NUCLEAR SUBSTANCES AND RADIATION DEVICES LICENCE

PERMIS PORTANT SUR LES SUBSTANCES NUCLÉAIRES ET LES APPAREILS À RAYONNEMENT

12278-2-17.7

I) LICENCE NUMBER: 12278-2-17.7

II) LICENSEE

Pursuant to section 24 of the Nuclear Safety and Control Act, this licence is issued to:

Nova Scotia Health Authority
90 Lovett Lake Court
Halifax, NS
B3S 0H6
Canada

This licence replaces licence 12278-2-17.6.

III) LICENCE PERIOD

This licence is valid from: April 13, 2016 to September 30, 2017 unless otherwise suspended, amended, revoked or replaced.

IV) LICENSED ACTIVITIES

This licence authorizes the licensee to:

(a) possess, transfer, import, use and store the nuclear substances listed in the Appendix: Nuclear Substances and Radiation Devices of this licence.

(b) conduct licensed activities in the location(s) specified in the Appendix: Locations of Licensed Activities of this licence.

This licence is issued for: therapeutic nuclear medicine (872).

V) CONDITIONS

The contents of the appendices attached to this licence form part of the licence.

1. Laboratory Lists
   The licensee shall maintain a list of all areas, rooms and enclosures in which more than one exemption quantity of a nuclear substance is used or stored.
   (2569-1)

2. Patient Room Reassignment
   Prior to the patient treatment room being reused by a new patient or reassigned as non-radioactive room, the licensee shall:
   (a) survey the room and decontaminate as necessary; and
   (b) ensure levels of fixed and non-fixed contamination do not exceed the criteria stated in this licence.
   (2583-3)

3. Extremity Dosimetry - Beta Emitters
The licensee shall ensure that any person who handles a container which contains more than 50 MBq of phosphorus 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 licensed by the Commission.
(2578-1)

4. Patient Room Area Control
The licensee shall ensure that the dose rate in occupied areas around the treated patient's room does not exceed 2.5 microSv per hour or that other patients do not receive a dose in excess of 500 microSv per hospital stay.
(2581-0)

5. Storage
The licensee shall:
(a) ensure that when in storage radioactive nuclear substances or radiation devices are accessible only to persons authorized by the licensee;
(b) ensure that 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 microSv/h; and
(c) have measures in place to ensure that the dose limits in the Radiation Protection Regulations are not exceeded as a result of the substances or devices in storage.
(2575-2)

6. Thyroid Bioassay
If thyroid screening detects more than 10 kBq of Iodine-125 or Iodine-131 in the thyroid, the licensee shall immediately make a preliminary report to the Commission or a person authorized by the Commission and have bioassay performed within 24 hours by a person licensed by the Commission to provide internal dosimetry.
(2601-6)

7. Decommissioning
The licensee shall ensure that prior to decommissioning any area, room or enclosure where the licensed activity has been conducted;

(a) the non-fixed contamination for nuclear substances listed in the licence application guide table titled "Classification of Radionuclides" does not exceed:
(i) 0.3 becquerels per square centimetre for all Class A radionuclides;
(ii) 3 becquerels per square centimetre for all Class B radionuclides; and
(iii) 30 becquerels per square centimetre for all Class C radionuclides; averaged over an area not exceeding 100 square centimetres;

(b) the release of any area, room or enclosure containing fixed contamination, is approved in writing by the Commission or person authorized by the Commission;

(c) all nuclear substances and radiation devices have been transferred in accordance with the conditions of this licence; and

(d) all radiation warning signs have been removed or defaced.
(2571-4)

8. Laboratory Procedures
The licensee shall post and keep posted, in a readily visible location in areas, rooms or enclosures where nuclear substances are handled, a radioisotope safety poster approved by the Commission or a person authorized by the Commission, which corresponds to the classification of the area, room or enclosure.
(2570-3)

9. Patient Room Access Control
The licensee shall ensure that access to the therapy patient's room is restricted to authorized persons and that the entrance is posted with a clearly visible and legible radiation warning sign and the name or job title and the telephone number of a person who can initiate the accident procedure referred to in the licence and who can be contacted 24 hours day.
(2582-1)

10. Contamination Criteria
The licensee shall ensure that for nuclear substances listed in the Appendix: Classes of Radionuclides, attached to this licence:
(a) non-fixed contamination in all areas, rooms or enclosures where unsealed nuclear substances are used or stored does not exceed:
(i) 3 becquerels per square centimetre for all Class A radionuclides;
(ii) 30 becquerels per square centimetre for all Class B radionuclides; or
(iii) 300 becquerels per square centimetre for all Class C radionuclides; averaged over an area not exceeding 100 square centimetres; and
(b) non-fixed contamination in all other areas does not exceed:
(i) 0.3 becquerels per square centimetre for all Class A radionuclides;
(ii) 3 becquerels per square centimetre for all Class B radionuclides; or
(iii) 30 becquerels per square centimetre for all Class C radionuclides; averaged over an area not exceeding 100 square centimetres.

(2642-9)

11. Survey Meter Requirements
The licensee shall provide at all times where nuclear substances, except for Hydrogen-3 and Nickel-63, are handled or stored a radiation survey meter.
(2058-1)

12. Thyroid Monitoring
(a) Every person who in any 24-hour period uses a total quantity of Iodine-125 or Iodine-131 exceeding:
(i) 2 MBq in an open room;
(ii) 200 MBq in a fume hood;
(iii) 20 000 MBq in a glove box; or
(iv) any approved quantity in any room, area or enclosure authorized in writing by the CNSC shall undergo thyroid screening within a period more than 24 hours after the last use that resulted in any of the above limits being exceeded and less than 5 days after the limit was exceeded.
(b) Every person who is involved in a spill of greater than 2 MBq of Iodine I-125 or Iodine-131 shall undergo thyroid screening within a period more than 24 hours after the spill and less than 5 days after the spill.
(c) Every person on whom Iodine-125 or Iodine-131 external contamination is detected shall undergo thyroid screening within a period more than 24 hours after the contamination and less than 5 days after the contamination.
(2046-15)

13. Linen Release Criteria
Bedding, towels and other linen used by therapy patient shall not be released to the laundry if the external contact dose rate exceeds 2.5 microSv/h.
(2584-2)

14. Thyroid Screening
Screening for internal Iodine-125 and Iodine-131 shall be performed using:
(a) a direct measurement of the thyroid with an instrument that can detect 1 kBq of Iodine-125 or Iodine-131; or
(b) a bioassay procedure approved by the Commission or a person authorized by the Commission.
(2600-3)

15. Contamination Meter Requirements
The licensee shall make available to workers at all times at the site of the licensed activity a properly functioning portable contamination meter.
(2572-1)

16. Patient Room - assignment
The licensee shall assign a private room and washroom to each hospitalized patient undergoing treatment with Iodine-131.
(2580-1)

17. Disposal (Nuclear Medicine)
When disposing of unsealed nuclear substances set out in column 1 of the Appendix: Disposal Limits to municipal waste, to sewer systems or to atmosphere, the licensee shall ensure that the limit indicated for each nuclear substance is not exceeded.
(a) The limits set out in column 2 apply to quantities of solid waste of less than three tonnes per building per year. Nuclear substances released to the municipal waste must be in solid form and uniformly distributed in the waste with a concentration that is less than the limits in column 2. Where more than one nuclear substance is disposed of at one time, the sum of the quotients obtained by dividing the quantity of each substance by its corresponding limit in column 2 shall not exceed one.
(b) The limits set out in column 3 apply to the water-soluble liquid form of each nuclear substance which may be disposed of per building per year and exclude nuclear substances in patient excreta. Where more than one nuclear substance is disposed of at one time, the sum of the quotients obtained by dividing the quantity of each substance by its corresponding limit in column 3 shall not exceed one.
(c) The limits set out in column 4 may be averaged over a one-week period. These limits apply to releases of less than 3 million cubic metres per year. Where more than one nuclear substance is disposed of at one time, the sum of the quotients obtained by dividing the quantity of each substance by its corresponding limit in column 4 shall not exceed one.
(2162-9)

18. Area Classification - Nuclear Medicine
The licensee shall classify each room, area or enclosure where more than one exemption quantity of an unsealed nuclear substance is used at a single time as:

(a) basic-level if the quantity does not exceed 5 ALI,
(b) intermediate-level if the quantity used does not exceed 50 ALI,
(c) high-level if the quantity does not exceed 500 ALI,

(d) containment-level if the quantity exceeds 500 ALI; or
(e) nuclear medicine, if the nuclear substance is prepared for or administered to a person.

Except for the basic-level classification, the licensee shall not use unsealed nuclear substances in these rooms, areas or enclosures without the prior written approval of the Commission or a person authorized by the Commission. (2110-2)

19. Operation Limitations

Subject to any other condition of this licence and unless otherwise permitted by the prior written approval of the Commission or a person authorized by the Commission, the licensee shall carry out the licensed activities in accordance with the documents or parts thereof referred to in the Appendix: Licence Document(s). (2917-7)

20. Inaccuracies Notification

The licensee shall report to the Commission or a person authorized by the Commission, as soon as is practicable, the discovery of any inaccuracy or incompleteness in the documents referred to in the Appendix: Licence Document(s). (2920-6)

21. Import and Export Restrictions

This licence does not authorize the licensee to import or export the following items as described in the schedule, Parts A and B, to the Nuclear Non-proliferation Import and Export Control Regulations, subject to any restrictions or exemptions as noted in each paragraph of the schedule:

(1) Special fissionable material, as described in paragraph A.1.1:
(i) Plutonium;
(ii) Uranium 233;
(iii) Uranium enriched in Uranium 233 or Uranium 235.
(2) Source material, as described in paragraph A.1.2:
(i) Uranium, containing the mixture of isotopes that occurs in nature;
(ii) Uranium, depleted in the isotope Uranium 235;
(iii) Thorium.
(3) Deuterium and heavy water, as described in paragraph A.1.3.
(4) Tritium, as described in paragraph A.1.5.
(5) Alpha-emitting nuclear substances, as described in paragraph B.1.1.1, including but not limited to:
(i) Actinium 225, 227;
(ii) Californium 248, 250, 252, 253, 254;
(iii) Curium 240, 241, 242, 243, 244;
(iv) Einsteinium 252, 253, 254, 255;
(v) Fermium 257;
(vi) Gadolinium 148;
(vii) Mendelevium 258, 260;
(viii) Neptunium 235;
(ix) Polonium 208, 209, 210;
(x) Radium 223.
(6) Radium-226, as described in paragraph B.1.1.16.
(2480-11)

22. Financial Guarantee

The licensee shall, as of April 1, 2015, maintain at all times a financial guarantee in respect of the activities authorized by this licence of a value set by the Commission and in a form acceptable to the Commission.
(2020-1)

23. Annual Compliance Report
The licensee shall, by April 30 of each year, submit to the Commission a written annual compliance report in the form specified at www.nuclearsafety.gc.ca/acr.
(2912-3)

Designated Officer pursuant to paragraph 37(2)(c) of the Nuclear Safety and Control Act