



uOttawa

L'Université canadienne
Canada's university

Office of Risk Management

INTERNAL RADIOISOTOPE PERMIT APPLICATION (OPEN SOURCE)

January 2017

INTRODUCTION

The University of Ottawa has been issued a consolidated radioisotope license by the Canadian Nuclear Safety Commission (CNSC). This license incorporates numerous conditions relating to radioactive material possession, use, importation and exportation.

To maintain this license, the University must ensure that activities involving radioactive substances and equipment be carried out in accordance with CNSC regulations and applicable conditions. To ensure compliance with these requirements, the University has instituted an internal radioisotope permit process through the Radiation Safety Committee in collaboration with the Office of Risk Management (ORM). Such a permit is required by anyone whose activities involve radioactive materials. Failure to comply with these requirements could result in the loss of our license and thus have detrimental implications on the University's teaching and research activities.

This application is to be completed and sent to the Assistant Director, Radiation and Biosafety, at the Office of Risk Management. The details of the radiation Safety program will be explained to you upon approval of this application.

Internal Radioisotope Permits are an important component of the University's Radiation Safety Program which is managed by this Service and overseen by the Committee. Overall responsibility for the effective management of radiation safety lies with the Vice-Rector (Research).

While the Radiation Safety Committee oversees the development and implementation of the Radiation Safety Program, the Office of Risk Management is responsible in developing management systems to ensure the University and individual requirements are met. This Program also supports the academic community in ensuring adequate health and safety measures are in place, and that related activities are carried out in an environmentally appropriate manner. Major areas of the Program include: inventory control, training, dose and contamination monitoring.

COMPLETING THE INTERNAL RADIOISOTOPE PERMIT APPLICATION (OPEN SOURCE)

Appended to the Internal Radioisotope Permit Application (Open Source) is the "General Conditions: Open Source Permit" which outline the responsibility of the permit holder. Please read these conditions prior to completing this application.

The following application form includes seven categories:

- A) Permit Holder Information
- B) List of Radioisotopes
- C) Research Involving Animals
- D) Transfer, Importation and Exportation of Radioactive Material
- E) Persons Authorized to Work with Radioisotopes
- F) Emergency Procedures
- G) Contamination Monitoring

If you have any questions or concerns please do not hesitate to contact the Assistant Director, Radiation and Biosafety at 562-5800, ext. 3058.

INTERNAL RADIOISOTOPE PERMIT APPLICATION

(OPEN SOURCE)

A) PERMIT HOLDER INFORMATION

Name:		Office Tel #:	
Position:		Lab Tel #:	
Department:		E-mail:	
Faculty:		Building:	Room #:

B) LIST OF RADIOISOTOPES

Please list the radioisotopes you plan on using.

RADIOISOTOPE	USE LIMIT (activity in millicuries)	USE ROOM(S)	STORAGE ROOM(S)

C) RESEARCH INVOLVING ANIMALS

Are any of the radioisotopes, listed above, to be used on animals?

No Yes

(If yes, please specify which radioisotope and the activity to be used.)

Has this project been approved by the Animal Care Committee?

No Yes

Approval Number: _____

D) TRANSFER, IMPORTATION AND EXPORTATION OF RADIOACTIVE MATERIAL

Will your work require the importation or exportation of radioactive material (other than from a direct purchase from the supplier)?

No Yes

Are you familiar with the regulatory requirements for the transfer, importation, or exportation of radioactive material?

No Yes

Please provide the following information pertaining to individuals to/from which radioactive material would be transferred:

Name:		Office Tel #:	
Position:		Institution:	
Department:		Permit Number:	

Faculty:		CNSC Licence Number:	
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E) PERSONS AUTHORIZED TO WORK WITH RADIOISOTOPES

Ensure that each individual who will work with radioisotopes under your supervision complete a *Radioisotope User Registration Form*. A copy of this latter form is appended to this application; use one copy per person.

F) EMERGENCY PROCEDURES

Briefly describe your laboratory's emergency procedures in case of an accident/incident, e.g., spill.

Who should be contacted in an emergency?

NAME	TELEPHONE NUMBERS		
	OFFICE	LABORATORY	HOME

G) CONTAMINATION MONITORING

Please indicate what form of contamination monitoring will be used:

WIPE TESTING <input type="checkbox"/>	HAND HELD CONTAMINATION METER <input type="checkbox"/>
These samples will be counted using the following equipment: Type: _____ Make: _____ Model: _____ Location: _____	Radioisotopes to be detected: _____ Meter Type: _____ Model Number: _____ Probe Type: _____ Model Number: _____ Date Last Calibrated: _____

CERTIFICATION	
I,, certify that the information given in this application is true, correct, and complete. I agree to use radioisotopes only in the manner for which they have been authorized. I have read and will adhere to the <i>General Conditions: Open Sources Permit</i> provided by the Environmental Health and Safety Service.	
_____	_____
<i>Signature of Applicant</i>	<i>Date</i>
_____	_____
<i>Chair of Department</i>	<i>Date</i>

APPROVAL	
_____	_____
<i>Head, Radiation and Biosafety</i>	<i>Date</i>

UNIVERSITY OF OTTAWA

Office of Risk Management (ORM)

Open Source Permit: General Conditions (applies to all open source permit holders and users)

GENERAL

- This permit shall be conspicuously posted in all locations listed on the permit.
- It is the responsibility of the permit holder to ensure that all information listed on the Internal Radioisotope Permit is accurate and up to date. The permit holder shall request an amendment to the permit before said amendments are adopted.

USE LIMITS

- The quantity of radioisotopes in use shall be less than or equal to the Use Limit specified on the Internal Radioisotope Permit and usage shall conform to requirements in the Radiation Safety Manual.
- The stock vial may not exceed 5 Annual Limit on Intake (ALI) in the case of a Basic Level Laboratory, or 50 ALI in the case of an Intermediate Level Laboratory. Each stock vial may not exceed the Use Limit specified on the Internal Radioisotope Permit.
- Radioisotope procedures in excess of 5 ALI shall be carried out in a fume hood.
- ORM on behalf of the permit holder shall obtain written approval from the Canadian Nuclear Safety Commission (CNSC) before starting any work that requires the use of more than 10000 Exemption Quantities (EQ) of a radioisotope at a single time.

RADIATION PROTECTION MEASURES

- Each permit holder shall establish, implement and maintain procedures designed to ensure that all occupational radiation doses are as low as reasonably achievable (ALARA).
- Each permit holder or their designate shall ensure the dose rate at any occupied location outside the storage area, room or enclosure resulting from the substances or devices in storage does not exceed 2.5 $\mu\text{Sv/hr}$. Appropriate shielding shall be used in order to reduce field strength to a level below 2.5 $\mu\text{Sv/hr}$.
- The permit holder shall instruct authorized users under their authority of any specific hazards associated with a particular procedure within their laboratory.

TRAINING

- All users shall complete the "New User Registration Form" and not work with radioactivity until their form is approved by ORM.
- The permit holder shall ensure that all persons working with radioisotopes under the authority of their Internal Radioisotope Permit are properly trained in safe handling, storage, and disposal procedures, and are informed of the associated hazards of

- radioactive materials.
- All inexperienced individuals participating in experiments or procedures using radioactive materials shall be closely supervised and instructed in safe handling and disposal procedures.
 - The permit holder shall allow any authorized user under their authority to attend any radiation protection courses offered by the University. In cases where instruction is deemed necessary to ensure the safety of such users, attendance shall be considered paid time.
 - ORM Radiation Safety Training is mandatory for all the individual working with radioactivity.

DOSIMETRY

- The permit holder or their designate shall ensure that all authorized users, if required by the Internal Radioisotope Permit, are provided with a thermoluminescent dosimeter, and that such dosimeters are used properly.
- Any authorized user that becomes pregnant, shall forthwith inform the permit holder and ORM. The authorized user shall participate in any additional dosimetry programs that ORM deems appropriate. The authorized user and the permit holder shall comply with any additional protective measures that may be prescribed which may include a modified work program for the duration of the pregnancy.
- Authorized users conducting radioiodination procedures shall participate in monitoring programs. The permit holder or their designate shall inform ORM of their intent to carry out such procedures.
- The permit holder shall ensure that any person who handles a container that contains more than 50 MBq of phosphorous 32, strontium 89, yttrium 90, samarium 153 or rhenium 186 wears a ring dosimeter. The dosimeters must be supplied and read by a dosimetry service licenced by the CNSC.

SIGNING/POSTING

- A radiation warning sign shall be mounted on all doors leading into radioisotope laboratories where there is a radioisotope in a quantity greater than 100 EQ, or there is a reasonable probability that a person will be exposed to an effective dose rate greater than 25 μ Sv/hr.
- The appropriate CNSC Basic or Intermediate Level Laboratory Rules poster shall be posted in each room where radioisotopes are used or stored. The name and phone number of the responsible contact person shall be entered in the space provided. The permit holder and all authorized users shall comply with these rules.
- All signage will be in accordance with the "Signage Requirements" section 2.15 in the Radiation Safety Manual.

PURCHASE, RECEIPT & SHIPMENT OF RADIOACTIVE MATERIAL

- All radioactive materials shall be ordered using the Radioisotope Purchase Requisition form.
- Each Radioisotope Purchase Requisition shall have all the required information, be signed by the permit holder or their designate and be approved by ORM prior to

- ordering.
- All shippers' declarations, packing slips and accompanying documentation shall be forwarded to ORM.
 - All radioactive materials offered for transport shall be directed through ORM.
 - The permit holder shall communicate his/her intent to transfer radioisotopes to another permit holder, institution, or destination outside Canada, to ORM. The permit holder shall not transfer radioisotopes until approval is granted by ORM and shall comply with any requirement imposed by ORM.
 - The permit holder shall inform ORM of the receipt of radioactive materials from another permit holder, institution, or importation across an international border.

INVENTORY & DISPOSITION

- The acquisition, use, and disposal profile of every unsealed sample shall be documented on the Inventory of Use and Disposition form. All sections of the form are to be completed. A copy of the completed form shall be forwarded to ORM upon total disposition of the radioisotope. The permit holder shall retain the original records.
- Waste disposal shall be in accordance with the procedures outlined in the Radiation Safety Manual or any other practice agreed upon by ORM.

CONTAMINATION MONITORING

- Upon receipt of a package, the package is monitored to ensure the radioisotope source is not leaking and that there is no contamination. Results are documented on the newly created Use and Disposition form.
- Each permit holder or their designate shall initially construct a laboratory plan of all rooms under the exclusive control of the permit holder, where radioisotopes are used. The exact locations where radioisotopes are used or stored, including waste storage shall be specified on the plan. The plan shall be updated to maintain on going accuracy.
- Contamination monitoring shall be conducted weekly, in the case of a Basic Level laboratory, or immediately following procedures using quantities in excess of 5 ALI. Results of monitoring shall be documented on the Contamination Monitoring-Monthly Log form, and shall be cross-referenced to the laboratory plan.
- When results averaged over an area not exceeding 100 cm², indicate contamination levels in excess of 3 Bq/cm² for Class A radionuclides, 30 Bq/cm² for Class B radionuclides, 300 Bq/cm² for Class C radionuclides, the responsible individual shall forthwith decontaminate such areas, and shall document decontamination results the Contamination Monitoring Monthly log.
- Monitoring shall be conducted by wipe testing, OR, by using a contamination survey meter. If a contamination survey meter is used, its detection efficiency for the radioisotope being monitored must be at least 20%.

- The permit holder or their designate is not required to conduct monitoring when radioisotopes have not been used in the previous seven calendar days. To document this non-use, "no radioisotope use" must be marked on the Contamination Monitoring Monthly log.

DECOMMISSIONING

- The permit holder shall ensure that prior to decommissioning any area, room or equipment that the levels of contamination levels when averaged over an area not exceeding 100 cm², are not greater than 0.3 Bq/cm² for class A radionuclides, 3 Bq/cm² for class B radionuclides, 30 Bq/cm² for class C radionuclides. The results must be documented using the decommissioning form. As a "Best practice", ORM defines decommissioning as levels of contamination not exceeding 0.3 Bq/cm².
- The permit holder shall ensure that all nuclear substances and radiation devices have been transferred or disposed of and reported in accordance with the procedures outlined in the Radiation Safety Manual or any other practice agreed upon by the ORM.
- The permit holder shall ensure that all radiation warning signs have been removed or defaced.

REPORTING

- The permit holder shall inform ORM of his/her intent to discontinue radioisotope use whether permanently or temporarily (i.e., sabbatical). The permit holder shall comply with any requirement imposed by the ORM regarding decommissioning, disposition of retained records, and disposition of existing stocks of radioisotopes.
- The permit holder shall forthwith report any required modifications/ammendments to the Internal Radioisotope Permits.
- All workers shall immediately inform the ORM of any losses, thefts, damage of radioactive materials, any situation where a breach of security or sabotage is possible, when an overexposure may have occurred, or any accident/incident.

SECURITY

- Only authorized persons may have access to radioactive materials. Radioactive materials that are stored or used in areas common to both authorized and unauthorized personnel must be secured at all times from unauthorized personnel.
- When a room containing radioactive material (stocks, samples or waste) is unoccupied, the room must be locked.
- Keys to laboratory must be returned prior to departure

PROHIBITIONS

- The permit holder shall not allow the storage or consumption of food, beverages; or equipment for the preparation of food or beverages; or the application of cosmetics within areas where radioisotopes are used or stored.
- The permit holder shall not transfer radioisotopes to a person not authorized to

receive such radioisotopes, and includes individuals having had such privileges suspended by way of sanction under statutory law.

- The permit holder shall not permit under-aged individuals into areas where radioisotopes are used or stored.
- Radioisotopes shall not be transported in a private motor vehicle on a public road, either by the permit holder, his/her designate, or by University transport.