

# SESLHD PROCEDURE COVER SHEET



**Health**  
South Eastern Sydney  
Local Health District

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<b>EXECUTIVE SPONSOR or EXECUTIVE CLINICAL SPONSOR</b>	Caroline Skipper Director People and Culture
<b>AUTHOR</b>	Brent Rogers, SESLHD Radiation Safety Officer Erin McKay, RSL SESLHD St George Hospital
<b>POSITION RESPONSIBLE FOR THE DOCUMENT</b>	District Radiation Safety Officer <a href="mailto:SESLHD-RadiationSafetyOfficer@health.nsw.gov.au">SESLHD-RadiationSafetyOfficer@health.nsw.gov.au</a>
<b>KEY TERMS</b>	Radiation safety, ionising radiation, x-rays, radioactive substances, radiation monitors
<b>SUMMARY</b>	Procedure to ensure that all appropriate staff are issued with, and wear, personal radiation monitors, and that survey meters are maintained and calibrated.

## **COMPLIANCE WITH THIS DOCUMENT IS MANDATORY**

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## 1. POLICY STATEMENT

South Eastern Sydney Local Health District (SESLHD) is committed, through a risk management approach, to protecting employees, contractors, students, volunteers, patients, members of the public and the environment from unnecessary exposure to radiation arising from systems and processes which use radiation apparatus and radioactive substances, whilst maintaining optimum diagnostic and therapeutic quality, therapeutic efficacy and patient care.

This document provides procedures necessary to ensure compliance in relation to the provision and use of personal radiation monitors.

## 2. BACKGROUND

The Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (ARPANSA RPS-14) requires a personal radiation monitor to be provided to each occupationally exposed person who is likely to be exposed to ionising radiation in excess of 1 mSv in any one year. In addition, the NSW Radiation Control Regulation 2013 lists those occupationally exposed persons to whom an employer must provide a personal radiation monitor. This includes those using radiation for radiotherapy, radiology or nuclear medicine. The Regulation also requires the employer to provide a copy of the employee's radiation exposure record to the employee when the employee leaves the employer's employment.

## 3. RESPONSIBILITIES

### 3.1 Department Manager

- will ensure that a personal radiation monitor is obtained for each occupationally exposed person, and that the monitors are promptly sent for processing at the end of each wearing period.
- will also ensure that a radiation dose record is given to staff member when they cease to be employed by the organisation.

### 3.2 Occupationally exposed staff

- Staff members issued with a personal radiation monitor must:
  - wear the monitor at all times when working with ionising radiation
  - submit their monitor to their manager for processing at the end of the wearing period
  - leave their monitor at their place of work after-hours.

### 3.3 Radiation Safety Officer (RSO)

- will ensure that personal radiation monitors are provided to all appropriate occupationally exposed staff and maintain the personal dose records of the staff.

**4. PROCEDURE**

**4.1 Personal radiation monitors**

- All personal dosimeters shall be issued, processed and calibrated by a dosimetry provider approved to do so by the Environment Protection Authority (EPA).
- Body dosimetry devices are normally worn somewhere on the trunk of the body, such as a collar, lab coat pocket, waist or on a lanyard. However, when working with distinct sources, the dosimeter should be placed in the area of the body most likely to receive the highest amount of radiation exposure.
- When not being worn, dosimeters should be stored in an area of low radiation background, such as an assigned locker, dosimetry board or office desk drawer.
- Dosimeters should not be taken home, however, if a dosimeter is taken home, it, must not be left in direct sunlight or in a motor vehicle especially in summer. Internal vehicle temperatures can reach temperatures exceeding 60 C, which would cause erroneous readings. This is especially detrimental to dosimeters using photographic film.
- Persons responsible for a dosimetry centre must keep the control monitor provided by the dosimetry service in accordance with their instruction. This will be an area of low background radiation levels, normally an office area.

**4.2 Actions to be taken if the radiation doses to staff or the general public are found to exceed the dose constraints**

The Radiation Safety Committee has established the following actions that are to be taken when the dose reported for a personal radiation monitor exceeds certain dose constraints:

<b>Monitoring Period</b>		<b>Action to be taken</b>
<b>4 weeks</b>	<b>12 weeks</b>	
> 0.5 mSv ≤ 1.6 mSv	> 1.5 mSv ≤ 4.8 mSv	Immediately investigate the circumstances concerning the receipt or possible receipt of the dose. A report must be submitted to the Radiation Safety Committee.
> 1.6 mSv	> 4.8 mSv	Immediately investigate the circumstances concerning the receipt or possible receipt of the dose. A report must be submitted to the Radiation Safety Committee and to the Radiation Control Section of the EPA.

**4.3 Electronic Personal Dosimeters**

Electronic Personal Dosimeters (EPDs) allow instantaneous measurement of the dose and dose rate. These are used in certain situations where it is necessary to continuously

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and immediately be able to determine the current accumulated dose. EPDs do not replace the normal personal monitors but can be used in addition to them.

EPDs may also have an alarm operating on a dose rate threshold or an integrated dose threshold. The RSO or a medical physicist will issue an EPD to a staff member if electronic monitoring is required. The Department Manager should contact the RSO if it is believed that electronic monitoring is required.

### 4.4 Extremity Monitors

Plastic rings incorporating a radiation monitor are available for staff to wear if their hands are likely to be exposed to significant radiation exposure. This will usually include nuclear medicine staff who are required to dispense radiopharmaceuticals. The ring is normally worn on the index or middle finger with the active surface facing the person's palm.

### 4.5 Radiation Survey Meters

A radiation survey meter is required to undertake radiation surveys. A survey meter is considered appropriate for use if it:

- has sufficient measurement range to measure ambient dose equivalent rates at least throughout the ranges of  $0.5 \mu\text{Sv}\cdot\text{hr}^{-1}$  to  $1 \text{ mSv}\cdot\text{hr}^{-1}$  ( $2 \text{ mSv}\cdot\text{hr}^{-1}$  for radiotherapy use) from the radioactive sources used
- continues to indicate, either visibly or audibly, when radiation levels exceed the maximum reading in any measurement range
- indicates the measured quantity with a measurement uncertainty not greater than  $\pm 25\%$  inclusive of uncertainty due to response variation with energy over the range of energies of the radiation to be measured.

Radiation survey meters must be calibrated annually at an appropriate calibration facility.

## 5. DOCUMENTATION

- [Application for a Personal Radiation Monitor \(F339\)](#)

## 6. AUDIT

The following documents should be available for audit:

- Personal radiation dose records
- Records of investigation of supra-threshold exposures
- Records of survey meter calibration

## 7. REFERENCES

- [1] Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (RPS 14)
- [2] NSW Radiation Control Regulation 2013

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### 8. REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
August 2010	draft	Brent Rogers, RSO NHN
November 2010	Revised draft	Richard Smart, RSO
February 2011	0	Approved by Combined Clinical Council
December 2015	1	Periodic Review
October 2016	1	Updates endorsed by Executive Sponsor
March 2020	2	Updates endorsed by Executive Sponsor