

APPENDIX L

ORDERING, RECEIVING, OPENING, AND SHIPPING PACKAGES CONTAINING RADIOACTIVE MATERIAL

To insure radioactive material is properly ordered, received, opened, and shipped, the following information may be used to develop operating procedures.

General Information

1. Ordering and Receiving

- A. Radioactive material will be ordered by _____ (Name/Title).
- B. The Radiation Safety Officer (RSO) must approve or place all orders for radioactive material and insure that the requested radioactive material(s), quantities, manufacturer and model are authorized by the license and that possession limits are not exceeded.
- C. Transportation carriers will be provided instructions on when and where to deliver packages containing radioactive materials.

2. Receiving and Safely Opening Packages

- A. Only Authorized Users or specifically identified designees are permitted to open shipping packages (shipping/transport containers) containing radioactive material. If the RSO or an Authorized User is not available when the package is delivered, the package will be placed in a secure, pre-designated remote location of the facility awaiting the RSO or an Authorized User. The package will not be opened.
- B. Packages containing radioactive material shall be inspected and surveyed as soon as practical after receipt of the package, but not later than three (3) hours after the package is received at the licensee's facility if it is **received during normal working hours**.
- C. Packages containing radioactive material that are **received after normal working hours** at the licensee's facility shall be inspected and surveyed not later than three (3) hours from the beginning of the next working day.
- D. Each package will be visually inspected for any sign of damage. **If damage is noted, immediately notify the RSO.** If the RSO determines that the shielding may have been compromised, the RSO will survey the package to determine the presence and extent of any shielding failure or radioactive contamination. **If damage is noted, the package will immediately be placed in a secure storage area. The package of**

radioactive material will not be used. The RSO will notify the Department in accordance with the Emergency Procedures.

- E.** If the physical inspection indicates no damage, remove the packing slip. Open the container and verify the contents. Closely examine the package for damage and check to verify that the radioactive material is authorized by the radioactive materials license. If anything appears out of place or missing, notify the RSO.
- F.** If the inspection results are satisfactory, store and lock the package in the designated storage area.
- G.** Records of receipt and transfer shall be maintained for inspection purposes and shall be retained for at least 3 years following the date the record was created.

3. Preparing Packages for Shipment

- A.** Packages of radioactive material offered to common carriers for shipment will be prepared in accordance with applicable U.S. Department of Transportation regulations. Specific instructions for preparing packages for shipment are provided in the Transportation section of the Operating Procedures. Proper packaging, markings and labels will be used, and proper shipping papers and emergency response information will be provided with each package. Transfer records will be maintained on file for inspection purposes.
- B.** Packages of radioactive material will be prepared for shipment only by personnel that have completed hazmat employee training specified in the U.S. Department of Transportation, Subpart H, 49 CFR Part 172.

Additional Guidance

1. Ordering and Receiving Packages Containing Radioactive Material

This model provides critical information for ordering and receiving packages containing radioactive material that must be included in operating procedures. The Licensee must:

- Authorize, through a designee (e.g., Radiation Safety Officer), each order of radioactive material and ensure that the requested materials and quantities are authorized by the license for use by the requesting Authorized User and that possession limits are not exceeded.
- Establish and maintain a system for ordering and receiving radioactive material; include the following information:
 - Records that identify the Authorized User or department, radionuclide, physical and/or chemical form, activity, and supplier;

- Confirmation, through the above records, that material received was ordered through proper channels.
- For deliveries during normal working hours, inform carriers to deliver radioactive packages directly to a specified area.
- For deliveries during off-duty hours, inform security personnel or other designated persons to accept delivery of radioactive packages in accordance with procedures outlined in the sample memorandum for delivery of packages to the Nuclear Medicine Division, provided in this Appendix. Develop a similar memorandum for delivery of packages to other divisions. A sample Memorandum is included on Page 5.

2. Safely Opening Packages Containing Radioactive Material

This model provides acceptable procedures for opening packages containing radioactive material. Applicants may either adopt this model procedure or develop an alternative procedure to meet the requirements of RH-1307.

Model Procedure

1. Put on gloves to prevent hand contamination.
2. Visually inspect the package for any sign of damage (e.g., wet or crushed). If damage is noted, stop the procedure and notify the RSO or the designee of the RSO if the RSO is not present immediately.
3. Monitor the external surfaces of a labeled¹ package for radioactive contamination, unless the package contains only radioactive material in the form of a gas or in special form, as defined in RH-3100.
4. Monitor the external surfaces of a labeled¹ package for radiation levels, unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in RH-3100 and Table C-1 to RH-2700.
5. Monitor all packages known to contain radioactive material for radioactive contamination and radiation levels, if there is evidence of degradation of package integrity, such as packages that are crushed, wet, or damaged.
6. Remove the packing slip.
7. Open the outer package, following any instructions that may be provided by the supplier.
8. Open the inner package and verify that the contents agree with the packing slip.

¹ Labeled with a Radioactive White I, Yellow II, or Yellow III label as specified in DOT regulations.

9. Check the integrity of the final source container. Notify the RSO of any broken seals or vials, loss of liquid, condensation, or discoloration of the packing material.
10. If there is any reason to suspect contamination, wipe the external surface of the final source container and remove the wipe sample to a low-background area. Assay the wipe sample to determine if there is any removable radioactivity. An appropriate instrument with sufficient sensitivity will be used to assay the sample. For example, a NaI(Tl) crystal and rate meter, a liquid scintillation counter, or a proportional flow counter may be used for these assays. The detection efficiency will be determined to convert wipe sample counts per minute to disintegrations per minute. **Note: a dose calibrator is not sufficiently sensitive for this measurement.** Take precautions against the potential spread of contamination.
11. Check the user request to ensure that the material received is the material that was ordered.
12. Monitor the packing material and the empty packages for contamination with a radiation detection survey meter before discarding. If contaminated, treat this material as radioactive waste. If not contaminated, remove or obliterate the radiation labels before discarding in in-house trash.
13. Make a record of the receipt.

For packages received under the general license in RH-402.h, implement the following procedure for opening each package:

1. Visually inspect the package for any sign of damage (e.g., wet or crushed). If damage is noted, stop the procedure and notify the RSO (or the RSO's designee) immediately.
2. Check to ensure that the material received is the material that was ordered.

MEMORANDUM**TO:** Chief of Security**FROM:** Radiation Safety Officer**DATE:****SUBJECT:** Receipt of Packages Containing Radioactive Material

The Security Personnel on duty will accept delivery of radioactive material that arrives outside normal working hours. Packages will be taken immediately to the Nuclear Medicine Division, Room ___. Unlock the door, place the package on top of the counter, and relock the door.

If the package appears to be damaged, immediately contact one of the individuals identified below. Ask the carrier to remain at the hospital until it can be determined that neither the driver nor the delivery vehicle is contaminated.

If you have any questions concerning this memorandum, please call the Radiation Safety Officer, at extension _____.

	<u>Name</u>	<u>Home Telephone</u>
Radiation Safety Officer:		
Director of Nuclear Medicine:		
Nuclear Medicine Technologist Supervisor:		
Nuclear Medicine Technologist on call (call page operator at extension _____)		
Nuclear Medicine Physician on call (call page operator at extension _____)		