Group 2. Licensing of Radioactive Materials
Article 4. Licenses

(1) Amend section 30195.3 to read as follows:

§ 30195.3. Special Requirements for Issuance of Specific Licenses for Use of Sealed Sources in ~~Nonmedical~~Industrial Radiography.

~~(a) For licenses authorizing designation of radiographers by the licensee, an application for a specific license for the use of sealed sources in nonmedical radiography shall meet the requirements set forth in Section 30194 and shall demonstrate or describe:~~

~~(1) An adequate program for training radiographers and radiographers' assistants, specifying in detail:~~

~~(A) The nature and scope of initial training, on-the-job training, and refresher training;~~

~~(B) Means of determining each individual radiographer's or radiographer's assistant's knowledge and understanding of and ability to comply with Department regulations and the applicant's license requirements, and the operating and emergency procedures.~~

~~(2) Satisfactory operating and emergency procedures.~~

~~(3) Its organizational structure pertinent to the radiography programs, including specified delegations of authority and responsibility.~~

~~(4) An adequate system of internal controls to assure that radiographers and radiographers' assistants will comply with Department regulations and license conditions and the applicant's operating and emergency procedures.~~

~~(b) For licenses in which the Department specifies radiographers by name, an application for a specific license for use of sealed sources in nonmedical radiography shall meet the requirements set forth in Section 30194 and demonstrate or describe:~~

~~(1) The names of individuals who are to be specified in the license as radiographers, and describes the qualifications, including details of training and experience, of each such individual to act as a radiographer under the license.~~

~~(2) An adequate training program for this type of license, specifying in detail:~~

~~(A) The nature and scope of on-the-job training and refresher training of radiographers;~~

~~(B) The nature and scope of initial training, on-the-job training, and refresher training of radiographers' assistants;~~

~~(C) Means of determining each individual radiographer's or radiographer's assistant's knowledge and understanding of and ability to comply with Department regulations and the applicant's license requirements, and the operating and emergency procedures of the applicant; and~~

~~(3) Satisfactory operating and emergency procedures.~~

~~(4) Its organizational structure pertinent to the radiography programs, including specified delegations of authority and responsibility.~~

(a) The definitions of sections 30100 and 30330 apply to this section.

(b) An applicant for a specific license for the use of sealed sources in industrial radiography shall submit:

(1) A description of the applicant's training program that meets the requirements of section 30333(a) and (b). Copies of typical examinations and correct answers shall be submitted. Instructors shall, at a minimum, meet the requirements of section 30333.05(a)(1). Instructor qualifications shall be submitted;

(2) If the applicant proposes to be a radiation safety training provider, the information required by section 30331(a)(3) through (a)(5) and the fee required by section 30331(a)(6) in addition to any fee required by section 30230. This information shall be clearly identified as being submitted for compliance with section 30331;

(3) Procedures for verifying and documenting the certification status of radiographers and ensuring that the certification of each radiographer remains valid;

(4) A description of the applicant's overall organizational structure as it applies to the radiation safety responsibilities in radiography using sealed sources, including specified delegation of authority and responsibility;

(5) Operating and emergency procedures that meet the requirements of section 30333.1;

(c6) ~~In addition to the requirements specified in either subsection (a) or (b) of this section, any application for a specific license for use of sealed sources in nonmedical radiography shall meet the requirements of Section 30194, and shall describe an adequate~~A description of the internal inspection system used to assure that radiographers and radiographer's assistants ~~will~~ comply with Department regulations and license conditions and the applicant's operating and emergency procedures as required by section 30333(e);~~. The inspection program shall:~~

~~(1) Include observation of the performance of each radiographer and radiographer's assistant during an actual radiographic operation at intervals not to exceed three months;~~

~~(2) Provide that, if a radiographer or a radiographer's assistant has not participated in a radiographic operation for more than three months since the last inspection, that individual's performance shall be observed and recorded the next time the individual participates in a radiographic operation; and~~

~~(3) Include the retention of inspection records on the performance of radiographers or radiographers' assistants for three years.~~

(7) The name(s) and qualification(s) of the individual(s) designated as the radiation safety officer (RSO) and potential designees responsible for ensuring that the licensee's radiation safety program is implemented in accordance with Department regulations and license conditions and the applicant's operating and emergency procedures. The designated RSO shall, at a minimum, meet the requirements specified in section 30333.07. Potential designees shall, at a minimum, meet the requirements specified in section 30333.05; and

(8) The location and a description of the location of each field station and permanent radiographic installation.

Note: Authority cited: Sections ~~100275 and~~ 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060, 115165 and 115235, Health and Safety Code.

Group 3. Standards For Protection Against Radiation

(2) Amend section 30295 to read as follows:

§30295. Notification of Incidents.

(a) Each user shall notify the Department as soon as possible but not later than four hours after the discovery of an event that prevents immediate protective actions necessary to avoid exposures to radiation or radioactive materials that could exceed regulatory limits.

(b) Each user shall notify the Department within 24 hours after the discovery of any of the following events involving radiation or radioactive materials:

(1) An unplanned contamination event involving licensed radioactive material that:

(A) Requires access to the contaminated area by workers or the public, to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area;

(B) Involves a quantity of material greater than five times the lowest annual limit on intake specified in Appendix B of Title 10, Code of Federal Regulations, part 20, incorporated by reference in section 30253 ~~of this regulation~~ for the material; and

(C) Has access to the area restricted for a reason other than to allow isotopes with a half-life of less than 24 hours to decay prior to decontamination.

(2) An event in which equipment is disabled or fails to function as designed when:

(A) The equipment is required by regulation or license condition to prevent releases exceeding regulatory limits, to prevent exposures to radiation and radioactive materials exceeding regulatory limits, or to mitigate the consequences of an accident;

(B) The equipment is required to be available and operable when it is disabled or fails to function; and

(C) No redundant equipment is available and operable to perform the required safety function.

(3) An event that requires unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing or body.

(4) An unplanned fire or explosion damaging any licensed material or any device, container, or equipment containing licensed material when:

(A) The quantity of material involved is greater than five times the lowest annual limit on intake specified in Appendix B of Title 10, Code of Federal Regulations, part 20, incorporated by reference in section 30253 ~~of this regulation~~ for the material; and

(B) The damage affects the integrity of the licensed material or its container.

(~~C~~c) Reports made by users in response to the requirements of this section shall be made as follows:

~~(1)~~ Each u~~U~~sers shall make reports required by subsections (a) and (b) ~~of this section~~ by telephone to the Department. To the extent that the information is available at the time of notification, the information provided in these reports shall include:

(~~A~~1) The caller's name and call back telephone number;
(~~B~~2) A description of the event, including date and time;
(~~C~~3) The exact location of the event;
(~~D~~4) The isotopes, quantities, and chemical and physical form of the licensed material involved; and
(~~E~~5) Any personnel radiation exposure data available.

(~~2~~d) ~~Written report.~~ Each user who makes a report required by ~~subsection (a) or (b) of~~ this section shall submit a written follow-up report within 30 days of the initial report. These written reports shall be sent to the Department~~. The reports shall~~ and include ~~the following~~:

(~~A~~1) A description of the event, including the probable cause and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned;
(~~B~~2) The exact location of the event;
(~~C~~3) The isotopes, quantities, and chemical and physical form of the licensed material involved;
(~~D~~4) Date and time of the event;
(~~E~~5) Corrective actions taken or planned and the results of any evaluation or assessment; and
(~~F~~6) The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.

NOTE: Authority cited: Sections ~~100275 and~~ 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115105, 115110, and 115235, Health and Safety Code.

ARTICLE 6. SPECIAL REQUIREMENTS FOR RADIOGRAPHIC OPERATIONS ~~OTHER THAN~~ IN ~~THE HEALING ARTS~~INDUSTRIAL RADIOGRAPHY

(3) Amend section 30330 to read as follows:

§ 30330. ~~General Provisions~~Definitions Specific to Industrial Radiography.

~~(a) This article establishes special radiation safety requirements for use of sources of radiation for radiography, which shall be in addition to other applicable provisions of this regulation and of Groups 1 and 2 of this subchapter. Sections 30331 through 30335 shall apply to radiography using radioactive material and Section 30336 shall apply to radiography using radiation machines.~~

~~(b) "Radiography," as used in this article, means the examination of the physical structure of materials, other than human beings or animals, by non-destructive methods, utilizing radiation.~~

(a) The definitions in section 30100 apply to this article.

(b) As used in this article:

(1) “Annual refresher safety training” means training conducted or provided by a licensee or registrant for its employees on radiation safety aspects of industrial radiography including the topics specified in sections 30333(d) or 30336.1(q);

(2) “Associated equipment” means equipment that is used in conjunction with a radiographic exposure device to make radiographic exposures that drives, guides, or comes in contact with the sealed source (e.g., guide tube, control tube, control cable, removable source stop, “J” tube and collimator when it is used as an exposure head);

(3) "Cabinet X-ray system" means an X-ray system with the X-ray tube installed in an enclosure independent of existing architectural structures except the floor on which it may be placed and intended to contain at least that portion of a material being irradiated, provide radiation attenuation, and exclude personnel from its interior during generation of radiation. An X-ray tube used within a shielded part of a building, or X-ray equipment that may temporarily or occasionally incorporate portable shielding, is not considered a cabinet X-ray system;

(4) “Collimator” means a radiation shield that is placed on the end of the guide tube or directly onto a radiographic exposure device to restrict the size of the radiation beam when the sealed source is cranked into position to make a radiographic exposure;

(5) “Control cable” means the cable that is connected to the source assembly and used to drive the source to and from the exposure location;

(6) “Control mechanism” means a device that enables the source assembly to be moved to and from the radiographic exposure device;

(7) “Control tube” means a protective sheath for guiding the control cable, which connects the control mechanism to the radiographic exposure device;

(8) “Exposure head” means a device that locates the sealed source in the selected working position;

(9) “Field radiography” means industrial radiography using a radiation machine but excludes cabinet X-ray systems and shielded-room radiography machines;

(10) “Field station” means a facility where licensed material may be stored or used and from which equipment is dispatched;

(11) “Guide tube” means a flexible or rigid tube (i.e., “J” tube) for guiding the source assembly and the attached control cable from the radiographic exposure device to the exposure head;

(12) “Identification card” (ID) means either an ID card issued by:
(A) A licensee, pursuant to section 30333(b)(2), designating the individual as a radioactive materials radiographer’s assistant;
(B) A registrant, pursuant to section 30336.5, designating the individual as a radiation machine radiographer’s assistant; or
(C) The Department indicating the individual is certified pursuant to sections 30335.2 or 30335.4;

(13) “Industrial radiography” means the examination of the physical structure, but not the microscopic structure, or elemental or chemical composition, of materials, other than human beings or animals, utilizing radiation;

(14) “Permanent radiographic installation” means a shielded installation or structure designed or intended for industrial radiography and in which industrial radiography is performed;

(15) “Practical examination” means a demonstration through practical application of the safety rules and principles in industrial radiography including use of all appropriate equipment and procedures;

(16) “Radiation Safety Officer” means an individual with the responsibility for the overall radiation safety program on behalf of the:;
(A) Licensee and who meets the requirements of section 30333.07; or
(B) Registrant and who meets the requirements of section 30336.7;

(17) “Radiographer” means any individual who performs radiographic operations or who, while in attendance at the site where radiographic operations are being performed, personally supervises such operations and who is responsible to the user for assuring compliance with the requirements of this regulation, license or registration conditions and is certified pursuant to sections 30335.2 or 30335.4 or is in compliance with section 30335.3;

(18) “Radiographer certification” means written approval indicating that an individual has satisfactorily met the requirements to be a radiographer;

(19) “Radiographer trainer” means a radiographer who meets the requirements of sections 30333.05 or 30336.6;

(20) “Radiographer’s assistant” means any individual who has met the requirements of sections 30333(b) or 30336.5(a)(1) and who must be under personal supervision as required by sections 30333(c) or 30336.1(o);

(21) “Radiographic exposure device” means any device containing a sealed source used to make a radiograph;

(22) “Radiographic operations” means all activities associated with the presence of radiation machines or radioactive sources for the performance of industrial radiography (except when being transported by a common or contract transport), and includes surveys to confirm the adequacy of boundaries, setting up equipment and any activity inside a restricted area;

(23) “Radiographic personnel” means any radiographer, radiographer trainer, or radiographer’s assistant;

(24) “Shielded position” means the location within the radiographic exposure device or source changer where the sealed source is secured and restricted from movement;

(25) “Shielded-room radiography” means industrial radiography using a radiation machine such that irradiation of the material occurs in an enclosed room designed to allow admittance of individuals and the room meets the requirements of subsections (d), (e) and (h) of section 30336;

(26) “Source assembly” means an assembly that consists of the sealed source and a connector that attaches the source to the control cable;

(27) “Source changer” means a device designed and used for replacement of sealed sources in radiographic exposure devices, including those also used for transporting and storage of sealed sources;

(28) “Storage area” means any location, facility, or vehicle which is used to store, to transport, or to secure a radiographic exposure device, a storage container, or a sealed source when it is not in use and which is locked or has a physical barrier to prevent accidental exposure, tampering with, or unauthorized removal of the device, container, or source;

(29) “Storage container” means a container in which sealed sources are secured and stored;

(30) “S-tube” means a tube through which the radioactive source travels when inside a radiographic exposure device;

(31) “Temporary jobsite” means a location where radiographic operations are conducted and where licensed material may be stored other than those location(s) of use authorized on the license.

Note: Authority cited: Sections ~~208 and 25811~~114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections ~~25801 and 25802~~114965, 114970, 115230 and 115235, Health and Safety Code.

(4) Amend section 30331 to read as follows:

§ 30331. ~~Definitions Specific to Radiography~~Eligibility for and Renewal of Approval as a Radiation Safety Training Provider and Provider Requirements.

~~(a) As used in Sections 30332 through 30335:~~
~~(1) "Permanent radiographic installation" means a shielded installation or structure designed or intended for radiography and in which radiography is regularly performed.~~
~~(2) "Radiographer" means any individual who performs radiographic operations or who, while in attendance at the site where radiographic operations are being performed, directly supervises such operations; and who is responsible to the user for assuring compliance with the requirements of radiation control regulations and license conditions.~~
~~(3) "Radiographers' assistant" means any individual who assists a radiographer in the performance of radiographic operations.~~
~~(4) "Radiographic exposure device" means any device containing a sealed source used for radiography.~~
~~(5) "Storage area" means any location, facility, or vehicle which is used to store, to transport, or to secure a radiographic exposure device, a storage container, or a sealed source when it is not in use and which is locked or has a physical barrier to prevent accidental exposure, tampering with, or unauthorized removal of the device, container, or source.~~
~~(6) "Storage container" means a container in which sealed sources are transported or stored.~~
~~(7) "Source Changer" means a device designed and used for replacement of sealed sources in radiographic exposure devices, including those also used for transporting and storage of sealed sources.~~

(a) To be eligible for or renewal of approval as a radiation safety training provider an applicant shall submit a complete application consisting of:
(1) The legal name, the mailing address and the telephone number of the applicant;
(2) The applicant’s federal employer identification number and California taxpayer identification number, or if the applicant is an individual, the applicant’s social security number (pursuant to the authority found in sections 131200 and 115000(b) of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification);
(3) Proof that the applicant’s curriculum covers the subjects specified in section 30335.10 and includes, at a minimum:
(A) A description of course content covering those subjects;
(B) The number of hours spent on each subject; and
(C) A description of all reference materials used in the training such as handouts, slides, and overhead transparencies;
(4) The names of all instructors including each individual’s training and experience in industrial radiography. There shall be at least one instructor who meets the requirements specified in sections 30333.05 and 30336.6 or at least two instructors such that one meets the requirements specified in section 30333.05 and the other meets the requirements of section 30336.6;

(5) A copy of a sample written examination and the correct answers to the test questions used for determining an individual's understanding of and competency in the subjects specified in section 30335.10. The examination shall be at least 50 questions in length. Successful completion shall be correctly answering at least 80 percent of the questions in a closed-book testing session; and

(6) The application fee specified in section 30336.8.

(b) Approval as a radiation safety training provider shall be valid for five years except that, for providers who possess a specific license issued pursuant to section 30195.3, the approval shall be valid for the period of time up to and including the expiration date as stated on the specific license unless that period of time is less than five years.

(c) Each approved provider shall:

(1) Issue a certificate of training to each individual who satisfactorily completes radiation safety training. The certificate shall contain, at a minimum, the:

(A) Legal Name of the individual;

(B) Name and provider number as shown on the provider's approval;

(C) Dates of training;

(D) Statement "I (printed name of trainer or radiation safety officer) certify that the individual named on this certificate has satisfactorily completed the radiation safety training curriculum specified in Title 17, California Code of Regulations, section 30335.10;" and

(E) Original signature and date of signature of the provider's trainer or radiation safety officer;

(2) Maintain records of attendance for five years from the individual's completion of the radiation safety training;

(3) Notify the Department 30 calendar days prior to any change in the information submitted pursuant to subsections (a)(1) through (a)(4);

(4) Meet and continually maintain all standards set forth in the application and this section; and

(5) Be subject to Department audit.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections ~~25801, 25802, 25811, 25815, 25875 and 25876~~114965 and 114970, Health and Safety Code.

(5) Amend section 30332 to read as follows:

§ 30332. Performance Requirements for Radiographic Exposure Devices, Storage Containers, and Source Changers.

~~(a) For radiographic exposure devices measuring less than 4 inches from the sealed source position to any exterior surface of the device, the radiation level shall not exceed 50 millirems per hour at 6 inches from any exterior surface, wit the sealed source in the shielded or "off" position.~~

~~(b) For all storage containers, source changers and for radiographic exposure devices measuring 4 inches or more from the sealed source storage position to any exterior surface of the device, the radiation level shall not exceed 200 millirems per hour at any exterior surface and 10 millirems per hour at 40 inches from any exterior surface, with the sealed source in the shielded or "off" position.~~

(~~c~~a) All radiographic exposure devices and associated equipment ~~manufactured after January 10, 1992 and all radiographic exposure devices and associated equipment~~ used after January 10, 1996 shall comply with the following:

(1) Except as provided in subsection (b), e~~E~~ach radiographic exposure device, source assembly or sealed source and all associated equipment shall meet the requirements specified in American National Standard N432-1980 "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography," ~~,~~ published as NBS Handbook 136, issued January 1981 (ANSI N432)*~~:~~;

(2) Each radiographic exposure device shall have attached to it a durable, legible, clearly visible label bearing the:

(A) Chemical symbol and mass number of the radionuclide in the device;

(B) Activity and date on which this activity was last measured;

(C) Model number and serial number of the sealed source;

(D) Manufacturer of the sealed source; and

(E) Licensee's name, address and telephone number~~.~~;

(3) Radiographic exposure devices intended for use as Type B transport containers shall meet the applicable requirements of ~~S~~section 30373~~.~~;

(4) Modification of ~~any~~ radiographic exposure devices, source changers, source assemblies and associated equipment is prohibited, unless the design of any replacement component, including source holder, source assembly, controls or guide tubes would not compromise the safety design features of the system~~.~~;

(5) ~~Also, f~~For radiographic exposure devices and associated equipment that allow the source to be moved out of the device for routine operation:

(A) The coupling between the source assembly and the control cable shall be designed in such a manner that the source assembly will not become disconnected if cranked outside the guide tube. The coupling shall be such that it cannot be unintentionally disconnected under normal and reasonably foreseeable abnormal conditions~~.~~;

(B) The device shall automatically secure the source assembly when it is cranked back into the fully shielded position within the device. This securing system may only be released by means of a deliberate operation on the exposure device~~.~~;

(C) The outlet fittings, lock box, and ~~drive~~ control cable fittings on each radiographic exposure device shall be equipped with safety plugs or covers which shall be installed during storage and transportation to protect the source assembly from water, mud, sand or other foreign matter~~.~~;
(D) Each sealed source or source assembly shall have attached to it or engraved in it, a durable, legible, visible label with the words "Danger--Radioactive." The label shall not interfere with the safe operation of the exposure device or associated equipment~~.~~;
(E) The guide tube shall have passed the crushing tests for the control tube as specified in ANSI N432 and a kinking resistance test that closely approximates the kinking forces likely to be encountered during use~~.~~;
(F) Guide tubes shall be used when moving the source out of the device.
(G) An exposure head or similar device designed to prevent the source assembly from passing out of the end of the guide tube shall be attached to the outermost end of the guide tube during radiographic operations~~.~~;
(H) The guide tube exposure head connection shall be able to withstand the tensile test for control units specified in ANSI N432~~.~~; and
(I) Source changers shall provide a system for assuring that the source will not be accidentally withdrawn from the changer when connecting or disconnecting the ~~drive~~ control cable to or from a source assembly.

(b) Equipment used in radiographic operations need not comply with section 8.9.2(c) of the Endurance Test in ANSI N432, if the prototype equipment has been tested using a torque value representative of the torque that an individual using the industrial radiography equipment can realistically exert on the lever or crankshaft of the control mechanism.

(c) Storage containers and source changers shall not exceed a radiation exposure rate of 200 millirems per hour (mrem/hr) at any exterior surface and 10 mrem/hr at one meter from any exterior surface with the sealed source in the shielded position.

Note: ~~(1)~~ Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

~~Note: (2)~~ *Copies of American National Standard N432-1980 "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography" (published as NBS Handbook 136, issued January 1981) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and from the American National Standards Institute, Inc., Global Engineering Documents, 1819 L Street, NW, Suite 600, Washington DC 20036~~1430 Broadway, New York, New York 10018~~ or at "http://global.ihs.com" using the title as the search parameter.

(6) Amend section 30332.1 to read as follows:

§ 30332.1. Security of Radiographic Exposure Devices, Storage Containers and Source Changers.

(a) Each radiographic exposure device shall be provided with a lock or outer locked container designed to prevent unauthorized or accidental exposure and shall be kept locked, and if a keyed-lock, with the key removed, at all times except during authorized use or when under the direct surveillance of a radiographer or ~~radiographers'~~radiographer's assistant. In addition, during radiographic operations a sealed source assembly shall be secured in the shielded position each time the source is returned to that position.

(b) Each storage container and source changer shall be provided with a lock and kept locked, and if a keyed-lock, with the key removed, when containing a sealed source except when the container is under the direct surveillance of a radiographer or ~~radiographers'~~radiographer's assistant.

(c) Locked radiographic exposure devices, storage containers and source changers shall be physically secured to prevent tampering or unauthorized removal.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(7) Amend section 30332.2 to read as follows:

§ 30332.2. Security of Permanent Radiographic Installations.

~~(a) Permanent radiographic installations having high radiation area entrance controls of the types described in Section 30279,shall also meet the following requirements:~~

~~(b) Each entrance that is used for personnel access to the high radiation area in a permanent radiographic installation to which this section applies shall have both visible and audible warning signals to warn of the presence of radiation. The visible signal shall be continuously actuated by radiation whenever a source is exposed. The audible signal shall be actuated when an attempt is made to enter the installation while the source is exposed.~~

~~(c) The alarm system shall be tested at intervals not to exceed three (3) months if a source is exposed in the installation during the three month period commencing from the last test. Alarm system testing is not required for inactive installations, provided that the system is tested prior to first exposure of a source in the installation or at three month intervals, whichever period is greater.~~

(a) Each entrance that is used for personnel access to the high radiation area, defined in title 10, Code of Federal Regulations, Part 20 (10 CFR 20), section 20.1003 incorporated by reference in section 30253, in a permanent radiographic installation shall have either:

(1) A control device that, upon entry into the area, causes the level of radiation to be reduced below that level at which an individual might receive a deep-dose equivalent, defined in 10 CFR 20, section 20.1003 incorporated by reference in section 30253, of 0.1 rem in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates; or

(2) Both conspicuously visible and audible warning signals to warn of the presence of radiation. The visible signal shall be continuously actuated by radiation whenever a source is exposed. The audible signal shall be actuated when an attempt is made to enter the installation while the source is exposed.

(b) If access is controlled pursuant to subsection (a)(1), the entrance control device shall be tested monthly. If access is controlled pursuant to subsection (a)(2), the system shall be tested with a radiation source each day before the installation is used for radiographic operations and shall include a check of both the visible and audible warning signals. In either case, if an entrance control device or warning signal is operating improperly, it shall be immediately labeled as defective and repaired within 30 calendar days. The installation may continue to be used during this 30-day period provided the licensee complies with section 30334 and each individual wears an alarming ratemeter in addition to other dosimeters required by section 30333.2(a).

(c) Documentation demonstrating compliance with this section shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 11523525801, ~~25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(8) Amend section 30332.3 to read as follows:

§ 30332.3. Radiation Survey Instruments.

(a) Each user shall maintain a sufficient number of calibrated and operable radiation survey instruments~~, having a range such that 2 milliroentgens per hour through 1 roentgen per hour can be measured,~~ to make ~~physical~~ radiation surveys as required by this regulation. Each instrument shall be capable of measuring a range of two millirems per hour through one rem per hour.

~~(b) Each radiation survey instrument shall be calibrated at intervals not to exceed 3 months and after each instrument servicing, and a record of the latest date of calibration shall be maintained and kept available for inspection.~~

(b) Each radiation survey instrument shall be calibrated:
(1) At intervals not to exceed six months and after each instrument servicing;
(2) For linear scale instruments, at two points located approximately one-third and two-thirds of full-scale on each scale; for logarithmic scale instruments, at mid-range of each decade, and at two points of at least one decade; and for digital instruments at three points between two and 1000 millirems per hour; and
(3) So that an accuracy within plus or minus 20 percent of the calibration source can be demonstrated at each point checked.

(c) Records of the results of instrument calibrations shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections ~~208 and 25811~~114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(9) Amend section 30332.4 to read as follows:

§ 30332.4. Leak Testing, Repair, Tagging, Opening, Modification, and Replacement of Sealed Sources and Depleted Uranium Shielding.

(a) Replacement of any sealed source in a radiographic exposure device, and leak testing, repair, tagging, opening or any other modification of any sealed source shall be performed only by persons specifically authorized by the ~~d~~Department to do so pursuant to Group 2 of this subchapter.

(b) Leak testing of sealed sources and radiographic exposure devices using depleted uranium (DU) shielding and an S-tube configuration shall be performed in accordance with ~~the requirements of S~~section 30275 ~~of this regulation.~~except that testing of radiographic exposure devices shall be tested for DU contamination at intervals not to exceed 12 months. If the test reveals the presence of 0.005 microcuries or more of removable DU contamination, the radiographic exposure device shall be removed from service and an evaluation of the S-tube shall be made. If the evaluation reveals that the S-tube is worn through, the radiographic exposure device shall not be used. Radiographic exposure devices with DU shielding need not be tested while in storage and not in use except that before using or transferring such a device, the device shall be tested for DU contamination if the interval of storage or non-use exceeded 12 months.

~~(c) Any sealed source which is not mounted in a radiographic exposure device shall have permanently attached to it a durable tag at least 1 inch square bearing the radiation symbol as prescribed in Section 30278, and at least the following instructions: "Danger--Radioactive Material--Do Not Handle Notify Civil Authorities If Found."~~

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(10) Amend section 30332.5 to read as follows:

§ 30332.5. Quarterly Inventory of Sealed Sources.

(a) Each user shall conduct a quarterly physical inventory to account for all sealed sources under his control.

(b) Records of the inventories shall be maintained for three years, ~~and~~ kept available for inspection and ~~shall~~ include the:

(1) ~~the q~~Quantities and kinds of radioactive material~~,~~;

(2) ~~l~~Location of sealed sources~~, and~~;

(3) ~~the d~~Date of the inventory~~.~~; and

(4) Name of the individual conducting the inventory.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(11) Amend section 30332.6 to read as follows:

§ 30332.6. Utilization Logs.

(a) Each user shall maintain current logs, which shall be maintained for three years and kept available for inspection at the address specified in his license, containing the following information for each ~~radiographic exposure device~~sealed source:

(1) ~~a~~A description (or make, model, and serial number) of the radiographic exposure device or transport or storage container in which the sealed source is located;

(2) ~~t~~The identity and signature of the radiographer to whom assigned; and

(3) ~~l~~Locations where used and dates of use including the dates removed and returned to storage.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(12) Amend section 30332.7 to read as follows:

§ 30332.7. Inspection and Maintenance of Radiographic Exposure Devices, Storage Containers, ~~and~~ Source Changers and Survey Instruments.

~~(a) The licensee shall conduct a program for inspection and maintenance of radiographic exposure devices and storage containers and source changers to assure proper functioning of components important to safety.~~

~~(1) The licensee shall check for obvious defects in radiographic exposure devices, storage containers and source changers prior to use each day that the equipment is used.~~

~~(2) The licensee shall conduct a program for inspection and maintenance of radiographic exposure devices, storage containers and source changers at intervals not to exceed three months. Exposure devices, storage containers and source changers in storage are not subject to inspection and maintenance, provided that inspection and maintenance is completed prior to first use or at three month intervals, whichever period is greater.~~

(a) Each user shall perform visual and operability checks on survey instruments, radiographic exposure devices, transport and storage containers, associated equipment and source changers before use on each day the equipment is to be used to ensure that the equipment is in good working condition, that the sources are adequately shielded, and that required labeling is present. Survey instrument operability shall be performed using a radiation source. If equipment problems are found, the equipment shall be removed from service until repaired.

(b) Each user shall establish and implement written procedures for:

(1) Inspection and routine maintenance of radiographic exposure devices, source changers, associated equipment, transport and storage containers, and survey instruments at intervals not to exceed three months or before the first use thereafter to ensure components important to safety are functioning. Replacement components shall meet design specifications. If equipment problems are found, the equipment shall be removed from service until repaired; and

(2) Inspection and maintenance necessary to assure that Type B packages are shipped and maintained in accordance with section 30373.

(c) Records of equipment problems and of any maintenance performed pursuant to this section shall be maintained for three years after the record is made. The record shall include the date of check or inspection, name of inspector, equipment involved, any problems found, and what repair and/or maintenance, if any, was done.

(d) Documentation demonstrating compliance with this section shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 115000, 115060, 115230 and 11523525801, ~~25811, 25815, 25875 and 25876~~, Health and Safety Code.

(13) Amend section 30332.8 to read as follows:

§ 30332.8. Reporting Requirements.

(a) In addition to the reporting requirements specified in section 30295 and under other sections of this subchapter, each licensee shall provide a written report to the ~~d~~Department within 30 days of the occurrence of any of the following incidents involving radiographic exposure devices and associated equipment:

(1) Unintentional disconnection of the source assembly from the control cable~~.~~;

(2) Inability to retract the source assembly to its fully shielded position and secure it in this position~~.~~; or

(3) Failure of any component (critical to safe operation of the device) to properly perform its intended function.

(b) The licensee shall include the following information in each report submitted under subsection (a):

(1) A description of the equipment problem~~.~~;

(2) Cause of each incident, if known~~.~~;

(3) Manufacturer and model number of equipment involved in the incident~~.~~;

(4) Place, time and date of the incident~~.~~;

(5) Actions taken to establish normal operations~~.~~;

(6) Corrective actions taken or planned to prevent recurrence~~.~~; and

(7) Qualifications of personnel involved in the incident.

(c) ~~Reports of overexposure submitted under title 10, Code of Federal Regulations section 20.2203, incorporated by reference in section 30253, which involve failure of safety components of radiography equipment shall also include the information specified in subsection (b).~~Any licensee conducting radiographic operations or storing radioactive material at any location not listed on the license for a period in excess of 180 days in a calendar year shall notify the Department prior to exceeding the 180 days.

Note: Authority cited: Sections ~~100275 and~~ 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115105, 115110, and 115235, Health and Safety Code.

(14) Amend section 30333 to read as follows:

§ 30333. Training and Supervision for Radiographers and ~~Radiographers'~~Radiographer's Assistants Using Sealed Sources.

~~(a) No user shall permit any individual to act as a radiographer until such individual:~~
~~(1) has been instructed in and demonstrated an understanding of the subjects enumerated in Section 30335;~~
~~(2) has received copies of, instruction in, and demonstrated understanding of, this regulation, applicable provisions of Group 2 of this subchapter, applicable radioactive material licenses, and the user's operating and emergency procedures; and~~
~~(3) has demonstrated competence to use the radiographic exposure devices, sealed sources, related handling tools, and radiation survey instruments which will be employed in his assignments.~~
~~(b) No user shall permit any individual to act as a radiographers' assistant until such individual:~~
~~(1) has received copies of, instruction in, and demonstrated understanding of, the user's operating and emergency procedures; and~~
~~(2) has demonstrated competence to use, under the direct supervision of a radiographer, the radiographic exposure devices, sealed sources, related handling tools, and radiation survey instruments which will be employed in his assignments.~~

(a) Prior to allowing an individual to perform as a radiographer, a user shall ensure the individual is a certified radioactive materials radiographer and has:
(1) Received copies of, instruction in, and demonstrated understanding of, applicable provisions of Group 3 of this subchapter, the conditions of the user's radioactive material license and operating and emergency procedures by successful completion of a written or oral examination covering this material. Instruction in this material shall be at least eight hours long. The examination shall be at least 50 questions in length. Successful completion shall be correctly answering at least 80 percent of the questions in a closed-book testing session;
(2) Demonstrated competence to use the radiographic exposure devices, sealed sources, related handling tools, and radiation survey instruments employed by the user by successful completion of a practical examination covering this material. Instruction in this material shall be at least four hours long; and
(3) Received the instruction and training specified in subsections (a)(1) and (a)(2) from a radioactive materials radiographer trainer or radiation safety officer.

(b) Prior to allowing an individual to perform as a radioactive materials radiographer's assistant, a user shall:
(1) Ensure the individual has:
(A) Received copies of, instruction in, and demonstrated understanding of, applicable provisions of Group 3 of this subchapter, the conditions of the user's radioactive material license and operating and emergency procedures by successful completion of a written examination covering this material. Instruction in this material shall be at least eight hours long. The examination

shall be at least 50 questions in length. Successful completion shall be correctly answering at least 80 percent of the questions in a closed-book testing session;
(B) Demonstrated competence to use the radiographic exposure devices, sealed sources, related handling tools, and radiation survey instruments employed by the user by successful completion of a practical examination covering this material. Instruction in this material shall be at least four hours long; and
(C) Received the instruction and training specified in subsections (b)(1)(A) and (b)(1)(B) from a radioactive materials radiographer trainer or the user's radiation safety officer.

(2) Once the individual has met the requirements of subsection (b)(1), issue to the individual a durable identification card, resistant to water, containing:

(A) The statement "I certify that (the printed name of the individual) has met the requirements to be a radiographer's assistant.";
(B) The name and license number, as shown on the specific license, of the user issuing the card; and
(C) The printed name, signature and date of signature of the instructor or the user's radiation safety officer.

(c) Whenever a radiographer's assistant uses radiographic exposure devices, ~~uses~~ sealed sources or related source handling tools, or conducts radiation surveys required by ~~Section~~section 30334 to determine that the sealed source has returned to the shielded position after an exposure, the radiographer's assistant shall be under the personal supervision of a radioactive materials radiographer trainer. The personal supervision shall include:

(1) The radiographer~~'s personal~~ trainer's physical presence at the site where the sealed sources are being used;

(2) The ability of the radiographer trainer to give immediate assistance if required; and

(3) The radiographer~~'s~~ trainer's watching the assistant's performance of the operations referred to in this section.

(d) Each user shall provide annual refresher safety training to all radiographic personnel at intervals not to exceed 12 months. The radiation safety officer (RSO) or an individual designated by the RSO shall conduct this training and, at a minimum, address or provide:

(1) Results of internal and Department inspections;

(2) New procedures or equipment;

(3) New or revised regulations about industrial radiography using sealed sources;

(4) Accidents or errors that have been observed and steps to prevent their recurrence; and

(5) Opportunities for individuals to ask safety questions.

(e) Except in those operations where a single individual serves as one of the radiographers required by section 30334(b) and the radiation safety officer (RSO) and performs all radiographic operations, the RSO or the RSO's designee shall conduct an internal inspection program to assure that radiographers and radiographer's assistants comply with this regulation

and license conditions and the licensee's operating and emergency procedures. The inspection program shall include or provide:

(1) Observation of the performance of each radiographer and radiographer's assistants during an actual radiographic operation at intervals not to exceed six months; and

(2) That, if a radiographer or a radiographer's assistant has not participated in a radiographic operation for more than six months since the last inspection, that individual's performance shall be observed and recorded the next time the individual participates in a radiographic operation.

(f) Documentation demonstrating compliance with this section shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections ~~208 and 25811~~114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(15) Adopt section 30333.05 to read as follows:

§ 30333.05. Radioactive Materials Radiographer Trainer Requirements.

(a) A user shall not allow any individual to act as a radioactive materials radiographer trainer unless the:

(1) Individual is a radioactive materials radiographer who:

(A) Is certified pursuant to section 30335.2 or is in compliance with section 30335.3;

(B) Has complied with the requirements of section 30333(a)(1) and (2); and

(C) Has at least 2,000 hours of experience as a radiographer using sealed sources, performing radiographic operations, radiation surveys and radiation safety related activities. The experience may not include film development and interpretation, darkroom activities, travel, safety meetings, classroom training, and any work activity not related to the performance of industrial radiography; and

(2) User has received, pursuant to subsection (b), an amended license identifying the individual as a radiographer trainer.

(b) A user may apply for amendment of the specific license to identify a radiographer trainer by submitting:

(1) The name and license number as shown on the applicant's specific license; and

(2) For each individual who will perform as a radiographer trainer:

(A) The name and number as shown on the individual's radiographer certificate issued by the Department or a copy of both sides of the certification identification card issued by one of the entities listed in section 30335.3(b); and

(B) Documentation that the individual has complied with subsections (a)(1)(B) and (a)(1)(C). The documentation shall include the beginning and ending dates of the experience, the name of licensee under whom the experience was obtained and, for each radiographic exposure device used, the model and manufacturer's name.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060 and 115235, Health and Safety Code.

(16) Adopt section 30333.07 to read as follows:

§ 30333.07. Radioactive Material Radiation Safety Officer Requirements.

(a) For an individual to be a radiation safety officer (RSO) for a specific licensee, the individual shall:

(1) Meet the requirements of section 30333.05(a)(1). Possession of a provisional radiographer certificate issued pursuant to section 30335.4 is not acceptable for complying with this section. No more than 900 hours of experience as a radiographer using radiation machines may be counted toward meeting the 2,000 hours specified in section 30333.05(a)(1)(C); and

(2) Have completed 4,000 hours of experience using radioactive materials and experience in radiation protection activities such as developing or implementing procedures relating to the protection of workers and the public from radiation including the development or implementation of procedures for radiation surveys, leak testing of radioactive sources, assessment of dosimetry for radiation work, determination of necessary radiation shielding, review of survey, leak testing, and personnel dose measurements, training of personnel, use and maintenance of sealed sources and devices, monitoring of radiation emergency events, sealed source and device security, disposal of radioactive material, audits of radiographic operations, survey meter maintenance and calibration, and transportation of radioactive material.

(b) The RSO shall ensure that radiation safety activities are being performed in accordance with approved procedures, conditions of the licensee’s license, and the requirements of this regulation in the daily operation of the licensee's radiation safety program. Designation of an RSO does not relieve the specific licensee of any of its responsibility for complying with the Act and this regulation.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060 and 115235, Health and Safety Code.

(17) Amend section 30333.1 to read as follows:

§ 30333.1. Operating and Emergency Procedures.

(a) Each user shall establish, implement, maintain and keep current written operating and emergency procedures, which shall include detailed instructions in at least the following matters:

(1) The handling and use of radiographic exposure devices and the manner of employment to control and limit radiation exposures to individuals.;

(2) Methods and occasions for conducting radiation surveys.;

(3) Methods and occasions for controlling access to radiography areas.;

(4) Methods and occasions for locking and securing radiographic exposure devices, transport and storage containers. and sealed sources;

(5) Personnel monitoring and the use of personnel monitoring devices.;

(6) Steps that must be taken immediately by radiography ic personnel in the event a pocket dosimeter is found to be off scale or an alarm ratemeter alarms unexpectedly.;

(7) Transporting sealed sources to field locations, including stowage packing of radiographic exposure devices and storage containers in the vehicles, posting placarding of vehicles when needed and control of the sealed sources during transportation.;

(8) Procedures in the event of an accident, including sealed source handling, minimizing radiation exposure to individuals, and notifying proper persons.;

(9) Maintenance of records.;

(10) The inspection, and maintenance, and operability checks of radiographic exposure devices, survey instruments, transport and storage containers and source changers.; and

(11) Source recovery procedures if licensee will perform source recovery.

Note: Authority cited: Sections 208 and 25811114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 11523525801, 25802, 25811, 25815, 25875 and 25876, Health and Safety Code.

(18) Amend section 30333.2 to read as follows:

§ 30333.2. Personnel Monitoring Control.

(a) Radiographic operations using sealed sources shall not be performed unless, at all times during radiographic operations, all radiographic personnel wear, on the trunk of the body, a direct reading pocket dosimeter, an operating alarm ratemeter, and a personnel dosimeter that requires processing to determine the radiation dose except that at permanent radiographic installations, the wearing of an alarming ratemeter is not required. Each personnel dosimeter shall be assigned to and worn by only one individual.
~~The licensee shall not permit any individual to act as a radiographer or a radiographer' s assistant unless, at all times during radiographic operations, each such individual wears a direct reading pocket dosimeter, an alarm ratemeter, and either a film badge or a thermoluminescent dosimeter (TLD) except that for permanent radiography facilities where other appropriate alarming or warning devices are in routine use, the wearing of an alarming ratemeter is not required. Pocket dosimeters shall have a range from zero to at least 200 milliroentgens and shall be recharged at the start of each shift. Each film badge and TLD shall be assigned to and worn by only one individual.~~

(b) Film badges shall be replaced at periods not to exceed one month and other personnel dosimeters that require processing to determine the radiation dose shall be replaced at periods not to exceed three months. After replacement, personnel dosimeters shall be sent for processing by the users' dosimetry processor meeting the requirements of section 20.1501(c) of title 10, Code of Federal Regulations incorporated by reference in section 30253 as soon as possible but no later than recommended by the dosimetry processor.

(c) Pocket dosimeters shall have a range from zero to 200 millirems and be recharged at the start of each shift. Electronic personal dosimeters may only be used in place of ion-chamber pocket dosimeters.

(~~b~~d) Pocket or electronic personal dosimeters shall be read and exposures recorded at the beginning and end of each shift~~daily~~. ~~The licensee shall~~A record of ~~retain each record of~~ these exposures shall be retained for three years after the record is made and indicate, for each dosimeter used, the manufacturers name, model and serial number and name of individual to whom assigned.

(~~c~~e) Pocket and electronic personal dosimeters shall be checked at periods not to exceed one year for correct response to radiation and shall read within plus or minus 20 percent of the true radiation exposure. ~~Acceptable dosimeters shall read within plus or minus 30 percent of the true radiation exposure.~~

(~~d~~f) If an individual's pocket dosimeter is found to be discharged beyond its range or if the individual's electronic personal dosimeter reads greater than 200 millirems and the possibility of radiation exposure cannot be ruled out as the cause, the individual's ~~film badge or TLD~~ personnel dosimeter shall be ~~immediately~~ sent for processing within 24 hours. The individual may not resume work associated with any source of radiation until the individual's radiation

exposure has been determined. The user's radiation safety officer or his designee shall make this determination and the results shall be kept available for inspection and maintained until the Department terminates the license.

(~~e~~g) Reports received from the ~~film badge or TLD~~ dosimetry processor shall be retained for inspection until the Department terminates each license that authorizes the activity that is subject to the recordkeeping requirement.

(h~~f~~) Each alarming ratemeter shall:

(1) Be checked to ensure that the alarm functions properly (sounds) prior to use at the start of each shift;

(2) Be set to give an alarm signal at a preset dose rate of 500 ~~mR/hr.;~~millirems per hour;

(3) Require special means to change the preset alarm function; ~~and~~

(4) Be calibrated at periods not to exceed one year for correct response to radiation~~.~~; and

(5~~g~~) ~~Acceptable ratemeters shall a~~Alarm within plus or minus 20 percent of the true radiation dose rate.

(i) Alarming ratemeter calibration records shall be maintained for three years.

(j) If a personnel dosimeter that requires processing to determine the radiation dose is lost or damaged during radiographic operations, the worker shall cease work immediately until a replacement personnel dosimeter is provided and the exposure is calculated for the time period from issuance to loss or damage of the personnel dosimeter. The radiation safety officer shall perform the calculation. The results with measurements, calculated data, and assumptions made to obtain the calculated exposure and the time period for which the personnel dosimeter was lost or damaged shall be retained for inspection until the Department terminates the license.

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060 and 115235~~25801, 25802, 25815 and 25876~~, Health and Safety Code.

(19) Adopt section 30333.3 to read as follows:

§ 30333.3. Location of Documents and Records.

(a) In addition to the requirements of section 30293, each licensee shall maintain copies of records required by this regulation at the location identified in the specific license.

(b) Each licensee shall also maintain copies of the following documents and records sufficient to demonstrate compliance at each applicable field station and each temporary jobsite:

(1) The license authorizing the use of licensed material;

(2) A copy this regulation, as defined in section 30100;

(3) Utilization records for each radiographic exposure device dispatched from that location as required by section 30332.6.

(4) Records of equipment problems identified in daily checks of equipment as required by section 30332.7;

(5) Records of alarm system and entrance control checks required by section 30332.2, if applicable;

(6) Records of direct reading dosimeters such as pocket dosimeter and/or electronic personal dosimeters readings as required by section 30333.2;

(7) Operating and emergency procedures required by section 30333.1;

(8) Evidence of the latest calibration of the radiation survey instruments in use at the site, as required by section 30332.3;

(9) Evidence of the latest calibrations of alarm ratemeters and operability checks of pocket dosimeters and/or electronic personal dosimeters as required by section 30333.2;

(10) Latest survey records required by section 30334(h);

(11) Shipping papers for the transportation of radioactive materials required by section 30373; and

(12) When operating under reciprocity pursuant to section 30225, a copy of the Department's Notice of Reciprocal Recognition.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060 and 115235, Health and Safety Code.

(20) Amend section 30334 to read as follows:

§ 30334. Precautionary Procedures In Radiographic Operations Using Sealed Sources.

(a) Radiographic operations shall not be performed unless performed by radiographic personnel.

(b) Industrial radiography, at a location other than at a permanent radiographic installation, shall not be performed, unless there are at least two radiographic personnel one of whom is a radiographer. If one of the personnel is a radiographer's assistant, the other shall be a radiographer trainer indicated as such on the specific license.

(c) Radiographic operations shall not be performed unless, during such operations:
(1) Each radiographer has in their possession a current and valid certification identification (ID) card issued to them by the Department or the radiographer is in compliance with section 30335.3(a); and
(2) Each radiographer's assistant has in their possession the ID card issued to them by the licensee pursuant to section 30333(b)(2).

(da) During each radiographic operation, ~~radiographers' assistant~~ radiographic personnel shall maintain ~~direct~~ visual surveillance of the operation to protect against unauthorized entry into a high radiation area, except at permanent radiographic installations where all entryways are locked and the requirements of section 30332.2 are met:.
~~(1) where the high radiation area is equipped with a control device or an alarm system as described in the United States, title 10, Code of Federal Regulations, part 20, subpart G as incorporated by reference in section 30253; or~~
~~(2) where the high radiation area is locked to protect against unauthorized or accidental entry.~~

(be) Areas in which industrial radiography is being performed shall be conspicuously posted as required by ~~the United States,~~section 20.1902 of title 10, Code of Federal Regulations, part 20~~, subpart J as~~ (10 CFR 20) incorporated by reference in section 30253. ~~The limits of a "high radiation area" need not be separately defined and posted if the surrounding "radiation area" is posted and controlled as a "high radiation area."~~Section 20.1903 of 10 CFR 20 shall not apply to industrial radiography.

(fe) ~~No r~~Radiographic operations shall not be performed~~conducted~~ unless calibrated and operable radiation survey instrument~~sation per~~ meeting the requirements of s~~S~~ection 30332.3 ~~is~~are available and used.

(gd) A ~~survey with a~~ radiation survey ~~instrument~~ shall be made after each radiographic exposure and before exchanging films, repositioning the exposure head, or dismantling equipment to determine that the sealed source has been returned to its shielded position. The entire circumference~~s~~ of the radiographic exposure device shall be surveyed. If the radiographic exposure device has a source guide tube, the survey shall include the guide tube.

(he) A ~~physical~~ radiation survey shall be made to determine that each sealed source is in its shielded condition prior to locking a radiographic exposure device, storage container or source changer ~~pursuant to~~ as required by ~~S~~section 30332.1. Records of all such surveys shall indicate the manufacturer's name, model and serial number of the alarming ratemeter worn by and survey instrument used by the surveyor and the exposure value obtained. These records shall be maintained for three years and kept available for inspection.

~~(f) The licensee shall audit the performance of each radiographer and radiographer's assistant at intervals not to exceed (3) months for the purpose of assessing compliance with Department regulations, license provisions and the licensee's operating and emergency procedures.~~

Note: Authority cited: Sections 114975, 115000~~208 and 25811~~, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235~~25801, 25802, 25811, 25815, 25875 and 25876~~, Health and Safety Code.

(21) Repeal section 30335 as follows:

§ 30335. Minimum Subjects to Be Covered In Training Radiographers.

~~(a) Fundamentals of Radiation Safety.~~
~~(1) Characteristics of gamma radiation.~~
~~(2) Units of radiation dose and quantity of radioactivity.~~
~~(3) Hazards of excessive exposure to radiation.~~
~~(4) Levels of radiation from radiographic exposure devices.~~
~~(5) Methods of controlling radiation dose.~~
~~(A) working time~~
~~(B) working distance~~
~~(C) shielding~~

~~(b) Radiation Instrumentation.~~
~~(1) Use of radiation survey instruments.~~
~~(A) operation~~
~~(B) calibration~~
~~(C) limitations~~
~~(2) Radiation survey techniques.~~
~~(3) Characteristics and use of personnel monitoring equipment.~~
~~(A) film badges~~
~~(B) pocket dosimeters~~
~~(C) pocket chambers~~
~~(D) Thermoluminescent dosimeters~~

~~(c) Radiographic Equipment.~~
~~(1) Radiographic exposure devices.~~
~~(A) using sealed sources~~
~~(B) X-ray~~
~~(2) Remote handling equipment.~~
~~(3) Storage containers.~~

~~(d) Inspection and Maintenance Performed by Radiographers.~~

~~(e) Case Histories of Radiography Accidents.~~

Note: Authority cited: Sections 208 and 25811, Health and Safety Code. Reference: Sections 25801, 25802, 25811, 25815 and 25876, Health and Safety Code.

(22) Adopt section 30335.1 to read as follows:

§ 30335.1. Radiographer Certification Categories.

(a) The categories for radiographer certificates are:
(1) Radioactive materials;
(2) Radiation machines; and
(3) Combination (Radioactive materials and radiation machines).

(b) A radiographer certificate in the:
(1) Category of radioactive materials authorizes the individual to perform radiographic operations using sealed sources under a specific licensee;
(2) Category of radiation machines authorizes the individual to perform radiographic operations using radiation machines under a registrant; and
(3) Combination category authorizes the individual to perform radiographic operations using sealed sources and radiation machines under a licensee and registrant as applicable.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(23) Adopt section 30335.2 to read as follows:

§ 30335.2. Eligibility for and Renewal of a Radiographer Certificate.

(a) Except as provided in sections 30335.3 or 30335.4, to be eligible for or renewal of a radiographer certificate an individual shall:

(1) Submit the application described in section 30335.5; and

(2) Pass a Department examination. If any applicant fails the test three times, the individual shall no longer be eligible unless they obtain additional radiation safety training and experience as directed by the Department. If any applicant fails the test on the fourth try, the individual shall not be eligible to take the exam for one year after which they may reapply pursuant to this section if the radiation safety training and experience requirements have been met in the year immediately preceding the date of re-application.

(b) The radiographer certificate shall be valid for five years.

(c) To renew an expired radiographer certificate, an applicant shall comply with subsection (a) and shall be considered as an initial applicant.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(23) Adopt section 30335.3 to read as follows:

§ 30335.3. Reciprocal Recognition.

(a) Individuals certified by one of the entities listed in subsection (b) for the specified category need not possess a Department issued radiographer certificate provided:

(1) The individual's certification is current and valid;

(2) No escalated enforcement action is pending with the U.S. Nuclear Regulatory Commission, the certifying entity or any other state; and

(3) The certification identification card issued by the certifying entity is in the possession of the individual during radiographic operations within the jurisdiction of the Department in which the individual participates.

(b) The following certifying entities are recognized for compliance with subsection (a) in the:

(1) Category of radioactive materials by the:

(A) State of Alabama, Georgia, Illinois, Iowa, Louisiana, Maine, North Dakota, Oklahoma, South Carolina, or Texas; or

(B) American Society of Nondestructive Testing, Inc. in Industrial Radiography Radiation Safety Personnel Certification;

(2) Category of radiation machines by the:

(A) State of Alabama, Illinois, Iowa, Louisiana, Maine, North Dakota, or Texas; or

(B) American Society of Nondestructive Testing, Inc. in Industrial Radiography Radiation Safety Personnel Certification; or

(3) Combination category (radioactive materials and radiation machines) by the:

(A) State of Alabama, Illinois, Iowa, Louisiana, Maine, North Dakota, or Texas; or

(B) American Society of Nondestructive Testing, Inc. in Industrial Radiography Radiation Safety Personnel Certification.

(c) Reciprocal recognition granted pursuant to this section may be revoked, suspended, amended or restricted for any of the following:

(1) Failure to maintain the certification upon which the reciprocal recognition was granted;

(2) Violation of any provision of the Act, any regulation promulgated pursuant to the Act, or any order of the Department;

(3) Incompetence or gross negligence in performing radiographic operations; or

(4) Exposing any individual to radiation with the intent to harm that individual.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(24) Adopt section 30335.4 to read as follows:

§ 30335.4. Provisional Radiographer Certificates.

(a) Until December 31, 2009, an application for a provisional radiographer certificate shall be considered complete if the applicant submits the information for the certificate category as specified below. After December 31, 2009, applications for provisional radiographer certificates will not be accepted. To obtain a provisional radiographer certificate in the:

(1) Radioactive materials category, submit the information specified in section 30335.5(b)(1) and (2), the application fee specified in section 30336.8 and:

(A) If specified on a specific license as a radiographer, the name and license number as shown on the specific license; or

(B) Except as provided in subsection (b), if designated as a radiographer by a licensee, the name and license number of the licensee as shown on the specific license, and a letter from the licensee signed by the licensee's radiation safety officer verifying that the applicant has met the requirements of section 30335.10, has participated in (number of hours) hours of radiographic operations using radioactive materials and has demonstrated the capability of working independently as a radiographer. The number of hours of participation shall be at least 200 but shall not include the number of hours spent in safety meetings, classroom training, travel, darkroom activities, film development and interpretation, and any work activity not related to the performance of industrial radiography. If the training specified in section 30335.10 and the required hours were obtained under multiple licensees, the applicant shall submit enough documents to support completion of all required training;

(2) Radiation machine category, submit the information specified in section 30335.5(b)(1) and (2), the application fee specified in section 30336.8 and, except as provided in subsection (b):

(A) Documentation that the requirements of section 30335.10 have been met. Documentation shall indicate where the training occurred, total number of hours spent on the subjects listed in section 30335.10, and include a copy of the training certificate if one was issued. If a training certificate was not issued, the applicant shall so state; and

(B) Documentation of at least 120 hours of participation in radiographic operations using radiation machines. The hours of participation shall not include safety meetings, classroom training, travel, darkroom activities, film development and interpretation, and any work activity not related to the performance of industrial radiography. Documentation shall indicate the name and registration number of the registrant under whom the operations were performed, the dates and total number of hours of participation. If participation occurred under multiple registrants, the applicant shall submit enough documents to support completion of the 120 hours; or

(3) Combination category, submit the information specified in section 30335.5(b)(1) and (2), the information specified in subsections (a)(1) and (a)(2)(B) of this section and the application fee specified in section 30336.8. Individuals applying for the combination category must complete both the 200 hours of participation using radioactive material and 120 hours using radiation machines for a total of 320 hours.

(b) In lieu of the requirement in subsections (a)(1)(B) or (a)(2), training obtained through providers approved by one of the entities listed in section 30335.3(b) for the specified certificate category shall be accepted if the applicant completed that training. Documentation of completion shall be submitted.

(c) Certificates issued pursuant to this section shall be valid for two years and shall not be renewable. Applications for a renewable radiographer certificate shall be submitted pursuant to section 30335.2 and be considered as initial applications.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(26) Adopt section 30335.5 to read as follows:

§ 30335.5. Complete Radiographer Certificate Application.

(a) For applicants possessing a current provisional radiographer certificate in a specified category issued pursuant to section 30335.4, an application submitted for compliance with section 30335.2 shall be considered complete if the application contains the applicant's legal name, mailing address, telephone number, the certificate number as shown on their provisional certificate and the examination fee as specified in section 30336.8.

(b) For applicants who do not possess a current provisional radiographer certificate, an application submitted for compliance with section 30335.2 shall be considered complete if the application contains:

(1) The legal name, mailing address, and telephone number of the applicant;

(2) The applicant's social security number (pursuant to the authority found in sections 131200 and 115000(b) of the Health and Safety Code and as required by section 17520 of the Family Code, providing the social security number is mandatory. The social security number will be used for purposes of identification);

(3) Except as provided in subsection (c), for a radiographer certificate in the radioactive materials category:

(A) A copy of the applicant's certificate of training issued by a radiation safety training provider approved pursuant to section 30331 or if renewing the radiographer certificate, the certificate number as shown on the certificate; and
(B) Except for renewal applicants, documentation of at least 200 hours of participation in radiographic operations using radioactive material. The hours of participation shall not include the time spent on completing the requirements specified in section 30333(b)(1), safety meetings, classroom training, travel, darkroom activities, film development and interpretation, and any work activity not related to the performance of industrial radiography. Documentation shall be a letter from the licensee under whom the operations were performed verifying that the applicant has demonstrated the capability of independently working as a radiographer. The letter shall indicate the licensee's name and license number as shown on the specific license, the dates and total number of hours of participation and be signed by the licensee's radiation safety officer. If participation occurred under multiple licensees, the applicant shall submit enough documents to support completion of the 200 hours;

(4) Except as provided in subsection (c), for a radiographer certificate in the radiation machine category:

(A) A copy of the applicant's certificate of training issued by a radiation safety training provider approved pursuant to section 30331 or if renewing the radiographer certificate, the certificate number as shown on the certificate; and

(B) Except for renewal applicants, documentation of at least 120 hours of participation in radiographic operations using radiation machines. The hours of participation shall not include the time spent on completing the requirements specified in section 30336.5(a)(1), safety meetings, classroom training, travel, darkroom activities, film development and interpretation, and any work activity not related to the performance of industrial radiography. Documentation shall indicate the name and registration number of the registrant under whom the operations were performed, the dates and total number of hours of participation. If participation occurred under multiple registrants, the applicant shall submit enough documents to support completion of the 120 hours;

(5) Except as provided in subsection (c), for a radiographer certificate in the combination category, all items specified in subsections (b)(3) and (b)(4)(B). Individuals applying for the combination category must complete both the 200 hours of participation using radioactive material and 120 hours using radiation machines for a total of 320 hours; and

(6) An application fee and an examination fee as specified in section 30336.8.

(c) In lieu of the requirement in subsections (b)(3), (b)(4) or (b)(5) to obtain training from providers approved pursuant to section 30331 and experience under a licensee or registrant, training obtained through providers approved by one of the entities listed in section 30335.3(b) for the specified certificate category shall be accepted if the applicant has completed that training. Documentation of completion shall be submitted.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(27) Adopt section 30335.6 to read as follows:

§ 30335.6. Notification of Change of Name or Address.

Each individual certified pursuant to this Article shall report to the Department in writing any change of name or mailing address within 30 calendar days of the change.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(28) Adopt section 30335.10 to read as follows:

§ 30335.10. Radiation Safety Training Curriculum.

An applicant for approval as a radiation safety training provider shall ensure each student completes at least 40 hours of training in:

(a) Fundamentals of Radiation Safety that addresses:
(1) Characteristics of radiation;
(2) Units of radiation dose and quantity of radioactivity;
(3) Significance of radiation dose to include hazards of excessive exposure to radiation, biological effects of radiation dose, radiation protection standards and case histories of industrial radiography accidents;
(4) Levels of radiation from radiation machines and radiographic exposure devices; and
(5) Methods of controlling radiation dose: working time, working distance, shielding.

(b) Radiation instrumentation that addresses:
(1) Use of radiation survey instruments: operation, calibration, and limitations;
(2) Radiation survey techniques; and
(3) Characteristics and use of personnel monitoring equipment: film badges, pocket dosimeters and chambers, thermoluminescent dosimeters, alarming ratemeters, and optically stimulated luminescent dosimeters.

(c) Radiographic equipment that addresses:
(1) Operation and control of radiographic exposure devices, remote handling equipment, storage and transport containers, source changers, storage, control and disposal of radioactive material;
(2) Operation and control of radiation machines; and
(3) Inspection and maintenance of equipment.

(d) Federal and State radiation control regulations pertaining to industrial radiography.

(e) Generic written operating and emergency procedures addressing the procedures specified in section 30333.1.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.

(29) Amend section 30336 to read as follows:

§ 30336. Requirements for Shielded-Room Radiography~~Radiography Employing Radiation Machines~~.

~~Definitions, for purposes of this regulation, and special requirements for various categories of radiography employing radiation machines are as follows:~~
~~(a) Cabinet radiography is that which is conducted in an enclosed, interlocked cabinet, such that the radiation machine will not operate unless all openings are securely closed, and the interior of which is so shielded that every location on the exterior meets conditions for an uncontrolled area as specified in the United States, title 10, Code of Federal Regulations, part 20, subpart D as incorporated by reference in section 30253. Cabinet radiography shall be subject to the following special conditions:~~
~~(1) No user shall permit any individual to operate a cabinet radiography unit until such individual has received a copy of and instruction in, and demonstrated an understanding of, operating procedures for the unit, and has demonstrated competence in its use.~~
~~(b) Shielded room radiography is that which is conducted in an enclosed room, the interior of which is not occupied during radiographic operations, which is so shielded that every location on the exterior meets conditions for an uncontrolled area as specified in the United States, title 10, Code of Federal Regulations, part 20, subpart D as incorporated by reference in section 30253, and the only access to which is through openings which are interlocked so that the radiation machine will not operate unless all openings are securely closed. Shielded room radiography shall be subject to the following special conditions:~~
~~(1) No user shall permit any individual to operate a shielded room radiography unit until such individual has received a copy of and instruction in, and demonstrated an understanding of, operating procedures for the unit, and has demonstrated competence in its use.~~
~~(2) Each user shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by, every individual who operates, who makes "set-ups," or who performs maintenance on a shielded room radiography unit.~~
~~(c) Field radiography is all radiography other than cabinet radiography and shielded room radiography. Field radiography shall be subject to the following special conditions, except as may be explicitly exempted by the department or other official agency specifically designated by the department:~~
~~(1) No user shall permit any individual to perform field radiography until such individual has been instructed in, and demonstrated an understanding of the following subjects:~~
~~- Characteristics of X-radiation~~
~~- Units of radiation dose~~
~~- Radiation hazards~~
~~- Radiation levels from radiation machines~~
~~- Methods of controlling radiation exposure: time, distance, shielding~~
~~- Use of radiation survey instruments: operation, calibration, limitations~~
~~- Radiation survey techniques~~
~~- Characteristics and use of personnel monitoring equipment~~
~~- Use of radiation machines in radiography~~

~~(2) Each user shall maintain and keep current written operating procedures for the kinds of radiation machines and the kinds of radiographic procedures employed. Such procedures shall include detailed instructions in at least the following:~~

~~(A) Means to be employed to control and limit exposure to individuals.~~

~~(B) Methods and occasions for conducting radiation surveys and for controlling access to radiography areas.~~

~~(C) The use of radiation survey instruments and personnel monitoring devices.~~

~~(3) No user shall permit any individual to perform field radiography until such individual has received a copy of, instruction in, and demonstrated an understanding of, the user's operating procedures and has demonstrated competence in the kinds of radiographic operations which he will perform.~~

~~(4) The boundaries of the controlled area for each "setup" shall be determined by a physical radiation survey, and appropriate limitations shall be imposed for controlling access to that area. Such surveys shall be made with a radiation measuring instrument capable of measuring radiation of the energies and at the dose rates to be encountered, which is in good working order, and which has been properly calibrated within the preceding three months or following the last instrument servicing, whichever is later. Survey results and records of boundary locations shall be maintained and kept available for inspection.~~

~~(5) Areas in which radiography is being performed shall be conspicuously posted as required by the United States, title 10, Code of Federal Regulations, part 20, subpart J as incorporated by reference in section 30253. The limits of a "high radiation area" need not be separately defined and posted if the surrounding "radiation area" is posted and controlled as a "high radiation area."~~

~~(6) During each radiographic operation, the operator shall maintain direct surveillance of the operation to protect against unauthorized entry into a high radiation area unless entry into such area is positively controlled by other suitable means.~~

~~(7) Each user shall maintain current utilization logs which shall be kept available for inspection at the address specified on the registration form, containing the following information for each radiation machine:~~

~~(A) The identity of the machine.~~

~~(B) The location, date, and the identity of the individual operator for each use.~~

~~(C) The voltage, current, and exposure time for each use.~~

~~(8) Each user shall furnish a film badge and either a pocket dosimeter or pocket chamber to, and require their use at all times during radiographic operations by, every individual who conducts field radiography or who otherwise frequents the area during such operations. Pocket dosimeters and pocket chambers shall be capable of measuring doses to at least 200 millirems. They shall be read and doses recorded daily.~~

~~Pocket dosimeters and pocket chambers shall be checked for current leakage and calibrated no less frequently than once a year. Records of such checks and calibrations, showing dates and results, shall be maintained and kept available for inspection.~~

~~Each film badge shall be assigned to and worn by only one individual. An individual's film badge shall be immediately processed if his pocket dosimeter or pocket chamber is discharged beyond its range.~~

~~The film badge reports received from the film badge processor and records of pocket dosimeter or pocket chamber readings shall be maintained and kept available for inspection.~~

(a) A user conducting shielded-room radiography shall designate an individual as the radiation safety officer. This individual shall meet the criteria specified in section 30336.7.

(b) A user shall not allow any individual to perform shielded-room radiography unless the individual:

(1) Has completed the training specified in section 30335.10 from a provider approved pursuant to section 30331;

(2) Has received copies of, instruction in, and demonstrated understanding of, the user's operating and emergency procedures by obtaining a passing grade of at least 80 percent on a written examination covering this material. The written examination shall be at least 50 questions in length. Instruction in this material shall be at least eight hours long; and

(3) Has demonstrated competence to use the radiation machines and survey instruments employed by the user and in the kinds of radiographic operations that will be performed by obtaining a passing grade of at least 80 percent on a practical examination covering this material. The practical examination shall be at least 25 questions in length. Instruction in this material shall be at least four hours long.

(c) A user shall supply personnel dosimeters that require processing to determine the radiation dose to and require the use by every individual who operates, who makes "setups," or who performs maintenance on a shielded-room radiography unit. Each personnel dosimeter shall be assigned to and worn by only one individual and processed in accordance with section 30333.2(b). Reports received from the dosimetry processor shall be available for inspection and maintained until the Department terminates the user's registration. If a personnel dosimeter is lost or damaged during radiographic operations, the worker shall immediately cease work using radiation sources until a replacement personnel dosimeter is provided and the exposure is calculated for the time period from issuance to loss or damage of the personnel dosimeter. The radiation safety officer shall perform the calculation. The results with measurements, calculated data, and assumptions made to obtain the calculated exposure and the time period for which the personnel dosimeter was lost or damaged shall be retained for inspection until the Department terminates the user's registration.

(d) All openings through which an individual could gain access to the room shall be interlocked so that the radiation machine will not operate unless all openings are securely closed. The required controls shall be designed such that an individual is not prevented from leaving the room.

(e) The room shall not be occupied during radiation exposures.

(f) A device shall be installed within the room that will, upon actuation, terminate production of radiation. It shall not be possible to reset, override, or bypass the device from outside the room.

(g) Radiation machines used in shielded-room radiography shall meet the requirements specified in American National Standard N537-1976 "Radiological Safety Standard for the Design of Radiographic and Fluoroscopic Industrial X-ray Equipment" published as NBS Handbook 123, issued August 1977*, which is incorporated by reference.

(h) The interior of the room shall be shielded so that every location on the exterior does not exceed the dose limits for an unrestricted area as specified in 10 CFR 20, subpart D incorporated by reference in section 30253.

(i) Documentation demonstrating compliance with this section shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections ~~208 and 25811~~ 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections ~~25801 and 25802~~114965, 114970 and 115060, Health and Safety Code.

*Copies of American National Standard N537-1976 “Radiological Safety Standard for the Design of Radiographic and Fluoroscopic Industrial X-ray Equipment” (published as NBS Handbook 123, issued August 1977) may be purchased from the American National Standards Institute, Inc., Global Engineering Documents, 1819 L Street, NW, Suite 600, Washington DC 20036 or at “http://global.ihs.com” document number “NBS HDBK 123.”

(30) Adopt section 30336.1 to read as follows:

§ 30336.1. Requirements for Field Radiography.

(a) A user conducting field radiography shall designate an individual as the radiation safety officer. This individual shall meet the criteria specified in section 30336.7.

(b) Except as provided in subsection (e), field radiography shall not be performed unless:
(1) Performed by radiographic personnel; and
(2) There are at least two radiographic personnel one of whom is a radiation machine radiographer. If one of the personnel is a radiation machine radiographer's assistant, the other shall be a radiation machine radiographer trainer; and
(3) During each radiographic operation, radiographic personnel maintain visual surveillance of the operation to protect against unauthorized entry into a high radiation area.

(c) Except as provided in subsection (e), a user shall not allow any individual to act as a radiation machine radiographer unless the individual:
(1) Is a certified radiation machine radiographer or is in compliance with section 30335.3; and
(2) Has met the requirements of section 30336.5(a)(1).

(d) Except as provided in subsection (e), a user shall not allow any individual to act as a radiation machine radiographer's assistant unless the individual meets the requirements of section 30336.5(a)(1) and is under personal supervision of a radiation machine radiographer trainer or the radiation safety officer as required pursuant to subsection (o).

(e) The requirements of subsections (b), (c), (d), (n) and (o) do not apply if:
(1) Field radiography is performed with a radiation machine that is not capable of exceeding an operating potential of 150 kVp;
(2) The operator of the radiation machine has received at least eight hours of instruction in, and demonstrated, by successful completion of a written examination, an understanding of the following subjects. The examination shall be at least 50 questions in length. Successful completion shall be correctly answering at least 80 percent of the questions in a closed-book testing session:
(A) Characteristics of X-radiation;
(B) Units of radiation dose;
(C) Radiation hazards;
(D) Radiation levels from radiation machines;
(E) Methods of controlling radiation exposure: time, distance, and shielding;
(F) Use of radiation survey instruments: operation, calibration, and limitations;
(G) Radiation survey techniques;
(H) Characteristics and use of personnel monitoring equipment; and
(I) Use of radiation machines in radiography; and
(3) The operator has demonstrated competence to safely use the radiation machine in the kinds of radiographic operations that will be performed. Demonstration shall be by

successful completion of a practical examination covering this material. Instruction in this material shall be at least four hours long.

(f) Each user shall implement, keep current, and maintain written operating procedures for the kinds of radiation machines and the kinds of radiographic procedures employed. These procedures shall include detailed instructions in at least the following:

(1) Means to be employed to control and limit exposure to individuals;

(2) Methods and occasions for conducting radiation surveys and for controlling access to radiography areas; and

(3) The use of radiation survey instruments and personnel monitoring devices.

(g) Radiographic operations shall not be performed unless, for each radiation machine energized, at least one radiation survey instrument, which meets the requirements of section 30332.3, capable of measuring radiation of the energies and at the dose rates to be encountered is available and used. Each registrant shall perform visual and operability checks on all survey instruments before use on each day the radiographic equipment is to be used to ensure that the radiographic equipment is in good working condition. Survey instrument operability shall be performed using a radiation source. If equipment problems are found, the equipment shall be removed from service until repaired.

(h) Areas in which field radiography is being performed shall be conspicuously posted as required by title 10 Code of Federal Regulation (CFR) Part 20, subpart J incorporated by reference in section 30253. The limits of a high radiation area need not be separately defined and posted if the surrounding radiation area is posted and controlled as a high radiation area.

(i) The boundaries of the controlled area for each "setup" shall be determined by a radiation survey during the first radiographic exposure to confirm that subsection (e) has been met and that unrestricted areas do not have radiation levels in excess of the limits specified in 10 CFR 20, subpart D incorporated by reference in section 30253. A radiation survey shall be made after each radiographic exposure to determine that the radiation machine is “off.” Survey results and records of boundary locations shall be maintained for three years and kept available for inspection.

(j) Protection against unauthorized entry into a high radiation area shall be controlled in accordance with section 20.1601(a) through (d) of 10 CFR 20 incorporated by reference in section 30253.

(k) Each user shall maintain current utilization logs, which shall be maintained for three years and kept available for inspection, containing the following information for each radiation machine:

(1) The identity of the machine;

(2) The location, date, and the identity of the individual operator for each use; and

(3) The voltage, current, and exposure time for each use.

(l) All requirements of section 30333.2 apply.

(m) Radiation machines used in field radiography shall meet the requirements specified in American National Standard N537-1976 “Radiological Safety Standard for the Design of Radiographic and Fluoroscopic Industrial X-ray Equipment” published as NBS Handbook 123, issued August 1977*, which is incorporated by reference.

(n) Unless exempted pursuant to subsection (e), field radiography shall not be performed unless, during radiographic operations:

(1) Each radiographer has in their possession the identification (ID) card issued to them by the Department and the ID card is current and valid or the radiographer is in compliance with section 30335.3(a); and

(2) Each radiographer’s assistant has in their possession the ID card issued to them by the registrant pursuant to section 30336.5(a)(2).

(o) Unless exempted pursuant to subsection (e), whenever a radiation machine radiographer’s assistant (RA) uses radiation machines or conducts radiation surveys to determine that the radiation machine is “off,” the RA shall be under the personal supervision of a radiation machine radiographer trainer or the radiation safety officer. The personal supervision shall include:

(1) The radiographer trainer’s physical presence at the site where the radiation machine is being used;

(2) The ability of the radiographer trainer to give immediate assistance if required; and

(3) The radiographer trainer’s watching the RA’s performance of the operations referred to in this section.

(p) If a user possesses a radiation machine such that an individual could, in a single exposure to the primary beam with the machine set at maximum exposure factors, receive an exposure exceeding 10 percent of the occupational dose limits specified in title 10, Code of Federal Regulations, Part 20, subpart C incorporated by reference in section 30253, the user shall establish and maintain an internal inspection program to ensure radiographers and radiographer’s assistants comply with this regulation and registration conditions and the registrant’s operating and emergency procedures. The inspection program shall include or provide:

(1) Observation of the performance of each radiographer and radiographer’s assistant during an actual radiographic operation at intervals not to exceed six months;

(2) That, if a radiographer or a radiographer’s assistant has not participated in a radiographic operation for more than six months since the last inspection, that individual’s performance shall be observed and recorded the next time the individual participates in a radiographic operation; and

(3) Retention of inspection records on the performance of radiographers or radiographer’s assistants for three years.

(q) Each user shall provide annual refresher safety training to each radiographer and radiographer’s assistant at intervals not to exceed 12 months. This training shall, at a minimum, address or provide:

(1) If an inspection program is required pursuant to subsection (p), results of internal inspections;

(2) Results of Department inspections;
(3) New procedures or equipment;
(4) New or revised regulations about industrial radiography using radiation machines;
(5) Accidents or errors that have been observed and steps to prevent recurrence; and
(6) Opportunities for individuals to ask safety questions.

(r) Unless otherwise stated in this section, documentation demonstrating compliance with this section shall be maintained for three years and available for inspection.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970 and 115060, Health and Safety Code.

*Copies of American National Standard N537-1976 “Radiological Safety Standard for the Design of Radiographic and Fluoroscopic Industrial X-ray Equipment” (published as NBS Handbook 123, issued August 1977) may be purchased from the American National Standards Institute, Inc., Global Engineering Documents, 1819 L Street, NW, Suite 600, Washington DC 20036 or at “http://global.ihs.com” document number “NBS HDBK 123.”

(31) Adopt section 30336.5 to read as follows:

§ 30336.5. Requirements for Radiation Machine Radiographer's Assistants.

(a) Prior to allowing an individual to perform as a radiation machine radiographer's assistant, a user shall:

(1) Ensure the individual has:

(A) Received copies of, instruction in, and demonstrated understanding of, the user's operating and emergency procedures by obtaining a passing grade of at least 80 percent on a written examination covering this material. The written examination shall be at least 50 questions in length. Instruction in this material shall be at least eight hours long; and

(B) Demonstrated competence to use the radiation machines and survey instruments employed by the user and in the kinds of radiographic operations that will be performed by obtaining a passing grade of at least 80 percent on a practical examination covering this material. The practical examination shall be at least 25 questions in length. Instruction in this material shall be at lest four hours long; and

(C) Received the instruction and training specified in subsections (a)(1)(A) and (a)(1)(B) from a radiation machine radiographer trainer or the registrant's radiation safety officer.

(2) Once the individual has met the requirements of subsection (a)(1), issue to the individual a durable identification (ID) card, resistant to water, containing the:

(A) Statement "I certify that (the name of the individual) has met the requirements to be a radiation machine radiographer's assistant.";

(B) Name and registration number of the registrant issuing the ID card; and

(C) Printed name, signature and date of signature of the registrant's radiation safety officer or radiation machine radiographer trainer.

(b) A user may apply to be an approved provider of radiation safety training in accordance with section 30331.

(c) Documentation demonstrating compliance with this section shall be maintained and available for inspection.

Note: Authority cited: Sections 114975, 115000, 115060, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970 and 115060, Health and Safety Code.

(32) Adopt section 30336.6 to read as follows:

§ 30336.6. Radiation Machine Radiographer Trainer Requirements.

(a) A user shall not allow any individual to act as a radiation machine radiographer trainer unless the individual:

(1) Is a certified radiation machine radiographer or is in compliance with section 30335.3;

(2) Has complied with the requirements of section 30336.5(a)(1); and

(3) Has at least 2,000 hours of experience using radiation machines, performing radiographic operations, radiation surveys and radiation safety related activities. The experience shall not include film development and interpretation, darkroom activities, travel, safety meetings, classroom training, performance of cabinet radiography, and/or any work activity not related to the performance of industrial radiography. Documentation shall specify:

(A) The user's name, registration number and name of the user's radiation safety officer;

(B) The beginning and ending dates of the experience; and

(C) For each radiation machine used, the model and manufacturer's name.

(b) Documentation demonstrating compliance with this section shall be maintained and available for inspection.

Note: Authority cited: Sections 114975, 115000, 115060, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970 and 115060, Health and Safety Code.

(33) Adopt section 30336.7 to read as follows:

§ 30336.7. Radiation Machine Radiation Safety Officer Requirements.

(a) Except as specified in subsection (c), for an individual to be a radiation safety officer (RSO) for a registrant, the individual shall:

(1) Meet the requirements of section 30336.6(a). Possession of a provisional radiographer certificate issued pursuant to section 30335.4 is not acceptable for complying with this section. No more than 900 hours of experience as a radiographer using radioactive material may be counted toward meeting the 2,000 hours specified in section 30336.6(a)(3); and

(2) Have completed 4,000 hours of experience using radiation machines and experience in radiation protection activities such as developing or implementing procedures relating to the protection of workers and the public from radiation including the development or implementation of procedures for radiation surveys, assessment of dosimetry for radiation work, determination of necessary radiation shielding, review of survey and personnel dose measurements, training of personnel, use and maintenance of radiation machines, monitoring of radiation emergency events, radiation machine security, audits of radiographic operations, and survey meter maintenance and calibration.

(b) The RSO shall ensure that radiation safety activities are being performed in accordance with the requirements of this regulation in the daily operation of the registrant's radiation safety program. Designation of an RSO does not relieve the registrant of any of its responsibility for complying with the Act and this regulation.

(c) Registrants only using cabinet X-ray systems shall be exempt from this section.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000 and 115060, Health and Safety Code.

(34) Adopt section 30336.8 to read as follows:

§ 30336.8. Industrial Radiography Certification and Provider Fees.

(a) The application fee for any category of radiographer certificate shall be $75.00.

(b) The examination fee for any category of radiographer certificate shall be $75.00. Each individual repeating a failed examination shall pay a fee of $75.00.

(c) The application fee for a provider of radiation safety training specified in section 30331 shall be $768.00.

(d) The fee for replacement of a Department identification card shall be $10.00.

(e) Fees required by this section shall be nonrefundable.

Note: Authority cited: Sections 114975, 115000, 115065, 115080, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115060, 115065 and 115080, Health and Safety Code.

(35) Amend section 30337 to read as follows:

§ 30337. Requirements for Use of Cabinet X-ray Systems~~Contraband-Detection Fluoroscopy~~.

(a) As used in this section:

(1) “Access panel” means any barrier or panel which is designed to be removed or opened for maintenance or service purposes, requires tools to open, and permits access to the interior of the cabinet;

(2) "Aperture" means any opening in the outside surface of the cabinet, other than a port, which remains open during generation of X-rays;

(3) “Door” means any barrier which is designed to be movable or opened for routine operation purposes, does not generally require tools to open, and permits access to the interior of the cabinet;

(4) “External surface” means the outside surface of the radiation machine, including the high-voltage generator, doors, access panels, latches, control knobs, and other permanently mounted hardware and including the plane across any aperture or port;

(5) “Ground fault” means an accidental electrical grounding of an electrical conductor;

(6) “Port” means any opening in the outside surface of the radiation machine which is designed to remain open, during generation of X-rays, for the purpose of conveying material to be irradiated into and out of the cabinet, or for partial insertion for irradiation of an object whose dimensions do not permit complete insertion into the cabinet;

(7) “Primary beam” means the radiation emitted directly from the target and passing through the window of the X-ray tube;

(8) “Safety interlock” means a device, which is intended to prevent the generation of radiation when access by any part of the human body to the interior of the detection system through a door or access panel is possible;

(9) X-ray system means an assemblage of components for the controlled generation of X-rays;

(10) “X-ray tube” means any electron tube, which is designed for the conversion of electrical energy into X-ray energy~~;~~.

(b) Cabinet X-ray systems shall meet and be continually maintained to ensure the following are met:~~When a radiation machine is operated in an occupied area for the purpose of detection of contraband in airline passenger carry-on baggage, it shall meet all of the following requirements:~~

(~~a~~1) Radiation emitted from the ~~detection equipment~~ system shall not, under any condition of use, exceed an exposure of 0.5 milliroentgen in one hour at any point five centimeters (cm) outside the external surface, or any door or port. The exposure shall be determined by measurements averaged over a cross-sectional area of ten square cm with no linear dimension greater than five cm with doors and access panels fully closed as well as fixed at any position, which will allow the generation of X-rays;

(~~b~~2) ~~The detection equipment shall have a physical barrier, photoelectric safety interlock, or other means which will make the insertion of any part of the human body into the primary X-ray beam impossible.~~The insertion of any part of the human body through any port into the primary beam shall not be possible. The insertion of any part of the human body through any aperture shall not be possible;

(~~c~~3) The ~~detection equipment~~ system shall have a lock-and-key control, which will ~~insure~~ ensure that X-ray generation is not possible with the key removed. When the system is not in use, the key shall be removed and controlled to prohibit unauthorized use of the system;

(4) The system shall have a control or controls to initiate and terminate the generation of X-rays other than by functioning of a safety interlock or the main power control;

(~~d~~5) ~~There shall be an illuminated indicator which will show when X-rays are being generated; this indicator shall be prominently visible to operating personnel in their normal working positions:~~ The system shall have two independent means (indicators), which indicate when and only when X-rays are being generated. At least one of the indicators shall be illuminated when X-rays are being generated. One, but not both, of the required indicators may be a milliammeter labeled to indicate X-ray tube current. All other indicators shall be legibly labeled “X-RAY ON.” If the X-ray generation period is less than one-half second, the indicators shall be activated for one-half second and shall be discernible from any point at which initiation of X-ray generation is possible. Failure of a single component of the system shall not cause failure of both indicators to perform their intended function. The system shall have additional means other than milliammeters as needed to insure that at least one indicator is visible from each door, access panel, and port. If the X-ray generation period is less than one-half second, the indicators shall be activated for one-half second and be legibly labeled “X-RAY ON”;

(~~e~~6) ~~In systems in which baggage is placed directly onto the fluoroscopy stage through an open port, the operator's X-ray control switch shall be of the deadman type.~~ In systems used to inspect objects such as, but not limited to, baggage, boxes, backpacks, purses, and mail, the system shall be designed such that:

(A) During an exposure or preset succession of exposures of one-half second or greater duration, the operator can terminate the exposure or preset succession of exposures at any time and is in a position that permits surveillance of the ports and doors during X-ray generation; and

(B) During an exposure or preset succession of exposures of less than one-half second duration, completion of the exposure in progress may continue but shall enable the operator to prevent additional exposures;

(7) There shall be permanently affixed or inscribed:

(A) At the location of any controls which can be used to initiate X-ray generation, a clearly legible and visible label bearing the statement: "Caution: X-Rays Produced When Energized;" and

(B) Adjacent to each port a clearly legible and visible label bearing the statement: "Caution: Do Not Insert Any Part of the Body When System is Energized—X-ray Hazard;"

(8) Each door shall have a minimum of two safety interlocks. One, but not both of the required interlocks shall be such that door opening results in physical disconnection of the energy supply circuit to the high-voltage generator, and such disconnection shall not be dependent upon any moving part other than the door;

(9) Each access panel shall have at least one safety interlock;

(10) Following interruption of X-ray generation by the functioning of any safety interlock, use of a control provided in accordance with subsection (b)(4) shall be necessary for resumption of X-ray generation;

(11) Failure of any single component of the system shall not cause failure of more than one required safety interlock; and

(12) A ground fault shall not result in the generation of X-rays.

(c) A user shall not allow any individual to operate a cabinet X-ray system until such individual has:

(1) Received copies of, instruction in, and demonstrated understanding of, the user's operating and emergency procedures by obtaining a passing grade of at least 80 percent on a written examination covering this material. The written examination shall be at least 50 questions in length; and

(2) Demonstrated competence to use the radiation machines by obtaining a passing grade of at least 80 percent on a practical examination covering this material. The practical examination shall be at least 25 questions in length. An individual operating such a system need not obtain radiographer certification.

(d) Interlocks shall be annually tested to ensure they function as designed.

(e) The user shall conduct an annual evaluation of the cabinet X-ray system to ensure compliance with title 10, Code of Federal Regulations, Part 20, subpart D incorporated by reference in section 30253.

(f) Individuals shall not be exposed to the primary beam.

(g) Documentation demonstrating compliance with this section shall be maintained for three years and kept available for inspection.

Note: Authority cited: Sections ~~208 and 25811~~ 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections ~~25801, 25802, 25815, 25875 and 25876~~114965, 114970 and 115060, Health and Safety Code.

(36) Adopt section 30338 to read as follows:

§ 30338. Grounds for Suspension, Revocation, Amendment, or Restriction of Radiographer Certificates and Radiation Safety Training Provider Approvals.

Radiographer certificates and any approval as a radiation safety training provider issued under this article may be revoked, suspended, amended or restricted for any of the following:

(a) Violation of any provision of the Act, any regulation promulgated pursuant to the Act, or any order of the Department.

(b) Failure to pay fees pursuant to section 30336.8.

(c) Failure to report changes pursuant to sections 30331 or 30335.6.

(d) Failure to take corrective action when directed by the Department.

(e) Failure to maintain the standard under which the training provider was approved pursuant to section 30331.

(f) Incompetence or gross negligence in performing radiographic operations.

(g) Procuring any certificate or approval by fraud, or misrepresentation, or because of mistake.

(h) Exposing any individual to radiation deliberately.

(i) Failure to comply with policies or procedures required to be developed pursuant to sections 30333.1 or 30336.1(e).

(j) Failure to provide complete and accurate information to the Department when required.

(k) Failure to pass a Department audit or inspection.

Note: Authority cited: Sections 114975, 115000, 131050, 131051 and 131200, Health and Safety Code. Reference: Sections 114965, 114970, 115000, 115060, 115230 and 115235, Health and Safety Code.