



Minnesota Rules, Chapter 4732 X-ray Revision

PROPOSED DRAFT BOMB DETECTION X-RAY SYSTEMS, 1.0

4732.##### BOMB DETECTION X-RAY SYSTEMS.

Subpart 1. **Applicability.** A registrant's bomb detection x-ray system must comply with the requirements of this part for the purpose of detecting explosive devices using portable, mobile, or handheld devices.

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Subp. 2. **Safety device.** A registrant is responsible for the requirements of this subpart.

A. A bomb detection x-ray system must have a security feature with a lock design to prevent unauthorized or accidental production of ionizing radiation.

B. The exposure switch of a bomb detection x-ray system must:

- (1) be able to terminate the exposure at any time during an exposure of greater than 0.5 seconds; and
- (2) prevent an exposure when the timer is set to "zero" or "off" position if either position is provided.

Subp. 3. **Warning lights and devices.**

A. A discernible and visible warning light, labeled with the x-ray words "X-RAY ON", or words having similar meaning, must be:

- (1) located on or near the x-ray source and its controls; and

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(2) illuminated when the x-ray source is energized.

- B. The x-ray tube "on-off" status must be located near the radiation source housing. This requirement may be met if the warning lights are discernible and viewable by anyone near the useful beam.

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Subp. 4. Beam ports. Unused beam ports on radiation source housings must be secured in the closed position to prevent opening.

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Subp. 5. Shutters. For a bomb detection x-ray system designed with shutters, each beam port on the radiation source housing must be equipped with shutters that cannot be opened unless either a collimator or a coupling has been connected to the beam port.

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Subp. 6. Labeling. A registrant is responsible for labeling a bomb detection x-ray system according to this subpart.

- A. A bomb detection x-ray system must be labeled near any switch that energizes an x-ray tube with a visible and discernible sign bearing the radiation symbol and the words "CAUTION RADIATION - THIS EQUIPMENT PRODUCES IONIZING RADIATION WHEN ENERGIZED", or other words having similar meaning.
- B. A bomb detection x-ray system must be labeled at or near the x-ray beam port to identify the location of the beam with the words "CAUTION - HIGH INTENSITY X-RAY BEAM", or other words having similar meaning.

Subp. 7. Safety device evaluation. A registrant is responsible for the safety device evaluation of a bomb detection x-ray system:

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- A. upon installation; and
- B. at intervals not to exceed 180 days.
- C. A safety device evaluation includes:
 - (1) safety device under subpart 2;
 - (2) warning lights;
 - (3) warning devices, and
 - (4) shutters, if applicable.
- D. A safety device evaluation must verify that:
 - (1) all bomb detection x-ray safety devices are functioning as designed; and
 - (2) all labels are legible and visible.
- E. If a bomb detection x-ray safety device is not functioning as designed, then it must be:
 - (1) labeled immediately as defective; and
 - (2) removed from service until the safety device is repaired.
- F. A registrant must maintain a record of safety device evaluations for a bomb detection x-ray system. The record must include:
 - (1) the dates of evaluations;
 - (2) a list of the safety devices evaluated;
 - (3) the results of the evaluations;
 - (4) the name of the individual performing the evaluation; and
 - (5) the corrective actions recommended and performed for any safety device that fails the required evaluation.

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- G. When a bomb detection x-ray system is returned to service after being locked-out and tagged, it must be evaluated before use if the date of the last safety device evaluation exceeds the 180-day interval under item B.
- H. A bomb detection x-ray system that is locked out and tagged "DO NOT USE" by the radiation safety officer is exempt from this subpart.

Subp. 8. **Radiation emission limit.** A bomb detection x-ray system must be located and arranged to include sufficient shielding or access controls to prevent radiation emission in any area surrounding the local component group that may result in a dose to an individual in excess of the dose limits under part 4732.####. The dose limits must be met at the maximum tube rating.

Subp. 9. **Useful beam attenuation.** A registrant must provide protective measures when the useful beam is not intercepted by the detector device under all conditions of operation to avoid exposure to any individual from the useful beam. For purposes of this subpart, protective measures include auxiliary shielding or administrative procedures.

AREA SURVEY REQUIREMENTS

Subp. 10. **Area survey.** A registrant is not required to perform an area survey for mobile and portable bomb detection x-ray systems when using the United States Federal Bureau of Investigation standard operating procedure of clearing an evacuation distance of at least 300 feet in all directions from the x-ray source.

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CONDITIONS OF OPERATION

Subp. 11. **Safety procedures.** A registrant must develop and comply with operating and emergency procedures for ba omb detection x-ray system.

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A. Operating and emergency procedures for bomb detection x-ray systems may be maintained in electronic or written form;

B. Operating and emergency procedures for bomb detection x-ray systems must include:

(1) storage and security of a bomb detection x-ray system;

(2) Verification of the operability and safety of radiographic exposure devices and radiation machines before each use;

(3) equipment malfunctions;

(4) minimizing exposure of individuals in the event of an accident;

(5) notifying proper personnel in the event of an accident; and

(6) locked out and tagged.

C. Operating and emergency procedures must be available to an operator of a bomb detection x-ray system.

Subp. 12. Temporary job site. A registrant must maintain copies of the following

documents and records with a bomb detection x-ray system:

A. certificate of registration; and

B. operating and emergency procedures.

Subp. 13. Utilization data. A registrant must maintain utilization data for a bomb

detection x-ray system. Utilization data include:

A. manufacturer, model number, and serial number;

B. location and dates of use; and

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- C. identity and authorization or signature of the operator.
- D. Utilization data for a bomb detection x-ray system may be maintained in electronic or written form.

Subp. 14. Storage and security; notification in event of theft or loss.

- A. A registrant must develop and implement written procedures for storage and security of a bomb detection x-ray system to prevent unauthorized use or removal when the bomb detection x-ray system is not under the control and constant surveillance of an operator or the registrant.
- B. A registrant must notify the commissioner of the theft or loss of a bomb detection x-ray system according to part 4732.####.

Subp. 15. Additional requirements for handheld bomb detection x-ray systems. The requirements in this subpart apply to a handheld bomb detection x-ray system.

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- A. An individual or an operator must not hold the sample while the bomb detection x-ray system is operating;
- B. An individual or an operator's hands must not be in the useful beam;
- C. An operator must not aim the useful beam at any individual during operation of the bomb detection x-ray system;
- D. The exposure switch must be a "dead-man" type; and
- E. An individual must maintain a distance of at least 6 feet (1.8 meters) from the tube housing assembly and the useful beam while exposures are made. If any

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individual must be within 6 feet from the tube housing assembly, then an individual must wear a 0.5 millimeter lead equivalent apron.

F. A registrant's use of a hand-held bomb detection x-ray system is exempt from subpart 10.

Subp. 16. Records.