uOttawa

Office of the Chief Risk Officer

INTERNAL RADIOISOTOPE PERMIT APPLICATION (SEALED SOURCE IN DEVICE)

Version 2.1 (March 2023)

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 issues internal radioisotope permits through the Office of the Chief Risk Officer (OCRO). Such a permit is required by anyone whose activities involve radioactive materials. Failure to comply with these requirements could result in the loss of the University's license and thus have detrimental implications on the University's teaching and research activities.

This application is to be completed and sent to the Radiation Safety Officer (RSO) who will process the application.

COMPLETING THE INTERNAL RADIOISOTOPE PERMIT APPLICATION (SEALED SOURCE IN DEVICE)

Appended to the Internal Radioisotope Sealed Source in Device Permit Application is the *"General Conditions: Sealed Source in Device Permit"*. These conditions outline the responsibility of the permit holder and they must be read prior to completing this application.
The following application form includes seven categories:

A) Permit Holder Information
B) Device and Source Details
C) Persons Authorized to Work with the Sealed Source in Device
D) Emergency Procedures
E) Leak Testing

If you have any questions or concerns please do not hesitate to contact the Radiation Safety Officer (RSO): rad.safety@uottawa.ca

INTERNAL RADIOISOTOPE PERMIT APPLICATION - SEALED SOURCE IN DEVICE

A) PERMIT HOLDER INFORMATION

Name		**E-mail**	
Position		**Office Room No.**	
Department		**Office Tel. No.**	
Faculty		**Main Lab. Room No.**	
Lab. Building		**Lab. Tel. No.**	
Lab. Delegate		**Delegate's Email**	

B) DEVICE AND SOURCE DETAILS

DEVICE			
Radiation Device Type		**Device Model No.**	
Device Manufacturer		**Device Serial No.**	
Device Certificate No.		**Certificate expiry date**	
SEALED SOURCE			
Radioisotope		**Source Serial No.**	
Calibrated Activity		**Reference Date**	
Source Manufacturer		**Current Activity**	
Leak Test Date		**Leak Test Result**	
LOCATION			
Use		**Storage**	

C) PERSONS AUTHORIZED TO WORK WITH RADIOISOTOPES

Ensure that each individual who will work with radioisotopes under your supervision complete a *Radioisotope User Registration Form.*

D) EMERGENCY PROCEDURES

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

Who should be contacted in an emergency?

Name	**Telephone Numbers**		
	Office	**Laboratory**	**Cell Phone**

E) LEAK TESTING

If any sealed source requires leak testing (activity > 50 MBq), please provide (attach)leak testing procedure. If it is to be contracted out, please provide contractor's contact information.

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 *Sealed Source in Device Permit Conditions*.	
_____ *Signature of Applicant*	_____ *Date*
_____ *Signature of Departmental Chair*	_____ *Date*
_____ *Signature of Radiation Safety Officer (OCRO)*	_____ *Date*

Office of the Chief Risk Officer
Radiation Safety Program
rad.safety@uottawa.ca

SEALED SOURCE IN DEVICE PERMIT CONDITIONS

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 Permit is accurate and up to date. The permit holder shall request an amendment to the permit before said amendments are required and adopted.
- The permit holder shall immediately inform the Office of the Chief Risk Officer (OCRO) Radiation Safety Officer (RSO) of any losses, thefts, damage of radioactive materials, any situation where a breach of security is possible, when an over exposure may have occurred, or in the case of an accident/incident.

RADIATION PROTECTION MEASURES

- Each permit holder shall establish, implement and maintain procedures designed to ensure that all 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 µSv/hr. Appropriate shielding shall be interposed, and in whatever quantity, in order to reduce field strength to a level below 2.5 µSv/hr.
- The permit holder shall ensure that all persons working with sealed source in devices under authority of their Internal Radioisotope Permit are properly trained and are informed of the associated hazards.
- The permit holder shall instruct authorized users under their authority of any specific hazards associated with sealed source device within their laboratory.
- The permit holder shall permit 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 at such sessions shall be considered paid time.

PERSONNEL MONITORING

- The permit holder or their designate shall ensure, where required, that all authorized users are provided with a dosimeter and that such dosimeters are used properly by authorized users.
- Any authorized user that becomes pregnant may forthwith inform the permit holder and OCRO (RSO). The authorized user may participate in any additional dosimetry programs OCRO deems appropriate. The authorized user and the permit holder shall comply with any additional protective measures with may be prescribed and may include a modified work program for the duration of the pregnancy.

SIGNING/POSTING

- Devices containing a sealed source (i.e., electron capture gas chromatograph, self-shielded irradiator) shall be clearly and durably labeled with a radiation warning sign and the nature, activity and date of measurement of the radioactive material involved. A clearly visible sign shall be located on or near the device indicating the identity (name and job title) and telephone number of the contact person.
- A radiation warning sign, trefoil with the wording ”Rayonnement – Danger – Radiation”, shall be mounted on all doors leading into radioisotope laboratories where there is a radioisotope in a quantity greater than 100 Exemption Quantities (EQ), or there is a reasonable probability that a person will be exposed to an effective dose rate greater than 25 µSv/hr.

PURCHASE, RECEIPT & SHIPMENT OF RADIOACTIVE MATERIAL

- All purchases of devices containing sealed sources shall be approved by OCRO (RSO).
- All shippers' declarations, packing slips and accompanying documentation shall be forwarded to OCRO (RSO).
- Once device with sealed source is received, the following information shall be forwarded to OCRO (RSO):
    - radioisotope
    - activity of sealed source with reference date
    - serial number of sealed source
    - type of device
    - model of device
    - manufacturer of device
    - serial number of device
- All radioactive materials offered for transport shall be directed through OCRO (RSO) and documented using a Radioactive Material Transfer Form.
- The permit holder shall communicate their intent to transfer sealed source device to another permit holder, institution, or destination outside Canada, to OCRO (RSO). The permit holder shall not transfer sealed source device until approval is granted. The permit holder shall comply with any requirement imposed by OCRO.
- The permit holder shall inform the OCRO (RSO) of the receipt of sealed source device from another permit holder, institution, or importation across an international border.

LEAK TESTING

- For sealed source devices containing radioactive materials greater than 50 MBq, leak tests capable of detecting the presence of 200 Bq of radioactive material shall be performed:
    - every 12 months on sealed source in a radiation device;
    - every 24 months on sealed source in device that is being stored;
    - immediately before using after sealed source in device has been stored for 12 or more consecutive months;
    - immediately following any incident on sealed sources which could have been damaged as a result of the incident; and
    - upon receipt of a new sealed source in device.
- Records of leak testing shall be maintained for at least 3 years. If removable radioactive contamination in excess of 200 Bq is detected, the sealed source holder or sealed source shall be isolated, its use immediately discontinued, and OCRO (RSO) shall be notified.

DECOMMISSIONING

- The permit holder shall ensure that prior to decommissioning that leak testing requirements are up to date for any source with an activity greater than 50 MBq.
- The permit holder shall ensure that all nuclear substances and radiation devices have been transferred, disposed of and reported in accordance with the procedures outlined in the Radiation Safety Manual or any other practice agreed upon by OCRO.
- For disposals and transfers, the latest leak testing result must accompany any source with an activity of the source is greater than 50 MBq.
- The permit holder shall ensure that all radiation warning signs have been removed or defaced.

REPORTING

- The permit holder shall inform OCRO (RSO) of their intent to discontinue radioisotope use whether permanently or temporarily (i.e., sabbatical). The permit holder shall comply with any requirement

imposed by OCRO (RSO) regarding decommissioning, disposition of retained records, and disposition of sealed sources.
- If permit holder is a Chair of a department, they will inform OCRO (RSO) when their term is ending.
- The permit holder shall forthwith report any required modifications to the Permits.
- The permit holder shall inform OCRO (RSO) of their intent to dispose of any sealed source or device containing a sealed source. The permit holder shall comply with any instructions issued by OCRO.

PROHIBITIONS

- The permit holder shall not accommodate for the storage or consumption of food, beverages; or equipment for the preparation of food or beverages; or the application of cosmetics within areas where sealed sources are used or stored.
- The permit holder shall not transfer sealed source devices to a person not authorized to receive such devices, 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 sealed source devices are used or stored.
- Sealed source devices shall not be transported in a private motor vehicle on a public road, either by the permit holder, their designate, or by request to the University transport.

OBLIGATIONS OF LICENSEES AND WORKERS

The General Nuclear Safety and Control Regulations outline the obligations of the Licensees and the Workers. With regards to ensuring security and reporting any potential breaches or threats, there are three significant sections: Sections12 - Obligations of the Licensee, Section 17 - Obligation of the Worker, and Section 29 - General Reports. Summary of Key Clauses are:

Section 12 - Obligations of the Licensee

(c) take all reasonable precautions to protect the environment and the health and safety of persons and to maintain the security of nuclear facilities and of nuclear substances;
(h) implement measures for alerting the licensee to acts of sabotage or attempted sabotage anywhere at the site of the licensed activity;
(j) instruct the workers on the physical security program at the site of the licensed activity and on their obligations under that program;

Section 17 - Obligation of the Worker

(b) comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment;
(c) promptly inform the licensee or the worker's supervisor of any situation in which the worker believes there may be
(i) a significant increase in the risk to the environment or the health and safety of persons,
(ii) a threat to the maintenance of the security of nuclear facilities and of nuclear substances or an incident with respect to such security,
(iii) a failure to comply with the Act, the regulations made under the Act or the licence,
(iv) an act of sabotage, theft, loss or illegal use or possession of a nuclear substance, prescribed equipment or prescribed information, or

(v) a release into the environment of a quantity of a radioactive nuclear substance or hazardous substance that has not been authorized by the licensee;

Section 29 - General Reports

(1) Every licensee who becomes aware of any of the following situations shall immediately make a preliminary report to the CNSC of the location and circumstances of the situation and of any action that the licensee has taken or proposes to take with respect to it:

(c) a release, not authorized by the licence, of a quantity of radioactive nuclear substance into the environment;
(d) a situation or event that requires the implementation of a contingency plan in accordance with the licence;
(e) an attempted or actual breach of security or an attempted or actual act of sabotage at the site of the licensed activity;
(f) information that reveals the incipient failure, abnormal degradation or weakening of any component or system at the site of the licensed activity, the failure of which could have a serious adverse effect on the environment or constitutes or is likely to constitute or contribute to a serious risk to the health and safety of persons or the maintenance of security;
(g) an actual, threatened or planned work disruption by workers;
(h) a serious illness or injury incurred or possibly incurred as a result of the licensed activity;
(i) the death of any person at a nuclear facility.

(2) Every licensee who becomes aware of a situation referred to in subsection (1) the report shall contain the following information:

(a) the date, time and location of becoming aware of the situation;
(b) a description of the situation and the circumstances;
(c) the probable cause of the situation;
(d) the effects on the environment, the health and safety of persons and the maintenance of security that have resulted or may result from the situation;
the effective dose and equivalent dose of radiation received by any person as a result of the situation; and the actions that the licensee has taken or proposes to take with respect to the situation.