Radioactive Materials

Working Safely in Labs permitted for Rad Work

The University of Manitoba has the duty to inform anyone that may be exposed to radiation from radioactive materials of the potential hazards (MB 217/2006 Workplace safety and Health Regulation Section18.4). Low level ionizing radiation may induce pre-mature aging and cancer. The exposure from radioactive materials used in areas controlled by the University of Manitoba is so small that the increase in risk is insignificant. Please do your part by following the instructions in this pamphlet.

Additionally, the Canadian Nuclear Safety Commission (CNSC) has Federal authority to issue anyone (permitted worker or not) that violates the Nuclear Safety and Control Act or does not comply with the University training, a personal fine (fines start at $300).

Radioactive Material used at the University has two major forms:

- **Radioactive Chemicals (liquid form)**
  Most radioactive material at the University are radioactive chemicals used to trace chemical reactions. The radioactive material is purchased in small volumes of liquid. These stock vials usually have less than one milliliter (1ml) and are used in small volumes in lab containers such as test tubes and Petri dishes. Occasionally radioactive liquids are injected or ingested by animals that are kept in labs or animal care facilities.

- **Radioactive Sealed Sources (solid form)**
  Some researchers use sealed sources of radioactive material to measure the effect of the ionizing radiation emitted by the source. Small sealed sources are often used as calibration or check sources. Larger sealed sources may be used in specialized equipment for Mossbauer Spectroscopy or X-ray diffraction.

How is radioactive material controlled at the University?

The CNSC has issued a consolidated license to the University of Manitoba to allow the University to possess, use and store radioactive materials for research purposes. The license requires a Radiation Protection Committee to oversee and advise on the Radiation Safety Program. The Licence requires researchers apply for an Internal Radioisotope Permit in order to purchase, possess, store, use and dispose radioactive material.

Environmental Health and Safety (EHS) provides staff and resources for the day to day operations of the Radiation Safety Program, including: an internal Radioisotope Permit system, the development of the Radiation Safety Manual, general radiation safety training, inspections, centralized inventory, disposal of radioactive wastes and liaison with the CNSC.

Details on the Radiation Safety Program are found at [http://umanitoba.ca/radsafety](http://umanitoba.ca/radsafety)
Please do your part by following the instructions in this pamphlet.

Lab Signage - who can help you when you enter a lab

Rooms permitted to use radioactive material will have contact information for the permit holder and a second permitted worker posted at the entrance plus the numbers for Environmental Health and Safety, and Security Services (24 hour).

If you provide routine services in lab areas, as long as the door sign says CAUTION, you may enter and perform duties that are covered by a safe work procedure (SWP) that includes the consideration of lab hazards. If you are a new student/tech, you should receive a lab orientation. (See Lab Safety Checklist for New Lab Personnel)

If a SWP does not include consideration of lab hazards, it is important to do a risk assessment with one of the permitted contacts listed on the sign (WHIP+). (See Lab Hazard Clearance)

How can you stay Safe?

If the lab sign at the entrance says CAUTION it is normally safe to be within 2 meters of anything labelled “Radioactive “ for a short time (up to 1 hour). Stay out if RESTRICTED ACCESS is posted.

Remember these four rules to reduce your risk:

- Do NOT remove shielding (lead or plastic).
- Limit the time you spend in these areas marked with the radiation warning symbol.
- Maximize the distance between you and the radioactive material.
- Use good lab hygiene, wear lab coats and disposable gloves if you are working with lab materials; wash your hands when leaving research areas and always wash your hands before eating or drinking.

Never touch anything (benches, items or garbage) labelled or marked “RADIOACTIVE” or that has a Radiation Warning Sign (trefoil could be red, black or magenta) or striped yellow & magenta tape or radioactive waste tag. Stay out of marked storage locations such as fridges, freezers, cabinets or fume hoods.

LAB SECURITY Always close the door. If you are the last person to leave, lock the lab door to maintain security.

‘EVIDENCE OF FOOD CONSUMPTION’ Never consume food or drink in a lab and never place food or beverage related garbage in waste containers in the lab as federal inspectors consider this to be ‘evidence of food consumption in the lab’.

What to do if you suspect a spill of radioactive material

Lab Spill clean-up is NOT a job for caretakers, trades, security or non-designated workers.

Radioactive spills are cleaned up by the permitted lab staff (designated workers).

You can:

- Secure area to warn unsuspecting people from potential harm.
- Notify the Permit Holder and/or EHS at (204) 474-6633 during business hours or Security Services at 555 or (204) 474-9341 after hours.
- Potentially contaminated people or items should remain on scene at a safe distance until cleared by Radiation Safety personnel.

What to do if you discover a package labelled “Radioactive” in a public area

Step back - try to stay at least 2 meters away from the package and secure the area if possible.

Notify Environmental Health and Safety (EHS) at (204) 474-6633.

What to do if there is a Fire or Explosion in a room permitted for radioactive material

Activate the Fire Alarm as you exit the building and follow your local procedures.

If you were in the room and personal contamination or exposure is suspected, remain on scene at a safe distance until assessed by Radiation Safety personnel.

If there is a Medical Emergency

Immediately call 911.

First aid takes precedence over radioactive contamination control. If possible, protect trained first aiders from potential hazardous exposure to chemical, biological or radioactive materials.

Contact EHS as soon as possible. (204) 474-6633.