§ 71.53 shall apply, except that for Krypton-85, an effective $A_2$ value equal to $10 A_2$ may be used.

(c) Compliance with the permitted activity release limits of paragraph (a) of this section may not depend on filters or on a mechanical cooling system.

(d) For packages which contain radioactive contents with activity greater than $10^5 A_2$, the requirements of §71.61 must be met.

§ 71.53 [Reserved]

§ 71.55 General requirements for fissile material packages.

(a) A package used for the shipment of fissile material must be designed and constructed in accordance with §§71.41 through 71.47. When required by the total amount of radioactive material, a package used for the shipment of fissile material must also be designed and constructed in accordance with §71.51.

(b) Except as provided in paragraph (c) or (g) of this section, a package used for the shipment of fissile material must be so designed and constructed and its contents so limited that it would be subcritical if water were to leak into the containment system, or liquid contents were to leak out of the containment system so that, under the following conditions, maximum reactivity of the fissile material would be attained:

1. The most reactive credible configuration consistent with the chemical and physical form of the material;
2. Moderation by water to the most reactive credible extent; and
3. Close full reflection of the containment system by water on all sides, or such greater reflection of the containment system as may additionally be provided by the surrounding material of the packaging.

(c) The Commission may approve exceptions to the requirements of paragraph (b) of this section if the package incorporates special design features that ensure that no single packaging error would permit leakage, and if appropriate measures are taken before each shipment to ensure that the containment system does not leak.

(d) A package used for the shipment of fissile material must be so designed and constructed and its contents so limited that under the tests specified in §71.71 ("Normal conditions of transport")—

1. The contents would be subcritical;
2. The geometric form of the package contents would not be substantially altered;
3. There would be no leakage of water into the containment system unless, in the evaluation of undamaged packages under §71.59(a)(1), it has been assumed that moderation is present to such an extent as to cause maximum reactivity consistent with the chemical and physical form of the material; and
4. There will be no substantial reduction in the effectiveness of the packaging, including:
   i. No more than 5 percent reduction in the total effective volume of the packaging on which nuclear safety is assessed;
   ii. No more than 5 percent reduction in the effective spacing between the fissile contents and the outer surface of the packaging; and
   iii. No occurrence of an aperture in the outer surface of the packaging large enough to permit the entry of a 10 cm (4 in) cube.

(e) A package used for the shipment of fissile material must be so designed and constructed and its contents so limited that under the tests specified in §71.73 ("Hypothetical accident conditions"), the package would be subcritical. For this determination, it must be assumed that:

1. The fissile material is in the most reactive credible configuration consistent with the damaged condition of the package and the chemical and physical form of the contents;
2. Water moderation occurs to the most reactive credible extent consistent with the damaged condition of the package and the chemical and physical form of the contents; and
3. There is full reflection by water on all sides, as close as is consistent with the damaged condition of the package.