




# Radiation Safety Code of Practice

2013

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## Radiation Safety Code of Practice

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	3 April 2013
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## Revision History

Revisions to this procedure are to be documented in Table 1, Revision History.

Table 1: Revision History

Document Section	Details of Amendments	Date	Author (Initials)
	New document	April 30, 2001	
	Added Emergency number page	April 14, 2004	
6	Added section	April 14, 2004	
8	Updated <b>Terms and Conditions of the Permit</b>	April 14, 2004	
11	Updated <b>Personnel Monitoring</b>	April 14, 2004	
14	Updated <b>Release of Nuclear Substances</b>	July 14, 2003	
15	Updated <b>Audits and Inspections</b>	April 14, 2004	
16	Updated <b>Training</b>	April 14, 2004	
17	Updated <b>Transportation</b>	April 14, 2004	
C	Updated <b>Appendix C Safety Compliance Enforcement Policy</b>	April 14, 2004	
-	Added a <b>Definitions</b> section.	April 3, 2013	
1	Removed the <b>Introduction</b> section and replaced it with the section entitled <b>Purpose</b> . The new section provides the purpose of the code of practice.		
2	Removed <b>Radiation Safety Policy Statement</b> section and replaced with a section entitled <b>Scope</b> . The new section defines the scope of the code of practice.		
3	Removed <b>Role of the Department of Health, Safety and Environment</b> section and replaced it with the section entitled <b>Regulatory Considerations</b> . This new section specifies the key regulatory agencies governing the various aspects of radiation safety.		
4	Removed the <b>Substances Requiring a Permit</b> section and replaced it with the section entitled <b>ALARA Principle</b> . The new section defines the principle to keep radiation exposures As Low As Reasonably Achievable.		
5	Removed the <b>Prescribed Equipment Requiring a Permit</b> and replaced it with the section entitled <b>Program Authority Roles and Responsibilities</b> . The new section specifies the authority, roles and responsibilities of the RSAC, RSPAC, WSEP and Research Services, The materials requiring a permit section has been moved to section 7 of the code of practice.		
6	Renamed the title to <b>Equipment Registration</b> . Identified the different equipment (e.g. x-ray generating equipment, computed tomography (CT), Magnetic Resonance Imaging		

Document Section	Details of Amendments	Date	Author (Initials)
	(MRI), Lasers) in more detail. This section is currently under development and more will be added.		
7	Renamed the title to <b>Nuclear Substance Permits</b> . Within the new section, there are several subsections which specify what materials require a nuclear substance permit, the application and approval process and requirements for a permit application, permit amendment, permit renewal, and the cancellation of a permit.		
8	Removed the <b>Terms and Conditions of the Permit</b> section and replaced it with the section entitled <b>Procurement of Nuclear Substances and Radiation Devices</b> . The new section addresses the requirements for the procurement of radioactive materials and replaces section 13 in the previous version. Terms and conditions requirements are incorporated into section 5.1 of the <i>Radiation Safety</i> manual.		
9	Removed the <b>Additional Conditions for Radiation Devices Permits</b> section and replaced it with the section entitled <b>Transfer of Nuclear Substances</b> . The new section specifies the rule for transferring of a nuclear substance or radiation device to another individual. The Additional Conditions for Radiation Devices Permits are incorporated into section 5.3 of the <i>Radiation Safety</i> manual.		
10	Renamed the title to <b>Nuclear Substance Permit Holder Obligations and Responsibilities</b> from <b>Obligations</b> . The revised section 10 provides greater clarity on the requirements of permit holders as related to safety management, training, security, radiation dosimetry, disposal of hazardous materials, emergency response, decommissioning and records management.		
11	Removed the <b>Personnel Monitoring</b> section and replaced it with the section entitled <b>Authorized Radiation Workers Responsibilities</b> . The new section specifies the responsibilities of authorized radiation workers under the code of practice. The Personnel Monitoring section is incorporated into the internal <i>Radiation Dosimetry Procedure</i> .		
12	Removed the <b>Radioactive Work Areas</b> section and replaced it with the section entitled <b>Compliance Enforcements</b> . The new section describes the compliance enforcement related to the code of practice. The Radioactive Work Areas section is defined in condition 5 of the <i>Nuclear Substances and Radiation Devices Licence</i> .		
13	Removed the <b>Procurement of Nuclear Substances and Radiation Devices</b> section and replaced it with the section entitled <b>Review of Code of Practice</b> . The new section specifies the requirements for the regular review of the code of practice. Procurement procedures are described in section 8 of the code of practice.		
14	Removed the <b>Release of Nuclear Substances</b> section and replaced it with the section entitled <b>References</b> . The disposal of nuclear substances is addressed in section 10 of the code of practice.		

Document Section	Details of Amendments	Date	Author (Initials)
15	Removed the <b>Audits and Inspections</b> section. Audits and inspections will continue to be carried out by WSEP as addressed in section 5.2 of the code of practice.		
16	Removed the <b>Training</b> section. Training of workers is addressed in section 10.2 of the code of practice.		
17	Removed the <b>Transportation</b> section. Transportation of radioactive material is addressed in section 7 of the <i>Radiation Safety</i> manual.		
-	Removed all appendices		
5,6,7,8,10,11,12, and 14	Replaced <b>Workplace Safety and Environmental Protection</b> with Safety Resources.	November 25, 2013	
Definitions, 5.2,6,7.2,7.3,7.4,7.5,8,9,10.7,10.8, and 11	Replaced <b>Radiation Safety Manager</b> with Radiation Safety Officer.		
5.3,7.3,7.4,7.5,8,9,10.5,10.7,14	Replaced website link <a href="http://www.wsep.usask.ca">www.wsep.usask.ca</a> with <a href="http://safetyresources.usask.ca">http://safetyresources.usask.ca</a>		
5.2	Renamed the section to <b>Safety Resources</b> from <b>Workplace Safety and Environmental Protection</b> . Removed reference to <b>Workplace Safety and Environmental Protection Policy</b> . Updated the reporting structure of Safety Resources.		
6.1 – 6.4	Removed <b>Sections 6.1 – 6.4</b> and replaced with the sentence: Contact the Radiation Safety Officer for operational and safety requirements for ionizing and non-ionizing radiation equipment. These sections will return once the program has been further developed.		
10.1	Reworded the first paragraph.		
10.8	Added the sentence: Nuclear substance permit records may only be disposed of in consultation with the Radiation Safety Officer, and in accordance with applicable regulations.		
11	Reworded the first sentence.		
12	Added a paragraph regarding the Canadian Nuclear Safety Commission's introduction of the Administrative Monetary Penalties (AMPs) for the violation of a regulatory requirement.		
14	Removed reference to the <i>Workplace Safety and Environmental Protection Policy</i> .		

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## **Preface**

The Radiation Safety Code of Practice is the governing document in the administration of the Radiation Safety Program at the University of Saskatchewan. The Radiation Safety Code of Practice is intended for users of nuclear substances, radiation devices, and ionizing and non-ionizing generating equipment.

This document currently is under development for the inclusion of legislative requirements, administrative procedures, and operational rules for ionizing and non-ionizing generating equipment.

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## Definitions

**Authorized Radiation Worker (ARW):** A University of Saskatchewan employee, student, visitor or contractor who has acquired the appropriate radiation safety training and is approved to work with nuclear substances, radiation devices, and/or ionizing and non-ionizing radiation equipment.

**Exempt Quantity:** A defined quantity of a nuclear substance of which does not require a licence to acquire, possess, use, store, or dispose of under the Canadian Nuclear Safety Commission (CNSC) *Nuclear Substance and Radiation Devices Regulations*.

**Incident:** Any undesirable or unplanned event or sequence of events that has had an unintended effect on the health and safety of University of Saskatchewan employees, students or contractors, or the safety and security of facilities, operations, and property, or on legal or regulatory compliance.

**Ionizing Radiation Equipment:** A device capable of emitting ionizing radiation, but does not include:

- equipment operated at less than 15 kilovolts and not designed principally to produce useful radiation;
- equipment that is in storage, in transit or not being used or equipment operated in such a manner that it cannot produce radiation;
- any radioactive substance;
- any other equipment or class of equipment specified in the regulations.

Examples of such equipment include, but are not limited to, X-ray equipment, computed tomography equipment, X-ray diffraction equipment.

**Laser:** A device that emits light through the process of optical stimulation based on the stimulated emission of photons. Laser light has a high degree of spatial and temporal coherence.

**Non-ionizing Radiation Equipment:** Any equipment that is capable of emitting non-ionizing radiation, but does not include equipment that has not been designed principally to produce useful non-ionizing radiation. Examples of such equipment include, but are not limited to, laser, magnetic resonance imaging equipment.

**Nuclear Energy Worker (NEW):** A person who is required in the course of the person's occupation to perform duties in such circumstances that there is a reasonable probability that the person may receive a dose of radiation that is greater than the prescribed limit (1 mSv) for the general public.

**Nuclear Substance:** Any radioactive nuclide, including deuterium.

**Permit Holder:** An individual authorized to work with nuclear substances or radiation devices under the *Radiation Safety Policy* and *Radiation Safety Code of Practice*.

**Radiation Device:** A device that contains more than one exempt quantity of a nuclear substance and enables the nuclear substance to be used for its radiation properties.

**Radiation Safety Permit:** A radiation safety permit is a formal internal authorization granted by the Radiation Safety Officer or the Radiation Safety Protocol Approval Committee (RSPAC) to individuals requesting approval for the possession, use, storage, transportation and disposal of nuclear substances or radiation devices. A radiation safety permit is only granted to individuals meeting the requirements as stipulated in the *Radiation Safety Code of Practice*.

**Responsible Party:** An individual that has been granted authority over a space(s) at the university and the faculty, staff and/or students working in the space(s) for the purposes of research, academics or other activities.

**Sealed Nuclear Substance:** A nuclear substance in a sealed capsule or in a cover, to which the substance is bonded, where the capsule or cover is strong enough to prevent contact with or the dispersion of the substance.

**Supervisor:** A person who is authorized by the university to oversee or direct the work of employees and students. The authority to supervise employees and students is inherent in their job function. Although the university recognizes the ultimate responsibility of performing work in a safe manner lies with the individual employee, supervisors have additional responsibilities, which arise from their role as persons responsible for providing competent supervision and managing the workplace under their authority.

**Unsealed Nuclear Substance:** Any nuclear substance which is not sealed.

**X-ray Equipment:** A device that is capable of producing electromagnetic radiation with a wavelength in the range of 0.01 and 10 nanometers and energies in the range of 100 eV to 100 keV.

## 1 Purpose

In accordance with the *Radiation Safety Policy*, the *Radiation Safety Code of Practice* is the governing document in the administration of the Radiation Safety Program at the University of Saskatchewan.

The *Radiation Safety Code of Practice* specifies the minimum requirements, roles and responsibilities for individuals working with nuclear substance and radiation devices for academics, research or other activities.

## 2 Scope

Under the *Radiation Safety Policy*, individuals working with nuclear substance or radiation devices must meet all legislative requirements and must adhere to the administrative procedures and operational rules for their possession, use, storage, transportation and disposal as set forth in the university's *Radiation Safety Code of Practice* and supporting documentation.

The *Radiation Safety Code of Practice* applies to all university employees, students, contractors and visitors.

## 3 Regulatory Considerations

The University of Saskatchewan is responsible for ensuring compliance with applicable legislation governing the use of nuclear substances and radiation devices, and for taking every precaution reasonable for the protection of employees, students, contractors, visitors, the public, and the environment.

The possession, use, storage, transportation and disposal of nuclear substances and radiation devices in Canada are governed collectively by a number of federal and provincial agencies:

- Canadian Nuclear Safety Commission (CNSC);
- Department of Foreign Affairs and International Trade (DFAIT);
- Transport Canada; and
- Saskatchewan Ministry of Labour Relations and Workplace Safety (MLRWS); and
- Saskatchewan Ministry of the Environment (MOE).

The University of Saskatchewan maintains a number of licences with the CNSC authorizing the possession, use, storage and disposal of select nuclear substances and radiation devices. Nuclear substances, radiation devices or activities not specified on current licences must be first approved by the CNSC via amendments to current licences or the acquisition of new licences in accordance with established processes by the Commission.

## 4 ALARA Principle

The University of Saskatchewan is committed to keeping occupational radiation exposures As Low As Reasonably Achievable (ALARA), social and economic factors being taken into account.

The implementation of management control over work practices, personnel qualification, training, and awareness is necessary to keep the amount of exposure to radon progeny and the effective dose and equivalent dose received by and committed to individuals as low as reasonably achievable.

The ALARA Principle is the foundation of the Radiation Safety Program.

## 5 Program Authority Roles and Responsibilities

### 5.1 Radiation Safety Advisory Committee

The Radiation Safety Advisory Committee (RSAC) is responsible for monitoring the university's Radiation Safety Program and for providing advice and guidance on policy, procedures and guidelines in support of radiation safety and legislative compliance. The RSAC also participates in investigations of serious incidents involving nuclear substances and radiation devices, and serious infractions under the *Radiation Safety Code of Practice* or current legislation.

The subcommittee of the RSAC, the Radiation Safety Protocol Approval Committee (RSPAC), is authorized to review and approve protocols involving nuclear substances and radiation devices in accordance with the *Radiation Safety Code of Practice*.

The composition and specific responsibilities of the RSAC and RSPAC are outlined in the supporting documents, *RSAC Terms of Reference* and the *RSPAC Terms of Reference*.

### 5.2 Safety Resources

Safety Resources manages and supports health and safety programming, and works with staff, students, contractors and visitors promoting safety consciousness and a focus on injury prevention.

Under the *Radiation Safety Policy*, Safety Resources is responsible for administering and delivering radiation safety programming for the university in accordance with the *Radiation Safety Code of Practice*, current legislation, and best practices. Safety Resources is also responsible for supporting the activities of the RSAC and the RSPAC.

Safety Resources shall conduct inspections and audits of facilities and activities to ensure compliance with the *Radiation Safety Code of Practice*, legislative, and granting agency requirements at a frequency commensurate with the identified risks.

Reporting to the Associate Vice-President, Human Resources Division, the Director, Safety Resources, holds primary responsibility for the operations and resources (human, physical and



financial) of the unit. The Director provides strategic vision, leadership and stewardship of the unit in a manner that enables the achievement of the university's strategic and operational goals. The Director leads in the development and delivery of health and safety, and environmental programs, processes and systems to create and promote a culture of enterprise risk management to ensure a safe and healthy work and learning environment at the university.

Reporting to the Director, Safety Resources, the university Radiation Safety Officer administers the Radiation Safety Program and is an expert resource to the university community on radiation safety. The Radiation Manager oversees radiation safety personnel in support of the program and manages the university's licences with the CNSC. The Radiation Safety Officer also acts as a resource for the RSAC and RSPAC, and is the primary liaison with provincial and federal agencies, and research granting agencies, as relating to radiation safety.

Information on Safety Resources programs and services can be found on its website at <http://safetyresources.usask.ca>.

### **5.3 Research Services**

The Office of Research Services is the main administrative unit of the Office of the Vice-President Research. This unit was established to both provide support and help facilitate research activity at the University of Saskatchewan. Research Services is responsible for all pre- and post-award administration of grants (individual, collaborative, and institutional) and contracts. This unit also administers a number of institutional programs including the Canada Research Chairs and Canada Foundation for Innovation Programs, as well as international activity related to research.

The university requires that all research conducted by its members conform to the highest ethical standards and federal and provincial regulations for the use of human subjects, animals, biohazardous materials, nuclear substances and radiation devices. Research Services ensures that all researchers have a proper radiation safety, biosafety and/or human/animal ethics approval prior to releasing the funding for grants or contracts.

Information on Research Services, their roles and responsibilities, including policies on human and animal research, and supporting information can be found on their website at [http://www.usask.ca/research/research\\_services](http://www.usask.ca/research/research_services).

## **6 Equipment Registration**

The following ionizing and non-ionizing radiation equipment shall be registered with Safety Resources, but do not require a nuclear substance permit.

- Magnetic Resonance Imaging equipment ;
- Computed Tomography (CT) scanners;
- Gas chromatographs;
- Densitometers;
- Calibrators;

- X-ray generating equipment;
- Ultrasound equipment;
- Lasers.

Select equipment such as X-ray and ultrasound equipment will also require registration with the Ministry of Labour Relations and Workplace Safety. Safety Resources shall assist the responsible party with the registration of such equipment and with meeting associated regulatory requirements.

Contact the Radiation Safety Officer for operational and safety requirements for ionizing and non-ionizing radiation equipment.

## **7 Nuclear Substance Permits**

### **7.1 Nuclear Substances and Radiation Devices Requiring a Permit**

The University of Saskatchewan requires that all individuals intending to possess, use, store, transport or dispose of any sealed, unsealed nuclear substance or radiation device obtain a nuclear substance permit.

### **7.2 Nuclear Substance Permit Application and Approval**

Individuals seeking a nuclear substance permit shall submit an application and supporting documentation to the Radiation Safety Officer in accordance with the *Nuclear Substance Permit Application, Amendment, and Renewal Procedure*.

The Radiation Safety Officer shall review the permit application for completeness and conduct an inspection of all work areas identified in the permit application to ensure that all necessary health and safety measures are in place.

A nuclear substance permit shall be granted only when all university, legislative, and granting agency requirements have been met.

All new nuclear substance permit applications involving more than one exempt quantity of a nuclear substance or a radiation device, shall be reviewed and approved by the RSPAC.

Upon approval of a nuclear substance permit application, the Radiation Safety Officer shall issue a University of Saskatchewan nuclear substance permit to the individual who is designated as the permit holder (a responsible party). As deemed necessary, the Radiation Safety Officer and RSPAC may stipulate conditions on the nuclear substance permit which must be adhered to by the permit holder.

Before work is initiated, the Radiation Safety Officer shall meet with the permit holder to review responsibilities under the *Radiation Safety Code of Practice*, and the nuclear substance permit.

Nuclear substance permits are valid for a period up to two years and may be renewed.

Safety Resources shall maintain records of all permit applications, associated documents and related correspondence, and nuclear substance permits. All information provided by the applicant shall be treated as confidential.

### **7.3 Amendment of a Nuclear Substance Permit**

An amendment to an active nuclear substance permit is required whenever there are changes to information contained within the permit. This includes:

- Addition of a new research protocol and/or changes to an existing research protocol;
- The addition or removal of a nuclear substances listed on the permit;
- The increase in quantity of a nuclear substance listed on the permit;
- The addition or removal of a radioactive work area;
- Changes to ARWs listed on the permit;
- Changes to work or storage areas listed on the permit; and
- Changes to contact information or signing authority on the permit.

A permit amendment is also required when a permit holder intends to go on sabbatical or a leave of absence greater than three months, and is no longer able to competently supervise the research protocol or activities under the nuclear substance permit.

All amendments to an active nuclear substance permit shall be submitted to the Radiation Safety Officer in accordance with the *Nuclear Substance Permit Application, Amendment, and Renewal Procedure* (<http://safetyresources.usask.ca>).

All amendments to active nuclear substance permits require approval by the Radiation Safety Officer and/or the RSPAC prior to implementation. Upon approval, an amended nuclear substance permit shall be issued to the permit holder.

### **7.4 Nuclear Substance Permit Renewal**

Nuclear substance permits are valid for up to two years. To facilitate permit administration, all nuclear substance permits have the same expiry date and are renewed at the same time.

Safety Resources shall initiate and manage the renewal of nuclear substance permits in accordance with the *Nuclear Substance Permit Application, Amendment, and Renewal Procedure* (<http://safetyresources.usask.ca>). Upon completion of the permit renewal process, the Radiation Safety Officer shall issue new nuclear substance permits to permit holders.

Research Services and the Research Ethics Office shall be notified of individuals who have not renewed their nuclear substance permit prior to the expiry date.

## **7.5 Cancellation of a Nuclear Substance Permit**

An active nuclear substance permit may only be cancelled by the permit holder or by the Radiation Safety Officer.

The permit holder must notify the Radiation Safety Officer at least one month prior to the intended cancellation date of a nuclear substance permit. The notification must include a schedule to decommission all work and storage areas listed under the permit in accordance with the *Facility Decommissioning Standard* (<http://safetyresources.usask.ca>).

## **8 Procurement of Nuclear Substances and Radiation Devices**

Permit holders are authorized to acquire only those nuclear substances listed on their nuclear substance permit.

The Radiation Safety Officer authorizes the procurement of all nuclear substances and radiation devices. Safety Resources together with Purchasing Services shall manage the procurement and logistics for the nuclear substance or radiation device.

The procurement of nuclear substances is managed in accordance with the *Procurement of Nuclear Substances and Radiation Devices Procedure* (<http://safetyresources.usask.ca>).

The importation of nuclear substances and radiation devices into Canada shall be carried out in accordance with all legislative requirements.

## **9 Transfer of Nuclear Substances**

Nuclear substances and radiation devices may only be transferred or gifted to another permit holder at the University of Saskatchewan or to an individual in another organization with prior approval from the Radiation Safety Officer or the RSPAC and in accordance with the *Nuclear Substance Permit Application, Amendment, and Renewal Procedure* (<http://safetyresources.usask.ca>).

## **10 Nuclear Substance Permit Holder Obligations and Responsibilities**

The permit holder is ultimately responsible for ensuring the safe use, storage, and disposal of nuclear substances listed and radiation devices under his/her nuclear substance permit. The specific responsibilities of a permit holder are outlined in the following sections and supporting procedures referenced in the *Radiation Safety Code of Practice*.

### **10.1 Safety Management**

In concert with managing an effective health and safety management system, it is the responsibility of the permit holder to provide competent supervision of all Authorized Radiation Workers and work activities under the nuclear substance permit. In providing competent supervision, the permit holder shall:

- Comply with legislative and granting agency requirements;
- Comply with university health, safety and environmental protection requirements;
- Comply with requirements set forth in the *Radiation Safety Code of Practice*;
- Comply with all nuclear substance permit conditions;
- Implement appropriate safety measures commensurate with the identified risks in accordance with the ALARA Principle;
- Ensure facilities are maintained in accordance with university, and regulatory requirements;
- Ensure instruments and equipment are properly maintained and tested in accordance with university, regulatory requirements, and/or manufacturer specifications;
- Ensure staff and students adhere to procedures, rules and health and safety program requirements for the safe use of nuclear substances and radiation devices; and
- Monitor and review work locations and activities and take appropriate action to rectify areas of non-compliance, unsafe acts, or conditions.

The permit holder shall cooperate with Safety Resources and any other person exercising duties imposed by university policies or regulatory agencies.

## **10.2 Training**

The permit holder shall provide workplace training to Authorized Radiation Workers specific to the work they will be engaged in.

The permit holder shall inform Authorized Radiation Workers of the specific workplace hazards, risks, and ensure that all Authorized Radiation Workers receive appropriate health and safety training.

All Authorized Radiation Workers are required to take radiation safety training or possess equivalent training as approved by Safety Resources. Other safety training may also be required depending on the particular activities engaged in. Safety Resources shall inform the permit holder of any additional training requirements for health and safety.

Radiation safety training shall be renewed every three years.

## **10.3 Security**

The permit holder shall implement and maintain security measures commensurate with the nuclear substance and/or radiation device in possession, and legislative requirements. This includes, but is not limited to:

- Physical protection of the permitted facility to minimize unauthorized access to work areas, rooms, and enclosures;
- Personnel authorization and clearance (e.g. criminal record check) of Authorized Radiation Workers to work in the facility;
- Inventory management of nuclear substances and radiation devices; and

- Incident reporting, response, and investigation into suspected criminal activity including the loss or suspected theft of nuclear substances and radiation devices under the nuclear substance permit.

#### **10.4 Radiation Dosimetry**

Safety Resources shall perform an exposure assessment for all individuals authorized to possess, use or store nuclear substances and radiation devices in accordance with the *Radiation Dosimetry Procedure*.

Individuals whose effective occupational radiation dose is anticipated to exceed 1 mSv/year shall be designated as Nuclear Energy Workers (NEWs) and monitored for radiation exposure using appropriate instrumentation, techniques and dosimetry services approved by the CNSC.

All individuals determined to be NEWs shall be informed, in writing, of their designation and rights in accordance with the CNSC *Radiation Protection Regulations*. All NEWs must acknowledge, in writing, their acceptance of the NEW designation.

Personal radiation exposure monitoring requirements shall be specified under each nuclear substance permit.

Safety Resources shall administer dosimetry programming on behalf of the University of Saskatchewan in accordance with regulatory and licence requirements.

#### **10.5 Disposal of Hazardous Materials**

The permit holder shall ensure that all hazardous waste generated under the nuclear substance permit is disposed of in accordance with the *Hazardous Waste Disposal Standard* (<http://safetyresources.usask.ca>).

#### **10.6 Emergency Response**

The permit holder shall develop and implement emergency response measures commensurate with the identified risk of the nuclear substances, radiation devices and activities under the nuclear substance permit and legislative requirements. As appropriate, emergency response measures address:

- Medical emergencies which include injuries and confirmed or suspected illness from exposure to hazardous materials;
- Spills of hazardous materials;
- Containment equipment failures;
- Loss or theft of hazardous materials;
- Power outages; and
- Fire.

The permit holder shall immediately report to Safety Resources all incidents including confirmed or suspected illnesses resulting from exposures to hazardous materials, spills, containment equipment malfunctions, or loss or suspected theft of permitted materials.

### **10.7 Decommissioning of Permitted Facilities**

When a nuclear substance permit is to be cancelled or will not be renewed, the permit holder is responsible for decommissioning all work and storage areas listed under the nuclear substance permit.

All decommissioning must be completed prior to the permit expiry/cancellation date in accordance with the University of Saskatchewan *Facility Decommissioning Standard* (<http://safetyresources.usask.ca>).

The Radiation Safety Officer shall advise permit holders on the proper decontamination of work areas and equipment and shall confirm that facilities are decontaminated to accepted levels. Safety Resources shall support the removal and disposal of hazardous materials including biological, chemical, and radioactive.

### **10.8 Records**

It is the responsibility of the permit holder to maintain all records associated with a nuclear substance permit. This includes, but is not limited to:

- A copy of the nuclear substance permit;
- Nuclear substance permit application documentation;
- Nuclear substance permit amendments;
- Research protocol(s);
- Work procedures;
- Authorized Radiation Worker records;
- Contamination monitoring records;
- Dosimetry records;
- Up-to-date inventory records of nuclear substances and radiation devices listed under the permit;
- Procurement records for nuclear substances and radiation devices;
- Transport and transfer records for nuclear substances and radiation devices;
- Equipment maintenance and certification records;
- Disposal of waste records;
- Decommissioning records; and
- Reported incidents.

Nuclear substance permit records may only be disposed of in consultation with the Radiation Safety Officer, and in accordance with applicable regulations.

Safety Resources shall maintain copies of records associated with all nuclear substance permits at the university.

## 11 Authorized Radiation Workers Responsibilities

Authorized Radiation Workers are responsible to:

- Commit to the ALARA Principle;
- Conduct work in a safe and responsible manner to protect the individual's health and safety, as well as others that may be affected by the individual's acts or negligence;
- Comply with legislative and granting agency requirements;
- Comply with university health, safety and environmental protection requirements;
- Comply with requirements set forth in the *Radiation Safety Code of Practice*;
- Immediately report to the permit holder all incidents including, spills, containment equipment malfunctions, loss or theft of radioactive materials;
- Immediately notify the Radiation Safety Officer of a pregnancy; and
- Cooperate with Safety Resources and any other person exercising duties imposed by university policies or regulatory agencies.

Authorized Radiation Workers under a nuclear substance permit are further responsible to:

- Comply with all nuclear substance permit conditions;
- Follow rules and procedures under the nuclear substance permit; and
- Immediately report to the permit holder any deviations from or changes to the nuclear substance permit.

## 12 Compliance Enforcement

Safety Resources is authorized to conduct inspections and audits of facilities and activities to ensure compliance with the *Radiation Safety Code of Practice*, regulatory, and granting agency requirements. The permit holder is responsible for rectifying deficiencies identified during said inspections and audits.

In accordance with Compliance Enforcement Pertaining to Hazardous Agents Policy, the University of Saskatchewan will take specific and prompt action in order to enforce compliance with the terms and conditions of various licenses issued to the university, and also with the applicable federal and provincial statutes pertaining to the use, handling, storage, and disposal of hazardous agents.

Individuals failing to adhere to the requirements contained within the *Radiation Safety Code of Practice*, university policies and legislative requirements, are subject to compliance enforcement up to and including suspension of privileges to work with nuclear substances or radiation devices at the university.



When, in the opinion of Safety Resources, there is unacceptable risk to employees, the public, the environment, or university property, Safety Resources is authorized to take appropriate action which may include the immediate suspension of research activity, prohibited entry to a laboratory, and/or the removal of hazardous material from the premises.

Compliance enforcement related to nuclear substance permits shall be carried out in consultation with the RSAC.

Safety Resources shall notify Research Services, regulatory agencies, and research granting agencies of compliance issues in accordance with their respective reporting requirements.

Administrative Monetary Penalties (AMPs) may be imposed by the CNSC without court involvement, for the violation of a regulatory requirement. AMPs can be applied against any individual or corporation subject to the *Nuclear Safety and Control Act*.

### **13 Review of Code of Practice**

The *Radiation Safety Code of Practice* may be reviewed at any time on the recommendation of the RSAC, but shall be reviewed at least every three years.

### **14 References**

References listed herein are available on Safety Resources' website, <http://safetyresources.usask.ca>.

- *Radiation Safety Policy*, University of Saskatchewan.
- *President's Radiation Safety Advisory Committee Terms of Reference*, University of Saskatchewan.
- *President's Radiation Safety Protocol Approval Committee Terms of Reference*, University of Saskatchewan.
- *Nuclear Substance Permit Application Procedure*, Safety Resources.
- *Nuclear Substance Permit Amendment Procedure*, Safety Resources.
- *Procurement of Nuclear Substances and Radiation Devices Procedure*, Safety Resources.
- *Nuclear Substance Permit Renewal Procedure*, Safety Resources.
- *Radiation Dosimetry Procedure*, Safety Resources.
- *Facility Decommissioning Standard*, Safety Resources.
- *Hazardous Waste Disposal Standard*, Safety Resources.
- *Saskatchewan Occupational Health and Safety Act*, 1993.
- *Saskatchewan Occupational Health and Safety Regulations*, 1996.
- *Nuclear Safety and Control Act*, CNSC.
- *General Nuclear Safety and Control Regulations*, CNSC.
- *Radiation Protection Regulations*, CNSC.
- *Nuclear Substance and Radiation Devices Regulations*, CNSC.
- *Packaging and Transport Regulations of Nuclear Substances*, CNSC.

- *Class II Nuclear Facilities Regulations*, CNSC.
- *Nuclear Security Regulations*, CNSC.
- *Nuclear Non-proliferation Import and Export Control Regulations*, CNSC.
- *Keeping Radiation Exposures and Doses “As Low as Reasonably Achievable (ALARA) Regulatory Guide*, CNSC.
- *Transportation of Dangerous Goods Act*, Transport Canada.
- *Transportation of Dangerous Goods Regulations*, Transport Canada.
- *Memorandum of Understanding (MOU) on the Roles and Responsibilities in the Management of Federal Grants and Awards*, The Natural Sciences and Engineering Research Council of Canada (NSERC), with the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR).