

Radiation safety policy

POL-G-032

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1. Title

Radiation safety policy

2. Introduction

The National Museum of Australia (the Museum) is a major cultural institution charged with researching, collecting, preserving and exhibiting historical material of the Australian nation. The Museum focuses on the three interrelated areas of First Peoples history and culture, Australia's history and society since European settlement in 1788 and the interaction of people with the environment.

Established in 1980, the Museum is a publicly funded institution governed as a statutory authority in the Commonwealth Arts portfolio. The Museum's building on Acton Peninsula, Canberra opened in March 2001.

3. Background

In achieving its mandate, the Museum may collect material of national significance that includes radioactive material, or use equipment or plant that involves ionising radiation and non-ionising radiation as effective tools in researching, preserving or managing a collection.

To hold controlled radioactive material or apparatus, a Commonwealth entity must have a licence issued by ARPANSA (Australian Radiation Protection and Nuclear Safety Agency) under the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act). The Museum holds a source licence issued by ARPANSA which permits the Museum to deal with certain controlled apparatus and controlled material, in accordance with the Act, the Regulations and conditions of the licence. The Museum intends to continue to maintain an appropriate source licence as required and meet all legal and ethical obligations associated with holding source material.

Under the Australian Radiation Protection and Nuclear Safety Regulations 2018, (the Regulations) the Museum is required to have plans and arrangements in place for:

- managing the controlled material or apparatus to ensure the health and safety of people and the protection of the environment
- applying international radiation principles, including showing the net benefit from carrying out work
- showing the magnitude of individual doses, number of people exposed and likelihood of exposure are as low as reasonably achievable, having regard to economic and societal factors and
- showing capacity to comply with regulatory requirements and licence conditions.

This policy, along with relevant procedures, records and work practices, plus related documents such as the Museum's Risk management policy, Protective security policy and Work Health and Safety Management System, constitute the Museum's plans and arrangements required by the Regulations to show effective management of any controlled radiation sources.

4. Scope

This policy provides the framework for the safe and compliant management of sources of radiation found within the Museum's collections, buildings, plant and equipment, including onsite and off-site exhibitions and displays. Such material or apparatus may be used or held across a range of Museum activities, including being present in buildings, plant and equipment, exhibition displays, construction, education, digital presentations and collection development and management.

It provides direction to ensure that the Museum meets its legal obligations to protect the health and safety of people and the environment from the harmful effects of radiation under the Act and accompanying Regulations. The policy will be used to guide operational and business purchases and procedures and collection acquisitions.

5. Commitment to radiation safety

The Museum is committed to:

- providing a workplace that is safe and healthy for workers and the public
- minimising environmental impacts from any Museum activities that involve radiation materials or apparatus
- complying with the Act and Regulations, including source licence conditions
- implementing relevant international and national standards and codes of practice for radiation
- considering and observing the principles of the International Commission on Radiation Protection when handling such material:
 - justification: introduction of a radiation source should result in sufficient individual or societal benefit to offset the detriment it causes
 - optimisation: the magnitude of the individual exposure and the number of people exposed should be kept as low as reasonably practicable
 - dose limits: should not exceed the appropriate recommended limits
- replacing radioactive materials or processes with safer alternatives when practicable.

6. Commitment to continuous improvement

Under Work Health and Safety (WHS) and environmental laws, the Museum is required to continually assess and improve the safety and health impact of our activities. The Museum is committed to continuous improvement in its radiation management through the following:

Risk assessment

- All potentially hazardous acquisitions, research or operational work involving radiation shall only be undertaken after a risk assessment of the work has been done and the risk owner is satisfied that the acquisition or work is justified, that the hazards associated with the work are controlled as far as reasonably practicable and the risk is acceptable.
- The risk assessment for any potential collection acquisition involving radiation is to include display, access, handling and storage safety requirements plus whole-of-life management costs.

Inventory

- Maintaining an accurate inventory of controlled material and apparatus as required by ARPANSA.

Reporting, incident and compliance management

- Reporting to ARPANSA, as required under the Regulations, including annual reporting about compliance for the previous 12 months, and incident reporting where there is an implication for safety.
- Internal incident reporting following the Museum WHS framework. In the event of a notifiable incident there is the requirement for dual reporting to both ARPANSA and ComCare.

- Incident and hazard notification following the Museum WHS framework including follow-up to reduce or remove any unacceptable risks revealed by the incident.

Training

- Providing information, instruction, training and supervision for workers as applicable. Any person who deals with, or maintains, controlled material or apparatus must be appropriately trained in radiation safety and, where relevant, in its use or operation.

Safe work procedures and work practices

- Providing relevant safe work procedures and guidelines for the management and use of any controlled material or controlled apparatus.
- Records and practices in relation to controlled apparatus and controlled material are documented, approved by the Radiation Safety Officer or WHS Manager, maintained and followed.
- Procedures and work practices for routine collection-related work involving controlled radiation sources are outlined in the Collection Radiation Safety Procedures. These are readily accessible, maintained for accuracy and relevance and reviewed concurrently with this policy, in line with the Regulations.

Consultation

- Effective staff consultation in process development and implementation.
- RSO regularly reporting to WHS Committee or other relevant safety committee or working group.

Acquisition, modification, transfer or disposal

- Reviewing and, where applicable, seeking approval from ARPANSA prior to acquiring, modifying, transferring or disposing of any controlled apparatus or controlled material in accordance with the source licence and ARPANSA approved methods or processes.
- Prior to acquisition, controlled material or controlled apparatus must be covered by the Museum's existing source licence or be considered exempt by ARPANSA.

Health monitoring

- Providing health monitoring, rehabilitation and counselling where appropriate.

Administration and management

- Providing an adequate, responsible budget, including consideration of licence fee, radiation monitoring, facilities, protective equipment and training.
- Paying the annual licence charge.
- Reviewing and updating plans and arrangements for radiation safety in line with the Regulations at least every three years.
- Providing a positive and consistent example of work health and safety at all levels of administration and supervision.

Compliance

- Adhering to legislation, regulations, source licence conditions, national and international standards, codes of practice, and relevant Museum policies and procedures.

7. Definition of terms

ARPANSA	Australian Radiation Protection and Nuclear Safety Agency is the Australian Government's primary authority on radiation protection and nuclear safety and regulates Commonwealth entities using radiation with the objective of protecting people and the environment from the harmful effects of radiation.
Controlled apparatus	Analytical apparatus or equipment utilising either ionising or non-ionising radiation requiring licencing with ARPANSA.
Controlled material	Source of either ionising or non-ionising radiation – within the Museum context this is usually associated with a collection object, plant or equipment requiring licencing with ARPANSA. For the avoidance of doubt, collections covered by this policy include the National Historic Collection, the Museum Collection, the Archive Collection, Library Collection, Education Collection and Exhibition Specialty Prop Collection.
Licence holder	Director, National Museum of Australia. The person to whom the source licence is issued (see section 8 below).
Licence nominee	Assistant Director, Discovery and Collections, National Museum of Australia (see section 8 below).
Notifiable incident	The Museum must notify ComCare immediately if there is the death of a person, or a serious injury or illness of a person, or a dangerous incident in the workplace.
Radiation Safety Officer (RSO)	Provides advice on radiation safety matters to maintain a high standard of radiation safety (see section 8 below).
Radiation source	Radioactive material, radiation apparatus or sealed source apparatus.
Radiation worker	Where it is expected a worker will be exposed to radiation because of their employment, the worker must not exceed the prescribed dose limits. A woman who is, or may be, pregnant should not exceed the annual limits for a member of the public.
Source licence	Allows an entity to deal with controlled material or controlled apparatus.
WHS Committee	The consultative work health and safety forum as defined in the Museum Health and Safety Management Arrangements and the Work Health and Safety Act 2011.
Worker	Under the <i>Work Health and Safety Act 2011</i> , a worker includes any person who works, in any capacity, in or as part of the Museum. This includes employees, contractors, students and volunteers.

8. Definition of responsibilities

All Museum staff must comply with the Museum's Work Health and Safety Management System.

Museum position	ARPANSA position
Director	Licence Holder
<p>Holds the source licence issued by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). The licence holder is responsible for ensuring compliance with ARPANSA regulations and any conditions set out in the source licence.</p> <p>If the applicant is sufficiently removed from the source dealing that they cannot demonstrate effective control, the name and contact details of a person more directly in control of the source dealing (the licence nominee) must be provided to ARPANSA.</p>	

Museum position	ARPANSA position
Assistant Director, Discovery and Collections	Licence nominee
<p>As delegated by the Director, the licence nominee is responsible for ensuring compliance with ARPANSA regulations and any conditions set out in the source licence.</p>	

Museum position	ARPANSA position
Head, Collection Care and Management (CCM)	RSO Manager
<p>Has the effective control of the dealings in controlled material and apparatus. This position is responsible for managing and reporting on the Museum's compliance with the Act, the Regulations, the special licence conditions under which the Museum holds its ARPANSA licence and the Museum's Radiation safety policy and procedures.</p> <p>The Head, CCM is responsible for the management and maintenance of a complete and current register of all collection-related controlled sources and apparatus and is responsible for the storage, movement and tracking of the Museum's collection items.</p>	

Museum position	ARPANSA position
Manager, Security and Fire Safety	n/a
<p>Responsible for managing the security of Museum property, including controlled source collection items and controlled ionising and non-ionising apparatus for use in analysis. These controlled collection items and controlled apparatus are managed in a manner consistent with the day-to-day duties of the Museum security officers and contractors but with consideration of the radiation policy and procedures.</p>	

Museum position	ARPANSA position
Radiation Safety Officer	Radiation Safety Officer (RSO)
<p>Responsible for:</p> <ul style="list-style-type: none"> • providing advice on radiation safety matters to maintain a high standard of radiation safety • maintenance and upkeep of the register, including scheduled reviews • assisting with the investigation of any incident or dangerous occurrence within their jurisdiction • assisting with regulatory and licencing matters • liaising with supervisors, staff and WHS on radiation safety matters • reviewing procedures, induction and training requirements for users dealing with radiation • ensuring a system of personal radiation monitoring is in place and results are available to workers • assisting and providing advice on potential radiation exposures • inspecting radiation monitoring devices and arranging testing and calibration as required • inspecting areas where radiation is used or stored and providing reports and recommendations to management • contributing to the safe management of radioactive wastes and equipment • facilitating and reporting on radiation incidents, exposures or hazards within their jurisdiction. 	
Museum position	ARPANSA position
Radiation worker	Radiation worker
<p>The legislation sets out annual radiation limits for the public and higher occupational limits for exposure to ionising radiation. Where it is expected a worker will be exposed to radiation because of their employment, the worker must not exceed the prescribed occupational dose limits. Depending on the situation workers who are ‘occupationally exposed’ may need to wear a personal dosimeter to track their exposure.</p> <p>A woman who is, or may be, pregnant should not exceed the annual limits for a member of the public.</p> <p>Museum radiation workers must:</p> <ul style="list-style-type: none"> • receive additional training in radiation identification and mitigation, including familiarity with any relevant safe work procedures • be issued a personal dosimeter and follow the procedures for use and reporting • minimise any exposure through good design of facilities, equipment, operating procedures and training (optimisation of radiation protection) • limit all ionising radiation exposure to the public exposure limit unless a risk assessment has been signed at the appropriate risk level • if pregnant, or may be pregnant, minimise any ionising radiation exposure and keep all exposure to the public exposure limit • follow any relevant SWP including use of appropriate PPE. 	

9. References

Legislation

- *Australian Radiation Protection and Nuclear Safety Act 1998 (Cth)*
- Australian Radiation Protection and Nuclear Safety Regulations 2018
- *Work Health and Safety Act 2011 (Cth)*

Codes and standards

- RPS F-1 Fundamentals for Protection Against Ionising Radiation (2014)
- RPS C-1 Code for Radiation Protection in Planned Exposure Situations (Rev.1) 2020
- RPS 12 Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation (2006)
- RPS C-6 Code for Disposal of Radioactive Waste by the User (2018)
- Australian/New Zealand Safety Standard: Safety in laboratories Part 4: Ionizing Radiations (AS/NZ 2243.4:2018)
- Australian/New Zealand Standard: Safety in laboratories – Non-ionising Radiations – Electromagnetic, Sound and Ultrasound (AS/NZ 2243.5:2004)
- ARPANSA Regulatory Guide UV emitting apparatus case studies v2.2

10. Implementation

10.1 Coverage

This policy applies to all radiation sources that are considered controlled material or apparatus by ARPANSA held by the Museum or used on Museum premises.

10.2 Exclusions

There are a range of radiation examples that ARPANSA do not consider as controlled sources and therefore do not require licencing. Some examples include:

- a) items with radiation levels below exemption limits set in the Regulations
- b) a smoke detector designed and made in accordance with AS 3786:2014
- c) an optical source emitting UV-A (315-400nm)
- d) radiation emitted by welding
- e) some laser equipment (laser product with an accessible emission that does not exceed the accessible emission limits of a Class 3R laser product, as set out in AS/NZS IEC 60825.1:2014)
- f) radiofrequency equipment used for communications
- g) a biological safety cabinet (laminar flow or biohazard) with a failsafe interlocking system
- h) a geological sample that is being used for teaching or display as a geological specimen.

10.3 Monitoring

The Museum can also apply to ARPANSA for an exemption where a UV apparatus can be considered **not** to be a controlled source because failsafe system interlocks and other controls are in place to minimise any potential exposure.

Where material is considered exempt, the Museum will aim to follow best-practice radiation principles to the management of the exempt material.

The policy will be reviewed within a three-year period in accordance with the regulations.