



X-Ray Security Screening Body Scanners Regulatory Guide

The use of sources of radiation for the purpose of screening or inspecting individuals for concealed weapons, hazardous materials, stolen property, illegal goods, or contraband is prohibited without prior written approval granted by the Department in accordance with LAC 33:XV.110.D. Any person requesting approval from the Department shall submit in writing an application that contains adequate justifications, procedures, etc. to meet the requirements outlined in this guidance.

This regulatory guide is provided to describe the type and extent of information required to be submitted for written approval to be granted for the possession and use of a radiation-emitting body scanner for security related purposes in Louisiana. This document also establishes current LDEQ policy, requirements, and restrictions of use. The Department may request additional information to provide reasonable assurance that the applicant has established an adequate radiation protection program.

Approval for use in accordance with LAC 33:XV.110.D is not an approval to eliminate or replace current and establish security and search policy and procedures. No person shall be scanned without his or her knowledge. Approval for possession and use by LDEQ does not relieve an institution from any other local, state, and federal law.

Security screening radiation machines are approved by Manufacturer/Model Number/Serial Number and by facility. The approval of a particular unit at one location does not automatically grant approval for another unit at the same facility or at another location/facility/registrant. An institution must request written approval and registration for each machine.

Institutions with previously approved General-use systems requesting approval for a new Limited-use system will be required to submit all information contained in this guidance. Limited-use systems are capable of higher reference effective doses per screening than a General-use system. Limited-use systems require additional controls and documentation to ensure that annual individual dose limits are not exceeded.

In addition to the requirements outlined in Department policy and written approval granted by the Department, a facility must also comply with applicable parts of LAC 33 Part XV Radiation Protection.

Information and forms regarding radiation requirements are available on our website at <https://www.deq.louisiana.gov/resources/category/radiation-forms-guides-and-information?y=1900&keyword=>.

If you have any questions or need further clarification please contact the Radiation Licensing Section at (225) 219-3041 or LDEQRadiationlicensing@la.gov. Please submit any approval requests or registration applications to LDEQRadiationlicensing@la.gov.

DEFINITIONS

Please refer to LAC 33 Part XV Radiation Protection for additional terms and definitions.

ALARA: As Low As Reasonably Achievable, economic and social factors being taken into account

Bystander: Any person other than the individual being screened who is not directly associated with operation of the system.

General-use system: A personnel screening system that delivers a reference effective dose equal to or less than 0.25 μSv (25 μrem) per screening as defined in this standard. Given proper justification and certain restrictions, general-use systems may be operated without specific controls that would limit the number of individuals scanned or the number of scans per individual in a year.

Inspection zone: The general area established by the operating institution for the purpose of limiting or controlling access to the area where the screening will be performed. This includes but is not limited to any ingress, egress, gate, portal, traffic path, and areas, access to which is restricted due to the presence of radiation. The ambient dose equivalent, $H^*(10)$, outside of the inspection zone shall not exceed 20 μSv (2 mrem) in any 1 hour.

Limited-use system: A personnel screening system that is capable of delivering a reference effective dose greater than 0.25 μSv (25 μrem) per screening but shall not exceed a reference effective dose of 10 μSv (1 mrem) per screening as defined in this standard. Limited-use systems require additional controls and documentation to ensure that annual individual dose limits are not exceeded.

Mode of operation: A selectable set of technique factors or machine settings that is pre-determined by the manufacturer for a specific purpose.

Operator: Any employee associated with the operation of the system whose responsibilities include at least one of the following: initiating or stopping the scan, verifying the system is operating correctly, providing information and instructions to the screened individuals, and controlling access to the inspection zone. This does not include other employees, such as individuals who may be remotely viewing the image results but are not directly responsible for the other functions.

Personnel security screening system: A system designed for the detection of contraband and weapons concealed on a person or in a vehicle while being occupied by one or more people (in the body of this standard also referred to as “screening system” or “system”).

JUSTIFICATION OF USE

An application for approval must include a written request for approval in accordance with LAC 33:XV.110.D. This written request must include the reasoning and justification of use. It must also specifically define the parameters of use being requested.

Subjects to be scanned: Specifically list each group of individuals you are requesting to be scanned. Please note that procedures will be required to address the scanning of each group. Scanning of groups, other than inmates, will require further detailed procedures. Approval may not be granted for scanning of certain groups if adequate justification and procedures are not submitted.

RADIATION SAFETY PROGRAM

Any organization using ionizing radiation for security screening of people shall develop, document, and implement a radiation protection program sufficient to ensure compliance with LAC 33:XV and ANSI/HPS N43.17-2009 standard. The written radiation safety program shall be submitted for approval to the Department as part of the application to request written approval in accordance with LAC 33:XV.110.D. At a minimum, the written procedures shall address the following:

Operational Documents and Procedures

Procedures for the proper operation, storage, and maintenance of the unit as set forth by the manufacturer shall be established and be available to all operators. Procedures shall address the selection of appropriate screening mode for each individual, exposure tracking using the unit dose software (or other adequate exposure tracking procedure), use of other security screening techniques when needed (i.e. metal detectors, pat down, etc.), and system damage and/or malfunction.

Scanning procedures must specify assignment of person account, person to be scanned, scanning frequency, scanning mode to be selected and rationale. Higher dose scanning modes shall not be used as the default mode. The use of higher dose scanning modes must be justified and monitored closely. Procedures must address when operators are allowed to adjust dose scanning modes. Use and justification must be detailed in your procedure. Procedure must be established for an individual that has reached the annual limit and cannot be scanned. Records shall be maintained and available for inspections.

Preventative maintenance, radiation surveys, and any other tests specified by the manufacturer shall be outlined in the established operating procedures. Records of tests and surveys must be maintained by the responsible official and available for inspections.

Establish procedure for notification to the intended subject to be scanned. No person shall be scanned without his or her knowledge. Restriction of use of x-ray screening on minors, pregnant individuals, and individuals of childbearing age shall be a part of the administrative control of use of screening equipment. No person under the age of 18 years old shall be subject to x-ray body scanning. Submit policy and procedures addressing notifications and scanning restrictions. These policies shall be posted at the entrance of each x-ray unit.

Procedures shall be established to prevent unauthorized access or use of the units. Only trained and qualified personnel shall operate the units.

Submit the above procedures with the application. Operating procedures must be maintained and available to operators at all times.

Assignment of Responsibilities

Documentation of the individual or individuals responsible for the implementation of all aspects of the radiation safety program. The responsible person is the person responsible for the proposed radiation safety program. The responsible person should have independent authority to stop operations that are considered unsafe.

Administrative Controls

Procedures and controls must be established to limit exposure to an individual in a 12-month period to 25 mRem (250 μ Sv) in accordance with the ANSI/HPS N43.17 – 2009 standard. Procedures shall describe the mechanism in place to track exposures to individuals. Facilities with more than one unit in use must describe the mechanism in which data from each unit is combined and reviewed. Each facility shall have only one account for each individual being exposed. The responsible person shall review total exposures to individuals at least annually to ensure no person exceeds the annual limit. The responsible person shall make any corrective actions needed (i.e. duplicate person accounts, person accounts containing multiple people, etc.). The registrant must keep records of exposures, reviews, and corrective actions until the termination of each registration. Records must be available for inspection. Failure to maintain accurate dose records will result in violations and potential enforcement action.

Training Program

All personnel managing and operating security screening systems shall have appropriate training and experience. The written training program shall specify the content to be addressed in the training provided to operators. Training shall include operator training and radiation safety training. Initial training shall be completed by each operator prior to using any security screening system. Annual refresher training shall be completed by all operators. Records of all initial and refresher training shall be maintained and available for inspection.

Personnel Exposure Monitoring (Dosimetry)

Personnel monitoring devices shall be issued to any individual who is likely to receive more than 10% of the permissible dose limit set forth in the Louisiana Rules and Regulations for restricted areas. Documentation of dosimetry requirement exemption must be submitted to the Department for approval. The Department will accept documentation from the manufacturer to meet this requirement. Records of approval for dosimetry exemption must be maintained at the facility.

LAC 33 Part XV Radiation Protection

LAC 33:XV.104 Records

LAC 33:XV.105 Inspections

LAC 33:XV.106 Tests

LAC 33:XV.110 Prohibited Uses (110.C-E)

LAC 33:XV Chapter 2 Registration of Radiation Machines and Facilities

LAC 33:XV Chapter 4 Standards for Protection against Radiation

LAC 33:XV Chapter 10 Notices, Instructions, and Reports to Workers; Inspections

Guidance/Reference

ANSI/HPS N43.17-2009 Radiation Safety for Personnel Security Screening Systems Using X-Ray or Gamma Radiation

ISCORS Technical Report 2008-1 Guidance for Security Screening of Humans Utilizing Ionizing Radiation (GSSHUIR July 2008)

CRCPD G-72 Committee on X-Ray Safety for Non-Healing Arts Uses Technical White Paper: Guidance for State Programs that Regulate Whole-Body X-Ray Security Screening System published November 2021