and equipment to be used in packaging to prevent damage or deterioration. When necessary for particular products, special protective environments, such as inert gas atmosphere, and specific moisture content and temperature levels must be specified and provided.			
§71.129	Inspection, test, and operating		[C]- for those States which have	<b>Amended Section:</b> (a) The licensee, certificate			

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	<p>status.</p> <p><b>333-118-0200</b></p>		<p>users of Type B packages-other than Industrial Radiography**</p> <p>D otherwise</p> <p>**Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)</p>	<p>holder, and applicant for a CoC shall establish measures to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the packaging. These measures must provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary to preclude inadvertent bypassing of the inspections and tests.</p> <p>(b) The licensee shall establish measures to identify the operating status of components of the packaging, such as tagging valves and switches, to prevent inadvertent operation.</p>			
§71.131	<p>Nonconforming materials, parts, or components.</p> <p><b>333-118-0200</b></p>		<p>[C]- for those States which have users of Type B packages-other than Industrial Radiography**</p> <p>D otherwise</p>	<p><b>Amended Section:</b> The licensee, certificate holder, and applicant for a CoC shall establish measures to control materials, parts, or components that do not conform to the licensee's requirements to prevent their inadvertent use or installation.</p>			

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			<p>**Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)</p>	<p>These measures must include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items must be reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures.</p>			
§71.133	<p>Corrective action.</p> <p><b>333-118-0200</b></p>		<p>C- for those States which have users of Type B packages-other than Industrial Radiography**</p> <p>D otherwise</p> <p>**Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users</p>	<p><b>Amended Section:</b> The licensee, certificate holder, and applicant for a CoC shall establish measures to assure that conditions adverse to quality, such as deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected. In the case of a significant condition adverse to quality, the measures must assure that the cause of the condition is determined and</p>			

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			are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections referenced in this provision (§§71.101 through 71.137.)	corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken must be documented and reported to appropriate levels of management.			
§71.135	Quality assurance records.  <b>333-118-0200</b>          <b>333-118-0200</b>		C- for those States which have users of Type B packages-other than Industrial Radiography** D otherwise  **Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that this section satisfies §71.12 (b) and thus would satisfy those sections	<b>Amended Section:</b> The licensee, certificate holder, and applicant for a CoC shall maintain sufficient written records to describe the activities affecting quality. The records must include the instructions, procedures, and drawings required by § 71.111 to prescribe quality assurance activities and must include closely related specifications such as required qualifications of personnel, procedures, and equipment. The records must include the instructions or procedures which establish a records retention program that is consistent with applicable regulations and designates factors such as duration, location, and assigned responsibility. The licensee,			

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			referenced in this provision (§§71.101 through 71.137.)	certificate holder, and applicant for a CoC shall retain these records for 3 years beyond the date when the licensee, certificate holder, and applicant for a CoC last engage in the activity for which the quality assurance program was developed. If any portion of the written procedures or instructions is superseded, the licensee, certificate holder, and applicant for a CoC shall retain the superseded material for 3 years after it is superseded.			
§71.137	Audits. <b>333-118-0200</b>  <b>333-118-0200</b>		C - for those States which have users of Type B packages-other than Industrial Radiography** D otherwise  **Note: 10 CFR Part 71.101 (g) indicates that QA programs for industrial radiography Type B package users are covered by 10 CFR 34.31 (b). It also indicated that	<b>Amended Section:</b> The licensee, certificate holder, and applicant for a CoC shall carry out a comprehensive system of planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits must be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audited results must be documented			



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			Refer to tables throughout rule	<p>fissile material.</p> <p>II. a. For individual radionuclides whose identities are known, but which are not listed in Table A-1, the <math>A_1</math> and <math>A_2</math> values contained in Table A-3 may be used. Otherwise, the licensee shall obtain prior Commission approval of the <math>A_1</math> and <math>A_2</math> values for radionuclides not listed in Table A-1, before shipping the material.</p> <p>b. For individual radionuclides whose identities are known, but which are not listed in Table A-2, the exempt material activity concentration and exempt consignment activity values contained in Table A-3 may be used. Otherwise, the licensee shall obtain prior Commission approval of the exempt material activity concentration and exempt consignment activity values for radionuclides not listed in Table A-2, before shipping the material.</p> <p>c. The licensee shall submit requests for prior approval, described under paragraphs II.a. and II.b. of this Appendix, to the Commission, in accordance with § 71.1 of this</p>			

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			Refer to tables throughout rule	<p>part.III. In the calculations of <math>A_1</math> and <math>A_2</math> for a radionuclide not in Table A-1, a single radioactive decay chain, in which radionuclides are present in their naturally occurring proportions, and in which no daughter radionuclide has a half-life either longer than 10 days, or longer than that of the parent radionuclide, shall be considered as a single radionuclide, and the activity to be taken into account, and the <math>A_1</math> and <math>A_2</math> value to be applied, shall be those corresponding to the parent radionuclide of that chain. In the case of radioactive decay chains in which any daughter radionuclide has a half-life either longer than 10 days, or greater than that of the parent radionuclide, the parent and those daughter radionuclides shall be considered as mixtures of different radionuclides.</p> <p>IV. For mixtures of radionuclides whose identities and respective activities are known, the following conditions apply:</p> <p>a. For special form radioactive material, the maximum</p>			

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			Refer to tables throughout rule	<p>quantity transported in a Type A package is as follows:</p> $\sum_l \frac{B(i)}{A_1(i)} \leq 1$ <p>where B(i) is the activity of radionuclide I, and A<sub>1</sub>(i) is the A<sub>1</sub> value for radionuclide I.</p> <p>b. For normal form radioactive material, the maximum quantity transported in a Type A package is as follows:</p> $\sum_l \frac{B(i)}{A_2(i)} \leq 1$ <p>where B(i) is the activity of radionuclide I, and A<sub>2</sub>(i) is the A<sub>2</sub>(i) value for radionuclide I. c. Alternatively, the A<sub>1</sub> value for mixtures of special form material may be determined as follows:</p> $= \frac{1}{\sum_l \frac{f(i)}{A_1(i)}}$ <p>A<sub>1</sub> for mixture where f(i) is the fraction of activity for radionuclide I in the mixture, and A<sub>1</sub>(i) is the appropriate A<sub>1</sub> value for radionuclide I.d. Alternatively, the A<sub>2</sub> value for mixtures of normal form</p>			

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			Refer to tables throughout rule	<p>material may be determined as follows:</p> $= \frac{1}{\sum_i \frac{f(i)}{A_2(i)}}$ <p><math>A_2</math> for mixture where <math>f(i)</math> is the fraction of activity for radionuclide I in the mixture, and <math>A_2(i)</math> is the appropriate <math>A_2</math> value for radionuclide I.</p> <p>e. The exempt activity concentration for mixtures of nuclides may be determined as follows:</p> $= \frac{1}{\sum_i \frac{f(i)}{[A](i)}}$ <p>Exempt activity concentration for mixture where <math>f(i)</math> is the fraction of activity concentration of radionuclide I in the mixture, and <math>[A]</math> is the activity concentration for exempt material containing radionuclide I.f. The activity limit for an exempt consignment for mixtures of radionuclides may be determined as follows:</p> $= \frac{1}{\sum_i \frac{f(i)}{A(i)}}$ <p>Exempt consignment activity</p>			

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				<p>limit for mixture where <math>f(i)</math> is the fraction of activity of radionuclide I in the mixture, and A is the activity limit for exempt consignments for radionuclide I.</p> <p>V. When the identity of each radionuclide is known, but the individual activities of some of the radionuclides are not known, the radionuclides may be grouped, and the lowest <math>A_1</math> or <math>A_2</math> value, as appropriate, for the radionuclides in each group may be used in applying the formulas in paragraph IV. Groups may be based on the total alpha activity and the total beta/gamma activity when these are known, using the lowest <math>A_1</math> or <math>A_2</math> values for the alpha emitters and beta/gamma emitters.</p>			