



UNIVERSITY OF ALBERTA
ENVIRONMENT, HEALTH & SAFETY

Registration
of
Designated Radiation Equipment

Information & Guide

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1.0 INTRODUCTION

The purpose of this guide is to provide information to owners of x-ray equipment and lasers on the inspection and registration process for this type of equipment at the University of Alberta.

The operation of x-ray equipment and certain classes of lasers is governed by the Radiation Protection Regulation of Alberta. According to the regulation this type of equipment must be inspected for compliance and registered before it may be operated. Therefore, this guide will provide you with information on how to arrange for a compliance inspection and how to get your equipment registered so that you can legally operate it.

The guide also provides information on the reporting and investigation procedures that must be followed after a complaint or accident occurs involving this type of equipment. Finally, the guide provides you with a list of safety codes to help you stay in compliance with the regulation.

2.0 REGULATIONS

2.1 Designated Radiation Equipment Types

Under the Radiation Protection Regulation of Alberta -182/2003, with amendments up to and including Alberta Regulation 144/2013 (<http://www.qp.alberta.ca>), the following types of designated radiation equipment require a *Registration Certificate* before they may be operated:

- a) Diagnostic or therapeutic x-ray equipment used by medical, dental, chiropractic or other health professionals or paramedical personnel;
- b) Therapy simulator x-ray equipment
- c) Diagnostic or therapeutic x-ray equipment used by veterinarians or veterinary staff
- d) Particle accelerators not governed by the Nuclear Safety and Control Act (Canada) and regulations under that Act
- e) Security x-ray equipment
- f) Cabinet and analytical x-ray equipment
- g) Industrial radiographic and fluoroscopic x-ray equipment
- h) Irradiation x-ray equipment
- i) Class 3b or 4 lasers that are not enclosed within a laser system with a lower classification, as described by the American National Standards Institute's Standard Z136.1 - 2014, American National Standard for Safe Use of Lasers

2.2 Prohibited Radiation Equipment

Certain types of radiation equipment are prohibited from use or operation in Alberta including the following:

- a) Hand-held fluoroscopes;
- b) Shoe fitting x-ray fluoroscopes;
- c) Photofluorographic units (including mass miniature chest x-ray units);
- d) Fluoroscopic x-ray equipment without image intensification.

2.3 Safety Codes and Standards

For each type of designated radiation equipment, the Radiation Protection Regulation has adopted a specific safety code or standard for the safe operation of the equipment. Designated radiation equipment must be in compliance with the relevant safety code or standard before the equipment may be used or operated in Alberta.

The following list identifies the specific safety code or standard associated with each type of designated radiation equipment:

Type of Equipment	Safety Standard	Publisher
X-ray Equipment for Medical Diagnosis	Safety Code 35, Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities	Health Canada, Ottawa, Ontario Catalog No. H128-1/08-545E ISBN 978-1-100-10289-4 HC Pub: 4000 https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html
X-ray Equipment for Dental Practice	Safety Code 30, Radiation Protection in Dentistry	Health Canada, Ottawa, Ontario Catalog No. H46-2/94-177E ISBN 0-660-15420-X https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html
X-ray Equipment for Veterinary Practice	Safety Code 28, Radiation Protection in Veterinary Medicine	Health Canada, Ottawa, Ontario Catalog No. H46-2/91-151E ISBN 0-660-13684-8 https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html
X-ray Analytical Equipment	Safety Code 32, Safety Requirements and Guidance for Analytical X-ray Equipment Addendum to Safety Code 32: Portable, hand-held, x-ray tube based open-beam XRF devices	Health Canada, Ottawa, Ontario Catalog No. H46-2/94-186E Addendum Catalog No. 130528 ISBN 0-660-15602-4 https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html
Industrial Radiographic and Fluoroscopic X-ray Equipment	Safety Code 34, Radiation Protection and Safety for Industrial X-ray Equipment	Health Canada, Ottawa, Ontario Catalog No. H46-2/03-333E ISBN 0-662-35570-9 https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html

Baggage Inspection X-ray Equipment	Safety Code 29, Requirements for the Safe Use of Baggage X-ray Inspection Systems	Health Canada, Ottawa, Ontario Catalog No. H46-3/2-1993E ISBN 0-660-15114-6 https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation.html
Lasers (Industrial / Research Facilities)	American National Standard ANSI Z136.1 - 2014, American National Standard for Safe Use of Lasers	Laser Institute of America Suite 128, 13501 Ingenuity Drive Orlando Florida 32826 ISBN-13; 978-0-912035 & ISBN-10; 0-912035-65-X https://www.lia.org/store/laser-safety-standards
Lasers (Health Care Facilities)	CSA Standard Z386-14, Safe Use of Lasers in Health Care	CSA International 5060 Spectrum Way, Suite 100 Mississauga, Ontario L4W 5N6 ISBN 978-1-77139-207-5 http://www.ccohs.ca/products/CSAStandard/

2.4 Registration

A registration certificate must be issued for each piece of designated radiation equipment specified in section 2.1 before the equipment may be used or operated.

Registration certificates for designated radiation equipment may only be issued by a Radiation Health Administrative Organization, which is an organization that has entered into a legal agreement with the Minister of Labour of Alberta for this purpose.

The University of Alberta is a Radiation Health Administrative Organization which allows it to issue registration certificates for equipment that it owns and operates either within university facilities or at other locations where university equipment is located.

In order to register designated radiation equipment the equipment must be in compliance with the applicable safety code or standard. Compliance must be verified by an Authorized Radiation Protection Agency as explained in the next section.

2.5 Compliance Verification

Designated radiation equipment must be in compliance with the applicable safety code or standard before a registration certificate will be issued. Verification of compliance may only be performed by an Authorized Radiation Protection Agency (ARPA), which is a company or organization that has entered into a legal agreement with the Minister of Labour of Alberta for this purpose.

The University of Alberta, Department of Environment, Health & Safety is an Authorized Radiation Protection Agency which allows it to perform compliance verification of selected designated radiation equipment owned by the University of Alberta. **There is no charge for the EHS ARPA service.**

For University of Alberta radiation equipment that cannot be inspected by the EHS ARPA or the radiation equipment located outside the Edmonton area, a private company must be contracted to provide this service. It is the responsibility of the owner of the

equipment to pay for any costs associated with compliance verifications performed by private companies. A list of Authorized Radiation Protection Agencies can be obtained by contacting the Radiation Safety Officer or EHS.info@ualberta.ca.

3.0 REGISTRATION PROCEDURE

The following procedure must be carried out for all designated radiation equipment not previously registered with the University of Alberta, for designated radiation equipment that has undergone a modification which could effect its operation or safety, and whenever there is a change in the location of installation/operation of the designated radiation equipment.

In order to register your designated radiation equipment for operation the following steps must be completed:

- 1) Complete the *Designated Radiation Equipment – Application to Register* form. For registration renewals that are not related to designated radiation equipment modifications as described above simplified version of the form (*Application to Renew Registration Certificate*) may be used. Any questions related to the filling out the application should be directed to the Department of Environment, Health & Safety (ehs.info@ualberta.ca or 780 492-5655).
- 2) Send the registration application form to the Department of Environment, Health & Safety at least 30 days prior to the anticipated operation of the equipment.
- 3) Once the application form has been submitted, inspection by the Authorized Radiation Protection Agency must be scheduled. If the equipment is located in the Edmonton area and can be inspected by the Department of Environmental Health & Safety, designated EHS representative will arrange for compliance verification of the equipment. If the equipment is not located in the Edmonton area or cannot be inspected by the Department of Environmental Health & Safety, contact one of the other Authorized Radiation Protection Agencies to arrange for compliance verification.
- 4) Ensure that any X-ray equipment that will be inspected is in the ready state to emit X-ray at the time of inspection. This may mean the equipment warm up is require before inspection starts.
- 5) After the compliance verification is conducted you will receive a *Compliance Verification Report* from the Authorized Radiation Protection Agency. If there are any items of non-compliance indicated in the report take whatever action is required to correct the deficiency(s) and then arrange for the Authorized Radiation Protection Agency to verify in writing that corrective action has been taken.

- 6) After the designated radiation equipment and facility have been verified to be in compliance with the applicable safety code or standard send the compliance verification report and any correspondence on corrective action to the Department of Environment, Health and Safety.
- 7) You should receive a registration certificate from the Department of Environment, Health & Safety within two weeks following verification of compliance. The registration certificate is valid for the period indicated on the certificate. Be sure to observe any conditions or restrictions issued with the registration certificate.

4.0 CONFIRMATION OF EQUIPMENT STATUS

In order to update the status of stored designated radiation equipment, owners are requested to identify any changes in the storage location of the equipment and report any designated radiation equipment that has been disposed which was previously in storage. Owners will normally be requested to provide this information during renewal of registration certificates or at the time of periodic designated radiation equipment inventory verification checks performed by the Department of Environment, Health and Safety.

5.0 INVESTIGATION OF A COMPLAINT OR INCIDENT

If an overexposure or an incident that has the potential of causing overexposure of a person occurs, the owner of the designated radiation equipment must forthwith notify the Department of Environment, Health & Safety as to the time, place and nature of the overexposure or incident by going to:

<https://www.ualberta.ca/environment-health-safety>

and selecting “report an incident” link that will open the following google form:

<https://docs.google.com/forms/d/e/1FAIpQLSdJqWGnY1g-B72c8ZbavoLunFC4raOqi8Xbtauw2maSZaKBQ/viewform>

The Department of Environment, Health and Safety will initiate an investigation within 48 hours of receiving notice of a complaint, incident or suspected overexposure. The owner of the equipment or their representative will be advised either orally or in writing of the investigation and will be required to fully cooperate with the officer conducting the investigation.

In conducting an investigation, the investigating officer may,

- a) enter the radiation facility,
- b) inspect the facility and the equipment,
- c) require the production of and copy records related to health and safety,

- d) take photographs and seize items,
- e) interview and obtain statements, and
- f) issue receipts for seized items.

At the completion of the investigation, the investigating officer will prepare an *Investigation Report* and provide a copy of the report to the complainant, the owner of the designated radiation equipment, and Alberta Labour.

If the result of the investigation finds that there was misconduct on the part of staff or students related to the complaint or incident, appropriate disciplinary action will be taken in accordance with University of Alberta administrative procedures. If appropriate, a *Notice of Non Compliance* or a *Compliance Directive* will be issued to the owner of the designated radiation equipment by the Radiation Safety Officer, Department of Environment, Health & Safety.

An owner who receives a *Notice of Non Compliance* or a *Compliance Directive* must respond in writing to the Radiation Safety Officer within the time period specified. Failure to respond to a compliance directive may result in revocation of the registration certificate, prohibition of equipment use, seizure of equipment or referral for disciplinary action.