To protect from possible skin contamination, personnel working with unsealed radioactive materials (RAM) are required to wear personal protective equipment (PPE). The minimum PPE is a lab coat and gloves. In addition, personnel are advised to avoid wearing articles of clothing and shoes that do not completely cover exposed skin.

Having a ready accessible and fully stocked spill kit is also important and is a requirement of the Radiation Control and Safety Program (RCSP). A spill kit maybe purchased commercially or maybe put together with items purchased separately. If you are putting together a spill kit, the following items are suggested:

- Yellow plastic bags
- Notepad/paper and pen
- Absorbent paper or rags
- Markers and grease pencils
- Barrier materials
- Tongs
- Scrub brushes
- Gloves and shoe covers
- Swipes
- Detergents
- Tape
- Sharps container

The reason for PPE and a spill kit is to prevent RAM from coming into contact with the exposed skin and to be ready in the event of a spill. Spills resulting in skin contamination are of significant concern not only because of the additional dose to the skin but also because of the possibility of internal uptake by absorption through the skin.

When handling a skin contamination incident, first consideration must be given to first-aid issues and assurance appropriate medical actions are taken if a serious injury is also involved. Once first aid and immediately necessary medical treatment is administered, promptly begin immediate decontamination using mild methods and progress to harsher methods as the situation warrants. Always begin decontamination at areas of highest contamination.

After each attempt, determine the effectiveness of the decontamination method. When monitoring, ensure to maintain a constant meter to skin distance.

The Radiation Protection Procedures Manual (Authorized User (AU) Manual), Appendix VI, provides a list of decontamination methods to be used in the event of skin contamination. These include:

- Washing With Soap and Water
  Wash by gently rinsing with cool or lukewarm water and applying soap. (Lukewarm water has a temperature the same as body temperature.) Gently scrub only. (Care must be exercised to prevent skin damage.)
If chapping or cracking of the skin occurs consider another method.

- **Flushing**
  Use large amounts of water to irrigate the affected area. Flushing is recommended if contamination is suspected of entering the mouth, eyes, ears, nose, and any open wounds. Medical supervision should be included if flushing will be used. If used for the nose and mouth, contaminated personnel should be warned not to swallow rinses.

- **Tape Press**
  Apply adhesive tape against the contaminated area. Gently peel off. Use each piece of tape only once. Dispose of used tape as RAM waste. This method is useful for spot contamination, especially if dry loose surface contamination.

- **Detergent and water**
  Form a paste using household laundry detergent and a small amount of water. Apply the paste to the skin with a mild scrubbing action. After about a minute, rinse, dry and monitor.

In accordance with the AU Manual, if skin contamination is detected, or in the event that a RAM radiation worker is certain or suspects RAM has been ingested, inhaled or absorbed, a bioassay will be performed. The timing and method of the bioassay are dependent on the radionuclide and the radiolabeled compound. As with all contamination incidents, the AU and the Radiation Safety Office (RSO) are to be notified immediately.

**HOW TO DEACTIVATE AN AUTHORIZATION**

Authorized Users (AU) who are leaving the Radiation Control and Safety Program (RCSP) should start the process to deactivate their radioactive material (RAM) authorization at least 30 days prior to leaving. A 30-day notice allows for an efficient and effective deactivation process, along with providing time to handle any unexpected problems that arise. AUs who are ceasing to use RAM or likely will not be using RAM for a year or more may also want to deactivate their authorization.

The deactivation of an AU’s authorization is a formal process that includes the proper disposal or transfer of any RAM, decommissioning RAM use areas and equipment, transfer or inactivation of survey meters, and deletion or reassignment of radiation workers.

An AU who is deactivating their authorization should notify the Radiation Safety Officer (RSO) in writing of their intent to deactivate.

Any AU considering deactivating their authorization may find the following summary useful.

- **Notify the RSO:** At least 30 days prior to desire deactivation date, send an email to the RSO stating the desire to deactivate.

- **Radiation Workers:** Decide who will be deactivated or who will need to be transferred to another AU.

- **RAM Inventory:** Review your RAM inventory. Request a waste pick up and/or arrange to transfer your RAM inventory to another AU. Ensure to conduct a thorough search to locate misplaced RAM.

- **Survey Meters:** Determine which survey instruments will be removed from the University of Cincinnati inventory and which will need to be transferred to another AU.
• Complete and document a final survey. Decontaminate as necessary.

The responsibility for properly using and disposing of RAM lies with the AU. However, if an AU leaves without following the proper procedures, the department head becomes responsible. Involving the RSOf as soon as possible will ensure an efficient and successful deactivation. The RSOf is always available for assistance.

**AUDIT QUESTIONS & ANSWERS**

Q. Should Radiation Workers notify the RSOf if they are currently receiving occupational exposure from another institution?

Yes, regulations require the university know a worker’s total occupational radiation dose. The total occupational dose includes doses received under the RCSP and at other institutions. It is important for workers to keep the RSOf informed of all occupational doses.

Q. What should a Radiation Worker do if they lose their dosimeter?

Notify the RSOf immediately and obtain a replacement dosimeter. The RSOf will request the individual provide a summary of potential radiation exposure that may have been recorded on the lost dosimeter.

Q. How and when are new dosimeters obtained?

New dosimeters are picked up in the Radiation Safety Office (RSOf) by the third working day of the month.

Q. Who is required to wear a dosimeter?

Ohio Department of Health (ODH) regulations require all persons who are exposed to ionizing radiation as part of their work (e.g. staff, students, visitors) be monitored if a dose exceeding 10% of regulatory limits is possible. The University of Cincinnati’s Radiation Control and Safety Program (RCSP) requires that all persons using radioactive material (RAM) which emit betas with maximum energies greater than 250 keV, or gamma or x-rays of any energy be monitored. Exemptions from the requirement may be approved by the Radiation Safety Committee (RSC) on a case-by-case basis.

Q. When should used dosimeters be dropped off at the RSOf?

Used dosimeters should be returned to the RSOf by the 10th day of the month after use.

Q. Why is it important to return dosimeters by the 10th day of the month after use?

Timely return of dosimeters assures timely results. Returning a dosimeter late delays the processing and reporting of results. If a significant exposure occurs, an early report is very desirable. The RSOf sends all dosimeters promptly after the 10th of the month and results are received 2-3 weeks later. Late returned dosimeters may still be processed, however, after two months the background information must be estimated due to having no control dosimeter to provide a background dose.

Failure to return a dosimeter is the same as not wearing one at all.

**NO-USE SURVEYS**

The Authorized User (AU) Manual requires all areas where unsealed radioactive material is used be surveyed for removable contamination at least monthly. All survey results shall be documented on an Authorized User Routine Survey Report (RS Form 12) or its equivalent.
If no use occurs during a month, “no use” may be documented in lieu of a survey being conducted. Minimum documentation for “no use” is date of last clean survey, date of last use, and date of documentation of “no use”. “No use” documentation may be recorded on an RS Form 12. “No use” documentation is not applicable in areas where radioactive material is stored, but not used. (Storage is considered a use of radioactive material.) If the only “use” is storage, an abbreviated survey may be conducted. The abbreviated survey may be limited to the storage area and area immediately surrounding the storage area. For example, if a room has stock radioactive material vials stored in a refrigerator and radioactive waste stored in containers on the floor, wipe surveys must be performed of the refrigerator, floor in front of the refrigerator, the waste containers, and the floor surrounding the waste containers.

**RAM SECURITY**

Ensuring radioactive material (RAM) security continues to be a significant concern. Always be aware of who is in your laboratory and confront any unfamiliar individuals. Keep RAM locked up or under direct observation at all times to prevent an unauthorized person from removing the RAM or gaining access to the RAM. The last person leaving a RAM–use laboratory should ensure the door to the laboratory is either locked or all of the RAM inside the room, including waste, is locked up.

**Authorized Users (AU) and/or their staff are encouraged to call the Radiation Safety Office (RSOf) for assistance with any radiation safety concerns. The RSOf will provide advice and/or assistance to AUs or their staff on solutions to problems or difficulties they are experiencing. The assistance includes procedures to reduce radiation exposure and/or contamination, and practical solutions to problems that may place the authorization in a noncompliant situation.**

**RSOF STAFF**

Vicki Morris, Radiation Safety Officer
Mark Cornelissen, Assistant Radiation Safety Officer
Dramane Konate, Assistant Radiation Safety Officer
Ken Egan, Senior Radiation Safety Specialist
Beth Boston, Radiation Safety Specialist
Jason Collier, Radiation Safety Specialist
Chris Crawford, Radiation Safety Specialist
Dave Root, Senior Health Physics Technician
Mark Powers, Senior Health Physics Technician
Dave Kobza, Senior Health Physics Technician
Dick Henderer, Staff Health Physics Technician
Janine Sumrall, Staff Health Physics Technician
Margaret Frank, Junior Health Physics Technician
Carolyn Hurt, Business Manager
Debbie Kirkpatrick, Program Manager
Robin Davis, Administrative Secretary
Patricia Kerley, Records Management Officer

We are on the web:
www.uc.edu/radsafety
Phone: 513-558-4110
Fax: 513-558-9905

Radiation Safety Office
University of Cincinnati
170 Panzeca Way
P.O. Box 670591
Cincinnati, OH 45267-0591