

Radiation Protection Act 2005 – Section 17

**CERTIFICATE OF COMPLIANCE:
STANDARD FOR RADIATION PLACE
FOR RADIOACTIVE MATERIAL – SEALED SOURCES**

SECTION 1: REQUIREMENTS FOR CERTIFICATES OF COMPLIANCE FOR
PLACES WHERE RADIOACTIVE MATERIALS – SEALED SOURCES - ARE TO BE
USED AND/OR STORED

SECTION 2: COMPLIANCE REQUIREMENTS: PLACE - RADIOACTIVE MATERIAL
(SEALED SOURCES)

This information can also be accessed at
http://www.dhhs.tas.gov.au/peh/radiation_protection

Section 1 – REQUIREMENTS FOR CERTIFICATES OF COMPLIANCE FOR PLACES WHERE RADIOACTIVE MATERIALS – SEALED SOURCES - ARE TO BE USED AND/OR STORED.

This Standard is to be used when assessing a place where radioactive material, in the form of a sealed source, is to be used and/or stored.

A “place” is defined in the Radiation Protection Act 2005 as including “vacant land, premises and a vehicle”.

“premises” is further defined as including

- (a) a building or structure; and
- (b) land on which a building or structure is situated; and
- (c) a part of any such building, structure or land.

“vehicle” is defined as meaning anything used for transporting any thing or person by land, water or air.

In order for a certificate of compliance to be issued the Place must be shown to fully comply with the requirements in Section 2.

Note: There are separate standards for a nuclear medicine facility and a laboratory in which unsealed radioactive materials are used and/or stored and for a place where radioactive materials are used for HDR brachytherapy.

Section 2 – Compliance requirements: Place - Radioactive materials (sealed sources)

I. Protection of people from radiation exposure when the radioactive material is in storage

A place where any radioactive material is usually or primarily stored must –

- be firmly constructed of durable materials; and
- be able to resist fire and unauthorised entry; and
- not be in an area that allows unrestricted access to the public; and
- be kept locked, except if the radioactive material is being put into storage or removed from storage; and
- when a sealed source is in the store, have a clear sign, in accordance with AS 1319:1994, on the outside of the place incorporating the word “caution” or “warning” and a symbol warning of the radiation hazard contained in the place. The sign must clearly identify the purpose for which the store is used and appropriately advise all persons who may enter it, including firefighting personnel. The sign must also contain contact details for the appropriate Radiation Safety Officer; and

- be so located and designed with sufficient shielding that no member of the public would receive a radiation dose of more than 20 microsieverts in any four-week period due to the storage of the radioactive material in that place. (Occupancy factors (NCRP report 147¹) may be taken into account when assessing compliance with this criterion.) This includes areas on the same floor level as the room or area or structure in which the radioactive material is stored and on levels above and below this room or area or structure, if applicable; and
- be so located and designed with sufficient shielding that the radiation levels at any accessible place outside the store do not result in an ambient dose equivalent rate or directional dose equivalent rate, as appropriate, exceeding 10 microsieverts per hour; and
- be so located and designed with sufficient shielding that no occupationally exposed person will receive a radiation dose in excess of the appropriate limit specified in Regulation 9 of the *Radiation Protection Regulations 2006* “Dose limits for occupational exposure of persons”; and
- be so located that the resultant radiation exposure rate in any area accessible to occupationally exposed people is as low as reasonably achievable; and
- not be situated near to explosives, combustible or corrosive materials, photographic or X-ray film, areas that are subject to flooding, or other natural or manmade hazards. However, if the store cannot be guaranteed against accidental flooding from such causes as burst water pipes or leaking roofs, provision shall be made for all materials to be stored above floor level and an automatically operated sump and pump system installed with sufficient output capacity to counteract any conceivable flooding; and
- if the store is likely to hold any volatile radio nuclides in the sealed sources, an air extraction system must be installed which can be switched on from outside before a person enters the store; and
Note: The point of discharge for the extraction system should be well away from any occupied area and remote from any air conditioning intake. An extraction system that is automatically switched on by the opening of the door should be considered.
- not be used for other purposes; and
- if unsealed radioactive materials are to be stored in the same place, the place must comply with the design requirements of AS/NZS 2982.1:1997; and
- the inside of the store must be of such materials and so designed as to allow for easy decontamination; and
- if the radioactive materials stored or used at the place are to be used for industrial radiography, the place must comply with relevant parts (from 4.1, 4.2, 6.1, 6.2, 6.3) of the *Code of practice for the safe use of industrial radiography equipment (1989)* published by the NHMRC under the *National Health and Medical Research Council Act 1992* of the Commonwealth, as in force immediately before its rescission by the NHMRC.

¹ NCRP Report No. 147 “Structural shielding design for medical x-ray imaging facilities” 2004, published by the National Council on Radiation Protection and Measurement, Bethesda, Maryland

2. Protection of people when sealed sources are used in industry:

- The location of a place in which any container holding a sealed source is to be used must be one in which access to radiation beams emerging from the source container can be controlled so as to ensure that no person receives radiation exposure in excess of the relevant limits in Regulations 9 and 10 of the *Radiation Protection Regulations 2006*.
- The place in which any container holding a sealed source is to be used must be selected so that doses received by members of the public and by occupationally exposed persons are as low as reasonably achievable.
- Permanent physical barriers, locks, safety contacts or a combination of these must control access to the source container, which is housing a sealed source, in order to ensure that the previous two requirements are met.
- The place must have provision for placing a clear sign, in accordance with AS 1319:1994, incorporating the word “caution” or “warning” and a symbol warning of the radiation hazard contained in the place.

3. Protection of people when sealed sources are used in industrial radiography:

- The place must comply with relevant parts (from 4.1, 4.2, 6.1, 6.2, 6.3) of the *Code of practice for the safe use of industrial radiography equipment (1989)* published by the NHMRC under the *National Health and Medical Research Council Act 1992* of the Commonwealth, as in force immediately before its rescission by the NHMRC.
- Dose rates in accessible areas near any sealed source(s) used for industrial radiography must not exceed 25 microsieverts per hour.

4. Vehicles

- Where a (mobile) radiation source – radioactive material (sealed source) is to be primarily stored in a road vehicle that is not a trailer, then the radiation source must be securely located in the vehicle, as far as is practicable from the driver and any passenger, to protect it from damage during transport. A radiation source must not be located in the passenger seat of a road vehicle.
- A road vehicle, in which such a radiation source is to be primarily stored, and which is not a trailer must have an alarm and an engine immobiliser.
- A road vehicle, in which such a radiation source is to be primarily stored, and which is a trailer must have an alarm and the sealed source, when not in use, must be kept securely locked in its container, which in turn must be securely bolted to the vehicle.