



UNIVERSITY OF ALBERTA

RADIATION SAFETY GUIDELINES FOR NON-USERS

This is a "Read and Sign Awareness Training" document. You should read and sign this document if you:

1. **DO NOT** work directly with radioactive materials, but
2. **DO** work in close proximity to (such as in the same laboratory as) others who do.

These guidelines are useful for staff and students in a class or laboratory where radioactive materials are used, and to individuals who have general questions about the university's use of radioactive materials. This document provides important general information regarding the use of radioactive materials, radiation safety, potential hazards, and emergency procedures.

Note: Custodians, plumbers, and other university employees receive special training designed specifically for their needs.

After reading these guidelines, sign the last page and return it to your supervisor.

Your signature indicates that you (1) have read this document in full, (2) understand the hazards associated with the radioactive materials and sources of radiation you may encounter in the laboratory, and (3) know what to do in the event of a spill or other emergency.

THE UNIVERSITY OF ALBERTA RADIATION SAFETY PROGRAM

The University of Alberta Radiation Safety Program is designed to protect persons from all types of radiation including radiation emitted by radioactive materials. The program is managed by the U of A Department of Environmental Health & Safety (EHS) and oversight is provided by the U of A Radiation Safety Committee. The program is intended to protect individuals authorized to use radioactive materials and also non-users who work nearby or in the vicinity of radioactive materials. The program's basic components are:

- Radionuclide Permits
- Training
- Warning signs, labels, and postings
- Exposure monitoring
- Contamination detection

In order to work with radioactive materials, individuals must have completed the Radiation Safety Course offered by EHS. EHS trains users and issues Radionuclide Permits under the Canadian Nuclear Safety Commission (CNSC) Licence issued to the University of Alberta.

The Principal Investigator (PI) obtains a Radionuclide Permit by applying to EHS. After all proposed uses and procedures are in compliance with the federal regulations, the Radionuclide Permit is approved by the Radiation Protection Officer (RPO) and the Radiation Safety Committee.

For the duration of the Radionuclide Permit, radioactive material usage must remain in compliance with the CNSC license conditions and the Radionuclide Permit conditions. Rooms where radioactive materials are used or stored are posted with a radiation information door sign (see APPENDIX A). The Radionuclide Permit and other radiation safety–related documents are posted inside the lab or wherever radioactive materials are used or stored. Take a moment to find the Radionuclide Permit and conditions covering your workplace and familiarize yourself with it.

RADIATION SAFETY

For all individuals who work near, but not with radioactive materials, your exposure limits are the same as for members of the general public who do not normally work near radioactive materials. Attention to four basic elements can reduce or eliminate radiation exposure:

- 1. Time** refers to the time an individual spends actually handling radioactive material or being exposed to radiation. The shorter the exposure period near radioactive materials, the lower the radiation dose.
- 2. Distance** refers to the physical distance between you and the radioactive material. In general, the farther one is from a source of radiation, the lower the exposure. Most radiation sources on the campus present a very low hazard of radiation dose, even at relatively short distances (1 meter).
- 3. Shielding** is a barrier placed between an individual and a source of radiation. Shielding absorbs radiation, allowing a person to remain relatively close to a radiation source while minimizing the radiation exposure.
- 4. Administrative Controls** are rules used to reduce radiation exposure. Typically the following precautions are mandated when working around radiation sources or radioactive materials:
 - Use gloves, safety glasses, lab coats when handling radioactive materials.
 - Label all radioactive use areas.
 - Properly store and dispose of materials.
 - Conduct contamination surveys upon completion of work.

It is important to understand that different sources of radiation call for different applications of time, distance, shielding, and administrative controls. Trained users of radioactive materials adjust these applications to minimize the hazards related to each particular source.

WARNING SIGNS AND LABELS

All radioactive items and equipment are labeled with the radioactive symbol and wording that describes the risk: **“CAUTION - RADIOACTIVE MATERIAL(S)”**. Work areas and storage areas where radioactive materials are used are marked with “RAD (short for ‘radiation’) warning tape.” RAD tape is yellow and features the radiation symbol in black or magenta. EHS staff periodically inspect labs and surrounding areas to ensure that radioactive materials are properly labeled and contained, and that radiation areas are properly marked off. In the laboratory you will see radiation-warning



signs and labels on refrigerators, freezers, and other pieces of laboratory equipment such as centrifuges and test tubes (See APPENDIX A).

Never store food or beverages in refrigerators, freezers or anywhere in laboratories that contain radioactive materials.

If you are not listed as an authorized Nuclear Energy Worker, **DO NOT handle or move materials** displaying a radiation label or equipment located inside an area marked with RAD warning tape. **Do not place any items (books, equipment, etc.) inside such an area;** you risk contaminating the item and yourself.

CONTAMINATION LOGBOOK

Every Radionuclide Permit has listed conditions that will indicate if the laboratory is required to maintain a contamination logbook. Ask the Principal Investigator or one of the authorized Nuclear Energy Workers the location of the contamination logbook. Typically weekly entries are made to indicate when the last contamination surveys were completed, the level of contamination present and by whom.

EMERGENCY PROCEDURES

In the event of a radioactive material spill in your workplace, follow the emergency procedures below as listed in the front of the University of Alberta “Code of Practice - use or handling of - Radioactive Substances” (www.ehs.ualberta.ca).

Do NOT directly assist with the cleanup of a spill. You can get supplies or help make phone calls but do not actually help clean items or the actual spill.

TRANSPORT OF RADIOACTIVE MATERIALS

Shipments of radioactive materials are delivered to your workplace by Shipping and Receiving or departmental personnel. Most often these are in white shipping boxes that display the radioactive materials symbol and the word “RADIOACTIVE but sometimes just the letters “UN 2910”.

The hazards associated with these materials are well controlled by their packaging. Most radioactive materials delivered to the campus are small vials packed in multiple layers of packaging and shielding. The packaging is designed to eliminate contamination to the outer layers of the package in case of a rupture and spill inside the package. The only persons in the lab who may accept radioactive packages are persons who have a valid Class 7 TDG certificate. If you do accept a shipment, be sure to place it in a safe location and tell the PI or an authorized Nuclear Energy Worker.

ADDITIONAL TRAINING

Should your job change such that you are required to work directly with radioactive materials, you must take Radiation Safety Training Course offered by EHS.

QUESTION OR CONCERNS

Each Radioisotope Permit Holder is required to maintain a list of individuals authorized to use radioactive materials. The Principal Investigator or one of the authorized Nuclear Energy Workers should be able to answer any of your questions. Additionally, if you have any concerns or questions, feel free to contact the Radiation Protection Officer at 780-492-5655 or by email to carl.schumaker@ualberta.ca

Additional Information

Many resources are available to you for good and accurate information about radiation or radioactive materials. One is the EHS website, www.ehs.ualberta.ca. There you will find the University of Alberta *Code of Practice - for use or handling of - Radioactive Substances*, and links to other resources.

APPENDIX A

Radiation Warning Signs and Labels

RAYONNEMENT
DANGER
RADIATION



Radioactive wastes only

[Yellow bar]

[Yellow bar]

RAYONNEMENT
DANGER
RADIATION



Radioisotope Laboratory

Authorized Entry Only

In an EMERGENCY contact:
Control Centre 5555
Radiation Protection Officer 5655

Caution



Radioactive samples

[Yellow bar]

stored in this refrigerator

[Yellow bar]

RAYONNEMENT
DANGER
RADIATION



Radioactive

[Yellow bar]

decontamination sink

[Yellow bar]



UNIVERSITY OF ALBERTA

RADIATION SAFETY GUIDELINES FOR NON-USERS TRAINING RECORD

Please complete and sign this page. Return it to your supervisor as a record of your training. Your signature indicates that you have read and understand the information presented in the Radiation Safety Guidelines for Non-Users, and have had the opportunity to ask questions.

Date: _____ ID Number: _____

Non-Rad User Name: _____
(Print) Signature

Supervisor Name _____
(Print) Signature

ID Number is the student ID number or employee number - DO NOT use Social Insurance Number.

Instructions to supervisors:

Upon completion, return a copy of this page to:

OFFICE OF ENVIRONMENTAL HEALTH & SAFETY
107 EDUCATION CAR PARK BUILDING
UNIVERSITY OF ALBERTA
ATTN: CARL SCHUMAKER