



Minnesota Rules, Chapter 4732 X-ray Revision

DRAFT X-RAY SYSTEMS FOR SUSPECTED HAZARDS, 2.0

4732.##### X-RAY SYSTEMS FOR SUSPECTED HAZARDS.

Summary of Changes

MDH made a number of changes to the X-Ray Systems for Suspected Hazards rule draft v1.0 (formerly “Bomb Detection X-ray Systems”) based on feedback from local law enforcement and the industrial focus group’s review and feedback at the February 9, 2018 meeting. The changes are described below.

Title.

- Deleted “Bomb Detection X-ray Systems” and changed to “X-ray Systems for Suspected Hazards”
- Conforming change. “bomb detection x-ray system” changed to “x-ray system for suspected hazards” throughout rule draft

Subp. 1. Applicability.

- Deleted “for the purpose of detecting explosive devices using portable, mobile, or handheld devices”
- Added “x-ray system used to detect suspected hazards, explosives, weapons, and illegal items must comply with the requirements of this part”

Subp. 3. Warning lights and devices.

- **Item A.** Deleted “labeled with the x-ray words “X-RAY ON”, or words having similar meaning.”

Subp. 4. Beam ports.

- Deleted this subpart.

Subp. 4. Shutters. [renumbered]

Subp. 6. Safety device evaluation. [renumbered]

- **Item A.** Deleted “upon installation” changed to “upon arrival”

Subp. 7. Radiation emission limit for training purposes. [renumbered]

- Modified headnote by adding “for training purposes”
- Added “that is used solely in a training capacity”

Subp. 9. Area survey. [renumbered]

- Deleted “of at least 300 feet in all directions from the x-ray source”
- Added “, or manufacturer’s specifications”

Subp. 12. Temporary job site.

- Deleted this subpart.

Subp. 13. Utilization data.

- Deleted this subpart.

Subp. 12. Additional requirements for a handheld x-ray system for suspected hazards for training purposes. [renumbered]

- Modified headnote by adding “for training purposes”
- Added “that is used solely in a training capacity”
- Added new **item F**. “An operator is not required to wear a lead apron while a handheld x-ray system for suspected hazards using if it is equipped with a backscatter shield.”

4732.#### X-RAY SYSTEMS FOR SUSPECTED HAZARDS.

Subpart 1. **Applicability.** A registrant's x-ray system used to detect suspected hazards, explosives, weapons, and illegal items must comply with the requirements of this part.

X-RAY SYSTEMS

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

- A. An x-ray system for suspected hazards must have a security feature with a lock design to prevent unauthorized or accidental production of ionizing radiation.
- B. The exposure switch for an x-ray system for suspected hazards 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.

Commented [JC(1)]: Ohio 3701:1-68-03

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

- A. A warning light indicating that the x-ray system for suspected hazards is energized must be:
- (1) discernible and visible when illuminated; and
 - (2) located on the x-ray source and its controls.
- 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.

Commented [JC(2)]: Ohio 3701:1-68-03

Commented [JC(3)]: SSR CR H8.(b)(i)

Subp. 4. Shutters. For an x-ray system for suspected hazards designed with shutters, each beam port on the radiation source housing must be equipped with shutters that cannot be opened unless a collimator is connected to the beam port.

Commented [JC(4)]: SSR CR H.8., p. 13

Subp. 5. Labeling. A registrant is responsible for labeling an x-ray system for suspected hazards according to this subpart.

- A. An x-ray system for suspected hazards 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. An x-ray system for suspected hazards must be labeled at or near the x-ray exit 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. 6. Safety device evaluation. A registrant is responsible for the safety device evaluation of an x-ray system for suspected hazards:

- A. upon arrival; 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.

Commented [JC(5)]: NC: 3 months

- D. A safety device evaluation must verify that:
- (1) all suspected hazards x-ray safety devices are functioning as designed; and
 - (2) all labels are visible and discernible.
- E. If a x-ray safety device on a x-ray system for suspected hazards 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 an x-ray system for suspected hazards. 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.
- G. An x-ray system for suspected hazards that is locked out and tagged "DO NOT USE" by the radiation safety officer is exempt from this subpart.
- H. When an x-ray system for suspected hazards 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.

Subp. 7. Radiation emission limit for training purposes.

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- A. An x-ray system for suspected hazards that is used solely in a training capacity must be located and arranged to prevent radiation emission to exceed the limit in item B of this part in any area surrounding the local component group by:
- (1) sufficient shielding; or
 - (2) access controls.
- B. The radiation emission limit must not result in a dose to an individual in excess of the public dose limits under part 4732.#### The public dose limits must be met at the maximum tube rating.

Subp. 8. **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. 9. **Area survey.** A registrant is not required to perform an area survey for mobile and portable x-ray systems for suspected hazards when following the United States Federal Bureau of Investigation standard operating procedure of clearing an evacuation distance, or manufacturer's specifications.

Commented [JC(6)]: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB911

CONDITIONS OF OPERATION

Subp. 10. **Safety procedures.** A registrant must develop and comply with operating and emergency procedures for an x-ray system for suspected hazards.

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A. Operating and emergency procedures may be maintained in electronic or written form;

B. Operating and emergency procedures must include:

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(1) storage and security of a suspected hazards x-ray system to prevent unauthorized use, removal, or accidental production of ionizing radiation when the non-medical hand-held x-ray system is not under the control and constant surveillance of an operator or the registrant;

(2) daily visual and operability checks of the suspected hazards x-ray system before use on each day to verify that:

a) the equipment is in good working condition; and

b) required labeling under subpart 5 is present.

c) If equipment problems are found during a daily check, then the equipment must be removed from service until it is repaired.

(3) responding to equipment malfunctions;

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

Commented [BB(8)]: Similar:NJ

(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 an x-ray system for suspected hazards.

Subp. 11. Storage and security; notification in event of theft or loss.

- A. A registrant must develop and implement written procedures for storage and security of an x-ray system for suspected hazards to prevent unauthorized use or removal when an x-ray system for suspected hazards 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 an x-ray system for suspected hazards according to part 4732.####.

Subp. 12. Additional requirements for a handheld x-ray system for suspected hazards

Commented [BB(9)]: SSR CR; Sec. H.9, page H15

for training purposes. A registrant's handheld x-ray system for suspected hazards that is used solely in a training capacity must meet the requirements in this subpart.

- A. An individual or an operator must not hold the sample while the handheld x-ray system for suspected hazards 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 a handheld x-ray system for suspected hazards;
- D. The exposure switch must be a "dead-man" type;
- 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 individual must be within 6 feet from the tube housing assembly, then an individual must wear a 0.5 millimeter lead equivalent apron; and
- F. An operator is not required to wear a lead apron while a handheld x-ray system for suspected hazards using if it is equipped with a backscatter shield.

Commented [BB(10)]: Ohio 3701:1-68-03

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G. A registrant's use of a hand-held suspected hazards x-ray system is exempt from subpart 9.

Subp. 13. Records.

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