

University of Texas – San Antonio Health Science Center
Environmental Health and Safety Department
Radiation Safety Division
Guidance Document

Title: Ionizing Radiation Protective Device Inventory & Inspection

Origination Date: August 10, 2009

General:

Minimizing the exposure of healthcare professionals and patients to ionizing radiation is the principle behind the concept of ALARA (As Low As Reasonably Achievable). An important component in ensuring that individuals minimize exposure to ionizing radiation is the utilization of shielding to reduce dose. When working with ionizing radiation sources, such as x-rays, protective devices are used by healthcare workers and patients to reduce their exposure. To ensure that protective devices used by healthcare professionals and patients provides the maximum amount of protection, as well as to meet requirements set forth by the Joint Commission of the Accreditation of Healthcare Organizations), radiation protective devices must be inventoried and inspected.

Scope:

This Guidance Document outlines the protocol for the task specified. These guidelines are subject to regular review, revision, and/or amendment pending approval from the Radiation Safety Officer or the Assistant Radiation Safety Officer.

Definitions:

Protective Device: A device composed of a high density material, commonly lead, which provides shielding to the user. When worn correctly, these devices will reduce the dose of ionizing radiation that the user receives. Protective devices of interest include aprons, thyroid shields, gonad shields, vests and skirts.

Ionizing Radiation: High energy subatomic particles or electromagnetic waves that are capable of stripping electrons (ionizing) an atom or molecule. Ionizing radiation can be either naturally produced (e.g. a radioactive source such as Co-57) or manmade (e.g. an x-ray producing machine). Exposure to ionizing radiation can cause various biological effects and damage depending upon the length of time the individual was exposed, as well as the type and energy of the ionizing radiation.

Guidance:

1. An inventory is maintained by the Radiation Safety Division of the ionizing radiation protective devices in use at the University. Departments procuring ionizing radiation protective devices are requested to notify the Radiation Safety Division so the new unit can be added to the inventory.
2. Protective devices are inventoried annually. Each protective device will have assigned to it a unique identification number. In addition, the type of protective device and additional identifying information (such as color, markings) will be noted on the inventory for future identification. For those protective devices located at the main University Hospital site, this number will be a 4-digit number. For protective devices located at off-site locations, this code will be a 6-8 alphanumeric combination, with the letters identifying the site and the numbers uniquely identifying the device. The following is a legend identifying the codes used:

Letters in ID #	UHS Off-Site Location
BCJ	Bexar County Jail
NC	North Clinic
SC	Southwest Clinic
SEC	Southeast Clinic
UCCH	University Center for Community Health
UHCD	University Health Center Downtown

Letters in ID#	UTHSCSA Off-Site Location
MCD	McDermott Building
LAR	Laredo Dental Clinic
SAMM	5922 Blanco Road SAMM Dental Clinic
JTL	Joe & Teresa Long Campus
CAR	Carrington Building
MARC	Medical Arts & Research Center

3. Each protective device will have an adhesive tag affixed to it by the Radiation Safety Division. The color of the tag will change each calendar year to aid in rapid identification of devices that may potentially require inventorying and inspection. The adhesive tag will be affixed to an area of the protective device that will be less susceptible to wear so as to prevent loss of the tag. Each adhesive tag will have written on it the unique identification number for that device, the date of last inspection, and the initials of the individual that inspected the device.
4. While the protective device is being inventoried, it will be inspected for any tears,

cracks, holes or deformities. The lead thickness will be verified to ensure it is of the appropriate thickness for the procedure being performed. Superficial and minor tears to the covering cloth are acceptable so long as there is no damage to the internal shielding. Any protective devices that have obvious breaks, holes or cracks in the lead will be removed from service. In addition to visual inspection of protective devices, it is possible to verify the integrity of the protective devices through radiographic or fluoroscopic imaging, however at this time this is not standard protocol for the Radiation Safety Division.

5. Following completion of the inventory, the department will be notified of any missing or unaccounted devices and they will be instructed to find the protective devices or notify us that they are no longer in use so that they may be removed from the inventory.
6. An inventory will be provided to each department to post in their area in the event that the tag is missing.
7. A combined inventory for UHS will be provided to the Radiology Director.

References:

Lambert K, McKeon T. Inspection of lead aprons: criteria for rejection. Health Phys. 2001 May;80(5 Suppl):S67-9.