

RSO, INC.

DOSIMETRY SERVICE INSTRUCTIONS

AND

INTRODUCING LUXEL

ACCREDITATION THROUGH NVLAP

Introduction and Start-Up of Service

Welcome to RSO, Inc.'s (RSO) radiation dosimetry service. This service is provided by RSO from Landauer, one of the largest and most respected suppliers of personnel dosimetry services.

To start up service, you must first determine who will be monitored, the part of the body to be monitored (whole body, extremities, etc.) and the frequency of exchanges. In many cases some of these determination have already been made in the application for a radioactive materials license or internal radiation safety program requirements. Read about Types of Badges and Uses to help with this decision.

In general, regulations require that the radiation dose history for the current monitoring year be known for individuals that are required by the regulations to be monitored. A State of Maryland Form 492 or NRC Form 5 equivalent can be used by the employer to document this history (a copy of the Md. Form 492 or NRC Form 5 is attached and can be reproduced). Each person should complete the form and provide a copy to RSO, Inc. keeping a copy on file as part of your dosimetry program records. As exposure histories are documented administrative additions can be made to each individual's lifetime dose.

To start the service RSO must receive the initial set up fee which can be paid by check or a valid Purchase Order Number, or, you may pay by VISA or MASTER CARD. Small accounts or short term service customers will be asked for pre-payment of the total amount of the expected service.

Dosimeters are sent to you by mail at the beginning of the monitoring period with a packing slip. Analysis of the dosimeters is performed after return to Landauer, and a report is issued that includes the information required by most regulatory agencies.

Please be aware that you will be invoiced the full amount for every dosimeter ordered (even if it is not used) unless you delete the order before the badges are made by Landauer. Monthly badges are made usually at the beginning of the proceeding month (for example a set of monthly badges with start dates of Jan. 5 may be made as early as December 1 to allow sufficient time for packaging and mailing). Quarterly badges are made up to 60 days before the beginning of the wear period (this allows Landauer to spread the production schedule out over a longer period of time).

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Types of Dosimeters

Luxel® Badges, Type P (X-ray, Beta and Gamma) and Type J (X, B, G and Neutron monitoring) for Whole Body Doses

Luxel® badges are designed for monitoring whole body radiation doses of personnel. They are available for monthly, quarterly monitoring periods. The lightweight badge includes an "alligator" style holder for the dosimeter that holds it close to the body and allows wearing on tie, belt, collar or pocket. The standard whole body badge is designated a **Type P**.

When used with the fast neutron component (CR-39) and known as Neutrak 144 the Luxel® badge is designated a **Type J**.

Luxel badges also available in a wrist-style for extremity monitoring or can be designated for monitoring specific areas of the body or other applications.

TLD Ring Badges (Type U) for Extremity Monitoring

TLD ring badges were designed for monitoring extremity radiation doses. They also are available for monthly, quarterly monitoring periods. The rings area available in different sizes (small, medium, and large).

Control Dosimeters

A control dosimeter is sent with each badge shipment to monitor radiation received in transit or storage. It must not be used for any other purpose. The control should be kept in a holder in a normal background area, stored with all other badges when those badges are not being worn; and it must be returned in the same envelope with the other dosimeters of the same wear date for evaluation. The dose received by the control will be subtracted from the result for each dosimeter in the returned group of dosimeters.

Monitoring Period

The monitoring period you select for your account (either monthly or quarterly) will should be based on consideration of a number of factors:

- **license or regulatory requirement:** the exchange frequency may be specified in license application
- **growing number of personnel, turnover of personnel:** monthly exchange works best if personnel change frequently or if your program is expanding, with quarterly service changes you are charged for the whole quarter, even if only needed for part of the quarter
- **dose tracking:** monthly exchange provides more immediate information which can be used to help control doses

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- **ease of administration:** quarterly service requires fewer exchanges
- **habits of personnel:** monthly exchanges provide more periodic reminders to personnel of the dosimetry program

Badge Use

Your first shipment contains Luxel® packets, Luxel® holders, TLD ring badges (if ordered), control badges and a packing slip. Keep possession of the holder and exchange only the dosimeter pack/TLD rings at the end of the monitoring period.

Each Luxel® packet or TLD ring is identified with your series code which starts with an alpha character (e.g. S44), the wearer number and a code indicating the badge type and type of exposure to be monitored.

1. To insert the Luxel® badge into the holder, place one edge into one side and snap in the opposite edge.
2. Dosimeters should be worn to monitor occupational dose. Whole body badges should be worn between waist and neck level to best measure doses to the trunk. If however, one area of the body is more likely to be exposed than the rest, the badge should be worn in that area. The front of the badge should face away from the body. Do not allow clothing, buttons, buckles, pens, etc. to shield the front of the badge.
3. Ring badges should be worn on the hand most likely to receive the highest doses. If handling radioactive material, wear the ring with the label on the palm side of the hand. If desired, rings can be provided for both the right and left hands.
4. At the end of the work day, all badges should be removed and stored with the control badge. This should be a normal background area away from sources of radiation.
5. A badge issued to one person must never be used by another person or for another purpose.
6. The Luxel® pack and ring TLD badges are sealed and must not be opened. Damage and loss of accuracy may be caused by any attempt to open the badge.

Badge Exchange

Replacement Luxel® packets and TLDs will be sent before the end of your monitoring period. Monitoring periods for monthly service will start on the 5th of the month,

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monitoring periods for quarterly will begin on the 1st of the month per calendar quarter. Use the packing slip to ensure all badges were included in your shipment and as a check list when badges are returned at the end of the monitoring period.

After changing, return the used badges to Landauer with the corresponding control badge. Be sure to use the return address label provided. You must write your address in the return address portion of the label and obliterate or cover all of RSO's label.

Changes to Your Account

All changes to your account (additions or deletions) are to be made through RSO.

ADDITIONS.....You should **fax** or **write RSO, Inc.** to add persons for monitoring. When making changes please include your Account Series Code #, and the following information for each person(s) being added: Full name, Social Security Number, Date of Birth, Sex and Dosimeter Type. Any information sent to RSO should have the series # and the above information as well. **Do not reassign badge numbers to persons other than those to whom they were originally assigned since all exposure records are kept by badge number.**

A badge issued to one person must never be used by another person. When reinstating personnel, you should supply the wearer number and approximate time period of the last dosimeter worn.

DELETIONS.....You should fax or write RSO to delete participants from monitoring. Deletions received after the 1st of the preceding month may result in dosimeter(s) being sent for that person for the next month. For deletions to your account you will need your Account Series Code Number and Badge Number of each person being deleted. Return the Luxel pack and TLD rings directly to Landauer. You will be charged for unreturned badges/rings. These products are reused and the TLD chips have a relatively high value.

CANCELLATION OF SERVICES.....**RSO must be notified in writing at least 30 days before the beginning of the next monitoring period. All dosimeters must be returned to Landauer.**

Reports

At the end of each monitoring period, after dosimeters have been returned and evaluated, a radiation exposure report will be issued. If you have a question about a report, please call and have ready the Process Number of the report in question. If you need a copy of a

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report, RSO can provide a photocopy at no charge (during the calendar year). Duplicate reports are available to match the original for small additional charges. Reports take 1 to 2 weeks.

Special administrative reports are available and are useful in maintaining personnel records. Annual reports summarize an individual's exposure in one year increments and termination reports summarize an individual's exposure while employed with your company. These reports are very useful when responding to requests for historical doses. See price list for charges for these reports.

Administrative Dose

Assignment of doses may be required under certain circumstances, such as a lost or damaged dosimeters. Also, adding a person's past exposure to their lifetime dose or current year dose from another employer is a type of administrative dose. At most facilities it is the responsibility of the radiation protection officer (RPO) to make administrative assessment of the dose for the monitoring period as necessary. The RPO should consider the person's normal dose for the work performed, dose trends, dose received for that period by individuals performing similar work or in the same area and any unusual events (accidents, spill, etc.) to accurately estimate a missing dose.

A letter or memo to the individual's dosimetry file with a copy to RSO must be used and this assessment (even if it is zero) will be added to the individual's report. Include the person's name, social security number, monitoring period and reason for the administrative dose.

