A comment noted that the term "at least" is used two times in the proposed requirement, thereby creating an opportunity for misinterpretation. Although the term is used in the IAEA text, the NRC agrees with the commenter that it serves no useful purpose and has deleted the term.

A comment stated that the deep-water immersion test should be clarified to ensure that an engineering evaluation is an acceptable alternative to a physical test because an actual 200-m test would be costly and difficult. NRC believes it is clear that an engineering evaluation is acceptable because the equivalent external gauge pressure is specified in the text of the requirement. The provisions of § 71.41(a) are intended to allow the use of engineering evaluations when they are reasonably applied.

The remaining three comments relating to this section all deal with transition periods and special provisions for casks for which there will be no further fabrication and that are not used internationally. The earlier portion of this preamble dealing with the provisions of § 71.13 presents the NRC view on these matters.

Section 71.63 Special Requirements for Plutonium Shipments

Four comments argued that the extension of this provision to radionuclides other than plutonium is unjustified and that the provision, even without the extension to other radionuclides, differs from IAEA rules and is inconsistent with the principles of IAEA rules. Two of the commenters argued further that the existing provisions, if examined in the light of current regulatory analyses, probably could not be justified.

NRC recognizes that some requirements have been added to the regulations over the years strictly on the basis of prudent judgment. Because the basis for current rules is not a part of this rulemaking action, NRC will simply refrain from extending the present rule to other radionuclides.

One commenter argued that the rule should be rewritten using multiples of the A_2 values, not only to define radionuclides subject to the rule, but also to define the level of activity at which the extra requirements come into effect. Because the extension to other radionuclides is being withdrawn, the inclusion of A values does not appear to improve the requirement.

Section 71.71 Normal Conditions of Transport

Three comments noted that the provision of IAEA's paragraph 528 requiring consideration of a temperature range from -40 °C to +70 °C for the components of the packaging is not reflected in Part 71. NRC omitted this provision because NRC does not want to limit the high end temperature consideration to 70 °C because that would imply that +70 °C is the highest temperature that has to be considered for package design. This does not take into account the considerably higher temperatures resulting from decay heat in certain Type B packages.

Three comments noted that 10 CFR 71.71(c)(4) prescribes an increased external pressure specification of 140 kPa absolute but IAEA regulations do not have that exact requirement. NRC believes there is a need for an external pressure test for normal conditions to ensure that a package filled at low pressure or high altitude will withstand an external pressure test has been retained.

Three comments observed that $\S71.71(c)(7)$ states that the free drop test be conducted between 1.5 and 2.5 hours after the conclusion of the water spray test but the same requirement is not included in the IAEA regulations. The IAEA rules, however, do include restrictions, in paragraph 620, on the timing of the mechanical tests after the water spray test. NRC has retained the water spray test as is and believes the NRC test meets the intent of the IAEA test.

One comment noted that with the deletion of the fissile classes, the corner drop test, which was required only for Fissile Class II packages, is proposed to be applied to all fissile packages. The commenter argued that for a large and heavy package, such as a spent fuel shipping cask, "it is considered highly implausible for a package to undergo a one-foot corner drop as a normal condition of transport. Only a free drop with the package in its normal orientation should be specified as a normal condition of transport for large and heavy packages, therefore saving valuable analysis effort and time.'

NRC agrees with the comment and has deleted the corner drop test for fiberboard, wood, or fissile material rectangular packages weighing more than 50 kg (110 lb), and for fissile material cylindrical packages weighing more than 100 kg (220 lb). For these packages, NRC does not believe that the corner drop tests are significant in developing a safe fissile material package.

Section 71.73 Hypothetical Accident Conditions

One comment stated that reversing the order of the two immersion tests in

§§ 71.73 (c)(5) and (c)(6) would restore the order of the tests, which must be run consecutively, and would therefore clarify the text. NRC agrees and has made the change.

One comment recommended that the temperature extremes specified for the initial test conditions in §71.73(b) be given a reasonable tolerance because ambient air temperatures cannot be controlled. NRC agrees that temperatures, as with other required parameters of the test conditions, cannot be accurately controlled. NRC's position, however, is not to establish tolerances, but to require that the effects of test conditions different from those specified be analyzed as part of the overall evaluation. Every analysis would then be normalized to the same set of specifications.

One comment recommended that the word "single," in the second line of the thermal test in $\S71.73(c)(4)$, should be "simple". NRC agrees and has made that change.

Two comments asked that NRC include some information as to how the effects of solar radiation should be treated. One comment stated, "The solar insolation can be a significant factor and should be consistently evaluated." Others have argued that the effects of solar insolation are insignificant compared with the thermal effects of the fire test and should be ignored.

NRC adopts the view of the thermal experts who participated in developing the IAEA regulations. Those experts thought the effects of solar radiation may be neglected before and during the thermal test but that such effects should be considered in the subsequent evaluation of the package response.

One comment recommended the development of guidance on how designers should interpret the revised thermal test requirement. Although there is guidance provided in the IAEA's companion documents to its transportation regulations (IAEA Safety Series No. 7, "Explanatory Material for the IAEA Regulations for the Safe Transport of Radioactive Material-1985 Edition," and IAEA Safety Series No. 37, "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material-1985 Edition''), further guidance may be necessary. If so, it is the industry that can best propose guidance, based on its capabilities. If coordinated under the auspices of the American National Standards Institute (ANSI), Committee N-14, with NRC representation, there is a good chance that a consensus standard could be developed that could be endorsed by NRC as a satisfactory means to satisfy regulatory requirements.