

GENERAL INFORMATION ON THE USE OF PERSONAL DOSIMETERS

ABOUT RPS AND THE DOSIMETRY SERVICE

The Radiation Protection Service (RPS) provides the national dosimetry service for all the radiation workers in South Africa. (In effect all the persons occupationally exposed to ionizing radiation.) All radiation workers are legally required to be monitored. The two regulating bodies are the Department of Health and the National Nuclear Regulator.

The dosimetry service entails the issuing and despatch of dosimeters to radiation workers for monitoring radiation exposure. At the end of the monitoring period (wearing period), the dosimeters are sent back to the RPS. The RPS processes the dosimeters once they have been returned and dose results are then sent to the clients. For this service, an administration fee is charged.

WHAT TYPES OF SERVICES ARE AVAILABLE

1. Personnel Dosimetry

Monitoring for X-ray, gamma and beta radiation is done with Panasonic Thermoluminescent Dosimeters (TLDs). TLDs are worn in a sealed plastic bag from which it must never be removed.

2. Neutron Dosimetry

Panasonic TLDs in plastic are used for the monitoring of neutron radiation. The TLD must not be removed from the holder during the specified wearing period. People monitored for neutron radiation must also wear a Panasonic personnel TLD (see 1 above).

3. Extremity Dosimetry (Finger rings)

Finger rings are used to monitor doses to extremities. A Panasonic TLD chip is enclosed in plastic on an aluminium strip. These chips should never be removed from the plastic. The aluminium strip can be bent around a finger or stuck to an unprotected part of the body that is exposed to a close source of radiation.

4. Environmental Dosimetry

TLDs are used to measure the ambient dose in the environment

** REMEMBER:

- ✓ A DOSIMETER DOES NOT PROTECT YOU FROM RADIATION; IT MERELY PROVIDES A MEANS OF MONITORING THE AMOUNT OF RADIATION THAT YOU HAVE RECEIVED!
- ✓ THE DOSIMETER SHOULD BE WORN UNDER YOUR LEAD APRON IF YOU WEAR ONE!
- ✓ PREFERABLY, DOSIMETERS MUST BE WORN ON THE TORSO OR IN THE PELVIC REGION!

WHAT ARE THE DOSE LIMITS?

The unit of measurement used to report the amount of radiation received is mSv (millisievert). The Department of Health prescribes the following whole body dose limits for occupational exposure:

- An effective accumulated dose of *20 mSv per year*, averaged over a period of 5 years and a maximum of *50 mSv* accumulated in any one year.
- Annual equivalent dose
 - the lens of the eye: *150 mSv*
 - the skin: *500 mSv*
 - the hands and feet: *500 mSv*

These limits must be read in conjunction with ICRP (International Commission on Radiological Protection) Report 60 and the Regulations Relating to Group IV Hazardous Substances (Government Notice R247 of 26 February 1993).

A pro-rata overexposure limit is also applicable per wearing period. The client can specify the pro-rata overexposure limit or a general value of *4 mSv* is used. The general value is determined as follows:

$$(4 \text{ mSv} \approx \frac{50 \text{ mSv per year}}{13 \text{ wearing periods per year}})$$

WHAT TO DO IN CASES OF OVEREXPOSURE?

Notifications of pro-rate overexposures and annual accumulated exposures exceeding the limits will be sent to the client's employer and if applicable also to the Department of Health. RPS recommends that the applicable regulator must be contacted in cases of overexposure. For clients regulated by the Department of Health form RC 010 (available from the Department of Health) must be completed by the client and returned to the Department of Health, who will carry out an investigation. **IF IT IS SUSPECTED THAT A PERSON HAS RECEIVED A DANGEROUS DOSE, THE DOSIMETER MAY BE RETURNED TO THE RPS IMMEDIATELY FOR PROCESSING. THE DOSE MEASURED BY THE DOSIMETER WILL BE REPORTED AS SOON AS POSSIBLE.**

FAQ (Frequently Asked Questions)

* *What does the number 4/3258, or 3/34, or 1/514, etc. mean?*

3258: This is a unique RPS Place Reference Number that is allocated to your employer

4: This number indicates to which administrative WEEK (group) you belong. In this example it is *WEEK 4*. There is a specific client liaison officer responsible for this group.

* *What is the difference between a place reference number and an account number?*

The place reference number is the RPS identification number allocated to your institution for all administrative functions regarding the dosimetry service. An institution/company can have more than one place reference number if it has different divisions/departments. The account number is a number allocated to you by the SABS for account purposes.

* *What is the difference between a BIN number and a dosimeter number?*

The BIN number (**B**ureau **I**dentification **N**umber) is a unique identification number allocated to each radiation worker. This number does not change. The dosimeter number is a unique number allocated to each dosimeter and changes with every wearing period.

* *What is a wearing period?*

A wearing period is the time period that a specific dosimeter should be worn by a specific radiation worker. There are 13 wearing periods of 28 days in a year and if required a wearing period can be 14 (fourteen) days for workers with a higher risk of exposure. Monitoring periods (wearing periods) of 8 and 12 weeks are also available. Note, according to legislation, 31 days is the longest monitoring period allowed. If longer wearing periods are required, this must first be approved by the applicable regulator.

NOTICE from Directorate: Radiation Control (Dept. of Health)

The existing Regulations concerning the Control of Electronic Products (Government Notice R1332 of 3 August 1973) prescribe as follows:

Paragraph III.5(C) (3)(I) "film badge films are replaced by the Service (Monitoring Service) at regular intervals not exceeding 32 days"

Thus, approval for workers required by the Dept. of Health to be registered as radiation workers, wearing periods longer than 32 days may not be granted.

ADDRESS OR STAFF CHANGES

Please notify RPS as soon as possible of any changes that need to be made, such as address details, contact person, staff changes, telephone number, fax number, etc. Amendments can be made via telephone, fax or e-mail. Telephonic notifications must be followed up by a written notification that can either be faxed or sent by mail. **Please note that no changes must be made on the dosimeter label.** Amendment forms are available from RPS. Ensure that all staff changes and registrations reach the RPS client liaison officer **at least three weeks** before the beginning of the following wearing period, because the dosimeters are issued two weeks before the wearing period begin date.

When contacting RPS, it is important to have the applicable information at hand:

- ✓ Your place reference number.
- ✓ If a person has been registered before, the BIN is required.
- ✓ If a person has not yet been registered, their date of birth and ID number are required.
- ✓ Your account number when inquiring about your account

ACCOUNTS:

- ✓ Organizations making use of official standing orders must supply us, in advance, with an official standing order for dosimeters so that we can refer to it on our invoices.
- ✓ You will be invoiced as soon as your account exceeds a threshold value, or when your account has been accumulating for three months.
- ✓ There are two distinct types of invoice:

- Outstanding dosimeter invoices: These are for dosimeters not returned within 12 weeks after the end of the wearing period. The invoice description contains the words: “ *Dosimeters not received*”
- Administration fee invoices: These invoices are for the issue, despatch and processing of dosimeters. The invoice description has three columns namely: “*Item, Quantity, Unit Price*”. These invoices must be paid within 30 days.
- ✓ Statements will be sent on a quarterly basis. Monthly statements are available upon request.
- ✓ **Please note that the RPS service to you will be suspended once an invoice reaches the 90 days outstanding mark.**

GENERAL INFORMATION:

- The clips and holders for personnel TLDs and neutron TLDs are provided with the first issue of dosimeters and must be retained for use with subsequent consignments of dosimeters. New or replacement clips are available from the RPS if required.
- A permanent record of all the doses received for a person is kept by the RPS and is available on request.
- The dosimeter allocated to a person is to be worn by that person only!
- Dosimeters can also be issued for experimental purposes on request
- “Blank” dosimeters (not issued to a specific person) can be issued on request. (*See par.2 of Conditions of use*)
- It is the RPS’s responsibility to ensure that the dosimeters reach you. Please inform us within 10 (ten) days after the start of the wearing period if you have not received your dosimeters. It is the client’s responsibility to ensure that RPS receives your dosimeters after you have used them.
- We suggest that dosimeters are sent back to RPS by traceable post. **Note that extra postage is required when returning the dosimeters to the RPS in the envelope supplied.**
- Do not return the current dosimeters unless the next batch has arrived. Keep on wearing the current dosimeters until alternative arrangements have been made.
- **Please read the enclosed conditions of use**

CONTACTING RPS

Client liaison officer contact details:

RPS e-mail: [rps@sabs.co.za](mailto: rps@sabs.co.za) RPS Fax: (012) 428 6685

Week 1 Rebone Phetla (012) 428 6872

Week 3

Obitha Mokwena (012) 428 6881

Week 2 Val Kuhn (012) 428 6880

Week 4

Sharron Tulloch (012) 428 6199

CONTACT DETAILS OF REGULATING BODIES:

Dept. of Health Head Office address:

Department of Health
 Directorate: Radiation Control
 Private Bag X62
 BELLVILLE
 7530

TEL: (021) 948-6162

National Nuclear Regulator:

NNR
 Po Box 7106
 Centurion
 0046

TEL: (012) 674 7100