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7 PACKAGE OPERATIONS

This section specifies the requirements for loading and unloading the Safkeg-HS 3977A package, and preparation of an empty package for transport.

Each packaging user shall comply with the operational descriptions in this chapter for the loading, unloading, and preparation of the package for transport. It shall be achieved using approved operating procedures that ensure compliance with the requirements of Subpart G to 10 CFR Part 71 [Ref 7.1] and 49 CFR Parts 171 through 178 [Ref 7.2]. They shall ensure that occupational radiation exposures are maintained as low as reasonably achievable as required by 10 CFR 20 [Ref 7.3].

Each packaging user shall ensure compliance with the requirements of this safety analysis report and the user's organization with regard to documentation, records, safety, and work procedures. Each user shall have a quality assurance program that meets the requirements of 10 CFR 71 Subpart H and shall maintain records that meet the requirements of 10 CFR 71.91.

If during use any instance is found where there is a significant reduction in the effectiveness of the package, where defects are identified with safety significance after first use or there are instances in which the conditions of approval in the Certificate of Compliance were not observed in making a shipment. Then each packaging user shall first request the certificate holders input regarding the incident and then submit a written report to the Nuclear Regulatory Commission in accordance with 10 CFR 71.95.

All the drawings referred to in this section shall be at the revision status as specified in the Certificate of Compliance.

7.1 Package Loading [71.87]

This section provides the minimum requirements needed to load the package. From these requirements each organization shall prepare specific instructions and checklists, in accordance with that organization's Quality Assurance Program. This will ensure compliance with the following requirements.

The periodic maintenance activities, as specified in Section 8.2, shall have been performed not more than 1 year prior to shipment.

7.1.1 Preparation for Loading a CV for Standard Lid or Split Lid Versions

- 1) Prior to preparing the package for loading, check that the intended contents meet all the requirements of the certificate of compliance for this package.
- 2) The external surface of the package shall be inspected for radioactive contamination, and decontaminated if necessary. All components shall also be checked for contamination, and decontaminated if necessary.
- 3) A survey of the radiation levels of the package shall be conducted to confirm that the package is empty. If, at any stage of disassembly, levels of radiation above that permitted are detected, then the appropriate action shall be taken to safeguard personnel, and to rectify the situation.
- 4) The security seals, padlock (if fitted), closure nuts/washers, lid and top cork shall be removed from the keg.
- 5) The containment vessel shall be removed from within the inner cork. Remove the shielding screw from the lifting hole, if present, and then screw a 12 mm eye bolt into the containment vessel lid.
- 6) The containment vessel closure screws and lid shall be removed.
- 7) If the containment vessel lid is not readily released, as may occur if the containment vessel was loaded at a lower atmospheric pressure, gently jack the lid from the containment vessel body using 2 jacking screws fitted in the jacking holes on the containment vessel lid. The jacking screws should be left in the containment vessel lid withdrawn to be flush with the lid top surface.
- 8) Additional Step for Split CV lid versions: Using the shield plug lifting point remove the shield plug. Remove the tungsten liner (if fitted) from the CV cavity.
- 9) The model/serial numbers of the containment vessel assembly (body, lid and if a split lid the shielding plug) shall be checked to ensure the serial number on the body matches the serial number on the lid. Where the model/serial numbers of the containment vessel assembly (body, lid and if a split lid the shielding plug) do not match, these components shall be removed from service and, in accordance with the users NCR (Non Conformance Report) system, the complete packaging shall be subjected to maintenance in accordance with the requirements of Section 8.2.
- 10) The containment vessel body and all lid components shall be checked for damage that may have occurred during transport. Check the closure screws are in good condition and that no fatigue cracks have developed during transport. Check that the closure components assemble freely by hand. Repair or replace any damaged items.
- 11) The O-rings shall be visually inspected for any cuts, blemishes, debris or permanent local deformation on the sealing surface. Damaged seals shall be replaced with seals meeting the specifications in drawing 1C-5944 for the standard lid CV, drawing 1C-

7504 for the split lid CV and drawing 1C-7944 for the split CV lid for insert Design No. 4109. If the O-rings are acceptable, lubricate with a light film of silicone O-ring lubricant.

- 12) If the containment seal O-ring is replaced or the containment O-ring has not been leak tested within 12 months prior to the shipment, a helium leak test shall be performed in accordance with Section 8.1.4.

NOTE: Completion of a helium leak test DOES NOT relieve the need to perform the pre-shipment leak test in Section 7.1.3 step 1.

- 13) The model/serial numbers of the keg assembly (keg body and keg lid) shall be checked to ensure the serial number on the keg body matches the serial number on the keg lid: where the model/serial numbers of the keg (body and lid) do not match, these assemblies shall be removed from service and, in accordance with the users NCR system, the complete packaging shall be subjected to maintenance in accordance with the requirements of Section 8.2.
- 14) The keg outer shell shall be visually checked for unacceptable defects. Unacceptable defects are dents; cracking of welded joints; penetration of the keg skin; or abrasion or scratches that reduces the thickness of the keg below its licensed dimensions, including tolerances, as shown in the general arrangement drawings in the Certificate of Compliance.
- 15) Check that the keg lid fits without interference with the closure studs. Check that the closure studs and bolts are undamaged i.e. no fatigue cracks have developed and the studs are not stripped. The closure nuts and studs shall fit up without interference. The keg lid seal shall be fitted into the O-ring groove in the top of the keg. It shall be checked for any visible damage. The keg lid seal (item 13, drawing 0C-5942 or 0C-7502), closure studs (item 16, drawing 0C-5942 or 0C-7502), closure nuts/washers (item 14 and 15, drawing 0C-5942 or 0C-7502) shall be replaced, if missing or damaged.
- 16) Check that the cork packing pieces inner cork and top cork are in good condition i.e. intact and not chipped or cracked. Replace as required.
- 17) Remove the keg steel liner and turn the liner upside down to check for the presence of water. If water is present the inner cork packing shall be removed and placed in a controlled oven and held at 80°C for 24 hours.
- 18) Check the keg liner and the keg liner welds for signs of corrosion. Repair or replace any damaged liner.

7.1.2 Loading of Contents with a Standard Lid Containment Vessel

NOTE: The standard lid containment vessel shall only be loaded with insert design numbers 3982, 3985 or 3987.

- 1) The containment vessel cavity shall be checked to ensure it is dry and clean before loading with the radioactive contents.
- 2) The contents shall be limited as required by the Certificate of Compliance. The contents shall be chemically compatible (i.e. not chemically reactive) with their immediate packaging and the containment boundary (e.g. tungsten, Silicon O-ring).
- 3) From the contents type to be shipped, determine the insert required for the shipment in accordance with the Certificate of Compliance. The model/serial numbers of the insert body and lid shall be checked to ensure that the number marked on the body matches that on the lid: where the model/serial numbers of the insert (body and lid) do not match, these assemblies shall be removed from service.
- 4) Visually inspect the insert to be used for the shipment for any damage. Check that the lid screws freely by hand onto the body. If there is any damage or the closure does not operate correctly carry out a maintenance operation according to Section 8.2.3. Check that the O-ring is present and undamaged. If the O-ring is not present or if it is damaged, it shall be replaced. [For insert Design No. 3987 new seals shall be fitted prior to each use.](#)
- 5) Check that the contents meet the restrictions for its content type as listed in the Certificate of Compliance
- 6) If the content is Special Form, check the Special Form certificate to ensure it is current.
- 7) If loading liquid contents (as CT-4) [in insert Design No. 3987](#) the insert [outer seal](#) shall be [leak](#) tested in accordance with the criteria specified in ANSI N14.5 [7.4], using a bubble [test](#) method. The test sensitivity shall be 10^{-3} ref.cm³/s and the acceptance rate shall be no visible stream of bubbles.
- 8) If the insert fails the bubble leak test. Inspect the insert [seal, clean](#) and replace as necessary. Repeat the leak test in accordance with step 7. If the leak test continues to fail, remove the insert from service and raise an NCR.
- 9) Load the contents into the insert and screw the insert lid tight ensuring that the match marks on the lid and the body meet to form a straight line.
- 10) Load the insert into the containment vessel and place the silicone sponge rubber disc onto the insert.
- 11) The lid shall be fitted to the containment vessel and the containment bolts tightened to a torque of 10 ± 0.5 Nm.

7.1.3 Loading of Contents with a Split CV Lid with insert Design No. 4081

NOTE: The split lid containment vessel shall only be loaded with insert design number 4081 for CT-5 (Mo-99).

- 1) The containment vessel cavity shall be checked to ensure it is dry and clean before loading with the radioactive contents.
- 2) Confirm the contents meet the requirements of the Certificate of Compliance for the split lid CV.
- 3) The model/serial numbers of the insert body and lid shall be checked to ensure that the number marked on the body matches that on the lid: where the model/serial numbers of the insert (body and lid) do not match, these assemblies shall be removed from service.
- 4) Visually inspect the insert to be used for the shipment for any damage. Check that the lid screws freely by hand onto the body. If there is any damage or the closure does not operate correctly carry out a maintenance operation according to Section 8.2.3. Check that the O-ring is present and undamaged. If the O-ring is not present or if it is damaged, it shall be replaced.
- 5) The insert shall be tested in accordance with the criteria specified in ANSI N14.5 [7.4], using a bubble method. The test sensitivity shall be 10^{-3} ref.cm³/s and the acceptance rate shall be no visible stream of bubbles.
- 6) If the insert fails the bubble leak test. Inspect the insert O-ring and replace as necessary. Repeat the leak test in accordance with step 5. If the leak test continues to fail, remove the insert from service and raise an NCR.
- 7) Place the tungsten liner inside the CV cavity.
- 8) Load the contents into the insert and screw the insert lid tight. Screw the snap ring into the shielding plug of the CV. Engage the insert with the snap ring.
- 9) Lower the shielding plug and insert into the CV using the shielding plug lifting point.
- 10) The lid shall be fitted to the containment vessel and the containment bolts tightened to a torque of 10 ± 0.5 Nm.

7.1.4 Loading of Contents with a Split CV Lid with insert Design No. 4109

NOTES:

The split lid containment vessel shall only be loaded with insert design number 4109 for CT-6 (Thorium target).

The contents are cut thorium target and being metal the insert 4109 does not have to be leak tested.

The contents shall be packed as shown in Section 1.2.2.2 in Figure 1-7 with the thorium discs packed in the jar so as not to move freely using knit wire, and the jar located in the insert using top and bottom spacers.

- 1) The containment vessel cavity shall be checked to ensure it is dry and clean before loading with the radioactive contents.
- 2) Confirm the contents meet the requirements of the Certificate of Compliance for the sealed split lid CV.
- 3) The model/serial numbers of the insert body and lid shall be checked to ensure that the number marked on the body matches that on the lid: where the model/serial numbers of the insert (body and lid) do not match, these assemblies shall be removed from service.
- 4) Visually inspect the insert to be used for the shipment for any damage. Check that the lid screws freely by hand onto the body. If there is any damage or the closure does not operate correctly carry out a maintenance operation according to Section 8.2.3.5. Check that the O-ring is present and undamaged. If the O-ring is not present or if it is damaged, it shall be replaced.
- 5) Place the bottom spacer inside the insert cavity.
- 6) Load the contents (jar containing thorium target pieces and knit wire packing) into the insert cavity and insert the top spacer and fit the insert lid: correct closure is indicated by alignment of the 'match-marks' on the body and lid.
- 7) Load the insert into the CV (a magnet can be used for this)
- 8) Fit the shielding plug, ensuring that the shielding plug is fully inserted into the CV such that its top is not above the shoulder in the CV cavity.
- 9) Fit the lid to the containment vessel and ensure the containment bolts are tightened to a torque of 10 ± 0.5 Nm.

7.1.5 Preparation for Transport for CV with Standard or Split Lid Versions

- 1) Perform a pre-shipment leak test on the double O-ring closure of the loaded containment vessel at room temperature and atmospheric ambient conditions. The closure shall be leak tested in accordance with the criteria specified in ANSI N14.5, using a gas pressure rise or gas pressure drop method with no detected leakage when tested to a sensitivity of 10^{-3} ref.cm³/s.
- 2) If the leak rate is unacceptable, recheck the test equipment to ensure there are no leaks. If there are no leaks disconnect from the containment vessel and open the containment vessel.
- 3) Inspect the O-rings and replace as necessary following steps 9, 10 and 11 from section 7.1.1. Repeat step one of this section. If the leak test continues to fail, remove the package from service and raise an NCR.
- 4) The inner cork packing and containment vessel shall be fitted into Keg 3977 in the following order: inner cork, containment vessel, ensuring that the containment vessel sits down on the keg liner. A lifting ring may be fitted into the lifting hole to assist lifting the containment vessel. If a lifting ring is to be used, the shielding screw fitting in the standard CV lid shall be removed in order to fit the lifting ring.
- 5) If the lifting ring is used, it shall be removed from the containment vessel lifting hole and if using the standard CV lid the shielding screw shall be replaced.
- 6) FOR THE STANDARD CV LID ONLY: Check that the shielding screw is present in the lifting hole on the containment vessel lid. If it is not present insert a shielding screw in accordance with the drawings listed in the Certificate of Compliance.
- 7) Insert the top cork ensuring that it is no higher than the surface of the keg closure flange.
- 8) The keg lid seal and the keg lid shall be fitted, the keg closure washers emplaced, and the keg closure nuts tightened to a torque of 23 ± 1 Nm.
- 9) A security seal shall be fitted through the security seal holes in any adjacent pair of lid closure studs.
- 10) A contamination survey shall be conducted on the external surfaces of the package to ensure that the level of non-fixed radioactive contamination is as low as reasonably achievable and within the limits specified in 10 CFR 71.87 and 49 CFR 173.443.
- 11) A radiation survey shall be conducted for gamma radiation to verify compliance with 10 CFR 71.47 and 49 CFR 173.441 requirements.
- 12) Optional step: PVC tape may be applied to the body and/or lid of the keg to cover the surface and to facilitate the removal of transport labels.

- 13) The packaging shall be marked and labeled in accordance with 49 CFR requirements. Any inappropriate markings or labels shall be removed. If the keg has been taped ensure all labels are placed on the tape and not on the keg skin. This allows for easy removal of shipping labels.
- 14) A survey of the outside temperature of the package to meet the requirements of 49 CFR 173.442 is not required as conformance with this requirement is assured by the design and proving tests reported in Sections 2 and 3.
- 15) Release the package to the carrier for shipment to the consignee.

7.2 Package Unloading

This section describes the requirements for unloading the package and the contents. It also details the tests and inspections that must be carried out during unloading and opening. Each packaging user shall prepare specific instructions and checklists, in accordance with the organizations Quality Assurance Program, to ensure compliance with the requirements detailed in Sections 7.2.1, 7.2.2, 7.2.3 or 7.2.4 and to meet the requirements of 10 CFR 20.1906.

7.2.1 Receipt of Package from Carrier

- 1) Confirm that the package is the one identified on the accompanying documentation. Any special requirements of the receiving organization shall be fulfilled.
- 2) The exterior of the package shall be checked for damage that may have occurred during shipment. Damaged packages shall be handled in accordance with the user's facility procedures for handling packages that may not be in a safe condition.
- 3) The radiation and contamination levels on the outer surface of the keg shall be monitored. If, at any stage of unloading, levels of radiation or contamination are detected above those permitted, then the appropriate action shall be taken to safeguard personnel, and to rectify the situation. Radiation level limits are specified in 10 CFR 71.47 and 49 CFR 173.441. The maximum level of removable radioactive contamination on the package surface is specified in 10 CFR 71.87(i) and 49 CFR 173.443.
- 4) The security seals shall be checked to ensure they are intact. If NOT intact investigate the cause and follow internal procedures. No further disassembly of the package shall be attempted until the situation has been resolved.

7.2.2 Removal of Contents for a Standard CV Lid

- 1) The security seals, keg closure nuts, washers, and keg lid shall be removed. The opened top of the keg shall be monitored for contamination.
- 2) The top cork shall be removed.
- 3) Remove the shielding screw from the top of the containment vessel and fit a 12 mm diameter eyebolt. Using this eyebolt lift the containment vessel from the keg. The containment vessel shall be monitored for contamination as it is removed from the cork body.
- 4) The containment vessel closure screws and the lid shall be removed.
- 5) If the containment vessel lid is not readily released, as may occur if the containment vessel was loaded at a lower atmospheric pressure, gently jack the lid from the containment vessel body using 2 jacking screws fitted in the jacking holes on the containment vessel lid. The jacking screws should be left in the containment vessel lid withdrawn to be flush with the lid top surface.
- 6) The containment vessel shall be monitored for contamination while the lid is removed. If the containment vessel is carrying liquid I-131 it shall be opened in a glove box or hot cell, or be mated up with a glove box or hot cell with a volume of at least 3400 cm³. This ensures that the hydrogen generated during shipment will remain below a concentration of 5% during unloading of the package.
- 7) A silicone sponge rubber disc and the insert shall be removed from the containment vessel.
- 8) The contents shall be removed from the insert in accordance with user's facility procedures, and shall take into account any special requirements for the materials being handled.
- 9) Radiation and contamination surveys of the containment vessel, insert and silicone sponge rubber disc shall be carried out to internal procedures. Decontamination shall be carried out if required.

7.2.3 Removal of Contents for a Split CV Lid with insert Design No. 4081

- 1) The security seals, keg closure nuts, washers, and keg lid shall be removed. The opened top of the keg shall be monitored for contamination.
- 2) The top cork shall be removed.
- 3) Fit a 12 mm diameter eyebolt to the lid of the CV. Using this eyebolt lift the containment vessel from the keg. The containment vessel shall be monitored for contamination as it is removed from the cork body.
- 4) The containment vessel closure screws and the lid shall be removed.
- 5) If the containment vessel lid is not readily released, as may occur if the containment vessel was loaded at a lower atmospheric pressure, gently jack the lid from the containment vessel body using 2 jacking screws fitted in the jacking holes on the containment vessel lid. The jacking screws should be left in the containment vessel lid but withdrawn (unscrewed) until they are flush with the lid top surface.
- 6) The containment vessel shall be monitored for contamination while the lid is removed.
- 7) Lift the shielding plug including the insert from the CV cavity. The contents shall be removed from the insert in accordance with user's facility procedures, and shall take into account any special requirements for the materials being handled.
- 8) Radiation and contamination surveys of the containment vessel, insert and all packing items shall be carried out to internal procedures. Decontamination shall be carried out if required.

7.2.4 Removal of Contents for a Split CV Lid with insert Design No. 4109

- 1) The security seals, keg closure nuts, washers, and keg lid shall be removed. The opened top of the keg shall be monitored for contamination.
- 2) The top cork shall be removed.
- 3) Fit a 12 mm diameter eyebolt to the lid of the CV. Using this eyebolt lift the containment vessel from the keg. The containment vessel shall be monitored for contamination as it is removed from the cork body.
- 4) The containment vessel closure screws and the lid shall be removed.
- 5) If the containment vessel lid is not readily released, as may occur if the containment vessel was loaded at a lower atmospheric pressure, gently jack the lid from the containment vessel body using 2 jacking screws fitted in the jacking holes on the containment vessel lid. The jacking screws should be left in the containment vessel lid but withdrawn (unscrewed) until they are flush with the lid top surface.
- 6) The containment vessel shall be monitored for contamination while the lid is removed.
- 7) Lift the shielding plug from the CV cavity.
- 8) Lift out the insert, unscrew the lid and remove the top spacer and remove the contents (jar containing the thorium target) from the insert.
- 9) The contents shall be removed from the jar in accordance with user's facility procedures, and shall take into account any special requirements for the materials being handled.
- 10) Radiation and contamination surveys of the containment vessel, insert and all packing items shall be carried out to internal procedures. Decontamination shall be carried out if required.

7.3 Preparation of Empty Package for Transport

Empty packagings shall meet the requirements of 49 CFR 173.428.

Each packaging user's facility shall prepare specific instructions or procedures and checklists, in accordance with that organization's approved Quality Assurance Program, and ensure compliance with the following requirements when shipping an empty package.

The package may be shipped empty in a damaged condition providing all the components are packed within the keg and keg lid can be fastened securely.

Empty packages should be stored in an area where they are protected from the weather and physical damage. It is recommended that the package be stored in a controlled area to prevent unauthorized tampering or use and that a security seal be in place to provide evidence of tampering.

7.3.1 Preparation of an Empty Package with a Standard CV Lid

During handling of the package it is recommended that the containment vessel is lifted with a 12mm eyebolt threaded into the lid. In order to fit this eyebolt the shielding screw shall be removed. The shielding screw shall be replaced once the eyebolt is removed.

- 1) A contamination survey of the internal surfaces of the containment vessel i.e. the flange/cavity wall and underside of the closure lid shall be performed. If the non fixed surface contamination exceeds the requirements 49 CFR 173.428(d) then decontaminate the containment vessel.
- 2) A contamination survey of the silicone sponge rubber disc and the internal and external surfaces of the insert shall be performed. If the non fixed surface contamination exceeds the requirements of 49 CFR 173.428(d) then decontaminate the insert and if applicable the liner.
- 3) The insert shall be placed into the cavity of the containment vessel along with the silicone sponge rubber disc. The lid of the containment vessel shall be placed onto the containment vessel flange and the closure screws shall be tightened. Torque measurements are not required, but ensure all the nuts are tight.
- 4) The containment vessel shall be fitted inside the inner cork of keg 3977. Ensure that the containment vessel sits down on the keg liner. If the containment vessel has been lifted with the 12 mm eyebolt remove it and replace it with the shielding screw.
- 5) Check that the shielding screw is present in the CV lid. If it is not present insert a shielding screw in accordance with the drawings listed in the Certificate of Compliance.
- 6) Insert the top cork and ensure that it is no higher than the surface of the keg closure flange.

- 7) The keg lid seal and the keg lid shall be fitted, the keg closure washers emplaced, and the keg closure nuts tightened to a torque of 23 ± 1 Nm.
- 8) A contamination survey of the external surfaces of the package shall be performed. Determine if the surface contamination levels meet the requirements of 49 CFR 173.428(a). If not, clean the outside of the package and repeat the contamination survey.
- 9) A radiation survey shall be conducted for gamma radiation to verify compliance with 49 CFR 173.428(a) requirements.
- 10) The empty label as specified in 49 CFR 172.450 shall be attached to the package. Ensure that any labels that have previously been applied are removed, covered or obliterated as required by 49 CFR 173.428.
- 11) The assembled keg should be delivered to a carrier in such condition that subsequent transport will not reduce the effectiveness of the packaging. An empty package should be handled, stored, and shipped according to proper procedures to prevent damage that could affect the subsequent use of the packaging.

7.3.2 Preparation of Empty Package with a Split CV lid for Transport

During handling of the package it is recommended that the containment vessel is lifted with a 12mm eyebolt threaded into the lid.

- 1) A contamination survey of the internal surfaces of the containment vessel i.e. the flange/cavity wall and underside of the closure lid shall be performed. If the non fixed surface contamination exceeds the requirements 49 CFR 173.428(d) then decontaminate the containment vessel.
- 2) A contamination survey of the internal and external surfaces of the insert shall be performed. If the non fixed surface contamination exceeds the requirements of 49 CFR 173.428(d) then decontaminate the insert and if applicable the liner.
- 3) **Where used**, the tungsten liner shall be placed into the cavity of the containment vessel. Insert the shielding plug, optionally the **empty** insert and payload internals may be loaded.
- 4) Place the lid of the containment vessel onto the containment vessel flange and tighten the closure screws. Torque measurements are not required, but ensure all the nuts are tight.
- 5) The containment vessel shall be fitted inside the inner cork of keg 3977. Ensure that the containment vessel sits down on the keg liner. If the containment vessel has been lifted with the 12 mm eyebolt remove it.
- 6) Insert the top cork and ensure that it is no higher than the surface of the keg closure flange.
- 7) The keg lid seal and the keg lid shall be fitted, the keg closure washers emplaced, and the keg closure nuts tightened to a torque of 23 ± 1 Nm.

- 8) A contamination survey of the external surfaces of the package shall be performed. Determine if the surface contamination levels meet the requirements of 49 CFR 173.428(a). If not, clean the outside of the package and repeat the contamination survey.
- 9) A radiation survey shall be conducted for gamma radiation to verify compliance with 49 CFR 173.428(a) requirements.
- 10) The empty label as specified in 49 CFR 172.450 shall be attached to the package. Ensure that any labels that have previously been applied are removed, covered or obliterated as required by 49 CFR 173.428.
- 11) The assembled keg should be delivered to a carrier in such condition that subsequent transport will not reduce the effectiveness of the packaging. An empty package should be handled, stored, and shipped according to proper procedures to prevent damage that could affect the subsequent use of the packaging.
- 12) proper procedures to prevent damage that could affect the subsequent use of the packaging.

7.4 Other Operations

A pallet shall be used to carry the package within a conveyance.

For Contents Types CT-1 to CT-5 the pallet shall provide at least 200 mm spacing between the base of the package from the outside surface of the conveyance.

For Contents Type 6 - CT-6 the pallet shall provide at least 750 mm spacing between the surface of the package and the outside surface of the conveyance.

7.5 Appendix

7.5.1 References

- [7.1] Title 10, Code of Federal Regulations, Part 71, Office of the Federal Register, Washington D.C.
- [7.2] Title 49, Code of Federal Regulations, Parts 106 – 180, Office of the Federal Register, Washington D.C.
- [7.3] Title 10, Code of Federal Regulations, Part 20, Office of the Federal Register, Washington D.C.
- [7.4] ANSI N14.5, American Standards for Radioactive Materials – Leakage Tests on Packages for Shipment, American National Standards Institute, 1997.