

# Health, Safety and Environment Management System

## HSE-PRO-003 Ionising Radiation Procedure

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# 1 Intent

To document and communicate James Cook University's (JCU) legal requirements for radiation safety at JCU and provide a framework for possession licensees, Radiation Safety Officers and users of radiation sources to meet their obligations.

# 2 Scope

This Procedure applies to all JCU workers, students, volunteers and visitors using ionising radiation sources for JCU activities.

This Procedure excludes non-ionising radiation sources activities. This content will be covered under the HSE Non-Ionising Procedure.

Controlled Entities are required to demonstrate compliance with relevant radiation legislation and standards.

Radiation sources and apparatus are used in the following context:

- JCU uses radioactive sources for teaching and research purposes.
- JCU has radioactive apparatus including analytical instrument and diagnostic instruments.
- Non-ionising radiation is not included within this procedure.
- Lasers are not covered within the scope of this document.

This Procedure applies to students undertaking clinical placement as part of JCU coursework or research.

For students undertaking clinical placement as part of their course or where JCU staff work in off-campus facilities such as teaching hospitals, research organisations or privately owned laboratories, local radiation safety rules will apply and must be followed by JCU workers and students.

If no Policy or Procedure is in place for relevant radiation activities, the person shall not be placed at the organisation.

Approved placements will be subject to the host organisation having relevant and adequate radiation safety Policies and Procedures implemented.

JCU Workers, students, researchers, volunteers, and adjuncts must adhere to the host organisation's Policies and Procedures whilst undertaking the placement.

### 3 Definitions

Accredited Person	A person who is the holder of an Accreditation Certificate issued under the Radiation Safety Act 1999. The person who determines whether or not a radiation source or premises meets the applicable Radiation Safety Standard. A list of accredited persons can be provided by Radiation Health.
Authorised User	A holder of a user licence under the <i>Radiation Safety Act 1999</i> or a person who is exempt from holding a user licence, which is stated in the practice Radiation Safety and Protection Plan (RSPP).
Dose	A generic term which may mean absorbed dose, equivalent dose or effective dose depending on context.
Ionising Radiation	Radiation which is capable of causing ionisation, either directly (e.g. radiation in the form of gamma rays and charged particles) or indirectly (e.g. radiation in the form of neutrons).
Ionisation	The process by which one or more electrons are removed from, or sometimes added to, an atom leaving the atom in a charged state.
Possession Licensee	A person or corporation who holds a possession licence.

### 4 Duty, Obligations and Responsibilities

#### 4.1 Possession Licensee

Possession licensees have responsibilities in setting the conditions under which the radiation sources are used. These are to:

- Ensure that compliance certificates are obtained for premises and equipment where required under legislation.
- Ensure that Radiation Safety and Protection Plans are submitted for approval to Radiation Health and put into effect in the practices authorised by the possession licence.
- Ensure that an Approval to Acquire is obtained from Radiation Health before acquiring radioactive substances or radiation apparatus.
- Ensure that an appropriately certified person is appointed as Radiation Safety Officer for each of the practices authorised under the possession licence.
- Ensure that the procedures are followed.

#### 4.2 Radiation Safety Officer

Under the legislation, a Radiation Safety Officer (RSO) must be appointed to carry out the legislative functions for each radiation practice within JCU.

The specific functions of the RSO are to be detailed in the licensee's RSPP. Responsibilities include:

- Be adequately informed of the radiation hazards associated with the practice.
- Ensure that all facilities and equipment continue to comply with the applicable Radiation Safety Standards issued under the Regulation and that current compliance certificates are held.
- Provide (or arrange for) instruction and training in radiation safety principles and safe working methods for persons who use radiation sources.
- Ensure that all persons are assessed for competence in practical radiation safety.
- Maintain accountability for radiation sources used under the possession licence authority and ensure the licensee is adequately informed of any issues that might affect radiation safety or of any actions needed to be taken to ensure compliance with the Plan or Regulation.
- Keep the required records, e.g. radiation monitoring results, equipment maintenance, source shipments, waste management etc. records should also be kept of the training given to workers in radiation safety.
- Supervise the management of radioactive waste and provide specialist advice and assistance where necessary to ensure safety, e.g. incident recovery and clean-up operations.
- Assess new projects for compliance with safety requirements. The RSO must ensure that records are kept of all assessments and approvals.

#### **4.3 Individuals (JCU Worker, Students, Adjuncts and Volunteers)**

Persons who work with / use radiation are required to undertake the approved training and obtain licenses to allow them to use radioactive sources, radioactive substances and radioactive apparatus.

## **5 Possession Licence**

A possession licence is held by an individual, granted under the *Radiation Safety Act 1999* that is required to be obtained by a person seeking to possess or be in control of a radiation source, for a particular purpose.

At JCU, the possession license is held within the College, Division or Directorate.

Under the Act, the possession licensee must ensure they uphold the responsibilities and obligations of the licence. These are outlined in the section following.

### **5.1 Radiation Safety and Protection Plans**

Each College / Division with a radiation source must develop and implement a Radiation Safety and Protection Plan (RSPP).

The RSPP must be approved and certified by Radiation Health under the legislation.

The RSPP must clearly:

- a) Identify all of the radiation or radiation related hazards in the licensee's practice;
- b) Detail how the licensee manages these hazards to reduce health and environmental risks. This includes the safe working and emergency procedures relevant to that College / Division. As a minimum the RSPP must address the following matters:
  - i. preventing unauthorised access
  - ii. provision of training about radiation hazards and safe working practices to each categories of persons
  - iii. the safe work methods and procedures that are required to be complied with when handling radiation sources
  - iv. how ancillary imaging equipment is to be used
  - v. quality control procedures
  - vi. the safety devices that are to be provided
  - vii. the personal protective equipment to be provided
  - viii. the personal monitoring devices to be provided
  - ix. the personal alarm dose meters to be provided
  - x. the radiation monitoring equipment to be provided
  - xi. if the radiation source is used to carry out a diagnostic, therapeutic or cosmetic procedure on a person the requirement to maintain a register of procedures
  - xii. information on radiographs / images
  - xiii. duration of procedure on a patient
  - xiv. production of the radionuclide Radon - 222
- c) Specify what structures or organisational arrangements the licensee has in place to ensure, on an ongoing basis, that the licensee's plan is being adhered to and the radiation hazard is being adequately managed.

The possession licensee must implement the measures detailed in the Plan, and take all reasonable steps to ensure that:

- a copy of the RSPP is available for inspection by the users
- users have undergone the training program mentioned in the RSPP.

The RSPP must be complied with by all authorised users.

The possession licensee may apply to Radiation Health to change their approved RSPP by completing the approved application form.

## 5.2 Appointment of a Radiation Safety Officer

The *Radiation Safety Act* 1999 requires each possession licensee to appoint a Radiation Safety Officer (RSO, See [Appendix 1](#)).

A RSO is a person who has the required knowledge and skills for the specific practice type as demonstrated by holding a Radiation Safety Officer Certificate.

The main function of the RSO is to advise the licensee on radiation safety in the College / Division / Directorate that they represent

The possession licensee will need to verify that the person they appoint as the RSO holds a current Radiation Safety Officer Certificate with an authorisation relevant to the radiation practice.

JCU requires an appointed RSO to be:

- an individual within that College, Division or Directorate; and
- ideally not the current possession licensee.

This is not a legal requirement, but considered best practice at JCU to ensure a clear separation of duties between the RSO and possession licensee. However, application can be made to the Director, Dean, Deputy Vice-Chancellor (DVC) for consideration where no suitable RSO candidate exists. In such cases, the Director, Dean, DVC may approve an individual to hold a dual role of possession licensee and RSO.

The possession licensee will then make application to Radiation Health once the following training criteria are satisfied:

- hold a Radiation Safety Officer Certificate granted under the Radiation Safety Act 1999; or
- hold a qualification prescribed in Schedule 5 of the Radiation Safety Regulation 2010, relevant to the practice.

Generally only one RSO is appointed for each particular practice or College / Division / Directorate. Where an RSO will be absent for an extended period of time, arrangements should be made for an alternative point of contact in the absence of the RSO. This could be the HSE Biological, Radiation and Chemicals Advisor.

### **5.3 Approval to Acquire**

Prior to acquisition of a radiation source, the possession licensee must make the Director / Dean aware of the planned purchase in writing.

The possession licensee must hold the licence for the particular purchase and the approval to acquire issued under the Radiation Safety Act.

The acquisition of the radiation source needs to be completed within the terms of the approval:

- Approvals to acquire unsealed radioisotopes are issued for either one-off or continuing supply; and
- Approvals for sealed sources or X-ray machines are only issued on a one-off basis

The RSO can advise regarding the status and nature of continuing approvals and assist in applying for a new approval if one is necessary.

Sending equipment to the supplier for repair or maintenance will also require approvals.

Related Information:	<a href="#"><u>Approval to Acquire a Sealed Radioactive Substance</u></a> <a href="#"><u>Approval to Acquire an Unsealed Radioactive Substance or Iodine-125 Seeds</u></a> <a href="#"><u>Approval to Acquire a Radiation Apparatus</u></a>
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## 5.4 Approval to Relocate

An Approval to Relocate from Radiation Health is required if the possession licensee wishes to relocate a radiation source to a place outside of Queensland's jurisdiction (whether inside or outside Australia).

The granting of this approval is subject, amongst other things, to the possession licensee complying with any intergovernmental agreement or international treaty about the movement of radiation sources.

To help ensure this, the written approval for the proposed relocation, by Radiation Health, into the locality to which the applicant proposes to relocate the source, must accompany the application for Approval to Relocate.

The possession licensee must notify Radiation Health within seven days of the relocation being effected.

An Approval to Relocate is not required if the possession licensee is remaining in possession of the radiation source, e.g. if the source is being sent to an interstate service company for maintenance, repair etc.

## 6 Project Approvals

Prior to applying for a research project that involves radiation apparatus or sources, the applicant must receive in concept, approval from the relevant RSO and College Manager or Dean. This is to indicate that, if approved, the project will be supported.

Once the project approval is received, the required steps to use the source or apparatus must be put in place.

Projects will broadly fit two categories:

- There is an existing isotope or apparatus in use and this is already documented in a radiation safety plan. This will involve minor changes to allow use.
- There is no existing use of an isotope or apparatus, and there is no documented radiation safety plan. Involving a reasonable investment of time and money to progress.

The projects are to be tabled at the JCU Radiation Safety Sub Committee.

## 7 Customs-Prohibited Import Approval (Radioactive Substances Only)

Where a researcher wishes to import radioactive materials into Australia, they must obtain approval for the import from the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

The relevant Director / Dean must approve of the intended purchase.

## **8 Use of Materials Regulated by the Nuclear Non-Proliferation (Safeguards) Act 1987**

Various isotopes for example uranium and thorium, are subject to this Commonwealth Legislation and JCU maintains a permit issued under that Act which allows their possession.

The permit requires JCU to complete a physical inventory taken as at the 30th June each year and submit a report to Australian Safeguards and Non-Proliferation Office (ASNO) of the inventory and inventory changes.

Currently a possession licence is not required from Radiation Health for these materials. This requirement will be introduced at an undefined time.

This material is currently stored and not used for any purpose. Any proposed use of the material will have to be reviewed and approved.

## **9 Using Radiation Sources**

Users of radiation sources are exempt from holding a user licence when:

- participating in JCU teaching practices; and / or
- using radiation sources under the supervision of an authorised user and in the presence of an appropriate licensee.

Some sub-licensable sources, or those with significant engineering controls, may be used by unlicensed persons under exemptions given under the *Radiation Safety Regulation 2010*. The list of exempt radiation sources is provided as [Appendix 2](#) of this Procedure.

There are no exemptions, however, if a person is seeking to use a radiation source for the irradiation of another person for a diagnostic or therapeutic procedure. These persons must hold an appropriate user licence or be supervised during the activity. Where activities are conducted at other entities such as Qld Health the requirements of the controlling organisation will apply.

The RSPP must state the exemptions for non-licensed users.

All other users of apparatus or radioactive materials are required to hold user licences under the Act.

# 10 Radiation Monitoring

## 10.1 Dosemeter

Dosemeters are to be supplied and worn if the practice involves the use of ionising radiation sources specified in the regulation and when there is a potential external exposure to radiation.

A dosimeter is used to monitor personnel exposure to ionising radiation and may be worn on the trunk or finger depending on the radiation source and point of exposure. The person issued the dosimeter must wear the device when using the radiation source. As reasonably practical ensure the dosimeter is only exposed to ionising radiations that impact the wearer during the normal course of work.

It is a requirement that the RSPD must clearly detail if dosimeter monitoring is required. The request for a dosimeter is sent to the HSE Unit specifically the HSE Biological, Radiation and Chemicals Safety Advisor.

The HSE Unit maintains a central register of wearers and cost centres.

The exposure monitoring results are to be sent by the HSE Unit to each of the Radiation Safety Officers.

## 10.2 Real Time Instruments

Real time radiation monitoring instrumentation is used to monitor radiation sources, assess potential exposure and determine if contamination is present.

The instrumentation must be selected carefully ensuring the device can measure the spectrum of radiation released from the particular source of radiation, and is providing a measurement suitable for the intended assessment.

The instrument will need external calibration as required by the regulator (Qld Radiation Safety) and manufacturer. A record of the calibration must be retained by the owner of the equipment. The instrument will need to have a sticker displaying the calibration period.

## 10.3 Dose Limit (Exposure Standard)

The dose limits for radiation are set out in the document, Recommendations for Limiting Exposure to Ionising Radiation (1995) (Guidance note [NOHSC:3022 (1995)]) and National Standard for limiting Occupational Exposure to Ionising Radiation [NOHSC:1013 (1995)].

Table 1: Ionising Radiation Dose Limit

Application	Dose Limit	
	Occupational	Public
Effective Dose Limit	20 mSv per year, averaged over a period of 5 consecutive calendar years	1 mSv in a year *1

Effective Dose limit in a Single Year	50 mSv	
Equivalent Dose Limit		
In the Lens of the Eye	150 mSv per year	15 mSv
In the Skin	500 mSv per year	50 mSv
In the Hands and Feet	500 mSv per year	-

N.B.\*1 the public dose limit applies to females workers when they are pregnant.

## 10.4 Wipe Samples

When direct monitoring is not suitable wipe or smear testing should be used.

In such a test the surface is wiped with absorbent material and an appropriate counter used for measurement. Guidance on this method is found with AS2243.4-1998 Safety in laboratories Part 4: Ionising radiations.

## 10.5 Certificates of Compliance

It is the responsibility of the possession licensee to ensure the radiation sources and the premises where they are used, or where radioactive substances are stored, comply with the relevant Radiation Safety Standards whenever the radiation practice is being carried out.

Information sources for designated radiation premises can be found in:

- PR100:2010 Standard for premises – Ionising Radiation Sources
- AS2243.4-1998 Safety in laboratories Part 4: ionising radiations

Compliance with the relevant Radiation Safety Standard is required for radioactive substances stores, prior to approvals to acquire such sources, being granted.

To comply with this certification requirement, the possession licensee will need to engage a suitably accredited person to assess the radiation source or premises.

If the accredited person finds that the radiation source or premises meets the applicable Radiation Safety Standard, a Certificate of Compliance will be issued. A compliance sticker must be displayed for the term of compliance.

Re-assessment of the radiation source or premises is required before the end of the period in order to obtain a new Certificate of Compliance.

The certificates of inspection for apparatus and designated must be kept by the possession licensee and a copy provided to the JCU HSE Unit.

Related Information:	<a href="#">PR100:2010 Standard for premises - Ionising Radiation Sources</a>
	AS 2243.4-1998 Safety in laboratories Part 4: Ionising radiations

## **11 Disposal of Radiation Sources**

Prior to disposal of radiation source, the possession licensee must make the Director / Dean aware of the planned disposal in writing.

### **11.1 Disposal of Radioactive Material, Liquid, Waste, Solids**

Possession licensees may dispose of radioactive material, in a manner consistent with their Radiation Safety and Protection Plan, if the concentration of radionuclides in the material is less than that prescribed in the Radiation Safety Regulation 2010.

The responsibility for classification, labelling and storage of radioactive wastes rests with the generator of the waste.

Wastes are to be stored in a location suitable for the type of waste. The waste storage area should be signed.

The radioactive waste container is to be labelled with:

- Date of packaging
- Radioactive symbol
- Name of the person packaging the waste
- Type of waste (liquid or solid)
- Activity level at time of storage

An Approval to Dispose from Radiation Health is required if the possession licensee wishes to dispose of radioactive material in excess of the disposal levels prescribed in the Regulation. Such material will then be disposed of through the Regulator or a company that is a licensed disposal company.

### **11.2 Disposal of Radiation Apparatus**

Possession licensees may dispose of a radiation apparatus by rendering it incapable of producing radiation.

The possession licensee must ensure the device is disposed of in an appropriate and compliant manner which takes into account the disposal of any other hazardous components that may make up any part of the device such as lead shielding, beryllium, or polychlorinated biphenyl contaminated oil.

Radiation Health must be notified of the disposal, in writing, within seven days after the disposal has been effected.

A record of the disposal of apparatus will need to be retained.

## **12 Radiation Safety Sub Committee**

The JCU Radiation Safety Sub Committee reports to the Health, Safety and Environment Advisory Committee (HSEAC).

The Radiation Safety Sub Committee was established to monitor and advise on all radiation issues arising from practices authorised under possession licences issued to JCU as a corporation and to its Colleges, Divisions and Directorates.

Any new radiation sources, apparatus or processes proposed, will need to be raised at the Radiation Safety Sub Committee meetings.

The disposal of any radiation sources or apparatus will need to be raised at the Radiation Safety Sub Committee meetings.

## **13 Training**

Before any persons begin work with radiation or radioactive substances, they shall receive training appropriate to the nature of the tasks to be undertaken.

Training requirements for a specific Division, College, Institute, or Directorate can be discussed with, and agreed to with the HSE Biological, Radiation and Chemicals Safety Advisor and the Radiation Safety Sub Committee.

### **13.1 Possession Licensee**

Possession licensee must complete training in their obligations once appointed.

The training will be renewed when the Radiation Sub Committee or possession licensee believe that enough change has occurred in the legislated requirements to require retraining.

### **13.2 Radiation Safety Officer**

A RSO must be qualified.

A qualified person must attend the approved RSO training and hold a current Radiation Safety Officer Certificate with an authorisation relevant to the radiation practice.

The approved RSO training must include risk assessment and hazard identification training. The currency of this training will expire at the full term of the RSO licence.

Refresher training must be undertaken when either the RSO or the radiation safety committee believe:

- Enough changes have occurred in the legislated requirements; or
- Three years has passed from the date of initial training.

### 13.3 Users of Radiation Sources

It is a requirement of the possession licence that all users have undergone both:

- Appropriate external user licence training.
- The training program that is outlined in the RSPP.

### 14 Records

All radiation safety records that are outlined in this procedure must be provided to the HSE Unit for recordkeeping. Records include:

- User licenses
- Compliance inspection certificates.
- Current Radiation Safety Protection Plans
- Evidence of training

The HSE Unit maintains a central register for all JCU possession licensees and RSOs. Possession licensees and RSOs must promptly provide the HSE Unit with any changes to their licences to enable the register to be kept up-to-date.

Related Information:	JCU possession licensees and RSOs register
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### 15 Related Documents, Legislation and Other Resources

#### 15.1 Related Documents and Other Resources

Application	<a href="#">Approval to Acquire a Sealed Radioactive Substance</a> <a href="#">Approval to Acquire an Unsealed Radioactive Substance or Iodine-125 Seeds</a> <a href="#">Approval to Acquire a Radiation Apparatus</a>
Register	Central Register Maintained by HSE Unit (Certification, Possession Licence, User Licence).  Dose Meter Central Register Maintained by HSE Unit

#### 15.2 Regulatory Authorities and Other Relevant Entities

[Radiation Health](#)

#### 15.3 Related Legislation, Codes of Practice and Procedures

Legislation	Radiation Safety Act 1999 Radiation Safety Regulation 2010 Environmental Protection Act 1994 Nuclear Non-Proliferation (Safeguards) Act 1987
Codes of Practice	Not applicable
Standards	<b>Standards for health related equipment</b> <a href="#">HR001:2010 Standard for radiation apparatus used to carry out plain-film diagnostic</a>

<u>radiography</u> <u>Alternative image quality test (test 11) for HR001:2010 - Planmeca units</u> <u>Alternative image quality test (test 11) for HR001:2010 - Instrumentarium units</u> <u>HR002:2010 Standard for radiation apparatus used to carry out radioscopy</u> <u>HR003:2010 Standard for radiation apparatus used to carry out computed tomography</u> <u>HR004:2010 Standard for radiation apparatus used to carry out film-screen mammography</u> <u>HR005:2010 Standard for radiation apparatus used to carry out intra-oral dental diagnostic radiography</u> <u>HR006:2010 Standard for Class 4 lasers used to carry out cosmetic or health related procedures on human beings</u>
<b>Standards for non-health related equipment</b> <u>NM001:2010 Standard for radiation apparatus used to carry out plain film radiography of inanimate objects</u> <u>NM002:2010 Standard for cabinet radiation apparatus used to carry out fluoroscopic or radiographic imaging of inanimate objects</u> <u>NM003:2010 Standard for radiation apparatus used to carry out diagnostic radiography of animals</u> <u>NM004:2010 Standard for radiation apparatus used to carry out industrial radiography</u> <u>NM005:2010 Standard for radiation apparatus used to carry out chemical analysis</u> <u>NM006:2010 Standard for radiation apparatus used to carry out industrial gauging</u> <u>NM007:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out industrial radiography</u> <u>NM008:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out chemical analysis</u> <u>NM009:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out industrial gauging</u> <u>NM010:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out borehole logging</u> <u>NM011:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out moisture/density measurements</u> <u>NM012:2010 Standard for radiation apparatus used to carry out sterilisation</u> <u>NM013:2010 Standard for sealed radioactive substances incorporated in sealed source apparatus used to carry out sterilisation</u>
<b>Standards for premises</b> <u>PR100:2010 Standard for premises - Ionising Radiation Sources</u> <u>PR008:2010 Standard for premises at which Class 4 lasers are used to carry out cosmetic or health related procedures</u>

## 16 Administration

NOTE: Printed copies of this Procedure are uncontrolled, and currency can only be assured at the time of printing.

### 16.1 Approval Details

HSE-PRO-003 Procedure Sponsor	Associate Director, Health, Safety and Environment
Approval Authority	DVC Services and Resources
Consultation Committee	HSE Unit, HSEAC Sub Committees and Divisional HSE Committees
Approval date	23/10/2015
Implementation date	23/10/2015
Date for next review	24/10/2017
Contact Unit	<a href="mailto:safety@jcu.edu.au">safety@jcu.edu.au</a>

## 16.2 Revision History

Version	Date Amended	Description of changes	Author
1.0	23/10/2015	Procedure established	HSE

Keywords	
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## 17 Schedules

Not applicable

## 18 Appendices

## 18.1 Appendix 1: JCU Possession Licensees and RSOs

Division	College, Directorate, Centre	Position	Name
Division of Research and Innovation	Advanced Analytical Centre(AAC)	Possession Licensee	Kevin Blake
Division of Tropical Environments and Societies	College of Science, Technology and Engineering		Peter Junk
Division of Tropical Environments and Societies	College of Science, Technology and Engineering		Peter Robertson
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		Alan Baxter
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		Peter Chenworth
Division of Research and Innovation	Advanced Analytical Centre(AAC)	Radiation Safety Officer	Yi Hu (appointed)
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		Ray Layton
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		TBA
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		John Cavalieri
Division of Tropical Health and Medicine	College of Public Health, Medical & Veterinary Sciences		Serrin Rowarth
Division of Tropical Environments & Societies	College of Science Technology & Engineering		TBA
Division of Tropical Environments & Societies	College of Science Technology & Engineering		Christa Placzek

## 18.3 Appendix 2: Exempt Radiation Sources

The following radiation sources have been listed as exempt from being required to be used by a user licensee.

- a) a sealed source apparatus, incorporating a sealed radioactive substance, used for chemical analysis or industrial gauging
- b) a radiation apparatus used for industrial gauging
- c) a cabinet radiation apparatus used for its intended use
- d) an enclosed radiation apparatus used for its intended use
- e) an ionising radiation source designed only for irradiating things, but not including use of the source by a person who is carrying out commissioning, maintenance or repair of the source

*Note: This does not apply to an ionising radiation source designed for irradiating individuals.*

- f) a sealed radioactive substance, having an activity of not more than 370MBq, used for-
  - i. calibration checks of measuring instruments; or
  - ii. quality control procedures undertaken for-
    - 1. another radiation source or a sealed source apparatus; or
    - 2. if another radiation source is used to carry out a radiation practice involving the production of images - any ancillary imaging equipment used in connection with the use of the other source to carry out the practice
- g) a sealed radioactive substance, having an activity of not more than 4MBq, used for transferring anatomical landmarks to images produced using a gamma camera
- h) a radioactive substance, having an activity of not more than 500kBq, used for an in vitro test
- i) a sealed radioactive substance used for static elimination
- j) a fully enclosed analytical radiation apparatus used for its intended use
- k) a laser apparatus designed only for puncturing a person's skin to obtain capillary blood samples but not including use of the apparatus by a person who is carrying out maintenance or repair of the apparatus
- l) a radioactive substance incorporated in an ionisation chamber smoke detector, but not including while the detector is being manufactured or repaired
- m) a radioactive substance containing the radionuclide promethium-147, hydrogen-3, or radium-226 incorporated in an item to produce light, but not including while the item is being manufactured or repaired
- n) a radioactive substance containing the radionuclide hydrogen-3 with an activity of less than 74GBq, incorporated in a gaseous tritium light device, if the device is being used as a safety, or warning sign, and complies with sections 2, 4 and 5 of the NHMRC 'Appendix XXXIX - Recommendations for exemptions from licensing of gaseous tritium light devices'
- o) the following sealed radioactive substances with no more than the stated activity if used for teaching the characteristics and properties of radiation or radiation sources.

cobalt-60 - 200 kBq	strontium-90 80	americium-241 20
caesium-137 200	radium-226 20	
- p) the radionuclide krypton-85, incorporated in a cold cathode gas discharge tube, but not including while the tube is being manufactured or repaired.

### 18.4 Appendix 3: Periods with which certificates of compliance must be obtained

Source	Timing	Detail
<b>Ionising radiation apparatus</b>	Every Year	<ol style="list-style-type: none"> <li>1. An ionising radiation apparatus used to carry out a diagnostic or therapeutic procedure involving the irradiation of a person (including mammography), other than an ionising radiation apparatus used to carry out intra-oral dental radiography or plain-film diagnostic radiography.</li> <li>2. An ionising radiation apparatus used to carry out a radiation practice for a research project.</li> <li>3. An ionising radiation apparatus used in the course of a person's study or training at an educational institution. (This does NOT relate to equipment used by undergraduates studying diagnostic radiography where the equipment is used during the student's supervised placement in a clinical setting.)</li> </ol>
	Every three years	<ol style="list-style-type: none"> <li>1. An ionising radiation apparatus used to carry out dental radiography or plain-film diagnostic radiography involving the irradiation of a person.</li> <li>2. All other ionising radiation apparatus not covered in the above section.</li> </ol>
<b>Sealed source apparatus</b>	Every Year	<ol style="list-style-type: none"> <li>1. A sealed radioactive substance incorporated in a sealed source apparatus used to carry out a diagnostic or therapeutic procedure involving the irradiation of a person.</li> <li>2. A sealed radioactive substance incorporated in a sealed source apparatus used to carry out a radiation practice for a research project.</li> <li>3. A sealed radioactive substance incorporated in a sealed source apparatus used in the course of a person's study or training at an educational institution.</li> </ol>
	Every three years	All other sealed radioactive substances incorporated in sealed source apparatus not covered in the above section.
<b>Laser apparatus</b>	Every year	Laser apparatus used to carry out a diagnostic, therapeutic or cosmetic procedure involving the irradiation of a person
<b>Premises</b>	Every five years	<ol style="list-style-type: none"> <li>1. Premises in which a radiation source is used to carry out a radiation practice.</li> <li>2. Premises in which radioactive substances are stored.</li> </ol>