

# INSPECTING RADIATION PPE

All UW units (e.g., departments, divisions, clinics, facilities, etc.) are required to inspect radiation personal protective equipment (RPPE) provided for employee protection (Reference 4). RPPE includes aprons, vests, thyroid collars, and other items worn by individuals for radiation protection. Historically RPPE has been referred to as “lead aprons;” however, current RPPE may contain lead-composite or no lead. Units that provide RPPE for employee protection should contact EH&S Radiation Safety to setup an RPPE tracking and inspection program.

## REQUIREMENTS

RPPE provided for employee protection must be inspected at least annually and upon request by a user. The results of the inspections must be sent to EH&S Radiation Safety for tracking.

**Keeping a worker protected is the number one priority;** wearing RPPE with a small defect is better than not wearing RPPE when it is needed. RPPE with a small defect may continue to be used, but replacement RPPE should be ordered as quickly as possible.

## PROCEDURE

1. Verify the RPPE item is labeled with the required information.
  - An identification number
  - Date the RPPE was placed in service.
  - Date of the most recent inspection
  - Due date for the next inspection (one year from the last inspection)
2. Lay the RPPE item on a flat surface and conduct a physical inspection. Training is available from [EH&S Radiation Safety](#). Guidance is also provided in Reference 1.
  - Visually check all seams and the outer and inner covers for any visible damage.
  - Check the belts and fastening devices to confirm they are in good shape.
  - Use your hands to feel the surface of the item for any lumps, cracks, perforations, thinning, creases, or evidence that the

shielding is separating from the seams or sagging. (**Figure 1**)

3. Immediately remove the RPPE item from service if it does not pass the physical inspection.
  - If desired, further evaluation by fluoroscopy may be performed to ensure the integrity of the shielding material. If you do not have access to a fluoroscopy unit, contact EH&S Radiation Safety.
  - The RPPE item may not be returned to service without permission from EH&S Radiation Safety.
  - Defective lead RPPE must be properly disposed by submitting an [Online Chemical Waste Collection Request form](#).
4. Report the results of the inspection to EH&S Radiation Safety and inform us of any defective RPPE item that was taken out of service.



**Figure 1** Visual inspection of RPPE (Photo credit: Reference 1)

## FLUOROSCOPY TESTING

If an RPPE item is evaluated by fluoroscopy:

- Only trained personnel may operate fluoroscopy units.
- Do not use automatic brightness control, as this will drive the tube current and high voltage up, resulting in unnecessary radiation exposure to personnel.
- Use manual settings and low technique factors (e.g., 80 kVp).

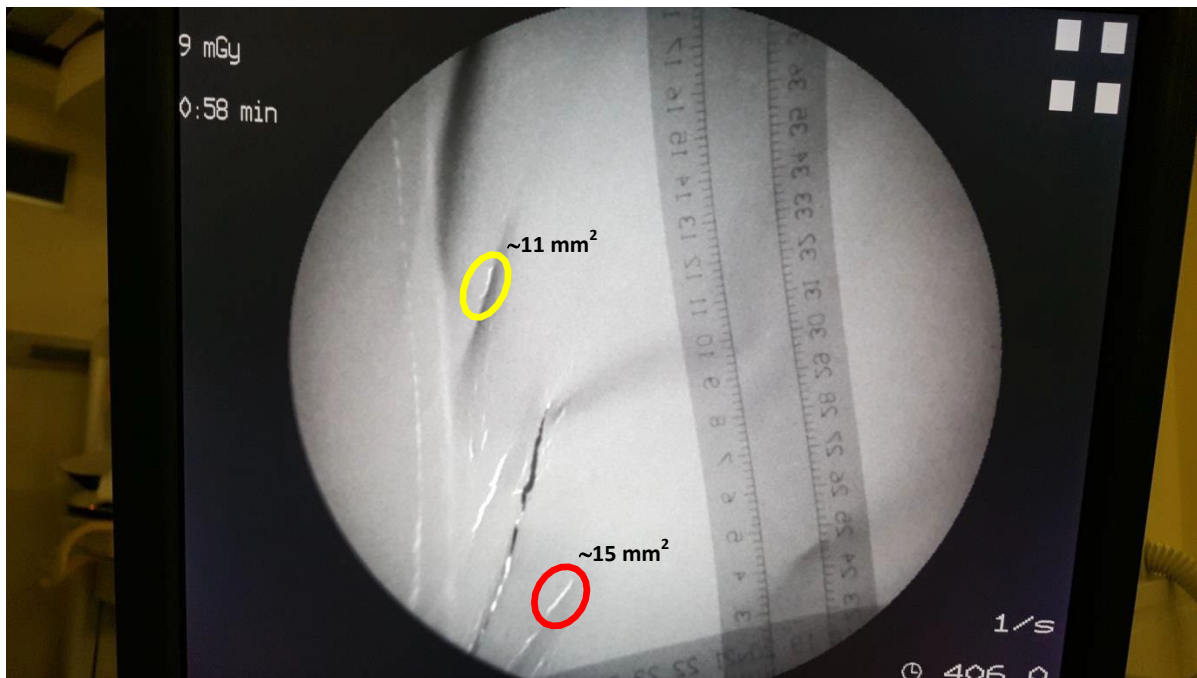
Consult with EH&S Radiation Safety for the allowable size of defects. In general, the following criteria from Reference 2 will be used:

- Up to 15 mm<sup>2</sup> in areas over a critical organ (e.g., gonads)
  - Note the red circle in **Figure 2**.
- Up to 11 mm<sup>2</sup> for thyroid shields
  - Note the yellow circle in **Figure 2**.
- Up to 670 mm<sup>2</sup> in other areas

Additional information and pictures are provided in Reference 3.

## REFERENCES

1. [How to Inspect Your Lead Apron from Burlington Medical \(burmed.com\)](http://burmed.com)
2. Lambert, Kent and McKeon, Tara. Inspection of Lead Aprons: Criteria for Rejection. Operational Radiation Safety, 80(5): S67-S69
3. [Example Protective Garment QA Program \(health.wa.gov.au\)](http://health.wa.gov.au)
4. UW Radiation Safety Committee Policy: Inspections of radiation personal protective equipment



**Figure 2** Example radiograph of RPPE with defects. Bright white areas indicate defects in the shielding material. (Photo credit: Reference 3)

Contact EH&S Radiation Safety at 206.543.0463 or [radsaf@uw.edu](mailto:radsaf@uw.edu) for more information.