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transporting vehicle to prevent accidental loss, tampering, or unauthorized removal of the licensed material from the vehicle.

Subpart D—Radiation Safety Requirements

§ 34.41 Conducting industrial radiographic operations.

(a) Whenever radiography is performed at a location other than a permanent radiographic installation, the radiographer must be accompanied by at least one other qualified radiographer or an individual who has at a minimum met the requirements of § 34.43(c). The additional qualified individual shall observe the operations and be capable of providing immediate assistance to prevent unauthorized entry. Radiography may not be performed if only one qualified individual is present.

(b) All radiographic operations conducted at locations of use authorized on the license must be conducted in a permanent radiographic installation, unless specifically authorized by the Commission.

(c) A licensee may conduct lay-barge, offshore platform, or underwater radiography only if procedures have been approved by the Commission or by an Agreement State.

(d) Licensees will have until June 27, 1998, to meet the requirements for having two qualified individuals present at locations other than a permanent radiographic installation as specified in paragraph (a) of this section.

[62 FR 28963, May 28, 1997, as amended at 63 FR 37061, July 9, 1998]

§ 34.42 Radiation Safety Officer for industrial radiography.

The RSO shall ensure that radiation safety activities are being performed in accordance with approved procedures and regulatory requirements in the daily operation of the licensee's program.

(a) The minimum qualifications, training, and experience for RSOs for industrial radiography are as follows:

(1) Completion of the training and testing requirements of § 34.43(a);

(2) 2000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations; and

(3) Formal training in the establishment and maintenance of a radiation protection program.

(b) The Commission will consider alternatives when the RSO has appropriate training and/or experience in the field of ionizing radiation, and in addition, has adequate formal training with respect to the establishment and maintenance of a radiation safety protection program.

(c) The specific duties and authorities of the RSO include, but are not limited to:

(1) Establishing and overseeing all operating, emergency, and ALARA procedures as required by 10 CFR part 20 of this chapter, and reviewing them regularly to ensure that the procedures in use conform to current 10 CFR part 20 procedures, conform to other NRC regulations and to the license conditions.

(2) Overseeing and approving all phases of the training program for radiographic personnel, ensuring that appropriate and effective radiation protection practices are taught;

(3) Ensuring that required radiation surveys and leak tests are performed and documented in accordance with the regulations, including any corrective measures when levels of radiation exceed established limits;

(4) Ensuring that personnel monitoring devices are calibrated and used properly by occupationally-exposed personnel, that records are kept of the monitoring results, and that timely notifications are made as required by § 20.2203 of this chapter; and

(5) Ensuring that operations are conducted safely and to assume control for instituting corrective actions including stopping of operations when necessary.

(d) Licensees will have until June 27, 1999, to meet the requirements of paragraph (a) or (b) of this section.

[62 FR 28963, May 28, 1997, as amended at 63 FR 37061, July 9, 1998]

§ 34.43 Training.

(a) The licensee may not permit any individual to act as a radiographer until the individual—

(1) Has received training in the subjects in paragraph (g) of this section, in addition to a minimum of 2 months of on-the-job training, and is certified through a radiographer certification program by a certifying entity in accordance with the criteria specified in appendix A of this part. (An independent organization that would like to be recognized as a certifying entity shall submit its request to the Director, Office of Nuclear Material Safety and Safeguards, by an appropriate method listed in §30.6(a) of this chapter.); or

(2) The licensee may, until June 27, 1999, allow an individual who has not met the requirements of paragraph (a)(1) of this section, to act as a radiographer after the individual has received training in the subjects outlined in paragraph (g) of this section and demonstrated an understanding of these subjects by successful completion of a written examination that was previously submitted to and approved by the Commission.

(b) In addition, the licensee may not permit any individual to act as a radiographer until the individual—

(1) Has received copies of and instruction in the requirements described in NRC regulations contained in this part; in §§30.7, 30.9, and 30.10 of this chapter; in the applicable sections of 10 CFR parts 19 and 20, of this chapter, in applicable DOT regulations as referenced in 10 CFR part 71, in the NRC license(s) under which the radiographer will perform industrial radiography, and the licensee's operating and emergency procedures;

(2) Has demonstrated understanding of the licensee's license and operating and emergency procedures by successful completion of a written or oral examination covering this material.

(3) Has received training in the use of the licensee's radiographic exposure devices, sealed sources, in the daily inspection of devices and associated equipment, and in the use of radiation survey instruments.

(4) Has demonstrated understanding of the use of radiographic exposure devices, sources, survey instruments and associated equipment described in paragraphs (b)(1) and (b)(3) of this section by successful completion of a

practical examination covering this material.

(c) The licensee may not permit any individual to act as a radiographer's assistant until the individual—

(1) Has received copies of and instruction in the requirements described in NRC regulations contained in this part, in §§30.7, 30.9, and 30.10 of this chapter, in the applicable sections of 10 CFR parts 19 and 20 of this chapter, in applicable DOT regulations as referenced in 10 CFR part 71, in the NRC license(s) under which the radiographer's assistant will perform industrial radiography, and the licensee's operating and emergency procedures;

(2) Has developed competence to use, under the personal supervision of the radiographer, the radiographic exposure devices, sealed sources, associated equipment, and radiation survey instruments that the assistant will use; and

(3) Has demonstrated understanding of the instructions provided under (c)(1) of this section by successfully completing a written test on the subjects covered and has demonstrated competence in the use of hardware described in (c)(2) of this section by successful completion of a practical examination on the use of such hardware.

(d) The licensee shall provide annual refresher safety training for each radiographer and radiographer's assistant at intervals not to exceed 12 months.

(e) Except as provided in paragraph (e)(4), the RSO or designee shall conduct an inspection program of the job performance of each radiographer and radiographer's assistant to ensure that the Commission's regulations, license requirements, and the applicant's operating and emergency procedures are followed. The inspection program must:

(1) Include observation of the performance of each radiographer and radiographer's assistant during an actual industrial radiographic operation, at intervals not to exceed 6 months; and

(2) Provide that, if a radiographer or a radiographer's assistant has not participated in an industrial radiographic operation for more than 6 months since the last inspection, the radiographer

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must demonstrate knowledge of the training requirements of §34.43(b)(3) and the radiographer's assistant must re-demonstrate knowledge of the training requirements of §34.43(c)(2) by a practical examination before these individuals can next participate in a radiographic operation.

(3) The Commission may consider alternatives in those situations where the individual serves as both radiographer and RSO.

(4) In those operations where a single individual serves as both radiographer and RSO, and performs all radiography operations, an inspection program is not required.

(f) The licensee shall maintain records of the above training to include certification documents, written and practical examinations, refresher safety training and inspections of job performance in accordance with §34.79.

(g) The licensee shall include the following subjects required in paragraph (a) of this section:

(1) Fundamentals of radiation safety including—

(i) Characteristics of gamma radiation;

(ii) Units of radiation dose and quantity of radioactivity;

(iii) Hazards of exposure to radiation;

(iv) Levels of radiation from licensed material; and

(v) Methods of controlling radiation dose (time, distance, and shielding);

(2) Radiation detection instruments including—

(i) Use, operation, calibration, and limitations of radiation survey instruments;

(ii) Survey techniques; and

(iii) Use of personnel monitoring equipment;

(3) Equipment to be used including—
(i) Operation and control of radiographic exposure equipment, remote handling equipment, and storage containers, including pictures or models of source assemblies (pigtailed).

(ii) Storage, control, and disposal of licensed material; and

(iii) Inspection and maintenance of equipment.

(4) The requirements of pertinent Federal regulations; and

(5) Case histories of accidents in radiography.

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(h) Licensees will have until June 27, 1998, to comply with the additional training requirements specified in paragraphs (b)(1) and (c)(1) of this section.

(i) Licensees will have until June 27, 1999 to comply with the certification requirements specified in paragraph (a)(1) of this section. Records of radiographer certification maintained in accordance with §34.79(a) provide appropriate affirmation of certification requirements specified in paragraph (a)(1) of this section.

[62 FR 28963, May 28, 1997, as amended at 63 FR 37061, July 9, 1998; 68 FR 58805, Oct. 10, 2003, 73 FR 5720, Jan. 31, 2008]

§ 34.45 Operating and emergency procedures.

(a) Operating and emergency procedures must include, as a minimum, instructions in the following:

(1) Appropriate handling and use of licensed sealed sources and radiographic exposure devices so that no person is likely to be exposed to radiation doses in excess of the limits established in 10 CFR part 20 of this chapter “Standards for Protection Against Radiation”;

(2) Methods and occasions for conducting radiation surveys;

(3) Methods for controlling access to radiographic 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 equipment;

(6) Transporting sealed sources to field locations, including packing of radiographic exposure devices and storage containers in the vehicles, placarding of vehicles when needed, and control of the sealed sources during transportation (refer to 49 CFR parts 171–173);

(7) The inspection, maintenance, and operability checks of radiographic exposure devices, survey instruments, transport containers, and storage containers;

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