Section 11

Procurement of Radioactive Materials

Contents

A. Authorization to Order Radioactive Materials

All individuals wishing to purchase radioactive materials at the University of Washington must first have authorization to possess such material in the type and quantity requested. The authorization for possession and use of radioactive materials is issued through the Radiation Safety Office (RSO). See Section 4 of this manual, Authorization Process. Specific radionuclides and activity limits are indicated in the

authorization. Orders for non-authorized items or activities that go above the authorization limit will not be allowed.

B. Approval of Radionuclide Order

All radioactive materials orders must first be approved by the RSO before being sent to Purchasing for placement, in order to ensure that the person ordering the material is authorized for what is being requested. The RSO makes the determination of approval based on the AUI's current on-hand inventory of radioactive materials versus the AUI's allowed limits.

C. Ordering Process

Orders for radioactive materials are first approved by the RSO and then placed by the Chemical-Radioactive Purchasing Desk at the University Purchasing and Stores Office. Items that must be included in any order request are the radionuclide, activity, catalog number, description, Authorized Investigator (AUI), delivery location, technical contact person, and phone number.

1. Faxing an Order Request

The preferred method is to fax the order request using the "Rush Form for Purchases of Radioactive Materials" to the RSO (FAX 206-543-9726). A copy of this form is on the EH&S web page (www.ehs.washington.edu/Forms, Printable Forms, Radiation Safety).

"Rush" forms must be faxed to the RSO no later than 11:00 a.m., in order to be processed that day. This allows time for RSO approval and forwarding "Rush" forms to Purchasing so that the order can be placed with the vendor. Purchasing will not process any order that has not received prior approval by the RSO.

2. Stores On-Line Request

The order must also be entered into the Stores on-line order form (PAS). It is extremely important to indicate that this is a "confirming order", so that it does not get double ordered.

D. Radionuclide Order Receipt

State of Washington regulations require individuals receiving shipments of radioactive materials to follow procedures for opening packages safely. Also included in the regulations is the requirement to monitor the inside of these packages in order to mitigate the spread of contamination in the event of inner container leakage, and to further assure that packaging materials are free of contamination prior to disposal into the normal waste stream.

1. Order Arrival

All radioactive material orders shipped to the UW must be sent to the Radiation Safety Shipping and Receiving Office. The UW Radiation Safety Office performs some of the required procedures for inspecting and monitoring packages. However, establishing the integrity of the innermost container is the responsibility of the Authorized Investigator.

2. Authorized Investigator Package Monitoring

The Authorized Investigator can usually best establish internal container integrity by wiping the outside of the innermost container (or alternatively the packaging materials immediately adjacent to the innermost container), and then counting that wipe with an appropriate instrument. This wipe test must be recorded. In order to simplify this record keeping, we have added checkboxes at the bottom left of the form 160 (Radioactive Material Delivery and Usage Record), which is delivered along with each package of radioactive material. This form is discussed further in subsequent paragraphs. If no contamination is detected, there is a checkbox on the form 160 to acknowledge this. If contamination is found, a different box should be checked and you must record the number of counts per minute above background that are detected. There is also a space available to record your initials, acknowledging that you performed this survey.

3. No Contamination Detected

If no contamination is detected, then you have reasonable assurance that the shipping container and packaging materials are not contaminated. You may proceed by opening and inspecting the inner vial(s) before use or storage.

4. Contamination Detected

If contamination is detected, a survey must be done of the packing materials and of the area around where the package was opened. Any contamination of the shipping container, packaging materials, or surroundings must be controlled or removed. Contaminated shipping materials must be treated as radioactive waste. Notify the company that shipped you the package of your findings, and seek a replacement shipment if necessary. Also notify the Radiation Safety Office if a replacement shipment is being sent.

5. Disposal of Packaging Materials

To provide further assurance that packaging materials are at background levels prior to disposal in the normal waste stream, you should survey them with a hand-held instrument whenever it is reasonable to do so (package originally contained beta or gamma emitters of sufficient energy). You must also make sure that radioactive materials labels have been defaced or removed prior to their disposal into the normal waste stream.

E. Radioactive Materials Inventory

The University of Washington has a computer-based system for radioactive materials inventory and accountability. The running inventory is updated when use and disposal of material is reported and when new orders are placed for all AUIs.

1. Allowed Limits

An allowed limit of radioactive materials is the amount an Authorized Investigator is allowed to have in his/her possession at any one time. Allowed limits are listed on an AUI's authorization and are entered into the computer database for each AUI.

2. Amount On-Hand

The amount on-hand is specific to each allowed radioactive material and the specific form for certain radionuclides. It is the activity that the inventory indicates the AUI has in his/her possession or on-order for that material.

3. Approved Orders

Approved orders are for radioactive materials that have been ordered by Purchasing but have not been delivered to the University. Approved orders are entered into the inventory, are reflected in the amount on-hand, and reduce the activity that an AUI may subsequently order.

4. Delivered Orders

Before Radiation Safety staff delivers material to the appropriate laboratory, the packing slips are checks, the packages are monitored, and their activity is entered into the inventory database. A RSO Form 160, Radioactive Material Delivery and Usage Record, is sent with every delivered order. At the top of the form, information regarding the radionuclide and activity is reported to verify that you received the correct radioactive materials and in the amount ordered. Check this form upon receipt. Call the Radiation Safety Shipping and Receiving Office (658-5229) if the information on the Form 160 is incorrect, if you received the wrong Form 160 for your package, or if you received the wrong package.

5. Form 160

The Radioactive Material Delivery and Usage Record, Form 160, is used to record how the radioactive material is used, if it has decayed, is being stored, or being transferred to someone else. The AUI or laboratory radiation safety agent must fill out this form and return it to the RSO to provide an accounting of the disposition of the material in the order. Upon receiving the form, RS staff enters the used, disposed, decayed or transferred activity into the inventory database. This decreases the AUI's amount on-hand for that radionuclide.

a. Total Disposal

Unless otherwise indicated, RS staff assumes that a returned Form 160 is a total accounting for the disposition of the original activity in the order. If the amount disposed does not equal the original activity, the form may be returned to the issuing laboratory for correction.

b. Partial Disposal

It is possible to report a partial disposal of a radionuclide, which can be entered into the inventory to decrease the amount on-hand. This must, however, be indicated at the bottom of the Form 160. Partial disposals are only recommended for long-lived radionuclides and if an AUI needs to reduce his/her inventory in order to purchase new radioactive materials.

c. Transfer

Transferring radioactive materials to another Authorized Investigator or to someone under another organization's radioactive materials license is possible. However, regulations require that the individual and/or organization receiving the material must be legally authorized to have this material and that the Radiation Safety Office has written documentation of this authorization. Contact the RSO to find out how to properly transfer radioactive materials.

1) Transfer Form

   For transfer between AUIs at the UW, a RSO Form 160T, Radioactive Material Transfer and Usage Record, must accompany the radionuclide being transferred to the receiving AUI.

2) Inventory Reduction

   Transferring radioactive material decreases the transferor's amount on hand and increases the recipient's amount-on-hand in the computer inventory.

F. Inventory Reports

1. Short-Lived Radionuclides

For the Short-Lived Radionuclide Report, short-lived is defined as radioactive materials with a half-life of 100 days or less. If short-lived material remains on an AUI's inventory after 1½ years, a report is sent listing this material and reminding the AUI to send in the proper Forms 160 for inventory reduction. Short-lived reports are sent out twice a year.

2. Long-Lived Radionuclides

Long-lived radioactive material is any material that is not designated as short-lived. If an order is still on an AUI's inventory after 2½ years, a report is sent once each year to notify the AUI.

3. Other Inventory Reports

There are a number of other inventory reports that can be generated by this inventory tracking system as needed. RS staff upon request can generate a report of current inventory on-hand.