

ARPANSA



AUSTRALIAN RADIATION PROTECTION AND NUCLEAR SAFETY AGENCY

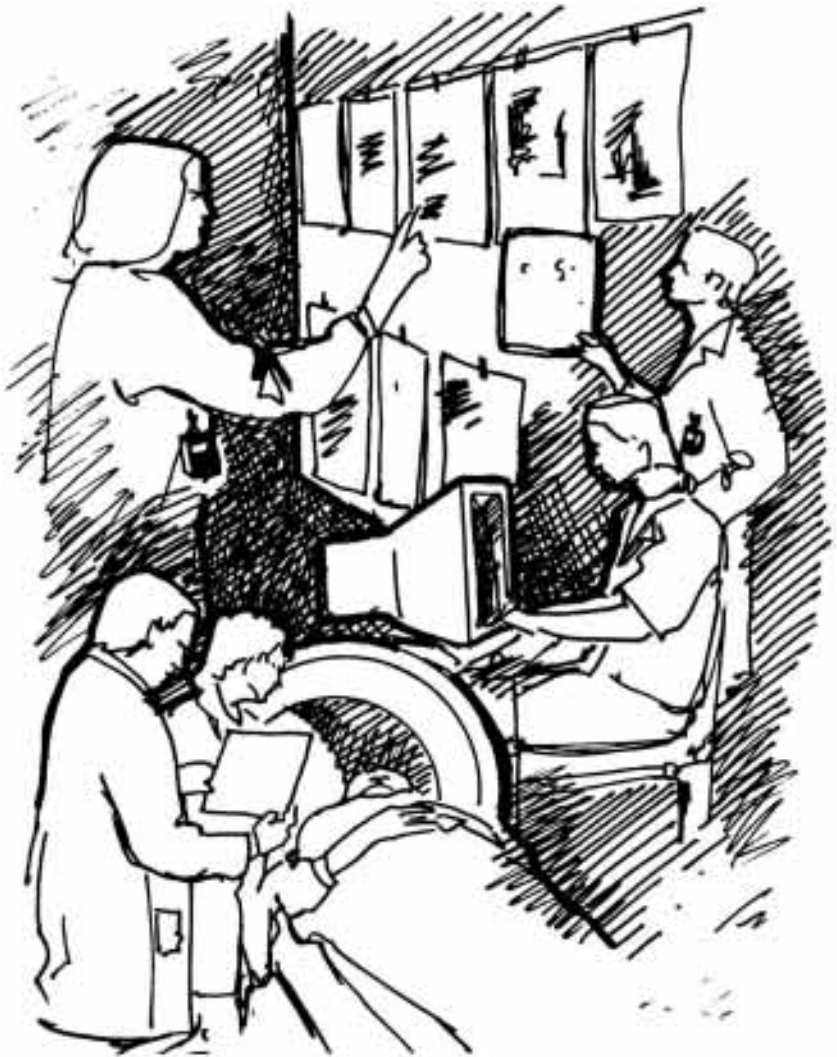


TLD MONITORS

PERSONAL RADIATION MONITORING
SERVICE

About The Personal Monitoring Service

Since 1932, the Australian Radiation Protection and Nuclear Safety Agency has operated a Personal Radiation Monitoring Service (PRMS) for measuring the doses that people who are occupationally exposed to radiation may receive. The National Health and Medical Research Council (NHMRC) recommends that the annual dose received by radiation workers should not exceed 20,000 microsievert (μSv), averaged over 5 years, with no more than 50,000 μSv in any one year. By the continual wearing of monitors, it is possible to determine the annual dose received by each individual and to establish that the amount of radiation received by these people is well below the limits recommended by the NHMRC.



WHO NEEDS TO BE MONITORED?

Anybody who is likely to be exposed to radiation over a long period of time as a result of their work should be monitored.

Personal monitoring is useful for checking the adequacy of radiation protection. It can be used for documenting the occupational doses of wearers, especially when the wearer is accidentally exposed, and to show inadequate or improper radiation protection practices.

The requirement for specific occupations to be monitored varies from State to State. Please check these requirements with your Regulatory Authority.

DOSE RECORDS AND THE PRMS DATA BASE

Monitors are issued regularly for either 4, 8 or 12 weekly periods. At the end of each period, the monitors are returned to the Personal Radiation Monitoring Service for processing and assessment of the doses recorded by them. The Dose Report issued to each Centre lists the doses received by each monitor and the accumulated doses received in the last twelve month period for each wearer.

Each reported dose is traceable to Australian Standards of Exposure.

The dose records of all individuals monitored by the Service are kept indefinitely by the Australian Radiation Protection and Nuclear Safety Agency.

Since 1986, each person registered with the Service has had their doses recorded on the PRMS Data Base of Occupationally Exposed Persons which is maintained by the Australian Radiation Protection and Nuclear Safety Agency. This enables a complete dose history of each person monitored by the Service to be maintained, no matter where they work.

Types of Monitors Available

The Service provides four different types of monitor:

TLD BADGES

These badges are used by persons who are exposed to X-rays, gamma rays, beta rays, or a mixture of these types of radiation. The badges comprise thermoluminescent dosimeter (TLD) cards which are placed in holders that incorporate a filter system that allows for the radiation type and energy to be determined. They are issued for wearing periods of 4, 8 or 12 weeks, depending on the work carried out and any restrictions placed on the wearing period by the Regulatory Authority in each State or Territory.



NEUTRON BADGES

These badges are used by persons potentially exposed to fast neutrons, such as those using neutron generators or devices, such as moisture density gauges, which utilise neutron sources. The badges which consist of a neutron monitor and a TLD card loaded inside a plastic holder prior to issue can detect fast neutrons, beta rays and gamma rays and are issued for wearing periods of 4, 8 or 12 weeks.



FINGER SACHETS

These monitors are used to determine the radiation dose of persons whose fingers may be very close to radiation sources. The monitors consist of small plastic sachets containing TLD material and are issued for wearing periods of four weeks.



SPECIAL TLD BADGES

These badges are used in special situations such as in uranium and mineral sand mining operations where conditions may be dusty and in laboratories where there is a significant risk of radioactive contamination. The badge is comprised of a TLD Badge that is sealed in a plastic envelope prior to issue.



HOW DO THE MONITORS WORK?

The monitor uses a Thermoluminescent Dosimeter (TLD) card to measure the radiation dose. Some of the radiation energy is absorbed by the TLD and, when heated, this energy is released as a small amount of light. The amount of light emitted is a measure of the radiation dose that the TLD received.

The use of TLD material to measure radiation doses has been used for over 30 years and is the most commonly used system for measuring personal doses.

The TLD card that is incorporated in the ARPANSA TLD, Neutron and Special TLD Badges has four sensitive elements for the primary measurement of the dose to the monitor. An additional four elements allow for an independent second measurement to be made to confirm the primary measurement.

WHAT IS THE MINIMUM REPORTABLE DOSE?

The radiation sensitive material in the monitor allows a minimum reportable dose of 10 μ Sv for X-rays, 70 μ Sv for high energy gamma rays and beta rays and 50 μ Sv for fast neutrons. The minimum reportable dose to the fingers is 100 μ Sv.

Conditions

Please read these Conditions carefully as they specify the basis of the Contract between the parties, through which the Service, Associated Services and Associated Items are provided by the Commonwealth of Australia through ARPANSA.

How to obtain the Service:-

To register for the Service a Centre should complete the Centre Registration Form attached to this brochure and where applicable the Wearer Registration Forms. Further information, additional forms and brochures are available from the Manager, PRMS, ARPANSA, Lower Plenty Road, Yallambie, Victoria. 3085.

Free Call 1800 678 112

Telephone: (03) 9433 2211

Facsimile: (03) 9432 1835

E-Mail: prms@health.gov.au

Web: www.arpansa.gov.au

Our responsibilities: Once a Centre is registered with the PRMS, ARPANSA shall provide the Service in accordance with these Conditions.

Your responsibilities: Once registered with the PRMS, the Centre should follow all instructions and directions issued by ARPANSA from time to time about how to use the Service, Monitors, the Associated Services and Associated Items. The Centre should read and be aware of the matters contained in these Conditions and ensure that payment is made for the Service within the prescribed times.

Definitions: For the purposes of this brochure, the following definitions apply:

ARPANSA—the Australian Radiation Protection and Nuclear Safety Agency, the statutory successor to the Australian Radiation Laboratory (‘ARL’). References to ARPANSA include references to ARL, unless otherwise specified.

ARPANS Act—the *Australian Radiation Protection and Nuclear Safety Act 1998*

Associated Items—items, Dose Histories, component parts, or devices associated with the Service that are sold or distributed separately from the Service.

Associated Services—are ancillary services including Dose Histories, urgent special issues, special handling services, and electronic mail services which may be charged for in addition to the Service.

Centre—the individual, company, or other legal person receiving the Service under this Contract.

Clip—a means of attaching a Holder to the object or person being monitored.

Contract—the agreement governed by these Conditions between ARPANSA and the Centre.

Control Monitor—a Monitor dispatched with a supply of Monitors to act as a zero dose control.

Cumulative Dose Report—a report issued annually by ARPANSA to the Centre listing the total reported radiation dose attributed to each Wearer.

Dose History—a consolidated dose history of the radiation exposure recorded by ARPANSA for the Wearer.

Dose Report Form—a report issued by ARPANSA on the doses received by the Monitors issued to the Centre.

Finger Sachet—a radiation monitor that can be affixed to a finger.

GST—Goods and Services Tax

GST Act—the *A New Tax System (Goods and Services Tax) Act 1999*.

Holder—a case for a TLD Insert.

Key—a key or device for opening a Holder.

Monitor—includes TLD Badges, Neutron Badges, Finger Sachets and Special TLD Badges.

Monitor Details Form—a form issued by ARPANSA, with a supply of Monitors;

comprising a list of Monitor numbers, a list of Wearers, and a Recommended Wearing Period.

Neutron Badge—a monitor suitable for measuring exposure to radiation including neutrons.

Other Monitoring Services—radiation monitoring services utilising Special TLD Badges, Neutron Badges or Finger Sachets.

PRMS—means the ARPANSA Personal Radiation Monitoring Service.

Recommended Wearing Period—the recommended wearing period for the dispatched Monitors as detailed on the Monitor Details Form.

Service—the service provided by ARPANSA under this Contract, being a radiation measurement service providing assessment of exposure to radiation.

Spare Monitor—a Monitor not assigned to a registered Wearer.

Special TLD Badge—a TLD Badge which has been sealed in a plastic envelope.

Standard Monitoring Service—a monitoring service utilising TLD Badges.

TLD—an acronym for Thermo-Luminescent Dosimeter.

TLD Badge—a monitor comprising a Holder, TLD Insert and Clip.

TLD Card Holder—a type of Holder supplied with a Clip.

TLD Insert—a TLD card or insert for use in a Holder or Monitor.

Wearer—a person registered with ARPANSA to receive a Monitor.

Parties: The parties to this Contract are ARPANSA and the Centre.

Conditions: From 1 July 2000, these Conditions supersede, revoke and replace any previous conditions of contract operating between the parties.

Brochure validity: 1 July 2000 to 30 June 2002 (unless otherwise advised in writing by ARPANSA).

Prices: ARPANSA will issue an itemised price list for the Service, Associated Services, and the Associated Items which will be the price current under the Contract for the period specified.

These prices may be varied from time to time by ARPANSA by written notice to the Centre. Prices will be effective at the time of issue of these items. There will be no refund in respect of unused items unless such items are faulty or unsuitable for the purpose intended. The Prices quoted will be in Australian Dollars and payment should be in Australian Dollars. Where payment is made by telegraphic transfer or by currency other than the Australian Dollar, the applicable exchange rate will be fixed at the applicable rate on the date of invoice by ARPANSA for the Service or Associated Items. Prices are inclusive of standard postage (excluding couriers) to the Centre, where the Centre is within Australia or its Territories.

Prices for the Standard Monitoring Service

These prices are for a radiation measurement service including a Dose Report and Cumulative Dose Report but not including TLD Card Holders and Keys, which must be purchased separately prior to the provision of the Standard Monitoring Service.

Prices for Other Monitoring Services

These prices are for a radiation measurement service including a Dose Report and Cumulative Dose Report.

Prices for Associated Items

Centres receiving the Standard Monitoring Services will be required to pay for non-returned or irreparably damaged TLD Inserts as detailed in the itemised price list. These Centres will also be charged at the specified rates for further supplies or orders of Holders, Keys and Clips. Centres receiving Other Monitoring Services will be charged for non-returned or irreparably damaged TLD Inserts, Holders, and Finger Sachets as indicated in the itemised price list. All Monitors dispatched to the Centre will be accompanied by a Control Monitor. There is no charge for the Control Monitor unless it is used by a wearer, not returned, or irreparably damaged.

Prices for Associated Services Are as detailed in the itemised price list.

Charges for Issue of Monitors

Charges are made for all Monitors issued except for Control Monitors based on the number of

Monitors ordered by the Centre. If the Service is discontinued, all Monitors, excluding any Holders and/or Keys purchased by the Centre, must be returned to ARPANSA.

Terms of Payment

GST: ARPANSA is notionally liable to GST under the GST Act. All prices for supplies under this Contract, unless otherwise stated, will be inclusive of GST and payable by the Centre unless otherwise agreed by ARPANSA in writing. In relation to taxable supplies made under this Contract, ARPANSA agrees to issue the Centre with either: (a) a tax invoice in accordance with the GST Act; or (b) a document satisfying the minimum information requirements under the GST Act or determinations made thereunder, to entitle a recipient of a taxable supply to claim an input tax credit without holding a tax invoice.

Time for Payment: The Centre shall pay all charges under these conditions by the due date specified on the invoice. ARPANSA reserves the right to discontinue provision of the Service where invoices remain outstanding for a period of 60 days from the date specified thereon. All monies owing under the Contract are debts due and payable to the Commonwealth of Australia and may be recovered in a court of competent jurisdiction.

Jurisdiction and Applicable Law: The Courts of the State of Victoria shall have exclusive jurisdiction in any dispute under the Contract. The laws of the State of Victoria govern the Contract.

Substitution: ARPANSA shall be at liberty to alter any Monitors, Associated Services or Associated Items without altering or affecting the standard or quality of the Monitors, Associated Services or Associated Items.

Warranties: ARPANSA excludes any statutory warranties or implied terms to the extent legally permitted in respect of the Service, Associated Items or the Associated Services. ARPANSA warrants that the Service, Associated Services and Associated Items are of merchantable quality within the meaning of the Trade Practices Act 1974. ARPANSA takes all care and steps possible to ensure an accurate and cost effective Service is provided to its clients, however, all warranties under the Contract are subject to the Centre and/or Wearer following any instructions on use and storage of Monitors, Associated Items and Associated Services supplied by ARPANSA.

Use: Monitors should be returned to ARPANSA as soon as possible after the end of the Recommended Wearing Period.

Wearers: ARPANSA shall be at liberty to provide Wearers on request with their Dose History, for a fee.

Licensing Authorities: ARPANSA reserves the right to forward copies of Dose Reports and Cumulative Dose Reports to relevant Commonwealth, State and Territory licensing and regulatory authorities.

Conflicts of Interest: As required by law or statutory obligation, ARPANSA reserves the right to disclose data or information obtained through the provision of the Service. ARPANSA reserves the right to immediately cease provision of the Service where a conflict of interest arises between ARPANSA and the Centre or between the provision of the Service and the CEO's obligations under the ARPANS Act (as determined in the CEO's absolute discretion).

Reservations: ARPANSA reserves the right to decline to provide the Service to any person or Centre at its absolute discretion.



PERSONAL RADIATION MONITORING SERVICE CENTRE REGISTRATION FORM

PLEASE COMPLETE ALL APPLICABLE QUESTIONS IN CLEAR PRINT

For delivery of Service:

Centre Name

Address

Suburb/Town

Postcode State Country (if not Australia)

Telephone No Facsimile No

E-mail Address

Contact Name Position

Classification of establishment type (use code from table on back of this form)

Legal Name of Centre

ABN ACN

Effective date of registration for GST purposes (if registered)

Has the Centre has used the ARL/ARPANSA monitoring service previously? YES/NO

If Yes, please list the previous Centre Name and, if known, Centre Number

Previous Centre Name

Previous Centre Number

During which years

OTHER INFORMATION REQUIRED

Number of persons to be monitored

(each person should be registered – see attached Wearer Registration Form)

Type of monitor/s required

Preferred wearing period (4, 8 or 12 weeks)

List most commonly used radiation source/s

Name of Officer in Charge (Please Print)

Signature Date

(NOTE: The signatory warrants he or she is duly authorised on behalf of the Centre to enter into this agreement).

REGISTRATION

To register with the Personal Radiation Monitoring Service, fill in the Centre and Wearer Registration Forms and return these forms to the address listed below. It is important you provide the name and birth date of each wearer so that a unique number can be allocated to each person. This identification number is essential for the accumulation of a dose history for each person.

In some situations, where exposure to radiation occurs infrequently and regular monitoring is unnecessary monitors may be issued on a "request" basis and the Service should be consulted when this is required.

Holders for use with the TLD Badges are purchased by the Centres when they commence use of the Service and are retained by the Centre; only the TLD cards are returned at the end of each wearing period. A "key" which is used to open the holders is also purchased at commencement.

In order to assess the doses received by the monitors, allowance must be made for background radiation and environmental effects. Extra "Control" monitors are supplied with each issue of monitors to measure these effects.

Normally, only one control is issued with each batch of monitors of the one type. However, in some large centres, where background radiation levels are higher than normal or vary from one area to another in the Centre, extra controls are supplied. This applies particularly to some of the centres issued with the Special TLD badge. The need for extra controls should be discussed at the time of registration.

If monitoring is required for extra people at a later date, this can be arranged on request.

More detailed instructions for use of the Service are provided following the registration of the Centre.

CHARGES

A monitoring charge is made for all monitors issued, except for controls. In addition, charges are made for Holders for TLD cards and Keys. There is a charge for non-returned TLD cards, non-returned Neutron or Special TLD badges and non-returned Finger Sachets.

The charges are given in the accompanying Schedule. Invoices are sent out during the week immediately following the issue of monitors. Invoices for Holders and Keys are sent at the time of issue.

ENQUIRIES

If you have any queries about the Personal Radiation Monitoring Service do not hesitate to phone or write to:

The Manager
Personal Radiation Monitoring Service
Australian Radiation Protection and Nuclear Safety Agency
Lower Plenty Road
Yallambie Vic 3085

Phone: (03) 9433 2211 or 1800 678 112 (Freecall)

FAX: (03) 9432 1835

Email address: prms@health.gov.au

CLASSIFICATION OF ESTABLISHMENT TYPE

DIAGNOSTIC RADIOLOGY

- 01 Small hospital department with one or two radiographers
- 02 Large hospital department with more than two radiographers
- 03 Private radiological practice
- 04 Other medical practices
- 05 Other hospital and nursing establishments

RADIOTHERAPY

- 11 Dermatology
- 12 Radiotherapy department (including gynaecology)
- 13 Private radiotherapy practice

NUCLEAR MEDICINE/PATHOLOGY

- 20 Nuclear medicine department
- 21 Private nuclear medicine practice
- 25 Pathology departments or practices
- 29 **HOSPITAL** with a combination of radiology, nuclear medicine and/or radiotherapy

DENTAL

- 30 Hospital
- 31 Private practice
- 32 Government service
- 33 School dental service

40 CHIROPRACTIC PRACTICE

50 VETERINARY PRACTICE

INDUSTRY

- 60 Manufacturer utilising quality control or quality assurance devices
- 61 Industrial radiography

MINING

- 70 Uranium mining
- 80 Mineral sand mining

RESEARCH

- 90 Government
- 91 Medical and veterinary
- 92 Industry

EDUCATION

- 93 Tertiary
- 94 Secondary

100 OTHER (PLEASE SPECIFY)