

Health Safety and Wellbeing - Ionising Radiation Management Procedure

Section 1 - Purpose / Objectives

- (1) Ensure Victoria University has a system established to eliminate or minimise risk of injury, as far as reasonably possible, to all employees, students, contractors and volunteers from ionising radiation.
- (2) Ensure that the University has a system established for effective dose limit for all ionising radiation practices and use of radiation sources to a total whole body exposure of 20 mSv or less, annually.
- (3) Ensure that the University complies with the conditions of the Radiation Management Licence and other relevant legislation controlling ionising radiation.

Section 2 - Scope / Application

- (4) The plan applies across the University, all employees and research students.

Section 3 - Definitions

- (5) Nil

Section 4 - Policy Statement

- (6) Nil

Section 5 - Procedures

Roles/Responsibilities

Roles	Responsibility
Everyone working at VU	<ul style="list-style-type: none"> - Take care to avoid injury to themselves and others by following safety procedures in relation to purchasing, storing, using and disposing of ionising radiation material or apparatus. - Follow all instructions in relation to safe operating procedures in relation to ionising radiation material or apparatus. - Notify verbally and in writing, using the VU OHS Incident Recording System provided, of any hazard with potential to, or incident which has, caused injury, illness or damage to the work environment.
Executives and Leaders	<ul style="list-style-type: none"> - Support and endorse the Ionising Radiation Management Plan. - Provision of resources to meet the conditions of Victorian University's Radiation Management Licence.

Roles	Responsibility
Radiation Safety Officer	<ul style="list-style-type: none"> - Maintain the Radiation Management Licence through the Department of Health and human services. - Maintain the Ionising Radiation Management Plan. - Oversee the training and induction record keeping. - Maintain records of relevant radiation apparatus purchase, disposal and movement. - Maintain a register of thermo luminescent dosimetry monitors (TLDs). - Maintain all records of exposure from thermo luminescent dosimetry monitor (TLD) results. - Authorise persons to have fob or key access to radiation laboratories in conjunction with the Technical Manager.
Principle Researcher	<ul style="list-style-type: none"> - Ensure everyone within their project attend all relevant inductions. - Ensure all risk assessments are completed and endorsed by appropriate personnel. - Ensure all risk assessments are maintained and accessible. - Ensure all Safe Operating Procedures are in place before work commences. - Ensure all researchers adhere to best laboratory practices at all times. Ensure all incidents regarding radiation are reported promptly to the RSO.
Technical Manager/ Laboratory Technical Staff	<ul style="list-style-type: none"> - Provide inductions for new staff, students and contractors as required. - Maintain training and induction records. - Notify Radiation Safety Officer of any radiation safety concerns. - As part of an inspection process conduct radiation monitoring to establish compliance with safe practice. - Inspect radiation shielding in the room in which any radiation source is located and notify the Principle Researcher and Facilities Manager of any concerns.
OHS Team	<ul style="list-style-type: none"> - Provide advice on minimizing hazards in relation to ionising radiation source storage, usage and disposal as requested. - Ensure distribution of any information on innovative ionising radiation controls, issue alerts and improve procedures where necessary. - Source and coordinate appropriate training for the minimization of hazards in managing radiation. - Monitor results when new controls have been introduced as required.

Procedures

(7) The procurement of all radioactive material and radiation apparatus must be notified to and approved by the Radiation Safety Officer.

(8) Approval to purchase any material or any radiation apparatus which poses an ionising radiation risk should only be provided if:

- a. The Principal Researcher has completed and submitted a risk assessment for the purchase, use and disposal of all radioactive materials.
- b. Identified users have appropriate training.
- c. Required personal monitoring has been identified.
- d. Period of use and disposal of the material or equipment has been identified.
- e. The Radiation Safety Officer has considered any affect the purchase will have on the Radiation Management Licence.

(9) Current and accurate records and registers of radioactive material, radiation apparatus and personal exposure levels must be maintained at all times by the Radiation Safety Officer.

- a. Records of relevant radiation apparatus purchase, disposal and movement must be kept on a plant and equipment register.
- b. Records of all radioactive material which specifies type, quantity, responsible user and location must be maintained.
- c. A register of thermo luminescent dosimetry monitors (TLDs) must be kept.

- d. All records of results from thermo luminescent dosimetry monitoring must be maintained for a 30 year period.
- (10) Radiation Management Licence must be obtained and changed to reflect current radiation sources.
- (11) The University Radiation Safety Officer shall maintain the Radiation Management Licence. Changes to the license are required to be approved by the RSO prior to the decision to:
- Purchase of new radiation sources.
 - Relocate existing radiation sources.
 - Remove existing radiation sources.
- (12) NB The authorities can take significant time to approve such changes and this may impact on research. Allowing for same will reduce the probability of such negative impacts.
- (13) Staff must complete appropriate training and refresher training every 3 years.
- (14) The following training is required for staff working with ionising radiation:
- Staff working with ionising radiation who requires a 'Use Licence' (DXA) must complete Department of Health and Human Services recognised training that enables the staff member to obtain a Department of Health Use Licence.
 - Staff working with ionising radiation who do not require a 'Use Licence' must complete appropriate ionising radiation training.
 - All staff must complete a specific laboratory induction for either DXA or Radiation Laboratory.
 - Radiation Safety Officer must complete the specific ionising radiation training for RSO's.
- (15) Risk assessments and safe work procedures are required for all activities relating to radioactive material and radiation apparatus.
- (16) For tasks involving radioactive material and apparatus must be completed by the Principle Researcher or by the project team and then approved by the Principle Researcher. Risk assessments must document the risk controls applied and the relevant safe operating procedures established.
- (17) Risk Assessments and controls must take the following into account:
- Limiting total whole body exposure to 20 mSv or less, annually; and
 - Applying the three principles of radiological protection to ensure the exposures are as low as reasonably achievable.
 - Unless otherwise determined ionising radiation risk assessments should be reviewed every three years.
 - Disposal procedures.
- (18) Safe work procedures must take the following into account:
- Laboratory/workplace inspection.
 - Applicable personal protective equipment (PPE).
 - Applicable Shielding requirements.
 - Where appropriate, staff will be provided with a personal thermo luminescent dosimetry monitor (TLD).
 - Restricted access, including a list of authorised users who have undertaken the appropriate training.
 - Completion of a log book to record and monitor ionising radiation isotopes used activities.
- (19) Appropriate labelling, signage, shielding and storage must be established for radioactive material and apparatus.

- a. The labelling for radioactive materials shall be accurate, clear and durable.
- b. Signage shall be displayed and maintained:
 - i. on radiation apparatus; and
 - ii. in areas where radiation sources are used.
- c. Suitable storage arrangements for radioactive sources must be established with radiation shielding in the doors, walls, floor and ceiling of the room in which a radiation source is located.
- d. Access to storage and areas where radiation sources are used is restricted to authorised staff and personnel only. The Radiation Safety Officer and appropriate Technical Manager is the only person able to issue authorisation for access.
- e. Laboratory Technical Staff must conduct inspections of radiation shielding to ensure that it is maintained in the doors, walls, floor and ceiling of the room in which a radiation source is located. Any concerns about damage, changes or deterioration of shielding must be immediately notified to the Radiation Safety Officer and Principle Researcher verbally and a hazard report completed using the VU OHS Incident Recording System.
- f. Radiation Safety Officer must ensure that door; wall, floor and ceiling shielding arrangements for radiation sources are identified during the risk assessment of any area proposed to be used for activities involving radioactive material.
- g. Principle Researcher must ensure that shielding for personnel is included in the risk assessment and appropriate controls are available and used by all members of their project.

(20) Emergency Procedures must be planned and known to all users.

(21) Managers/supervisor will develop and maintain local area emergency procedures that take into account:

- a. The type and use of radiation source; and
- b. The established University emergency procedures.

(22) Notification of an incident involving radiation

- a. Following an emergency, the Principal Supervisor must:
 - i. Notify the Radiation Safety Officer; and
 - ii. Record and investigate the incident in accordance with the [OHS Incident Reporting and Investigation Procedure](#).
- b. The Radiation Safety Officer will report mandatory radiation incidents to the Department of Health.

(23) Monitoring of personal exposure to ionising radiation.

(24) TLD monitors will be issued on a three month basis to approved personnel by the Radiation Safety Officer or Technical Manager upon:

- a. Completion of the relevant training course and evidence of a Use Licence, where applicable,
- b. Completion of relevant inductions; and
- c. Completion of ethics approvals, where applicable.

(25) Disposal of radioactive material must meet regulatory requirements.

(26) Three methods of waste disposal are available and shall be determined through risk assessment:

- a. Dilution and dispersion
- b. Delay and decay

c. Containment

(27) Radioactive material activity that falls below the limits defined in Regulation 5(a)(b) of the Radiation Regulations 2007 (Vic) can be disposed of through general waste streams. Disposal through general waste streams is appropriate only if the radiation is below the defined limits and only if all radioactive labels are removed prior to disposal.

Section 6 - Guidelines

(28) Nil

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