

TELE THERAPY SHIPPING/TRANSFER CASE
UNLOADING AND LOADING PROCEDURE

PROCEDURE R 2014

REVISION 5

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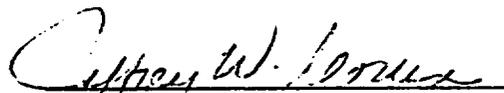
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TELE THERAPY SHIPPING/TRANSFER CASK
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SCOPE

The teletherapy shipping package, NPI-20WC-6, consists of a specially designed inner lead shielded shipping/transfer cask contained within an overpack. This procedure covers hot cell unloading and loading of doubly encapsulated sources out of, and into, the approved shipping/transfer casks, and shall be used in conjunction with Procedure R 5001, General Procedure for Hot Cell Operations. Enclosure of the cask within the overpack and unloading and loading the shipping package is included in the procedure. For operations at other hot cells, this procedure will be modified as necessary.

BACKGROUND

Both unloading and loading is covered here in a single procedure because the most frequent circumstance in the shipping and transfer of teletherapy sources is receipt of a package containing a spent source which, after appropriate initial operations and surveys, is removed from the package in the hot cell and placed in interim storage; whereupon the cask is inspected, cleaned, resleeved, as necessary, and loaded with a new source in the hot cell for subsequent shipment off site. Loading an initially empty container and similarly, unloading a container to be placed into standby or serviced in an empty condition, are included as variations of the procedure.

1. REFERENCES

Procedure R 1002, Sampling Procedure
Procedure R 5001, General Procedure for Hot Cell Operations
Procedure R 5002, Opening Hot Cell Door After Processing Single and
Double Encapsulated Cobalt-60
Procedure R 5015, Operation of the Hot Cell Interlock
Applicable Certificate of Compliance (for domestic destination) or
Certificate of Competent Authority (for foreign destinations) for
the shipping package
QA 1003, Package Loading Procedure for Radioactive Materials
QA 1004, Package Unloading Procedure for Radioactive Materials

2. GENERAL CONSIDERATIONS

Sources shall be loaded only upon written instruction, after it has been determined that the sources meet all specifications, including customer's, and cask loading specifications.

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The shipping packages usually contain radioactive material upon receipt and all procedures and precautions associated with handling radioactive materials must be followed.

3. PERSONNEL AND SUPERVISION REQUIREMENTS

Radioactive materials may be loaded or unloaded from transfer containers only by experienced hot cell operators, acting under the authority of the hot cell manager or the radiation safety officer (RSO), or his designee.

4. EQUIPMENT

Operating hot cell
Shipping/transfer cask
Shipping/transfer cask applicable inserts
Survey meter capable of reading up to 2 R/hour
All necessary tools

5. OPERATIONS

5.1 Preparations

5.1.1 Confirm with the hot cell manager, or other individual responsible for the shipment, the following:

- a) source(s) identification;
- b) activity of source(s);
- c) applicable shipping/transfer cask and source holder; and,
- d) applicable overpack (wooden protective jacket and steel shell).

5.1.2 For shipment received, unload the NPI-20WC-6 package from the truck in accordance with QA 1004.

5.1.3 Remove bolts and lids from the steel shell and wooden protective jacket, respectively. Store for reuse.

5.1.4 Remove shipping/transfer cask from the overpack. Do not leave wooden protective jacket open to weather. Inspect overpack for damage and repair, if necessary. Store overpack for next use with wooden lid and shell cover in place.

5.1.5 Measure radiation levels to confirm that handling of cask will be a low level operation.

5.1.6 Open hot cell door per Procedure R 5015.

- 5.1.7 Place the shipping/transfer cask on the dolly in the machine shop. Manually move dolly from the machine shop to the area behind the hot cell and under the crane trolley. Lift shipping/transfer cask to sufficient height and center it over the hot cell dolly. Lower cask onto the hot cell dolly. Disengage the crane trolley and remove it to its original position.
- 5.1.8 Remove bolts holding one of the shipping/transfer cask covers. Make certain end of cask faces shielded area when removing cover.
- 5.1.9 Confirm whether the cask contains a source by both measuring the radiation level near, and visually inspecting inserts at, the open face of the container. Any reading above background should be considered as indicating a loaded container.
- 5.1.10 If shipping/transfer cask is loaded, proceed to 5.1.12.
- 5.1.11 If shipping/transfer cask is empty, remove inserts, clean the inside of the container, check drum rotation (where applicable), wipe test the inside of the container and inserts, and reinstall applicable inserts.
- 5.1.12 Load shipping/transfer cask, appropriate insert or holder, and all necessary tools into cell.
- 5.1.13 Close hot cell door.
- 5.1.14 If shipping/transfer cask is empty, proceed to 5.3.
- 5.1.15 If shipping/transfer cask is loaded, proceed to 5.2.

5.2 Unloading

- 5.2.1 If container is loaded, remove source holder and remove source from holder.
- 5.2.2 Visually inspect source for damage and evidence of failure of source integrity.
- 5.2.3 Wipe test source.

5.2.4 Acceptability for source storage:

5.2.4.1 If the source passed the visual examination and if the removable contamination determined by the wipe test is less than 0.05 uCi, place the source in storage and note in the inventory record.

5.2.4.2 If the removable contamination, as determined by wipe test, is greater than 0.05 uCi, the source should be visually re-examined. If the examination reveals no sign of cladding failure, decontaminate and wipe test again. If the results of the wipe test after decontamination is less than 0.05 uCi, the source shall be considered acceptable and placed in storage.

5.2.4.3 If there is any sign of cladding failure, or if the wipe test after decontamination is greater than 0.05 uCi, notify the production manager and establish the corrective action to be taken to prevent significant contamination in storage. Note condition and action taken in the hot cell log.

5.2.5 Open hot cell door using referenced procedures and move empty cask into the hot cell access area.

5.2.6 If the empty cask is to be reloaded for outgoing shipment, proceed to Step 5.1.11.

5.2.7 If the empty cask is to be shipped empty or taken out of service, remove inserts, clean the inside of the container and wipe test both the inside of the container and the inserts.

The inside surface of the shipping/transfer cask and the inserts should not exceed a count rate of 500 dpm per 100 cm² on the wipe tests; clean and rewipe as necessary to meet this limit.

5.2.8 If the empty cask is to be shipped empty, install inserts (if appropriate), and bolt gasketed covers into place. Tighten bolts to firmly compress the gasket (approximately 100 inch-pounds torque). Insure requirements of 49 CFR 173.427 regarding shipment of empty radioactive packaging materials are met. Proceed to Step 5.3.10 or an alternative special procedure.

5.2.9 If the empty cask is to be taken out of service, install the covers along with any internals to be stored and place the cask into storage.

5.3 Loading

NOTE: Before loading, make certain that all applicable preparation steps, starting with 5.1, are completed.

5.3.1 Remove completed and inspected source from storage.

5.3.2 Visually inspect source for damage and evidence of failure of source integrity.

5.3.3 Wipe test source.

5.3.4 Acceptability for source shipment:

5.3.4.1 If the source passed the visual examination and the removable contamination, as determined by the wipe test, is less than 0.001 uCi, the source is acceptable for shipment.

5.3.4.2 Repeated decontamination and wipe testing is acceptable in meeting criteria.

5.3.5 Load source into appropriate holder and the holder into the designated position in the shipping/transfer cask.

5.3.6 Record the identification and location of each source in the cask.

5.3.7 Open the hot cell door using the referenced procedures.

5.3.8 Place cover on the shipping/transfer cask.

5.3.9 Remove shipping/transfer cask from hot cell and tighten bolts to firmly compress the gasket (approximately 100 inch-pounds torque).

5.3.10 Decontaminate the shipping/transfer cask.

5.3.11 Wipe test shipping/transfer cask and decontaminate as necessary.

- 5.3.12 Measure and record maximum radiation levels at surface and at 1 meter (3.3 feet).
- 5.3.13 Complete and place appropriate label on the shipping/transfer cask.
- 5.3.14 Load shipping/transfer cask into the overpack and install wooden protective jacket cover. Bolt cover firmly into place, making certain that all thread reinforcement rod ends remain recessed at least 1.5 inches below the surface of the wooden protective jacket.
- 5.3.15 Bolt overpack steel shell.
- 5.3.16 Fit steel shell cover and bolt into place.
- 5.3.17 Affix appropriate labels for the shipment and load the NPI-20WC-6 package onto the truck in accordance with QA 1003.

6. RECORD REQUIREMENTS

6.1 The hot cell logbook shall contain:

- identification of the cask that has been loaded;
- identification and in-cask location of sources that have been loaded;
- name of operator;
- results of all wipe tests and results of source inspections; and,
- dose received by operator as read on the dosimeter.

6.2 Make the appropriate entry into the inventory record.

6.3 The hot cell manager shall review the hot cell logbook for compliance with the procedure at least once a day and shall either indicate its adequacy by initialling at the end of each day's entry or shall note and initial any inadequacy. The radiation safety officer shall review the hot cell logbook at least weekly and shall make similar notations.