

<b>UT Health Science Center:</b> <b>RSP28 - Adjustment to Wearer's Dosimeter Reading</b>	
<b>Version 1</b>	<b>Publication Date: 02/16/2026</b>

## Objective

This procedure establishes the process for making dose adjustments to wearer's dose history when recorded doses have been determined to be too low, too high, or when dose data is not available due to damaged or lost dosimeters.

## Scope

This procedure has been developed and implemented by UTHSC Research Safety Affairs and approved by the UTHSC Radiation Safety Committee. This procedure applies to all UTHSC employees, students, contractors, and campus visitors assigned radiation dosimetry.

## Roles

Radiation Safety Officer (RSO) – Monitor radiation exposure data for individuals on campus that are monitored for ionizing radiation exposure. Investigate exposures that exceed the dose thresholds established in RSPXX ALARA Investigation Procedure.

Director of Research Safety Affairs – Review RSO investigation results and communicate to appropriate UTHSC management and if appropriate to other campus oversight committees.

UTHSC employees, students, and contractors – fully comply with all UTHSC procedure requirements when using assigned radiation dosimetry.

## Definitions

Dose adjustment – A modification of a radiation dose received by a worker to either increase or decrease the measured exposure after a thorough investigation by the campus Radiation Safety Officer that determined the measured dose does not accurately reflect the dose received by the worker.

EDE 1 dose correction – Dose correction made for individuals that wear lead aprons and are assigned two body dosimeters, one dosimeter worn on the collar outside a lead apron and the other dosimeter worn at waist level under the lead apron. The dose adjustment is the sum of 1.5 times the deep dose

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measured under the lead apron and 0.04 times the deep dose measured by the neck dosimeter.

EDE 2 dose correction – Dose correction made for individuals that wear lead aprons and are assigned a body dosimeter worn outside the lead apron at the neck. The dose adjustment is made by multiplying the effective dose equivalent for external radiation by 0.3.

## **Procedure**

### **I. General requirements**

- A. All modifications to an exposure reading must be made by the Dosimetry supplier – Landauer or Marion – at the request of the RSO.
- B. The results of the RSO investigation that will result in a reduction of dose must be documented in writing, presented to the Radiation Safety Committee, and provided to the badge wearer.

### **II. Allowable Dose Modifications**

- A. Dose received by the dosimeter wearer using medical, dental, or veterinarian x-ray generating machines exceeds 25% of annual effective dose limit for external radiation, i.e., 1.25 rem.
  1. Conditions required for modification to be considered
    - a. The wearer must have used a lead apron for all activities in which exposure was received.
    - b. The dosimeter must have been worn on the collar outside of the lead apron for all activities in which exposure was received.
  2. If investigation by RSO confirms conditions in II.B are met –
    - a. RSO must contact the TDEC Division of Radiological Health X-ray manager and present investigation findings.
    - b. With the concurrence of the TDEC Division of Radiological Health, the RSO will request that the dosimeter provider make an EDE 2 correction to the dose in question assigned to the wearer.
- B. Wearer loses assigned dosimeter or dosimeter is unreadable for the reporting period.
  1. RSO will investigate the wearer's work activities for the reporting period.

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2. If sufficient data can be obtained, the RSO will prepare an estimate of the dose for the wearer. The estimate may be based on one or more of the following factors:
    - a. Direct calculation of dose based on work performed and source involved.
    - b. Review of previous doses received by wearer conducting similar work and similar workload.
    - c. Estimate for wearer dose based on doses received by coworkers doing similar work with a similar workload.
    - d. Other methodology for estimates if reasonable for the case.
  3. RSO will request the dosimeter provider make the correction to the wearer's dose record.
- C. Badge is left or stored in a radiation or radioactive materials work or storage area by wearer such as wearer's badge gets exposed at airport x-ray security scanner, badge is left or dropped in a radiation work or storage area (left pinned on a lead apron, left in an exam room, etc.), badge is contaminated with radioactive materials, or badge intentionally irradiated.
1. Conditions required for modification to be considered
    - a. Dose must be more than 500 millirem deep dose for the reporting period or dose must be sufficient to produce an annual dose more than 5 rem deep dose.
    - b. Sufficient documentation must be available to RSO to conclude the dose was not received by the wearer.
    - c. The Radiation Safety Committee must approve exclusion of the dose from the wearer's exposure history.
  2. RSO will investigate the wearer's work activities for the reporting period.
  3. The RSO will estimate the actual dose the wearer received during the reporting period. The estimate may be based on one or more of the following factors:
    - a. Direct calculation of dose based on work performed and source involved.

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- b. Review of previous doses received by wearer conducting similar work and similar workload.
  - c. Estimate for wearer dose based on doses received by coworkers doing similar work with a similar workload.
  - d. Other methodology for estimation if reasonable for the case.
4. Upon concurrence by the Radiation Safety Committee, the RSO will request the dosimeter provider make the correction to the wearer's dose record.

### **III. Documentation**

- A. Document of dose adjustment will be stored in the following locations:
  1. The wearer's EHSA record.
  2. RSA SharePoint site Dose Adjustment folder.

### **Penalties/Disciplinary Action for Non-Compliance**

License violations are subject to civil penalties up to \$5,000 per day per violation. In the event of a threat to public health and safety, the Division has the right to confiscate radiation sources.

### **References**

- I. [CRCPR Suggest State Regulations for Standards for Protection Against Radiation \(Part D\)](#)
- II. [EDE1 and EDE 2: Understanding Dose Correction Methods for Radiation Workers \(Landauer\)](#)
- III. [US NRC Regulatory Guide 8.40 METHODS FOR MEASURING EFFECTIVE DOSE EQUIVALENT FROM EXTERNAL EXPOSURE](#)
- IV. [Tennessee Administrative Code Title 0400 - Environment and Conservation Subtitle 0400-20 - Division of Radiological Health \(§§ 0400-20-05-.50\)](#)
- V. [Parsons, Ron, TN Division of Radiological Health; Email correspondence; Received by Terry Coggins, 16 June 2025.](#)

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VI. [Hayes, Jessica, TN Division of Radiological Health; Email correspondence; Received by Terry Coggins, 18 June 2025.](#)

### **Responsible Official & Additional Contacts**

This Responsible Official and Additional Contacts section contains those who are responsible or share certain policy responsibilities, organized by subject matter, such as monitoring compliance with the policy, providing additional guidance on policy clarifications, organizing policy training, updating the policy, etc.

<b>Subject Matter</b>	<b>Office Name</b>	<b>Telephone Number</b>	<b>Email/Web Address</b>
Policy Clarification and Interpretation	Research Safety Affairs	(901) 448-6114	radsafety@uthsc.edu
Policy Training	Research Safety Affairs	(901) 448-6114	radsafety@uthsc.edu

### **Related Policies/Guidance Documents**