Health and Safety Procedure - Ionising Radiation

Section 1 - Key Information

Policy Type and Approval Body	Administrative – Vice-Chancellor
Accountable Executive – Policy	Chief Operating Officer
Responsible Manager – Policy	Senior Manager, Health and Safety
Review Date	6 March 2026

Section 2 - Purpose

(1) This Procedure documents the requirements for managing ionising radiation sources throughout its life cycle from procurement, handling and use, storage, and end of life transit to finite disposal. The aim is to ensure compliant safety practices of the La Trobe University Community by:

a. Limiting exposure to ionising radiation to As Low As Reasonably Achievable (ALARA)
b. Ensuring strict compliance with all pertinent legislative and licencing requirements
c. Maintaining security for both the University and wider community; and
d. Clarifying processes to prevent or minimise human or animal exposure, incidents and adverse environmental impacts.

Section 3 - Scope

(2) This Procedure applies to:

a. all La Trobe University staff and students who procure, handle, use, store and dispose of specialist equipment and materials that emit ionising radiation, and where applicable, contractors and visitors (such as visiting academics).

Section 4 - Key Decisions

Key Decisions	Role
Administering an overarching Radiation Management Plan	Health and Safety Team Radiation Safety Officer

Section 5 - Policy Statement

(3) This procedure forms part of the Health and Safety Policy suite which governs its application.

Section 6 - Procedures

Part A - Responsibilities

Managers and Leaders (including supervisors)

(4) Managers and leaders, including supervisors are responsible for ensuring that:

a. Specialist equipment and materials that emit ionising radiation are identified within areas of responsibility and documented centrally with the Health and Safety team;
b. Strict security protocols are followed and consistently maintained;
c. Licencing requirements are clarified early, sought and obtained before any Radiation Practice commences;
d. Risk assessment processes are undertaken and the identified operational controls are rigorously exercised;
e. Commensurate training and induction is undertaken and recorded;
f. Health monitoring requirements are strictly followed;
g. Local area emergency processes are developed, exercised and periodically reviewed;
h. The periodic (assurance) review of control processes and licencing provisions;
i. Plans for the “end of life” disposal of these materials and equipment.

Health and Safety Team / Radiation Safety Officer

(5) The Health and Safety Team/Radiation Safety Officer are responsible for:

a. Obtaining and managing the regulatory requirements, including licencing, for the University;
b. Managing the differing regulatory requirements across jurisdictions and report to regulatory bodies;
c. Managing the security protocols;
d. Providing oversight and monitor this procedure;
e. Providing advice on hazards and risks to consider;
f. Providing advice on risk control measures and emergency preparedness;
g. Managing and review health monitoring;
h. Supporting assurance processes;
i. Supporting incident response, investigation and share the lessons learnt across the organisation.

Direct Ionising Radiation Users

(6) Direct Ionising Radiation Users are responsible for:

a. Obtaining and maintaining the relevant Use Licence (for medical equipment, portable density gauges, servicing x-rays) when required, and ensuring requirements are in place before commencing any radiation practice;
b. Participating in processes to manage the risks associated with ionising radiation and ensure that the documents in use are current (risk assessment, safe work procedure, Safety Data Sheets);
c. Ensuring training and induction requirements are completed before any radiation practise commences;
d. Ensuring health monitoring devices (such as dosimeters) are worn and monitoring processes are strictly followed;

e. Ensuring the licencing requirements and operational controls are rigorously exercised.

Part B - All Staff and Students

(7) All staff and students are responsible for:

a. Reporting all hazards and incidents in accordance with the Health and Safety Procedure - Hazard and Incident Reporting;
b. Stopping the activity if there is an immediate or perceived risk to health and safety;
c. Following instructions and directions from incident controllers in the event of an emergency.

Part C - Contractors

(8) Contractors should refer to the Infrastructure and Operations contractor induction/guide which includes a section on handling dangerous and hazardous substances and other relevant documentation. At a minimum, control processes that are equivalent to the University's processes for managing ionising radiation need to be in place.

(9) Where a contractor is independent of the Infrastructure and Operations induction and management process, the host will ensure that the licencing requirements are sought, understood and strictly adhered to. Pre-qualification will need to occur to validate the contractors ionising radiation control processes.

Part D - Licencing and Reporting

(10) As required by the Radiation Act 2005 and Radiation Regulations 2017, the University holds a company management licence for the possession, consignment and disposal of ionising radiation sources, including radioactive material and radiation apparatus. Radiation practices, equipment type and source quantities are also strictly managed. Additionally, staff and students undertaking specific radiation practices may require individual user licencing.

(11) All proposed practices and changes to current practices will require licencing and variations to be sought and pre-approved by the Department of Health (VIC). Other jurisdictions will have different regulators with differing legislation and licencing conditions. Planning for radiation practises to occur in interstate and overseas jurisdictions will require early directional advice, including licencing from the Health and Safety team and/or Radiation Safety Officer.

(12) The University is also required to report all holdings of unsealed nuclear sources (uranium, thorium) to the federal Australian Safeguards and Non-Proliferation Office (ASNO) therefore any changes to current holdings must be reported to the Health and Safety team immediately.

Part E - Source Life Cycle

Procuring Sources

(13) The Health and Safety team will be notified through the completion of the ionising radiation projects approval form before procurement commences. This notification will trigger licencing and compliance requirements which need to be completed ahead of consignment arrival. For internationally acquired sources, importation will not be permitted until pre-authorisation is provided by the Department of Health (Vic) - Radiation.

Radiation Management Plan

(14) The Health and Safety team administer an overarching Radiation Management Plan. This is a regulatory requirement and captures an overview of the radiation practises that are occurring across the University and the plan is kept current.

(15) All new radiation practices will be documented on the Radiation Management Plan before any activity commences. Information that is required will include detail about the proposed practice, the source/s used, personal protective and monitoring requirements, the training provided and the emergency procedures in place. Additionally, and in circumstances where Dual-energy X-ray absorptiometry (DXA) equipment is used for research purposes, an ethics approval will be sought and obtained.

(16) Each radiation practise undertaken will additionally develop a detailed activity plan, incorporating documents such as a risk assessment, SDS and equipment or activity specific procedures (SOPs). The assembly of these supporting documents will be completed before any radiation practices commences, be readily available and be strictly followed.

(17) Where changes to the radiation practice are required, the plan including the risk assessment will be reviewed and adjusted before the changed activity commences. In addition, the Health and Safety team and/or Radiation Safety Officer will be notified of the proposed changes before any changed practice commences.

Handling, Storage and Disposal

(18) When handling an ionising radiation source, the user will ensure that personal protective equipment such as shielding and Perspex screens are used and protocols strictly followed.

(19) Where ionising radiation sources are transported, there are strict requirements on the containment, labelling, and methods of transport. Depending on the radiation source/device, these requirements will be stipulated on the University’s management licence conditions.

(20) Ionising radiation waste will be transferred to and stored in the central Radiation Store at the Bundoora campus. At the regional campuses, ionising radiation waste will be stored locally, as directed by the technicians and/or Health and Safety team.

(21) Unsealed ionising radiation sources with a short half-life (days to months) will remain in the storage area until their activity is less than the regularly prescribed limits and can be disposed of safely through regular waste streams.

(22) Radioactive material with a longer half-life, large sealed sources and x-ray apparatus will require specialised disposal, which is to be determined by the Radiation Safety Officer with the Health and Safety team at the required time.

(23) In circumstances where ionising radiation waste is mixed with other materials such as chemical or biological waste, the Health and Safety team and/or Radiation Safety Officer will determine the best mode of disposal.

(24) In all instances the Health and Safety team must be notified when ionising radiation waste is identified so it can be moved to storage as soon as possible.

Part F - Training

(25) Staff and students that are handling and using ionising sources will complete an adequate level of training and be provided technical guidance to ensure tasks are performed safely. The training provided will be a mix of knowledge and instruction commensurate to the inherent hazards, associated risks and aligned with individual levels of knowledge and skill. (i.e. undergraduate students VS post-doctoral researchers)

(26) The University provides specialised user training programs that are delivered by a third-party provider for:

a. Unsealed radioactive material
b. Sealed radioactive material
c. Radiation apparatus (X-rays)

d. All students and researchers will undertake a relevant program before commencing any radiation practice.

Part G - Health Monitoring

(27) Ionising radiation can potentially cause damage to biological tissue however exposure cannot be detected by the human senses. The biological effects of radiation exposure can be:

a. acute in effect, arising from exposure to a high dose in a short period of time
b. delayed in effect, arising from long-term, low-level exposure or a survived single large exposure

(28) Radiation legislation as informed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) stipulates a principle of radiation protection that will be adhered to. This principle states that persons and the environment should be protected from unnecessary exposure to radiation through the process of justification, optimisation and limitation.

(29) Optimisation is achieved by keeping individual doses as low as reasonably achievable (ALARA principle). Regulatory dose limits apply in Victoria however it is important that dose constraints are also applied to:

a. restrict doses to lower values than the occupational limit; and
b. achieve a level of protection that reflects safe radiological practices that follow the ALARA protection philosophy.

(30) When working with ionising radiation, the hazards will be managed to reduce exposure risk by strictly following the safe work procedures, using personal protective equipment, carefully monitoring the work environment, and monitoring levels of personal exposure.

(31) Individual health monitoring will be undertaken if there is potential that an individual will exceed the dose constraint specified as a fraction of the member of the public whole body dose limit of 1 mSv. Alternatively, monitoring will be undertaken if it is a condition of license for a specific activity, or use of a specific apparatus.

(32) Any staff member or student who is undertaking a radiation practice will report pregnancy immediately upon knowledge to their supervisor. A review of the radiation practice will be undertaken and an assessment made of how the work will proceed.

Part H - Emergency Management

(33) In the event of an emergency, University processes will be strictly adhered to. Leaders will also ensure that local emergency procedures are developed that take into account the properties of the ionising sources that are in use and the likely health effects, if exposure occurs.

Section 7 - Definitions

(34) For the purpose of this Procedure:

a. ALARA: is the acronym for As Low As Reasonably Achievable. It describes the ‘optimisation’ principle applied to limit exposure to ionising radiation.
b. ARPANSA: is the acronym for the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).
c. ASNO: is the acronym for Australian Safeguards and Non-Proliferation Office (ASNO).
d. DXA: Dual-energy X-ray absorptiometry.
e. Ionising Radiation: is an energy source that has sufficient energy to detach electrons from atoms or molecules

causing ionisation.

f. Radiation Practice: refers to the type of radiation source and the purpose or method for its use.
g. SDS: Safety Data Sheet.
h. Sievert (Sv): is the international standard unit of measure of an ionising radiation dose, and risk of health effects of low-level exposure on the human body.
i. Sealed Source: A sealed source is ionising radiation material that is permanently sealed in a capsule or closely bound and in solid form.
j. SOP: Standard Operating Procedure.
k. Unsealed Source: An unsealed source is ionising radiation material that is not a sealed source.
l. Use Licence: Licencing issued by the Department of Health (Vic) - Radiation or equivalent regulatory body for authorisation to use ionising radiation sources.

(35) For the purpose of this policy and procedure:

(36) Only include key terms which need to defined – for example terms which:

a. are potentially ambiguous
b. have a meaning different to their ordinary common usage, or
c. have technical/specialised meaning

(37) Refer to and link applicable definitions within the Policy Glossary wherever possible, particularly where key terms such as ‘student’ are used and which should be commonly applied across the University.

Section 8 - Authority and Associated Information

(38) This Procedure is made under the La Trobe University Act 2009.

(39) Associated information includes:

a. Health and Safety (intranet)

Status and Details

Status	Current
Effective Date	8th October 2019
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Approval Authority	Vice-Chancellor
Approval Date	26th September 2019
Expiry Date	Not Applicable
Responsible Manager - Policy	Spomenka Krizmanic Senior Manager, Health and Safety 61 3 9479 2186
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Glossary Terms and Definitions

"student" - Student is defined in the La Trobe University Act 2009 as: (a) a person enrolled at the University in a course leading to a degree or other award; or (b) a person who is designated as a student or is of a class of persons designated as students by the Council.

"staff" - Staff means any person employed by the University as per the definition in the La Trobe University Act 2009 (Vic).