

Radiation Safety Practices for Veterinary Officesⁱ

1. The radiation exposure to the animal shall be the minimum exposure required to produce images of good diagnostic quality.
2. Protective shielding of not less than 0.25 mm lead equivalent and a pair of protective gloves of not less than 0.5 mm lead equivalent must be made available to any individual operating the x-ray unit at the radiographic table position or is assisting at the radiographic table when an exposure is being made.
3. Individuals under the age of 18 years are restricted to an occupational dose of 500 millirem per year.
4. When an animal must be provided with auxiliary support during a radiographic exposure:
 - a. Mechanical holding/restraining devices shall be used when the technique permits. Individuals may be used to hold a patient only when absolutely necessary, and no individual shall be used routinely for this purpose to the exclusion of others that might share the task.
 - b. If a human holder is required, the holder shall be positioned such that no part of the body will be struck by the primary x-ray beam unless protected by at least 0.5 millimeter lead equivalent, and shall be protected from the direct scatter radiation by a protective apron of not less than 0.25 millimeter lead equivalent.
5. Personnel monitoring devices shall be issued to any individual who is likely to receive more than 10% of the maximum permissible occupational dose per calendar quarter set forth in 12VAC5-481-640 A.
6. When protective shielding or devices are worn on portions of the body and a personnel monitoring device is required, at least one such monitoring device shall be utilized as follows:
 - a. When an apron is worn and only one personnel monitoring device is in use, the device shall be worn at the collar outside the apron.
 - b. The dose to the whole body or the maximum dose attributed to the most critical organ shall be recorded. If more than one device is used, each dose shall be recorded and identified with the area where the device was worn on the body.
 - c. The position on the body at which a particular personnel monitoring device is worn and used should not be changed during any calendar quarter.
 - d. Personnel monitoring devices should not be deceptively exposed to alter the reported dose delivered to an individual.
 - e. If the personnel monitoring device is lost or damaged, the worker shall cease work immediately until a replacement personnel monitoring device meeting the requirements of 12VAC5-481-1350 A is provided and the exposure is calculated for the time period from issuance to loss or damage of the personnel monitoring device. The results of the calculated exposure and the time period for which the personnel monitoring device was lost or damaged must be included in the records maintained in accordance with 12VAC5-481-1490.
 - f. Control badges provided with personnel monitoring devices are intended to determine background radiation exposure and should be kept as far apart from the x-ray unit(s) as possible. No control badge should be placed in an exam room.
7. The x-ray beam should not be directed towards doors, windows, x-ray controls or towards the darkroom walls unless no other geometry is possible.
8. The x-ray operator shall stand at least six feet away from the primary x-ray beam and the animal during radiographic exposures unless the animal must be held by the operator.
9. X-ray detector devices should be used to avoid exposure to the primary beam when it is not possible to use radiographic tables.
10. If the animal must be held during the radiographic exposure, only staff and necessary personnel required for the x-ray shall be in the room during the radiographic exposure. Other than the animal being examined:
 - a. All individuals shall be positioned such that no part of the body will be struck by the primary beam unless protected by at least 0.5 millimeter lead equivalent.
 - b. Staff and ancillary personnel shall be protected from the direct scatter radiation by protective aprons or whole body protective barriers of not less than 0.25 millimeter lead equivalent.
11. Tube heads and beam limiting cones (portable units) should not be held by the operator during an exposure.

Revision History

Date	Summary of Changes
12/4/2020	Original document posted to Virginia Regulatory Town Hall.
7/5/2023	Document reviewed and amended. Minor edits to improve grammar and clarity.

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ⁱ This guidance document is intended to emphasize select radiation safety practices that should be displayed for x-ray operators to view. Operators and owners of x-ray units are required to adhere to all regulatory requirements contained within the Virginia Radiation Protection Regulations (12VAC5-481). Page one of this document satisfies the posting requirement pursuant to 12VAC5-481-1591.