Canada's Nuclear Regulator
L'organisme de réglementation nucléaire du Canada

Licence Application Form
Class II Non-Radiotherapy Accelerator Facilities

SECTION A – APPLICANT INFORMATION

A.1 Type of request

(Mark only ONE of the following boxes)

☐ Isotope production accelerator ☐ Industrial accelerator ☐ Research accelerator

(Mark only ONE of the following boxes)

☐ Construction licence ☐ Operation for the purpose of commissioning licence
☐ Operation licence (amendment) ☐ Decommissioning licence

(Mark only ONE of the following boxes)

☐ New licence ☐ Renewal

Current licence No. (if applicable): _____

A.2 Language of licence

☐ English ☐ French ☐ Both

A.3 Applicant information

Name of applicant: _____
(Please print or type)

Head office address:

Street: _____

City: _____ Province: _____ Postal code: _____

Mailing address (if different from above)**:**

Street: _____

City: _____ Province: _____ Postal code: _____

A.4 Proof of legal status (new licensees only)

Append proof of incorporation or sole proprietorship.

Appended as: _____

A.5 Public access to information

Is any part of this application subject to a request for exemption from the CNSC policy on public access to licensing information?

☐ No ☐ Yes (append a description of the reason for the exemption)

Appended as: _____

continued on next page

A.6 Billing contact person (for applicants subject to cost-recovery fees)

☐ Mr. ☐ Mrs. ☐ Ms.

Name: _____
Surname Given name Middle name

Title: _____ Telephone: _____

Email: _____ Facsimile: _____

Mailing address (if different from A.3)**:**

Street: _____

City: _____ Province: _____ Postal code: _____

A.7 Financial guarantees

Append information regarding the value and form of the financial guarantee, if required.

Appended as: _____

SECTION B – LICENSED ACTIVITIES AND LOCATIONS

B.1 Licensed activities

Check as many activities as the applicant intends to conduct in association with the type of licence applied for.

☐ Possess ☐ Use ☐ Store ☐ Transport ☐ Transfer

☐ Import ☐ Export ☐ Other _____

B.2 Principal location of use or storage or both

Identify the location of the isotope production accelerator facility.

Building: _____ Room: _____

Street: _____

City: _____ Province: _____ Postal code: _____

Append proof of ownership of the site or authorization to construct and operate a nuclear facility at this location from the owner.

Appended as: _____

B.3 Other locations

Identify any other locations where nuclear substances may be used or stored.

Building: _____ Room: _____

Street: _____

City: _____ Province: _____ Postal code: _____

☐ Location of use ☐ Location of storage ☐ Both

Building: _____ Room: _____

Street: _____

City: _____ Province: _____ Postal code: _____

☐ Location of use ☐ Location of storage ☐ Both

Additional locations appended as: _____

continued on next page

SECTION C – NUCLEAR SUBSTANCES AND CLASS II PRESCRIBED EQUIPMENT

C.1 Class II prescribed equipment

A Isotope production accelerators – for each accelerator provide the following information.

Manufacturer: _____

Model name and number: _____

Types of beam and accelerator's maximum energy and current: _____

CNSC certificate No.: _____

Information on additional accelerators appended as: _____

Accelerator targets – for each accelerator target provide the following information.

Target chamber				Maximum beam current (μA)	Bombardment time (min)	Maximum EOB activity (GBq)
Part No.	Nuclear reaction	Product	Material			

Additional accelerator targets appended as: _____

B Industrial accelerators – for each accelerator provide the following information.

Manufacturer: _____

Model name and number: _____

Types of beam and accelerator's maximum energy and current: _____

CNSC certificate No.: _____

Intended use: _____

Information on additional accelerators appended as: _____

C Research Accelerators – for each accelerator provide the following information.

Manufacturer: _____

Model name and number: _____

Types of beam and accelerator's maximum energy and current: _____

CNSC certificate No. (if research conducted on humans): _____

Nature of research: _____

Information on additional accelerators appended as: _____

continued on next page

C.2 Nuclear substances

List any sealed sources (e.g., check sources) that are to be encompassed by the licence.

Isotope (name or symbol mass number)	Manufacturer	Model number	Maximum individual source activity	Serial number (if available)

Isotope Production Accelerators: _____

For each radioisotope produced using the accelerator, list the maximum quantity that will be possessed under the licence at any time and the maximum total activity produced in one calendar year.

Name or symbol and mass number	Maximum total quantity	Maximum total activity

SECTION D – RADIATION SAFETY PROGRAM

D.1 Radiation Safety Officer (RSO)

☐ Dr. ☐ Mr. ☐ Mrs. ☐ Ms.

Name: _____
Surname Given name Middle name

Title: _____ Telephone: _____

Email: _____ Facsimile: _____

Mailing address (if different from A.3)**:**

Street: _____

City: _____ Province: _____ Postal code: _____

CNSC RSO certificate number: _____

D.2 Radiation safety officer job description

Append the job description of the RSO, which should include the time and resources allotted for the RSO to carry out the duties of the position.

Appended as: _____

D.3 Radiation safety officer acknowledgement

I am willing to be designated as the RSO and accept the duties of the RSO job description appended to this licence application.

Date: _____ / _____ / _____ Signature: _____
YYYY MM DD

D.4 Organizational management structure

Append a description of the management and organizational structures that relate to radiation safety. Include the name, position title, function, responsibilities and authority of each person. Attach a copy of the organizational chart.

Appended as: _____

continued on next page

D.5 Radiation Safety Committee terms of reference

Append the terms of reference of the applicant's Radiation Safety Committee or its equivalent.

Appended as: _____

SECTION E – RADIATION SAFETY POLICIES AND PROCEDURES

E.1 ALARA (as low as reasonably achievable)

Append the applicant's ALARA policy and procedures.

Appended as: _____

E.2 Qualifications and duties of workers

Append a list of all anticipated job categories of workers who will be working with the accelerator or nuclear substances encompassed by the licence. Include a description of the roles and responsibilities of each category as well as a description of the duties and qualification requirements for those categories of workers involved in accelerator operations or who work with nuclear substances. In addition, include an overview of the proposed in-house training program.

Appended as: _____

E.3 Worker radiation safety training

Append a description of the proposed radiation safety training program for workers.

Appended as: _____

E.4 Designation of nuclear energy workers (NEWs)

Append the proposed policy and procedures to designate workers as NEWs and notify them of their classification.

Appended as: _____

E.5 Personal dose monitoring

Append the procedures for monitoring radiation exposure.

Appended as: _____

E.6 Action levels (if applicable)

Append a description of any proposed action levels and the actions to be taken if they are reached. If no action levels are proposed, append a description of the proposed measures to evaluate the effectiveness of the radiation protection program.

Appended as: _____

E.7 Radiation detection instruments

Append the types, energy range, sensitivities, serial numbers, and models of radiation detection instruments that will be used and the procedures for calibrating and using these instruments.

Appended as: _____

E.8 Radioactive contamination control (if applicable)

Append the policy and procedures for monitoring the workplace for evidence of radioactive contamination.

Appended as: _____

E.9 Rooms – posting

Append the policy for the posting of rooms where accelerators and nuclear substances are used or stored or both.

Appended as: _____

continued on next page

E.10 Access control and security

Append the policy for restricting access to accelerators and nuclear substances to authorized persons only.

Appended as: _____

E.11 Inventory control and records

Append the policy and procedures for inventory control.

Appended as: _____

E.12 Receipt of packages

Append the procedures for receiving shipments of nuclear substances.

Appended as: _____

E.13 Packaging and transporting nuclear substances

Append the procedures for packaging and transporting nuclear substances.

Appended as: _____

E.14 Leak testing of sealed sources (if applicable)

Append the procedures for leak-testing of sealed radioactive sources.

Appended as: _____

E.15 Management of radioactive waste and other hazardous waste

Radioactive waste

List all radioactive waste or activated components to be handled, transferred or disposed of.

Name	Description	Activity	Form	Weigh or volume or both

Additional waste and activated components appended as: _____

Append the procedures for handling, transferring and disposing of waste containing nuclear substances.

Appended as: _____

Other hazardous waste

List all non-radioactive hazardous waste to be handled, transferred or disposed of.

Name	Quantity	Form	Nature of hazard	Origin

Append the procedures for handling, transferring and disposing of non-nuclear hazardous waste.

Appended as: _____

continued on next page

E.16 Emergency procedures

Append the methods, procedures and equipment that will be used during an emergency. Include the proposed instructions for dealing with emergencies such as fires, spills, and radiation exposure accidents in which nuclear substances or other hazardous materials may be involved.

Appended as: _____

E.17 Reporting requirements

Append the policies and procedures for ensuring reportable occurrences are reported to the CNSC within the required time period.

Appended as: _____

E.18 Record-keeping requirements

Append the policy and procedures for ensuring that required records will be maintained and available for inspection.

Appended as: _____

E.19 Quality assurance

Append the organization's QA program as it applies to radiation safety at the facility.

Appended as: _____

E.20 Decommissioning

Append the preliminary decommissioning plan.

Appended as: _____

SECTION F – RENEWALS

F.1 Radiation dose summary

Append a summary of the most recent annual radiation dosimetry results, including the name of the dosimetry service used. Provide a separate list of the names of individuals whose recorded doses exceed any limit.

Appended as: _____

F.2 Sealed sources acquired, transferred or disposed of

Append a list giving details of all sealed sources acquired, purchased, transferred, or disposed of during the previous licensing period.

Appended as: _____

F.3 Nuclear substances inventory

Append the inventory of all nuclear substances currently in the applicant's possession.

Appended as: _____

F.4 Incidents

Append a brief description of any incident or occurrence that required investigation in the previous licensing period and, if needed, any remedial actions.

Appended as: _____

F.5 Occupancy review

Append an update of the purpose and occupancy of the areas surrounding the accelerator. Highlight any changes from the original facility design.

Appended as: _____

continued on next page

F.6 Accelerator operating workload

Provide a summary of the accelerator workload.

For Isotope production accelerators.

Reaction	Product	Typical EOB activity (GBq)	No. of targets used	Total operation (hours)	Total activity (GBq)

For Industrial and research accelerators

Beam type	Workload	Accelerating potential	Beam Current	Target material	Maximum annual workload

F.7 Radiation survey

Append the results of the most recent photon and neutron radiation surveys of the accelerator facility.

Appended as: _____

SECTION G – FACILITY DESIGN

G.1 Information program

Append a description of the program to inform persons living in the vicinity of the site of the general nature and characteristics of the Class II nuclear facility.

Appended as: _____

G.2 Accelerator facility plans and drawings

Append the plans and elevation drawings of the accelerator facility, including all of the information listed in part G.2 of the guide.

Appended as: _____

G.3 Description of targets (if applicable)

Append the design drawings and technical specifications for the targets to be used and provide information demonstrating that the targets will not fail in a way that would result in the release of radioactivity.

Appended as: _____

G.4 Design of processing facilities (if applicable)

If applicable, append the plans and design of the radioisotope processing facilities including all of the information listed in part G.4 of the guide. Also append a completed copy of the *Design Assessment Form for Nuclear Substance Laboratories and Nuclear Medicine Rooms* from the CNSC document GD-52, *Design Guide for Nuclear Substance Laboratories and Nuclear Medicine Rooms*, detailing the design of the radiochemical processing facilities.

Appended as: _____

G.5 Description of radiochemical hot cells / processing stations (if applicable)

Append a description of the hot cells or other shield containment used for hot chemistry.

Appended as: _____

continued on next page

G.6 Classification of adjacent areas

Append a description of the purpose of the areas adjacent to the accelerator and processing facilities, including classification and occupancy factor.

Appended as: _____

G.7 Accelerator workload

Provide a summary of the anticipated annual accelerator workload:

A) Isotope production accelerators:

Isotope to be produced	Reaction	Product	Typical EOB activity (GBq)	No. of beam/target combinations used	Total operation (hours)	Total activity (GBq)

B) Other accelerators

Provide a description or analysis of the anticipated maximum annual workload for the accelerator facility.

Appended as: _____

G.8 Isotope pathway (if applicable)

Append the description of the isotope product pathway during it's lifecycle at the facility.

Appended as: _____

G.9 Dose rates and annual dose calculations for adjacent areas

Append detailed calculations of the maximum dose rates and annual doses expected in each of the adjacent areas listed in subsection G.6.

Appended as: _____

G.10 Other design considerations

Append a description of the proposed means of verifying the shielding density and composition.

Appended as: _____

SECTION H – SAFETY SYSTEM REQUIREMENTS

H.1 Door interlocks

Append a description of the door interlocks and their functions.

Appended as: _____

H.2 Warning lights

Append a description of the warning lights and indicate their locations on the facility plans.

Appended as: _____

H.3 Pre-irradiation alarms

Append a description of the pre-irradiation alarms and identify their locations on the facility plans.

Appended as: _____

continued on next page

H.4	Emergency off buttons and devices
	Append a description of the function of the emergency stop buttons and devices and identify their locations on the facility plans. Appended as: _____
H.5	**Radiation monitors**
	Append a description of the design and function of all area radiation monitors incorporated into the facility and identify their locations on the facility plans. Appended as: _____
H.6	**Radioisotope release monitoring and containment** (if applicable)
	Append a description of the proposed devices to monitor and contain releases of radioactive material in the ventilation system. Appended as: _____
H.7	**Ventilation monitoring** (if applicable)
	Append a description of the ventilation monitoring system which will verify the ventilation system is functioning properly. Appended as: _____
H.8	**Personnel contamination monitoring system** (if applicable)
	Append a description of the contamination monitoring system. Appended as: _____
SECTION I – CLASS II NUCLEAR FACILITY OPERATING LICENCE FOR THE PURPOSE OF COMMISSIONING	
I.1	**Accelerator commissioning plan**
	Append the accelerator commissioning plan. Appended as: _____
I.2	**Commissioning of radiochemical processing facilities** (if applicable)
	Append the commissioning plan for the radiochemical processing facilities. Appended as: _____
SECTION J – CLASS II NUCLEAR FACILITY OPERATION LICENCE	
J.1	**Accelerator safety system test results**
	Append a summary of the results of the safety system commissioning tests. Appended as: _____
J.2	**Accelerator radiation survey**
	Append a copy of the radiation survey for the accelerator facility. Appended as: _____
J.3	**Accelerator operating procedures**
	Append the facility operating procedures for the accelerator. Appended as: _____

continued on next page

J.4 Processing facility commissioning results (if applicable)

Append a summary of the results of the commissioning tests for the radiochemical processing facilities.

Appended as: _____

J.5 Processing procedures (if applicable)

Append the procedures for isotope processing.

Appended as: _____

SECTION K – DECOMMISSIONING

K.1 Overview of decommissioning plan

Append a brief overview of decommissioning activities, including the scope and schedule and planned end state of the facility once decommissioning is complete.

Appended as: _____

K.2 Personnel qualifications and training

Append a brief description of the proposed responsibilities, qualifications and training for persons supervising and participating in decommissioning work.

Appended as: _____

K.3 Estimation of types, activities and radiation doses from nuclear substances

Append a description of the nature, type and activity of any radioactive nuclear substances or contamination at the nuclear facility. Also provide an estimate of the anticipated maximum dose rates that persons may be exposed to and an estimate of the maximum dose that a person may receive as a result of decommissioning.

Appended as: _____

K.4 Disposal of Class II prescribed equipment, nuclear substances and hazardous materials

Append a description of the proposed methods of disposal for the accelerator, nuclear substances and any other hazardous materials at the facility. Indicate whether any of this material will be released into the environment and provide an estimate of the maximum quantities and concentrations that maybe released.

Appended as: _____

SECTION L – LEGAL SIGNING AUTHORITY

L.1 Signing authority

☐ Dr. ☐ Mr. ☐ Mrs. ☐ Ms.

Name: _____
Surname Given name Middle name

Title: _____ Telephone: _____

Email: _____ Facsimile: _____

Address: _____

The representative for the applicant signs the application.

I _____ (name of Signing Authority), accept the designation of Signing Authority and certify that all information submitted is true and correct to the best of my knowledge. I understand that all statements and representations made in this application and on supplementary documentation are binding on the applicant.

Signature: _____ Date: _____ / _____ / _____
YYYY MM DD

continued on next page

L.2 Applicant authority

☐ Dr. ☐ Mr. ☐ Mrs. ☐ Ms.

Name: _____
Surname Given name Middle name

Title: _____ Telephone: _____

Email: _____ Facsimile: _____

Address: _____

The representative for the applicant signs the application.

I _____ (name of Applicant Authority), have the authority to sign the application and to designate persons for the purpose of Section 15 of the *General Nuclear Safety and Control Regulations.* I designate the person named in L.2 of this application as the person who has the authority to act in dealings with the Commission and who is responsible for the management and control of the licensed activity and nuclear substances. I certify that all statements and representations made in the application and on supplementary pages are true and correct to the best of my knowledge and are binding to the applicant.

Signature: _____ Date: _____ / _____ / _____
YYYY MM DD

Mail the completed application form, together with all relevant documentation to:

Canadian Nuclear Safety Commission
Directorate of Nuclear Substance Regulation
P.O. Box 1046, Station B
280 Slater Street
Ottawa ON, K1P 5S9

Fax: 613-995-5086

The application form, together with all relevant documentation may also be submitted electronically.

Email: forms-formulaires@cnsc-ccsn.gc.ca