

TITLE 32: ENERGY
CHAPTER II: ILLINOIS EMERGENCY MANAGEMENT AGENCY
SUBCHAPTER b: RADIATION PROTECTION

PART 405
CERTIFICATION OF INDIVIDUALS TO PERFORM INDUSTRIAL RADIOGRAPHY

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405.APPENDIX A	Minimum Training Requirements for Industrial Radiography Applicable to Radioactive Materials and Radiation Machines

AUTHORITY: Implementing and authorized by Section 7a of the Radiation Protection Act of 1990 [420 ILCS 40/7a].

SOURCE: Adopted at 18 Ill. Reg. 10721, effective June 23, 1994; amended at 20 Ill. Reg. 12602, effective September 6, 1996; emergency amendment at 25 Ill. Reg. 14975, effective October 30, 2001, for a maximum of 150 days; amended at 26 Ill. Reg. 3483, effective February 25, 2002; amended at 27 Ill. Reg. 2169, effective February 1, 2003; recodified from the Department of Nuclear Safety to the Illinois Emergency Management Agency at 27 Ill. Reg. 13641; amended at 32 Ill. Reg. 13161, effective July 24, 2008; amended at 37 Ill. Reg. 20235, effective December 9, 2013.

Section 405.10 Purpose and Scope

- a) This Part establishes a program to certify persons to perform industrial radiography. Specifically, this Part provides:
 - 1) Minimum standards for training and experience for persons who perform industrial radiography;
 - 2) Application and examination requirements for certification and

- recertification;
- 3) Standards for the recognition of certification by other parties;
 - 4) Provisions for the suspension or revocation of certification; and
 - 5) Civil penalties.
- b) This Part applies to any person who performs industrial radiography in this State. For purposes of this Part, industrial radiography does not include radiography performed with Lixiscopes or cabinet x-ray systems, nor does it include computed tomography or computer-based digital radiography in which the useful beam of radiation is collimated to detectors.

Section 405.20 Definitions

As used in this Part, the following definitions shall apply:

"Act" means the Radiation Protection Act of 1990 [420 ILCS 40].

"Agency" means the Illinois Emergency Management Agency.

"Approved Training Program" means a program that the Agency has determined is adequate to prepare individuals to meet the training requirements prescribed in Appendix A.

"Cabinet x-ray system" means an x-ray system with the x-ray tube installed in an enclosure which, independent of existing architectural structures except the floor on which it may be placed, is intended to contain at least that portion of a material being irradiated, provide radiation attenuation and exclude personnel from its interior during generation of x radiation. Included are all x-ray systems designed primarily for the inspection of carry-on baggage at airline, railroad, bus terminals and similar facilities. 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.

"Certification" means the authorization by the Illinois Emergency Management Agency of an individual to perform industrial radiography in Illinois.

"Certified Industrial Radiographer" means an individual who has met prescribed training and experience requirements and has passed an approved examination and is authorized by the Agency, pursuant to Section 405.90(a), to perform industrial radiography.

"Certified Industrial Radiographer Trainee" means an individual who is authorized by the Agency, pursuant to Section 405.90(b), to be instructed in

industrial radiography and who may perform industrial radiography while under the personal supervision of a Certified Industrial Radiographer.

AGENCY NOTE: Instruction in industrial radiography for trainees certified by the Agency includes on-the-job and field experience.

"Director" means the Director of the Illinois Emergency Management Agency.

"Industrial Radiography" means the process used to perform the examination of the macroscopic structure of materials by non-destructive methods using radioactive materials or radiation machines. For purposes of this Part, industrial radiography does not include radiography performed with Lixiscopes or cabinet x-ray systems, nor does it include computed tomography or computer-based digital radiography in which the useful beam of radiation is collimated to detectors.

"Industrial Radiography – Radiation Machines" means the process of performing industrial radiography using radiation producing machines.

"Industrial Radiography – Radioactive Materials" means the process of performing industrial radiography using radioactive materials.

"Lixiscope" means a portable light-intensified imaging device using a sealed source.

"Personal supervision" means supervision provided by a Certified Industrial Radiographer who is physically present at the immediate site where sources of radiation and associated equipment are being used, visually evaluating the performance of the Certified Industrial Radiographer Trainee and in such proximity that immediate assistance can be given if required.

"Radiographic exposure device" means any instrument containing a sealed source fastened or contained therein, in which the sealed source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.30 Application for Certification

- a) Any individual applying to the Agency for certification to perform industrial radiography shall:
 - 1) Submit a complete and legible application on a form prescribed by the Agency;

- 2) Pay the appropriate non-refundable application fee in accordance with Section 405.110;
 - 3) Meet the examination requirements set forth in Section 405.50 or satisfy the requirements for certification based on reciprocity as set forth in Section 405.120; and
 - 4) Provide evidence that the requirements for the given category and class for which certification is sought have been met.
- b) The appropriate fee shall accompany the application when filing with the Agency. An application shall be deemed filed on the date that it is received by the Agency or on the date that it is postmarked by the United States Postal Service or equivalent.
 - c) The Agency shall refuse to issue or renew certification to any individual if the Agency has evidence that the applicant is delinquent in the repayment of an educational loan guaranteed by the Illinois Student Assistance Commission, as set forth in 20 ILCS 3310/80.
 - d) The Agency shall refuse to issue or renew certification to any individual, after an opportunity for a hearing, if the Agency has evidence that the applicant is delinquent in the payment of child support orders, pursuant to the provisions and procedures set forth in 5 ILCS 100/10-65. Further process, hearing, or redetermination of the delinquency or violation by the Agency shall not be required if the refusal is based solely upon the certification of delinquency made by the Illinois Department of Healthcare and Family Services (or successor agency) or the certification of violation made by the court. The Agency may issue or renew a certification if the applicant has arranged for payment of past and current child support obligations in a manner satisfactory to the Illinois Department of Healthcare and Family Services (or successor agency). The Agency may also impose conditions, restrictions or disciplinary action upon the certification.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.40 Categories of Certification

- a) The Agency shall certify individuals to perform industrial radiography in one or more of the following categories:
 - 1) Certified Industrial Radiographer; or
 - 2) Certified Industrial Radiographer Trainee.
- b) Each certification issued shall include a class endorsement for the type of

industrial radiography authorized. Such class endorsements are limited to:

- 1) Radioactive Materials;
- 2) Radiation Machines; or
- 3) Radioactive Materials and Radiation Machines.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.50 Examination Requirements

- a) An individual who seeks certification or renewal of certification as a Certified Industrial Radiographer shall have passed, within 12 months prior to application for certification, a written examination appropriate to the category and class of certification sought in accordance with Section 405.60.
- b) Application for examination or re-examination shall be on forms prescribed by the Agency and shall include the appropriate fee specified by Section 405.110. Examination fees are non-refundable.
- c) Examinees shall present photographic identification (e.g., drivers license) at the time of examination.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.60 Examinations

- a) The Agency shall administer examinations in each class of industrial radiography as specified in Section 405.40(b) at such times and places as the Agency determines necessary.
 - 1) The examination shall be available through the Conference of Radiation Control Program Directors, Inc.
 - 2) The passing score shall be 70 percent.
 - 3) A candidate who fails an examination may apply for re-examination in accordance with Section 405.50.
- b) The Agency shall accept or utilize alternative examinations provided that the examinations are found acceptable by the U.S. Nuclear Regulatory Commission or the Conference of Radiation Control Program Directors, Inc.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.70 Approved Training Program

Industrial radiographer training programs shall be approved by the Agency. The Agency shall recognize other programs approved by another state or jurisdiction provided that such programs consist of standards and procedures that are the same or comparable to the standards and procedures established by the Radiation Protection Act of 1990 and this Part. The Agency shall base its approval on information provided by the training program that shall include:

- a) Curriculum information sufficient to assure inclusion of subjects referenced in Appendix A;
- b) Copies of test questions and answers and other evaluation tools and criteria used to demonstrate a participant's comprehension of subject matter in Appendix A; and
- c) Resumes of instructors.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.80 Experience Requirements for Certification

Applicants for certification to perform industrial radiography shall have a minimum of experience appropriate to each category and class of industrial radiography as follows:

- a) Certified Industrial Radiographer
 - 1) Radioactive Materials 200 hrs
 - 2) Radiation Machines 120 hrs
 - 3) Both Radioactive Materials and Radiation..... 320 hrs

Machines of which not less than 200 hours shall be with radioactive materials and not less than 120 hours shall be with radiation machines.

- b) Certified Industrial Radiographer Trainee. No prior experience required.

(Source: Amended at 26 Ill. Reg. 3483, effective February 25, 2002)

Section 405.90 Requirements for Issuance of Certification

The Agency shall certify in a category and class of industrial radiography any individual who has satisfied the following requirements:

- a) Certified Industrial Radiographer
 - 1) Submitted an application for certification on a form prescribed by the

Agency;

- 2) Submitted the application fee specified in Section 405.110(a);
- 3) Passed an examination as required by Section 405.50(a) or satisfies the requirements for certification based on reciprocity as set forth in Section 405.120; and
- 4) Completed the required hours of experience in industrial radiography as specified in Section 405.80 or satisfies the requirements for certification based on reciprocity as set forth in Section 405.120.

b) Certified Industrial Radiographer Trainee

- 1) Submitted an application for certification on a form prescribed by the Agency;
- 2) Submitted the application fee specified in Section 405.110(a); and
- 3) Submitted documentation of successful completion of an approved training program as specified in Section 405.70 or satisfies the requirements for certification based on reciprocity as set forth in Section 405.120.

AGENCY NOTE: Training includes didactic study incorporating those topics included in Appendix A. Training does not include on-the-job experience.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.100 Duration of Certification

The duration of certification issued by the Agency shall be:

- a) Certified Industrial Radiographer 5 years
- b) Certified Industrial Radiographer Trainee 2 years

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.110 Fees

- a) The application fees for examination or certification are non-refundable and are as follows:
 - 1) Each application for examination by the Agency \$150

- 2) Each application for certification
 - A) Certified Industrial Radiographer \$125
 - B) Certified Industrial Radiographer Trainee \$125
- b) The appropriate fees shall accompany the application when filing with the Agency.

(Source: Amended at 37 Ill. Reg. 20235, effective December 9, 2013)

Section 405.120 Reciprocity

- a) The Agency may issue certification to an applicant who has been certified in another state or jurisdiction, or by the American Society of Nondestructive Testing (ASNT), provided that:
 - 1) The applicant holds a valid certification in the appropriate category and class issued by another state or jurisdiction or by the ASNT;
 - 2) The standards and procedures for the certification issued by the state, jurisdiction or ASNT are the same or comparable to the certification standards established by or pursuant to the Radiation Protection Act of 1990 and this Part;
 - 3) The applicant presents a legible copy of the certification document issued by the other state or jurisdiction, or by the ASNT, to the Agency; and
 - 4) The applicant submits the application fee in accordance with Section 405.110(a).
- b) Individuals who are certified by reciprocity shall either:
 - 1) Maintain the certification upon which the reciprocal certification was issued; or
 - 2) Satisfy the requirements of Section 405.90 prior to the expiration of the certification upon which reciprocal certification was issued.
- c) Enforcement actions by the Agency, another agreement state or the Nuclear Regulatory Commission, or sanctions by an independent certifying entity may be considered when the Agency reviews a request for reciprocal recognition from a certified radiographer.
- d) The Agency may refuse to issue or renew a certification under this Section for any one or a combination of the causes in Section 405.140.

(Source: Amended at 37 Ill. Reg. 20235, effective December 9, 2013)

Section 405.130 Requirements for Renewal of Certification

- a) Prerequisites
 - 1) An individual shall submit an application for renewal of certification on or before the expiration date of certification. An individual may not perform industrial radiography without valid certification or without the written approval of the Agency during such time as an application may be pending.
 - 2) Each applicant shall submit a complete and legible application with the fee for renewal of certification in accordance with Section 405.110(a)(2)(A).
- b) Re-examination. Applicants for renewal of certification shall meet the requirements of Section 405.50(a).
- c) Certification as a Certified Industrial Radiographer Trainee is non-renewable and will not be re-issued for any other type of industrial radiography.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.140 Suspension, Revocation and Denial of Certification

- a) The Agency may act to suspend or revoke an individual's certification or refuse to issue or renew certification, for any one or a combination of the following causes:
 - 1) Knowingly causing a material misstatement or misrepresentation to be made in the application for initial certification or renewal of certification if such misstatement or misrepresentation would impair the Agency's ability to assess and evaluate the applicant's qualifications for certification pursuant to this Part;
 - 2) Knowingly making a false material statement to an Agency employee during the course of official Agency business;
 - 3) Knowingly falsifying records of employees when such falsification would impair the Agency's ability to assess and evaluate the applicant's qualifications for certification pursuant to this Part;
 - 4) Willfully evading the statute or regulations pertaining to certification, or willfully aiding another person in evading such statute or regulations pertaining to certification;
 - 5) Performing procedures under, or representing as valid to any person, a

certification issued by the Agency containing on its face unauthorized alterations or changes that are inconsistent with Agency records regarding the issuance of that certification;

- 6) Performing procedures under, or representing as valid to any person, a credential not issued by the Agency to prove certification in Illinois;
 - 7) Having been convicted of a crime which is a felony under the laws of this State or conviction of a felony in a federal court, unless the individual demonstrates to the Agency that he/she has been sufficiently rehabilitated to warrant the public trust;
 - 8) Exhibiting significant or repeated incompetence in the performance of industrial radiography duties;
 - 9) Having a physical or mental illness or disability that results in the individual's inability to perform industrial radiography duties with reasonable judgment, skill and safety;
 - 10) Performing industrial radiography in such a manner that requirements of 32 Ill. Adm. Code 350 are violated resulting in a threat to health and safety of the individual, other workers or the public;
 - 11) Having an actual or potential inability to perform industrial radiography duties with reasonable judgment, skill and safety due to the use of alcohol, narcotics or stimulants;
 - 12) Having had a similar certification suspended or revoked if the grounds for that suspension or revocation are the same or equivalent to one or more grounds for suspension or revocation as set forth in this subsection (a);
 - 13) Failure to maintain the out-of-state certification upon which certification by reciprocity was issued;
 - 14) Failure to repay educational loans guaranteed by the Illinois Student Assistance Commission, as provided in 20 ILCS 3310/80;
 - 15) Failure to meet child support orders, as provided in 5 ILCS 100/10-65; and
 - 16) Failure to pay a fee or civil penalty properly assessed by the Agency.
- b) If, based upon any of the grounds in subsection (a) of this Section, the Agency determines that action to suspend or revoke certification, or refusal to issue or renew certification, is warranted, the Agency shall notify the individual and shall provide an opportunity for a hearing in accordance with 32 Ill. Adm. Code 200. An opportunity for a hearing shall be provided before the Agency takes action to

suspend or revoke an individual's certification unless the Agency finds that an immediate suspension of certification is required to protect against immediate danger to the public health or safety (see 420 ILCS 40/38), in which case the Agency shall suspend an individual's certification pending a hearing. The Agency shall revoke or suspend, or shall refuse to issue or renew certification under subsection (a)(15) of this Section *based solely upon the certification of delinquency made by the Illinois Department of Healthcare and Family Services (or successor agency) or the certification of violation made by the court. Further process, hearing, or redetermination of the delinquency or violation by the Agency shall not be required. The Agency may issue or renew a certification if the individual has arranged for payment of past and current child support obligations in a manner satisfactory to the Illinois Department of Healthcare and Family Services (or successor agency) or the court. The Agency may impose conditions, restrictions, or disciplinary action upon that certification.* [5 ILCS 100/10-65(c)]

- c) If the Agency finds that removal or refusal to issue or renew certification is warranted, the usual action shall be a suspension or denial of certification for up to one year. The term of suspension may be reduced by the Director, based upon evidence presented, if the conditions leading to the Preliminary Order for Suspension can be cured in less than one year. However, if the Agency finds that the causes are of a serious or continuous nature, such as past actions which posed an immediate threat to occupational or public health or safety, deficiencies that cannot be cured within one year or frequent child support arrearages, the Agency shall revoke the individual's certification or deny the application.
- d) When an individual's certification is suspended or revoked, the individual shall surrender his/her certification document to the Agency until the termination of the suspension period or until reissuance of the certification.
- e) An individual whose certification has been revoked may seek reinstatement of certification by filing with the Agency a petition for reinstatement. The petition may be filed one year or more after the beginning of the revocation period. The individual shall be afforded a hearing in accordance with 32 Ill. Adm. Code 200 and shall bear the burden of proof of establishing that the certification should be reinstated due to rehabilitation or other just cause.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

Section 405.150 Civil Penalties

- a) The Agency shall assess civil penalties, in accordance with subsection (c) of this Section, against any individual who performs industrial radiography without valid certification.

AGENCY NOTE: Licensees and registrants that allow individuals who are not

certified to perform industrial radiography are also subject to civil penalties. These penalties are assessed pursuant to 32 Ill. Adm. Code 310.

- b) Prior to assessing civil penalties, the Agency shall confirm the violation of the certification requirements by:
 - 1) Observation of the violation;
 - 2) Obtaining records, documents or other physical evidence;
 - 3) Obtaining statements from either the employer or the employee which confirm the existence of the violation; or
 - 4) Obtaining statements from third parties (e.g., co-workers) that corroborate the allegation that a violation has occurred.
- c) Civil penalties shall be assessed against individuals who perform industrial radiography without certification (i.e., uncertified radiographer) as follows:
 - 1) First violation by an uncertified individual – \$250.
 - 2) Second violation by an uncertified individual – \$500.
 - 3) Third and subsequent violation by an uncertified individual – \$1,000 for each violation.
- d) The Agency may commence administrative proceedings for the assessment and collection of civil penalties by sending a Notice of Violation. The Notice shall give the individual an opportunity to pay the penalty without further action from the Agency.
- e) Failure of an individual to abate a certification violation or to pay the civil penalty as directed may cause the Agency to issue a Preliminary Order and Notice of Opportunity for Hearing as provided in 32 Ill. Adm. Code 200.

(Source: Amended at 32 Ill. Reg. 13161, effective July 24, 2008)

**Section 405.APPENDIX A Minimum Training Requirements for Industrial Radiography
Applicable to Radioactive Materials and Radiation Machines**

- a) Fundamentals of Radiation Safety
 - 1) Characteristics of radiation
 - 2) Units of radiation dose and quantity of radioactivity
 - 3) Significance of radiation dose
 - A) Radiation protection standards
 - B) Biological effects of radiation
 - 4) Levels of radiation from sources of radiation
 - 5) Methods of controlling radiation dose
 - A) Working time
 - B) Working distances
 - C) Shielding
- b) Radiation Detection Instrumentation to be Used
 - 1) Use of radiation survey instruments
 - A) Operation
 - B) Calibration
 - C) Limitations
 - 2) Survey techniques
 - 3) Use of personnel monitoring equipment
 - A) Film badges
 - B) Thermoluminescent dosimeters (TLDs) or optically stimulated luminescence dosimeters (OSLs)
 - C) Pocket dosimeters

- D) Alarm ratemeter
- c) The Requirements of Pertinent Federal and State Regulations
- d) Written Operating and Emergency Procedures
- e) Case Histories of Radiation Accidents
- f) Radiography Equipment to be Used
 - 1) For Industrial Radiography Using Radioactive Material
 - A) Remote handling equipment
 - B) Radiographic exposure devices and sealed sources
 - C) Storage containers
 - D) Inspection, maintenance, operation and control of radiography equipment
 - E) Demonstration of competency to safely perform radiographic procedures using a simulated source of radioactive material
 - 2) For Industrial Radiography Using Radiation Machines
 - A) Remote exposure equipment
 - B) Radiation machine exposure equipment
 - C) Inspection, maintenance, operation and control of radiography equipment
 - D) Demonstration of competency to safely perform radiographic procedures using a simulated source of radiation

(Source: Amended at 26 Ill. Reg. 3483, effective February 25, 2002)