

"Product conveyor system" means a system for moving the product to be irradiated to, from and within the area where irradiation takes place.

"Radiation room" means a shielded room in which irradiations take place. Underwater irradiators do not have radiation rooms.

"Sealed source" means any radioactive material that is used as a source of radiation and is encased in a capsule designed to prevent leakage or escape of the radioactive material.

"Seismic area" means any area where the probability of a horizontal acceleration in rock of more than 0.3 times the acceleration of gravity in 250 years is greater than 10 percent, as designated by the U.S. Geological Survey.

"Underwater irradiator" means an irradiator in which the sources always remain shielded under water and personnel do not have access to the sealed sources or the space subject to irradiation without entering the pool.

SUBPART B: SPECIFIC LICENSING REQUIREMENTS

Section 346.110 Application for Specific License

A person, as defined in 32 Ill. Adm. Code 310.20, may file an application for a specific license authorizing the use of sealed sources in an irradiator on the Agency's application form entitled "Application Form for Non-Medical Radioactive Material License". Applications shall be filed in accordance with 32 Ill. Adm. Code 330.240.

Section 346.130 Specific License for Irradiators

The Agency will approve an application for a specific license to operate an irradiator if the applicant meets the requirements contained in this Section.

- a) The applicant shall satisfy the general requirements specified in 32 Ill. Adm. Code 330.250 and the requirements contained in this Part.
- b) The application shall describe the training provided to irradiator operators including:
 - 1) Classroom training;
 - 2) On-the-job or simulator training;
 - 3) Safety reviews;

- 4) Means employed by the applicant to test each operator's understanding of the Agency's regulations and licensing requirements and the irradiator operating and emergency procedures; and
 - 5) Minimum training and experience of personnel who may provide training.
- c) The application shall include an outline of the written operating and emergency procedures listed in Section 346.530 of this Part that describe the radiation safety aspects of the procedures.
 - d) The application shall describe the organizational structure for managing the irradiator, specifically the radiation safety responsibilities and authorities of the radiation safety officer and those management personnel who have important radiation safety responsibilities or authorities. In particular, the application shall specify who, within the management structure, has the authority to stop unsafe operations. The application shall also describe the training and experience required for the position of radiation safety officer.
 - e) The application shall include a description of the access control systems required by Section 346.230 of this Part, the radiation monitors required by Section 346.290 of this Part, the method of detecting leaking sources required by Section 346.590 of this Part, including the sensitivity of the method, and a diagram of the facility that shows the location of all required interlocks and radiation monitors.
 - f) An application for a panoramic irradiator shall include a description of the facility shielding and fire protection system.
 - g) An application for a pool irradiator shall include a description of the irradiator pool construction, water level indicators, purification systems and source rack and protection system.
 - h) If the applicant intends to perform leak testing of dry-source-storage sealed sources, the applicant shall establish procedures for leak testing and submit a description of these procedures to the Agency. The description shall include the:
 - 1) Instruments to be used;
 - 2) Methods of performing the analysis; and
 - 3) Pertinent experience of the personnel analyzing the samples.
 - i) If the licensee's personnel are to load or unload sources, the applicant shall describe the qualifications and training of the personnel and the procedures to be used. If the applicant intends to contract for source loading or unloading at its facility, the loading or unloading shall be done by an organization specifically

authorized by the Agency, U.S. Nuclear Regulatory Commission or an Agreement State to load or unload irradiator sources.

- j) The applicant shall describe the inspection and maintenance checks, including the frequency of the checks required by Section 346.610 of this Part.
- k) A professional engineer licensed in Illinois shall seal all construction and design plans and specification documents submitted for review by the Agency.
- l) Appropriate Agency license fees, as specified in 32 Ill. Adm. Code 331: Appendix F, shall be paid prior to the approval of the specific license.

Section 346.150 Start of Construction

The applicant may not begin construction of a new irradiator prior to submission to the Agency of an application for a license for the irradiator. As used in this Section, the term "construction" is defined in 32 Ill. Adm. Code 310.20. Any activities undertaken prior to the issuance of a license are entirely at the risk of the applicant and have no bearing on the issuance of a license with respect to the requirements of the Radiation Protection Act of 1990 and regulations and orders issued under the Act.

(Source: Amended at 38 Ill. Reg. 21467, effective October 31, 2014)

SUBPART C: DESIGN AND PERFORMANCE REQUIREMENTS OF IRRADIATORS

Section 346.210 Performance Criteria for Sealed Sources

- a) Requirements. Sealed sources installed after December 1, 2005:
 - 1) Shall have an evaluation sheet issued by the Agency, an Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission;
 - 2) Shall be doubly encapsulated;
 - 3) Shall use radioactive material that is as nondispersible as practical and that is as insoluble as practical if the source is used in a wet-source-storage or wet-source-change irradiator. Cs-137 sources are prohibited from use in a wet-source-storage or wet-source-change irradiator;
 - 4) Shall be encapsulated in a material resistant to general corrosion and to localized corrosion, such as 316L stainless steel or other material with equivalent resistance, if the sources are for use in irradiator pools;