

STATE OF NEBRASKA

DEPARTMENT OF HEALTH
Mark B. Horton, M.D., M.S.P.H.
Director

COPY



E. Benjamin Nelson
Governor

MEMORANDUM

TO: CHARLES HACKNEY
OFFICE OF INSPECTION & ENFORCEMENT
U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

FROM: JOYCE K. DAVIDSON, HEALTH PHYSICIST
RADIOACTIVE MATERIALS PROGRAM
NEBRASKA DEPARTMENT OF HEALTH

DATE: JULY 17, 1996

SUBJECT: NOTICE OF RULEMAKING HEARING

Enclosed find the Notice of Rulemaking Hearing involving the new Section 019 "Licenses and Radiation Safety Requirements for Irradiators" to Title 180 NAC 1 (Nebraska Regulations for Control of Radiation-Ionizing). Also enclosed are the relevant changes to 180 NAC 1-004.21 and 180 NAC 1-015.26 as a result of the new 180 NAC 1-019.

Be advised that Richard Blanton was given this notice along with the proposed changes and a Disk with the information on it for review by the NRC. He is in Lincoln this week on our IMPEP review. So this copy is for your information.

Along with this notice is the latest copy of the Radiation Control Act for your files. I also gave a copy to Richard.

Should you have any question please contact me at (402) 471-2168.

9610150100 961004
PDR STPRG ESGNE
PDR

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STATE OF NEBRASKA

DEPARTMENT OF HEALTH
Mark B. Horton, M.D., M.S.P.H.
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E. Benjamin Nelson
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MEMORANDUM

TO: LICENSEES, REGISTRANTS AND INTERESTED PARTIES

FROM: JOYCE DAVIDSON, HEALTH PHYSICIST
RADIOACTIVE MATERIALS PROGRAM
NEBRASKA DEPARTMENT OF HEALTH

DATE: JULY 17, 1996

SUBJECT: ENCLOSURES

Enclosed you will find a memorandum about a Rulemaking Hearing that is going to be held on August 19, 1996 concerning the new proposed Section 019 of 180 NAC 1. These only apply to Irradiator Licensees, specifically, Panoramic, Dry-source-storage Irradiators, Underwater Irradiators, and Panoramic, Wet-source-storage irradiators. Also changes to 180 NAC 1-004.21 and 180 NAC 1-015.26 as a result of the new 180 NAC 1-019.

Also enclosed for your information is the latest copy of the Radiation Control Act with changes that go into effect on July 19, 1996 due to legislative changes this past legislative session.

Should you have any questions regarding the enclosures, please contact me at 402-471-2168.

STATE OF NEBRASKA

DEPARTMENT OF HEALTH
Mark B. Horton, M.D., M.S.P.H.
Director



E. Benjamin Nelson
Governor

MEMORANDUM

TO: LICENSEES, REGISTRANTS AND INTERESTED PARTIES

FROM: JOYCE DAVIDSON, HEALTH PHYSICIST
RADIOACTIVE MATERIALS PROGRAM
NEBRASKA DEPARTMENT OF HEALTH

DATE: JULY 17, 1996

SUBJECT: TITLE 180 NAC 1 "NEBRASKA REGULATIONS FOR CONTROL OF
RADIATION-IONIZING" PROPOSED CHANGES TO SUBSECTIONS
004.21 AND 015.26 AND PROPOSED NEW SECTION 019.

The Nebraska Department of Health, Division of Radiological Health will hold a rulemaking hearing on Monday, August 19, 1996, (See back side of this memorandum). This rulemaking hearing involves proposed changes to Subsections 004.21 and 015.26 of 180 NAC 1 and proposed new Section 019 of 180 NAC 1. I am sending you this notice for your information. **All Irradiator Radioactive Material Licensees will be receiving copies of the proposed amendments and new Section 019.** Anyone else desiring copies of these proposed changes to Sections 004.21 and 015.26 and new Section 019 may request a copy from the Radioactive Materials Program at:

Nebraska Department of Health
Environmental Health Protection Section
Radioactive Materials Program
301 Centennial Mall South
P.O. Box 95007
Lincoln, NE 68509

or

Phone: 402-471-2168
FAX# 402-471-0169

If you have any questions or concerns regarding this memorandum, please contact me at 402-471-2168. Alternate formats for persons with disabilities are available by calling the Health Department's TTD/TTY telephone number, 402-471-6421 or the Nebraska Relay System 800-833-7352 TDD.

NOTICE OF RULEMAKING HEARING

NOTICE is hereby given that the Nebraska Department of Health will hold a rulemaking hearing on Monday, August 19, 1996, beginning at 9:00 A.M. in Conference Room A 3rd Floor, State Office Building, 301 Centennial Mall South, Lincoln, Nebraska,.

The purpose of the hearing is to take testimony and evidence concerning adoption of proposed amendments under Title 180, Chapter 1 of the Nebraska Administrative Code, entitled Nebraska Regulations for Control of Radiation-Ionizing. These amendments are proposed to implement Radiation Control Act, Neb.Rev.Stat. §§ 71-3501 through 71-3520, consistent with the authority granted under those statutes and constitutionality. Their subject matter and purposes are as follows: To amend 180 NAC 1-004.21 "Control of Access to Very High Radiation Areas--Irradiators." The reference to licensees and sealed sources is being removed from this subsection as they are now addressed in 180 NAC 1-019. This subsection is being retained as it also applies to "Accelerators" in 180 NAC 1-009. To remove 180 NAC 1-015.26, "Training and Experience Requirements for Irradiator Personnel." This subsection is removed as it is now addressed in 180 NAC 1-019. To add Section 180 NAC 1-019, "Licenses and Radiation Safety Requirements for Irradiators." This Section pertains to Panoramic, Dry-source-storage Irradiators, Underwater Irradiators, and Panoramic, Wet-source-storage Irradiators.

Affected persons involved in these proposed regulations are Irradiator licensees, specifically, Panoramic, Dry-source-storage Irradiators, Underwater Irradiators, and Panoramic, Wet-source-storage Irradiators.

This rulemaking hearing is being conducted under and by virtue of Neb.Rev.Stat. § 84-907. Draft or working copies are available for public examination at the offices of the Nebraska Department of Health, Environmental Health Protection Section, Radioactive Materials Program, 301 Centennial Mall South, Lincoln, Nebraska 68509 and at the offices of the Secretary of State, Regulations Division, Room 343, State Capitol, Lincoln, Nebraska 68509. The agency description of the fiscal impact on state agencies, political subdivisions and person regulated and planned schedule for rulemaking may be inspected and obtained at the offices of the Nebraska Department of Health, Environmental Health Protection Section, Radioactive Materials Program, 301 Centennial Mall South, Lincoln, Nebraska 68509.

All interested persons are invited to attend and testify at the hearing. Interested persons may also submit written comments July 19, 1996 through August 19, 1996 (before the hearing ends) or at the hearing. The comments will be made part of the hearing record.

If auxiliary aids or reasonable accommodations are needed for attendance at the meeting please call Joyce Davidson at (402) 471-2168, or for persons with hearing impairments, please call the Director of Health, (402) 471-6421 TDD/TTY or Nebraska Relay System, (800) 833-7352 TDD by no later than August 12, 1996.

10 CFR Part 36

Title 180
Chapter 1

Section 019 LICENSES AND RADIATION SAFETY REQUIREMENTS FOR IRRADIATORS ✓

019.01 Purpose and Scope.	19 - 2
019.02 Definitions	19 - 2

SPECIFIC LICENSING REQUIREMENTS

019.03 Application for a Specific License.	19 - 3
019.04 Specific Licenses for Irradiators.	19 - 3
019.05 Start of Construction.	19 - 5
019.06 Applications for Exemptions	19 - 5

DESIGN AND PERFORMANCE REQUIREMENTS FOR IRRADIATORS

019.07 Performance Criteria for Sealed Sources.	19 - 5
019.08 Access Control	19 - 6
019.09 Shielding.	19 - 7
019.10 Fire Protection	19 - 7
019.11 Radiation Monitors	19 - 8
019.12 Control of Source Movement	19 - 8
019.13 Irradiator Pools	19 - 8
019.14 Source Rack Protection	19 - 9
019.15 Power Failures.	19 - 9
019.16 Design Requirements	19 - 9
019.17 Construction Monitoring and Acceptance Testing	19 - 10

OPERATION OF IRRADIATORS

019.18 Training	19 - 12
019.19 Operating and Emergency Procedures.	19 - 13
019.20 Personnel Monitoring	19 - 14
019.21 Radiation Surveys.	19 - 15
019.22 Detection of Leaking Sources	19 - 15
019.23 Inspection and Maintenance	19 - 16
019.24 Pool Water Purity	19 - 17
019.25 Attendance During Operation	19 - 17
019.26 Entering and Leaving the Radiation Room	19 - 18
019.27 Irradiation of Explosive or Flammable Materials	19 - 18

RECORDS

019.28 Records and Retention Periods	19 - 18
019.29 Reports	19 - 19

019 LICENSES AND RADIATION SAFETY REQUIREMENTS FOR IRRADIATORS

019.01 Purpose and Scope.

- ✓ 019.01A This section contains requirements for the issuance of a license authorizing the use of sealed sources containing radioactive materials in irradiators used to irradiate objects or materials using gamma radiation. This section also contains radiation safety requirements for operating irradiators. The requirements of this section are in addition to other requirements in these regulations. In particular, the provisions of Sections 001, 003, 004, 010, 013, 017 and 018 of these regulations apply to applications and licenses subject to this section. Nothing in this section relieves the licensee from complying with other applicable Federal, State and local regulations governing the siting, zoning, land use, and building code requirements for industrial facilities.
- ✓ 019.01B The regulations in this section apply to panoramic irradiators that have either dry or wet storage of the radioactive sealed sources and to underwater irradiators in which both the source and the product being irradiated are under water. Irradiators whose dose rates exceed 5 grays (500 rads) per hour at 1 meter from the radioactive sealed sources in air or in water, as applicable for the irradiator type, are covered by this Section.
- ✓ 019.01C The regulations in this section do not apply to self contained dry-source-storage irradiators (those in which both the source and the area subject to irradiation are contained within a device and are not accessible by personnel), medical radiology or teletherapy, radiography (the irradiation of materials for nondestructive testing purposes), gauging, or open-field (agricultural) irradiations.

019.02 Definitions. As used in this Section:

- ✓ "Annually" means either (1) at intervals not to exceed 1 year or (2) once per year, at about the same time each year (plus or minus 1 month).
- ✓ "Double encapsulated sealed source" means a sealed source in which the radioactive material is sealed within a capsule and that capsule is sealed within another capsule.
- ✓ "Irradiator" means a facility that uses radioactive sealed sources for the irradiation of objects or materials and in which radiation dose rates exceeding 5 grays (500 rads) per hour exist at 1 meter from the sealed radioactive sources in air or water, as applicable for the irradiator type, but does not include irradiators in which both the sealed source and the area subject to irradiation are contained within a device and are not accessible to personnel.
- ✓ "Irradiator operator" means an individual who has successfully completed the training and testing described in 019.18 and is authorized by the terms of the license to operate the irradiator without a supervisor present.
- ✓ "Panoramic dry-source-storage irradiator" means an irradiator in which the irradiations occur in air in areas potentially accessible to personnel and in which the sources are stored in shields made of solid materials. The term includes beam-type dry-source-storage irradiators in which only a narrow beam of radiation is produced for performing irradiations.

Title 180
Chapter 1

- ✓ "Panoramic irradiator" means an irradiator in which the irradiations are done in air in areas potentially accessible to personnel. The term includes beam-type irradiators.
- ✓ "Panoramic wet-source storage irradiator" means an irradiator in which the irradiations occur in air in areas potentially accessible to personnel and in which the sources are stored under water in a storage pool.
- ✓ "Pool irradiator" means any irradiator at which the sources are stored or used in a pool of water including panoramic wet-source-storage irradiators and underwater irradiators.
- ✓ "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.
- ✓ "Radiation safety officer" means an individual with responsibility for the overall radiation safety program at the facility.
- ✓ "Sealed source" means any byproduct material that is used as a source of radiation and is encased in a capsule designed to prevent leakage or escape of the byproduct 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 humans do not have access to the sealed sources or the space subject to irradiation without entering the pool.

SPECIFIC LICENSING REQUIREMENTS

✓ **019.03 Application for a Specific License.** A person, as defined in Subsection 001.02 of these regulations, may file an application for a specific license authorizing the use of sealed sources in an irradiator on Form NRH-5, "Application for Material License." Each application for a license, must be accompanied by the fee prescribed in Subsection 018.05 of these regulations. The application and one copy must be sent to:

Nebraska Department of Health
Environmental Health Protection Section
Radioactive Materials Program
P.O. Box 95007
301 Centennial Mall South
Lincoln, NE 68509

✓ **019.04 Specific Licenses for Irradiators.** The Agency will approve an application for a specific license for the use of licensed material in an irradiator if the applicant meets the requirements contained in this Subsection.

Title 180
Chapter 1

✓ 019.04A The applicant shall satisfy the general requirement specified in Subsection 003.10 of these regulations and the requirements contained in this Section.

✓ 019.04B The application must describe the training provided to irradiator operators including:

019.04B1 Classroom training;

019.04B2 On-the-job or simulator training;

019.04B3 Safety reviews;

019.04B4 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

019.04B5 Minimum training and experience of personnel who may provide training.

✓ 019.04C The application must include an outline of the written operating and emergency procedures listed in 019.19 that describes the radiation safety aspects of the procedures.

✓ 019.04D The application must 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 must specify who, within the management structure, has the authority to stop unsafe operations. The application must also describe the training and experience required for the position of radiation safety officer.

✓ 019.04E The application must include a description of the access control systems required by 019.08, the radiation monitors required by 019.11, the method of detecting leaking sources required by 019.22 including the sensitivity of the method, and a diagram of the facility that shows the locations of all required interlocks and radiation monitors.

✓ 019.04F 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 must include the:

019.04F1 Instruments to be used;

019.04F2 Methods of performing the analysis; and

019.04F3 Pertinent experience of the individual who analyzes the samples.

✓ 019.04G If licensee 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 of its facility, the loading or unloading must 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.

✓ 019.04H The applicant shall describe the inspection and maintenance checks including the frequency of the checks required by 019.23.

✓ **019.05 Start of Construction.** The applicant may not begin construction of a new irradiator prior to the submission to the Agency of both an application for a license for the irradiator and the fee required by Subsection 018.05. As used in this section, the term "construction" includes the construction of any portion of the permanent irradiator structure on the site but does not include: Engineering and design work, purchase of site, site surveys or soil testing, site preparation, site evacuation, construction of warehouse or auxiliary structures, and other similar tasks. 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 license with respect to the requirements of the Nebraska Radiation Control Act, as amended, and rules, regulations, and orders issued under the Act.

✓ **019.06 Applications for Exemptions.** In addition to the exemption in Part 001.03A, any application for a license or for amendment of a license authorizing use of teletherapy-type unit for irradiation of materials or objects may include proposed alternatives for the requirements of this Section. The Agency will approve the proposed alternatives if the applicant provides adequate rationale for the proposed alternatives and demonstrates that they are likely to provide an adequate level of safety for workers and the public.

536.19 is missing. Request for Written Statements Div. 2 This may be elsewhere in the reg.
DESIGN AND PERFORMANCE REQUIREMENTS FOR IRRADIATORS

019.07 Performance Criteria for Sealed Sources.

019.07A Requirements. Sealed sources installed after (the effective date of these regulations)

July 1, 1993 § 36.21

019.07A1 Must have a certificate of registration issued under the U. S. Nuclear Regulatory Commission or an Agreement State for evaluation of radiation safety information about its product.

10 CFR 32.210
Does it apply to A/S?

✓ **019.07A2** Must be doubly encapsulated;

✓ **019.07A3** Must 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;

✓ **019.07A4** Must 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; and

✓ **019.07A5** In prototype testing of the sealed source, must have been leak tested and found leak-free after each of the tests described in paragraphs (B) through (G) of this Subsection.

✓ **019.07B** Temperature. The test source must be held at - 40° celsius for 20 minutes, 600° celsius for 1 hour, and then be subjected to a thermal shock test with a temperature drop from 600° celsius to 20° celsius within 15 seconds.

✓ **019.07C** Pressure. The test source must be twice subjected for at least 5 minutes to an external pressure (absolute) of 2 million newtons per square meter.

✓ **019.07D** Impact. A 2-kilogram steel weight, 2.5 centimeters in diameter, must be dropped from a height of 1 meter onto the test source.

- ✓ 019.07E Vibration. The test source must be subjected 3 times for 10 minutes each to vibrations sweeping from 25 hertz to 500 hertz with a peak amplitude of 5 times the acceleration of gravity. In addition, each test source must be vibrated for 30 minutes at each resonant frequency found.
- ✓ 019.07F Puncture. A 50-gram weight and pin, 0.3-centimeter pin diameter, must be dropped from a height of 1 meter onto the test source.
- ✓ 019.07G Bend. If the length of the source is more than 15 times larger than the minimum cross-sectional dimension, the test source must be subjected to a force of 2000 newtons at its center equidistant from two support cylinders, the distance between which is 10 times the minimum cross-sectional dimension of the source.

019.08 Access Control

- ✓ 019.08A Each entrance to a radiation room at a panoramic irradiator must have a door or other physical barrier to prevent inadvertent entry of personnel if the sources are not in the shielded position. Product conveyor systems may serve as barriers as long as they reliably and consistently function as a barrier. It must not be possible to move the sources out of their shielded position if the door or barrier is open. Opening the door or barrier while the sources are exposed must cause the sources to return promptly to their shielded position. The personnel entrance door or barrier must have a lock that is operated by the same key used to move the sources. The doors and barriers must not prevent any individual in the radiation room from leaving.
- ✓ 019.08B In addition, each entrance to a radiation room at a panoramic irradiator must have an independent backup access control to detect personnel entry while the sources are exposed. Detection of entry while the sources are exposed must cause the sources to return to their fully shielded position and must also activate a visible and audible alarm to make the individual entering the room aware of the hazard. The alarm must also alert at least one other individual who is onsite of the entry. That individual shall be trained on how to respond to the alarm and prepared to promptly render or summon assistance.
- ✓ 019.08C A radiation monitor must be provided to detect the presence of high radiation levels in the radiation room of a panoramic irradiator before personnel entry. The monitor must be integrated with personnel access door locks to prevent room access when radiation levels are high. Attempted personnel entry while the monitor measures high radiation levels, must activate the alarm described in 019.08B. The monitor may be located in the entrance (normally referred to as the maze) but not in the direct radiation beam.
- ✓ 019.08D Before the sources move from their shielded position in a panoramic irradiator, the source control must automatically activate conspicuous visible and audible alarms to alert people in the radiation room that the sources will be moved from their shielded position. The alarms must give individuals enough time to leave the room before the sources leave the shielded position.
- ✓ 019.08E Each radiation room at a panoramic irradiator must have a clearly visible and readily accessible control that would allow an individual in the room to make the sources return to their fully shielded position.
- ✓ 019.08F Each radiation room of a panoramic irradiator must contain a control that prevents the sources from moving from the shielded position unless the control has been activated and

the door or barrier to the radiation room has been closed within a preset time after activation of the control.

✓ 019.08G Each entrance to the radiation room of a panoramic irradiator and each entrance to the area within the personnel access barrier of an underwater irradiator must have a sign bearing the radiation symbol and the words, "CAUTION, RADIOACTIVE MATERIAL(S)" or "DANGER, RADIOACTIVE MATERIAL(S)." Panoramic irradiators must also have a sign stating "GRAVE DANGER, VERY HIGH RADIATION AREA," but the sign may be removed, covered, or otherwise made inoperative when the sources are fully shielded. *minor change in wording*

✓ 019.08H If the radiation room of a panoramic irradiator has roof plugs or other movable shielding, it must not be possible to operate the irradiator unless the shielding is in its proper location. This requirement may be met by interlocks that prevent operation if shielding is not placed properly or by an operating procedure requiring inspection of shielding before operating.

✓ 019.08I Underwater irradiators must have a personnel access barrier around the pool which must be locked to prevent access when the irradiator is not attended. Only operators and facility management may have access to keys to the personnel access barrier. There must be an intrusion alarm to detect unauthorized entry when the personnel access barrier is locked. Activation of the intrusion alarm must alert an individual (not necessarily onsite) who is prepared to respond or summon assistance.

019.09 Shielding.

✓ 019.09A The radiation dose rate in areas that are normally occupied during operation of a panoramic irradiator may not exceed 0.02 millisievert (2 millirems) per hour at any location 30 centimeters or more from the wall of the room when the sources are exposed. The dose rate must be averaged over any area not to exceed 100 square centimeters having no linear dimension greater than 20 centimeters. Areas where the radiation dose rate exceeds 0.02 millisievert (2 millirems) per hour must be locked, roped off, or posted.

✓ 019.09B The radiation dose at 30 centimeters over the edge of the pool of a pool irradiator may not exceed 0.02 millisievert (2 millirems) per hour when the sources are in the fully shielded position.

✓ 019.09C The radiation dose rate at 1 meter from the shield of a dry-source-storage panoramic irradiator when the source is shielded may not exceed 0.02 millisievert (2 millirems) per hour and at 5 centimeters from the shield may not exceed 0.2 millisievert (20 millirems) per hour. ✓

019.10 Fire Protection.

✓ 019.10A The radiation room at a panoramic irradiator must have heat and smoke detectors. The detectors must activate an audible alarm. The alarm must be capable of alerting a person who is prepared to summon assistance promptly. The sources must automatically become fully shielded if a fire is detected.

✓ 019.10B The radiation room at a panoramic irradiator must be equipped with a fire extinguishing system capable of extinguishing a fire without the entry of personnel into the room. The system for the radiation room must have a shut-off valve to control flooding into unrestricted areas.

019.11 Radiation Monitors.

✓ 019.11A Irradiators with automatic product conveyor systems must have a radiation monitor with an audible alarm located to detect loose radioactive sources that are carried toward the product exit. If the monitor detects a source, an alarm must sound and product conveyors must stop automatically. The alarm must be capable of alerting an individual in the facility who is prepared to summon assistance. Underwater irradiators in which the product moves within an enclosed stationary tube are exempt from the requirements of this Part.

✓ 019.11B Underwater irradiators that are not in a shielded radiation room must have a radiation monitor over the pool to detect abnormal radiation levels. The monitor must have an audible alarm and a visible indicator at entrances to the personnel access barrier around the pool. The audible alarm may have a manual shut-off. The alarm must be capable of alerting an individual who is prepared to respond promptly. *paragraph*

019.12 Control of Source Movement.

019.12A The mechanism that moves the sources of a panoramic irradiator must require a key to actuate. Actuation of the mechanism must cause an audible signal to indicate that the sources are leaving the shielded position. Only one key may be in use at any time, and only operators or facility management may possess it. The key must be attached to a portable radiation survey meter by a chain or cable. The lock for source control must be designed so that the key may not be removed if the sources are in an unshielded position. The door to the radiation room must require the same key.

019.12B The console of a panoramic irradiator must have a source position indicator that indicates when the sources are in the fully shielded position, when they are in transit, and when the sources are exposed.

019.12C The control console of a panoramic irradiator must have a control that promptly returns the sources to the shielded position.

019.12D Each control for a panoramic irradiator must be clearly marked as to its function.

019.13 Irradiator Pools.

✓ 019.13A For licenses initially issued after *July 1, 1993* the effective date of these regulations, irradiators pools must either:

✓ 019.13A1 Have a water-tight stainless steel liner or a liner metallurgically compatible with other components in the pools; or

✓ 019.13A2 Be constructed so that there is a low likelihood of substantial leakage and have a surface designed to facilitate decontamination. In either case, the licensee shall have a method to safely store the sources during repairs of the pool.

✓ 019.13B For licenses initially issued after *July 1, 1993* the effective date of these regulations, irradiator pools must have no outlets more than 0.5 meter below the normal low water level that could allow water to drain out of the pool. Pipes that have intakes more than 0.5 meter below the normal low water level and that could act as siphons must have siphon breakers to prevent the siphoning of pool water.

- ✓ 019.13C A means must be provided to replenish water losses from the pool.
- ✓ 019.13D A visible indicator must be provided in a clearly visible location to indicate if the pool water level is below the normal low water level or above the normal high water level.
- ✓ 019.13E Irradiator pools must be equipped with a purification system designed to be capable of maintaining the water during normal operation at a conductivity of 20 microsiemens per centimeter or less and with a clarity so that the sources can be seen clearly.
- ✓ 019.13F A physical barrier, such as a railing or cover, must be used around or over irradiator pools during normal operation to prevent personnel from accidentally falling into the pool. The barrier may be removed during maintenance, inspection, and service operations.
- ✓ 019.13G If long-handled tools or poles are used in irradiator pools, the radiation dose rate on the handling areas of the tools may not exceed 0.02 millisievert (2 millirems) per hour.
- ✓ 019.14 Source Rack Protection. if the product to be irradiated moves on a product conveyor system, the source rack and the mechanism that moves the rack must be protected by a barrier or guides to prevent products and product carriers from hitting or touching the rack or mechanism.
- ✓ 019.15 Power Failures.
 - ✓ 019.15A If electrical power at a panoramic irradiator is lost for longer than 10 seconds, the sources must automatically return to the shielded position.
 - ✓ 019.15B The lock on the door of the radiation room of a panoramic irradiator may not be deactivated by a power failure.
 - ✓ 019.15C During a power failure, the area of any irradiator where sources are located may be entered only when using an operable and calibrated radiation survey meter.
- ✓ 019.16 Design Requirements. Irradiators whose construction begins after ^{July 1, 1993} the effective date of these regulations, must meet the design requirements of this Subsection.
 - ✓ 019.16A Shielding. For panoramic irradiators, the licensee shall design shielding walls to meet generally accepted building code requirements for reinforced concrete and design the walls, wall penetrations, and entranceways to meet the radiation shielding requirements of 019.09. If the irradiator will use more than 2×10^{17} becquerels (5 million curies) of activity, the licensee shall evaluate the effects of heating of the shielding walls by the irradiator sources.
 - ✓ 019.16B Foundations. For panoramic irradiators, the licensee shall design the foundation, with consideration given to soil characteristics, to ensure it is adequate to support the weight of the facility shield walls.
 - ✓ 019.16C Pool Integrity. For pool irradiators, the licensee shall design the pool to assure that it is leak resistant, that it is strong enough to bear the weight of the pool water and shipping casks, that a dropped cask would not fall on sealed sources, that all outlets or pipes meet the requirements of 019.13B, and that metal components are metallurgically compatible with other components in the pool.
 - ✓ 019.16D Water handling system. For pool irradiators, the licensee shall verify that the design of the water purification system is adequate to meet the requirements of 019.13E.

The system must be designed so that water leaking from the system does not drain to unrestricted areas without being monitored.

- ✓ 019.16E Radiation monitors. For all irradiators, the licensee shall evaluate the location and sensitivity of the monitor to detect sources carried by the product conveyor system as required by 019.11A. The licensee shall verify that the product conveyor is designed to stop before a source on the product conveyor would cause a radiation overexposure to any person. For pool irradiators, if the licensee uses radiation monitors to detect contamination under 019.22B, the licensee shall verify that the design of radiation monitoring systems to detect pool contamination includes sensitive detectors located close to where contamination is likely to concentrate.
- ✓ 019.16F Source rack. For pool irradiators, the licensee shall verify that there are no crevices on the source or between the source and source holder that would promote corrosion on a critical area of the source. For panoramic irradiators, the licensee shall determine that source rack drops due to loss of power will not damage the source rack and that source rack drops due to failure of cables (or alternate means of support) will not cause loss of integrity of sealed sources. For panoramic irradiators, the licensee shall review the design of the mechanism that moves the sources to assure that the likelihood of a stuck source is low and that, if the rack sticks, a means exists to free it with minimal risk to personnel.
- ✓ 019.16G Access control. For panoramic irradiators, the licensee shall verify from the design and logic diagram that the access control system will meet the requirements of 019.08.
- ✓ 019.16H Fire protection. For panoramic irradiators, the licensee shall verify that the number, location, and spacing of the smoke and heat detectors are appropriate to detect fires and that the detectors are protected from mechanical and radiation damage. The licensee shall verify that the design of the fire extinguishing system provides the necessary discharge patterns, densities, and flow characteristics for complete coverage of the radiation room and that the system is protected from mechanical and radiation damage.
- ✓ 019.16I Source return. For panoramic irradiators, the licensee shall verify that the source rack will automatically return to the fully shielded position if offsite power is lost for more than 10 seconds.
- ✓ 019.16J Seismic. For panoramic irradiators to be built in seismic areas, the licensee shall design the reinforced concrete radiation shields to retain their integrity in the event of an earthquake by designing to the seismic requirements of an appropriate source such as American Concrete Institute Standard ACI 318-89, "Building Code Requirements for Reinforced Concrete," Chapter 21, "Special Provisions for Seismic Design," or local building codes, if current.
- ✓ 019.16K Wiring. For panoramic irradiators, the licensee shall verify that electrical wiring and electrical equipment in the radiation room are selected to minimize failures due to prolonged exposure to radiation.

019.17 Construction Monitoring and Acceptance Testing. The requirements of this Subsection must be met for irradiators whose construction begins after the effective dated of these regulations. The requirements must be met prior to loading sources. *July 1, 1993*

- ✓ 019.17A Shielding. For panoramic irradiators, the licensee shall monitor the construction of the shielding to verify that the construction meets design specifications and generally

accepted building code requirement for reinforced concrete.

- ✓ 019.17B Foundations. For panoramic irradiators, the licensee shall monitor the construction of the foundations to verify that their construction meets design specifications.
- ✓ 019.17C Pool integrity. For pool irradiators, the licensee shall verify that the pool meets design specifications and shall test the integrity of the pool. The licensee shall verify that outlets and pipes meet the requirements of 019.13B.
- ✓ 019.17D Water handling system. For pool irradiators, the licensee shall verify that the water purification system, the conductivity meter, and the water level indicators operate properly.
- ✓ 019.17E Radiation monitors. For all irradiators, the licensee shall verify the proper operation of the monitor to detect sources carried on the product conveyor system and the related alarms and interlocks required by 019.11A. For pool irradiators, the licensee shall verify the proper operation of the radiation monitors and the related alarm if used to meet 019.22B. For underwater irradiators, the licensee shall verify the proper operation of the over-the-pool monitors, alarms, and interlocks required by 019.11B.
- ✓ 019.17F Source rack. For panoramic irradiators, the licensee shall test the movement of the source racks for proper operation prior to source loading; testing must include source rack lowering due to simulated loss of power. For all irradiators with product conveyor systems, the licensee shall observe and test the operation of the conveyor system to assure that the requirements in 019.14 are met for protection of the source rack and the mechanism that moves the rack; testing must include tests of any limit switches and interlocks used to protect the source rack and mechanism that moves the rack from moving product carriers.
- ✓ 019.17G Access control. For panoramic irradiators, the licensee shall test the completed access control system to assure that it functions as designed and that all alarms, controls, and interlocks work properly.
- ✓ 019.17H Fire protection. For panoramic irradiators, the licensee shall test the ability of the heat and smoke detectors to detect a fire, to activate alarms, and to cause the source rack to automatically become fully shielded. The licensee shall test the operability of the fire extinguishing systems.
- ✓ 019.17I Source return. For panoramic irradiators, the licensee shall demonstrate that the source racks can be returned to their fully shielded positions without offsite power.
- ✓ 019.17J Computer systems. For panoramic irradiators that use a computer system to control the access control system, the licensee shall verify that the access control system will operate properly if offsite power is lost and shall verify that the computer has security features that prevent an irradiator operator from commanding the computer to override the access control system when it is required to be operable.
- ✓ 019.17K Wiring. For panoramic irradiators, the licensee shall verify that the electrical wiring and electrical equipment that were installed meet the design specifications.

OPERATION OF IRRADIATORS

✓ 019.18 Training

019.18A Before an individual is permitted to operate an irradiator without a supervisor present, the individual must be instructed in:

✓ 019.18A1 The fundamentals of radiation protection applied to irradiators (including the differences between external radiation and radioactive contamination, units of radiation dose, Agency dose limits, why large radiation doses must be avoided, how shielding and access controls prevent large doses, how a irradiator is designed to prevent contamination, the proper use of survey meters and personnel dosimeters, other radiation safety features of an irradiator, and the basic function of the irradiator);

019.18A2 The requirements of Sections 010 and 019 of these regulations that are relevant to the irradiator; *10 CFR Part 19 Notices, ... to Workers*

✓ 019.18A3 The operation of the irradiator;

✓ 019.18A4 Those operating and emergency procedures listed in 019.19 that the individual is responsible for performing; and

✓ 019.18A5 Case histories of accidents or problems involving irradiators.

✓ 019.18B Before an individual is permitted to operate an irradiator without a supervisor present, the individual shall pass a written test on the instruction received consisting primarily of questions based on the licensee's operating and emergency procedures that the individuals responsible for performing and other operations necessary to safely operate the irradiator without supervision.

✓ 019.18C Before an individual is permitted to operate an irradiator without a supervisor present, the individual must have received on-the-job training or simulator training in the use of the irradiator as described in the license application. The individual shall also demonstrate the ability to perform those portions of the operating and emergency procedures that he or she is to perform.

✓ 019.18D The licensee shall conduct safety reviews for irradiator operators at least annually. The licensee shall give each operator a brief written test on the information. Each safety review must include, to the extent appropriate, each of the following:

✓ 019.18D1 Changes in operating and emergency procedures since the last review, if any;

✓ 019.18D2 Changes in regulations and license conditions since the last review, if any;

✓ 019.18D3 Reports on recent accidents, mistakes, or problems that have occurred at irradiators, if any;

✓ 019.18D4 Relevant results of inspections of operator safety performance;

Title 180
Chapter 1

✓ 019.18D5 Relevant results of the facility's inspection and maintenance checks; and

✓ 019.18D6 A drill to practice an emergency or abnormal event procedure.

✓ 019.18E The licensee shall evaluate the safety performance of each irradiator operator at least annually to ensure that regulations, license conditions, and operating and emergency procedures are followed. The licensee shall discuss the results of the evaluation with the operator and shall instruct the operator on how to correct any mistakes or deficiencies observed.

✓ 019.18F Individuals that will be permitted unescorted access to the radiation room of the irradiator or the area around the pool of an underwater irradiator, but who have not received the training required for operators and the radiation safety officer, shall be instructed and tested in any precautions they should take to avoid radiation exposure, any procedures or parts of procedures listed in 019.19 that they are expected to perform or comply with, and their proper response to alarms required in this Section. Tests may be oral.

✓ 019.18G Individuals who must be prepared to respond to alarms required by 019.08B, 019.08I, 019.10A, 019.11A, 019.11B, and 019.22B shall be trained and tested on how to respond. Each individual shall be retested at least once a year. Tests may be oral.

✓ **019.19 Operating and Emergency Procedures.**

✓ 019.19A The licensee shall have and follow written operating procedures for:

✓ 019.19A1 Operation of the irradiator, including entering and leaving the radiation room;

✓ 019.19A2 Use of personnel dosimeters;

✓ 019.19A3 Surveying the shielding of panoramic irradiators;

✓ 019.19A4 Monitoring pool water for contamination while the water is in the pool and before release of pool water to unrestricted areas;

✓ 019.19A5 Leak testing of sources;

✓ 019.19A6 Inspection and maintenance checks required by 019.23;

✓ 019.19A7 Loading, unloading, and repositioning sources, if the operations will be performed by the licensee; and

✓ 019.19A8 Inspection of movable shielding required by 019.08H, if applicable.

✓ 019.19B The licensee shall have and follow emergency or abnormal event procedures, appropriate for the irradiator type, for:

✓ 019.19B1 Sources stuck in the unshielded position;

✓ 019.19B2 Personnel overexposures;

✓ 019.19B3 A radiation alarm from the product exit portal monitor or pool monitor;

- ✓ 019.19B4 Detection of leaking sources, pool contamination, or alarm caused by contamination of pool water;
- ✓ 019.19B5 A low or high water level indicator, an abnormal water loss, or leakage from the source storage pool;
- ✓ 019.19B6 A prolonged loss of electrical power;
- ✓ 019.19B7 A fire alarm or explosion in the radiation room;
- ✓ 019.19B8 An alarm indicating unauthorized entry into the radiation room, area around pool, or another alarmed area;
- ✓ 019.19B9 Natural phenomena, including an earthquake, a tornado, flooding, or other phenomena as appropriate for the geographical location of the facility; and
- ✓ 019.19B10 The jamming of automatic conveyor systems.
- ✓ 019.19C The licensee may revise operating and emergency procedures without Agency approval only if all of the following conditions are met:
 - ✓ 019.19C1 The revisions do not reduce the safety of the facility,
 - ✓ 019.19C2 The revisions are consistent with the outline or summary of procedures submitted with the license application,
 - ✓ 019.19C3 The revisions have been reviewed and approved by the radiation safety officer; and
 - ✓ 019.19C4 The users or operators are instructed and tested on the revised procedures before they are put into use.

✓ **019.20 Personnel Monitoring**

- ✓ 019.20A Irradiator operators shall wear either a film badge or a thermoluminescent dosimeter (TLD) while operating a panoramic irradiator or while in the area around the pool of an underwater irradiator. The film badge or TLD processor must be accredited by the National Voluntary Laboratory Accreditation Program for high energy photons in the normal and accident dose ranges (see Part 004.17C). Each film badge or TLD must be assigned to and worn by only one individual. Film badges must be processed at least monthly, and TLD's must be processed at least quarterly.
- ✓ 019.20B Other individuals who enter the radiation room of a panoramic irradiator shall wear a dosimeter, which may be a pocket dosimeter. For groups of visitors, only two people who enter the radiation room are required to wear dosimeters. If pocket dosimeters are used to meet the requirements of this part, a check of their response to radiation must be done at least annually. Acceptable dosimeters must read within plus or minus 30 percent of the true radiation dose.

✓ **019.21 Radiation Surveys.**

✓ **019.21A** A radiation survey of the area outside the shielding of the radiation room of a panoramic irradiator must be conducted with the sources in the exposed position before the facility starts to operate. A radiation survey of the area above the pool of pool irradiators must be conducted after the sources are loaded but before the facility starts to operate. Additional radiation surveys of the shielding must be performed at intervals not to exceed 3 years and before resuming operation after addition of new sources or any modifications to the radiation room shielding or structure that might increase dose rates.

✓ **019.21B** If the radiation levels specified in 019.09 are exceeded, the facility must be modified to comply with the requirements in 019.09.

✓ **019.21C** Portable radiation survey meters must be calibrated at least annually to an accuracy of ± 20 percent for the gamma energy of the sources in use. The calibration must be done at two points on each scale or, for digital instruments, at one point per decade over the range that will be used. Portable radiation survey meters must be of a type that does not saturate and read zero at high radiation dose rates.

✓ **019.21D** Water from the irradiator pool, other potentially contaminated liquids, and sediments from pool vacuuming must be monitored for radioactive contamination before release to unrestricted areas. Radioactive concentrations must not exceed those specified in Section 004, Table 2, Column 2 or Table 3 of Appendix 004-B, "Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage." ?

✓ **019.21E** Before releasing resins for unrestricted use, they must be monitored before release in an area with a background level less than 0.5 microsievert (0.05 millirem) per hour. The resins may be released only if the survey does not detect radiation levels above background radiation levels. The survey meter used must be capable of detecting radiation levels of 0.5 microsievert (0.05 millirem) per hour.

✓ **019.22 Detection of Leaking Sources.**

✓ **019.22A** Each dry-source-storage sealed source must be tested for leakage at intervals not to exceed 6 months using a leak test kit or method approved by the Agency, U.S. Nuclear Regulatory Commission or an Agreement State. In the absence of a certificate from a transferor that a test has been made within the 6 months before the transfer, the sealed source may not be used until tested. The test must be capable of detecting the presence of 200 becquerels (0.005 microcurie) of radioactive material and must be performed by a person approved by the Agency, U.S. Nuclear Regulatory Commission or an Agreement State to perform the test.

✓ **019.22B** For pool irradiators, sources may not be put into the pool unless the licensee tests the sources for leaks or has a certificate from a transferor that leak test has been done within the 6 months before the transfer. Water from the pool must be checked for contamination each day the irradiator operates. The check may be done either by using a radiation monitor on a pool water circulating system or by analysis of a sample of pool water. If a check for contamination is done by analysis of a sample of pool water, the results of the analysis must be available within 24 hours. If the licensee uses a radiation monitor on a pool water circulating system, the detection of above normal radiation levels must activate an alarm. The alarm set-point must be set as low as practical, but high enough to avoid false alarms.

The licensee may reset the alarm set-point to a higher level if necessary to operate the pool water purification system to clean up contamination in the pool if specifically provided for in written emergency procedures.

✓ 019.22C If a leaking source is detected, the licensee shall arrange to remove the leaking source from service and have it decontaminated, repaired, or disposed of by an Agency, U.S. Nuclear Regulatory Commission or an Agreement State licensee that is authorized to perform these functions. The licensee shall promptly check its personnel, equipment, facilities, and irradiated product for radioactive contamination. No product may be shipped until the product has been checked and found free of contamination. If a product has been shipped that may have been inadvertently contaminated, the licensee shall arrange to locate and survey that product for contamination. If any personnel are found to be contaminated, decontamination must be performed promptly. If contaminated equipment, facilities, or product are found, the licensee shall arrange to have them decontaminated or disposed of by an Agency, U.S. Nuclear Regulatory Commission or an Agreement State licensee that is authorized to perform these functions. If a pool is contaminated, the licensee shall arrange to clean the pool until the contamination levels do not exceed the appropriate concentration in Section 004, Table 2, Column 2. Appendix 004-B. (See Subsection 003.25 for reporting requirements.)

✓ **019.23 Inspection and Maintenance.**

✓ 019.23A The licensee shall perform inspection and maintenance checks that include, as a minimum, each of the following at the frequency specified in the license or license application:

✓ 019.23A1 Operability of each aspect of the access control system required by 019.08.

✓ 019.23A2 Functioning of the source position indicator required by 019.12B.

✓ 019.23A3 Operability of the radiation monitor for radioactive contamination in pool water required by 019.22B using a radiation check source, if applicable.

✓ 019.23A4 Operability of the over-pool radiation monitor at underwater irradiators as required by 019.11B.

✓ 019.23A5 Operability of the product exit monitor required by 019.11A.

✓ 019.23A6 Operability of the emergency source return control required by 019.12C.

✓ 019.23A7 Leak-tightness of systems through which pool water circulates (visual inspection).

✓ 019.23A8 Operability of the heat and smoke detectors and extinguisher system required by 019.10 (but without turning extinguishers on).

✓ 019.23A9 Operability of the means of pool water replenishment required by 019.13C.

✓ 019.23A10 Operability of the indicators of high and low pool water levels required by 019.13D.

- ✓ 019.23A11 Operability of the intrusion alarm required by 019.08I, if applicable.
- ✓ 019.23A12 Functioning and wear of the systems, mechanisms, and cables used to raise and lower sources.
- ✓ 019.23A13 Condition of the barrier to prevent products from hitting the sources or source mechanism as required by 019.14.
- ✓ 019.23A14 Amount of water added to the pool to determine if the pool is leaking.
- ✓ 019.23A15 Electrical wiring on required safety systems for radiation damage.
- ✓ 019.23A16 Pool water conductivity measurements and analysis as required by 019.24B.
- ✓ 019.23B Malfunctions and defects found during inspection and maintenance checks must be repaired without undue delay.
- ✓ **019.24 Pool Water Purity.**
 - ✓ 019.24A Pool water purification system must be run sufficiently to maintain the conductivity of the pool water below 20 microsiemens per centimeter under normal circumstances. If pool water conductivity rises above 20 microsiemens per centimeter, the licensee shall take prompt actions to lower the pool water conductivity and shall take corrective actions to prevent future recurrences.
 - ✓ 019.24B The licensee shall measure the pool water conductivity frequently enough, but no less than weekly, to assure that the conductivity remains below 20 microsiemens per centimeter. Conductivity meters must be calibrated at least annually.
- ✓ **019.25 Attendance During Operation.**
 - ✓ 019.25A Both an irradiator operator and at least one other individual, who is trained on how to respond and prepared to promptly render or summon assistance if the access control alarm sounds, shall be present onsite;
 - ✓ 019.25A1 Whenever the irradiator is operated using an automatic product conveyor system; and
 - ✓ 019.25A2 Whenever the product is moved into or out of the radiation room when the irradiator is operated in a batch mode.
 - ✓ 019.25B At a panoramic irradiator at which static irradiations (no movement of the product) are occurring, a person who has received the training on how to respond to alarms described in 019.18G must be onsite.
 - ✓ 019.25C At an underwater irradiator, an irradiator operator must be present at the facility whenever the product is moved into or out of the pool. Individuals who move the product into or out of the pool of an underwater irradiator need not be qualified as irradiator operators; however, they must have received the training described in 019.18F and 019.18G. Static irradiations may be performed without a person present at the facility.

✓ **019.26 Entering and Leaving the Radiation Room.**

- ✓ 019.26A Upon first entering the radiation room of a panoramic irradiator after an irradiation, the irradiator operator shall use a survey meter to determine that the source has returned to its fully shielded position. The operator shall check the functioning of the survey meter with a radiation check source prior to entry.
- ✓ 019.26B Before exiting from and locking the door to the radiation room of a panoramic irradiator prior to a planned irradiation, the irradiator operator shall:
 - ✓ 019.26B1 Visually inspect the entire radiation room to verify that no one else is in it; and
 - ✓ 019.26B2 Activate a control in the radiation room that permits the sources to be moved from the shielded position only if the door to the radiation room is locked within a preset time after setting the control.
- ✓ 019.26C During a power failure, the area around the pool of an underwater irradiator may not be entered without using an operable and calibrated radiation survey meter unless the over-the-pool monitor required by 019.11B is operating with backup power.

✓ **019.27 Irradiation of Explosive or Flammable Materials.**

- ✓ 019.27A Irradiation of explosive material is prohibited unless the licensee has received prior written authorization from the Agency. Authorization will not be granted unless the licensee can demonstrate that detonation of the explosive would not rupture the sealed sources, injure personnel, damage safety systems, or cause radiation overexposures of personnel.
- ✓ 019.27B Irradiation of more than small quantities of flammable material (flash point below 140° F) is prohibited in panoramic irradiators unless the licensee has received prior written authorization from the Agency. Authorization will not be granted unless the licensee can demonstrate that a fire in the radiation room could be controlled without damage to sealed sources or safety systems and without radiation overexposures of personnel.

✓ **RECORDS**

✓ **019.28 Records and Retention Periods.** The licensee shall maintain the following records at the irradiator for the periods specified.

- ✓ 019.28A A copy of the license, license conditions, documents incorporated into a license by reference, and amendments thereto until superseded by new documents or until the Agency terminates the license for documents not superseded.
- ✓ 019.28B Records of each individual's training, tests, and safety reviews provided to meet the requirements of 019.18A, B, C, D, F and G until 3 years after the individual terminates work.
- ✓ 019.28C Records of the annual evaluations of the safety performance of irradiator operators required by 019.18E for 3 years after the evaluation.
- ✓ 019.28D A copy of the current operating and emergency procedures required by 019.19 until superseded or the Agency terminates the license. Records of the radiation safety officer's

**Title 180
Chapter 1**

review and approval of changes in procedures as required by 019.19C3 retained for 3 years from the date of the change.

- ✓ 019.28E Film badge and TLD results required by 019.20 until the Agency terminates the license.
- ✓ 019.28F Records of radiation surveys required by 019.21 for 3 years from the date of the survey.
- ✓ 019.28G Records of radiation survey meter calibrations required by 019.21 and pool water conductivity meter calibrations required by 019.24B until 3 years from the date of calibration.
- ✓ 019.28H Records of the results of leak tests required by 019.22A and the results of contamination checks required by 019.22B for 3 years from the date of each test.
- ✓ 019.28I Records of inspection and maintenance checks required by 019.23 for 3 years.
- ✓ 019.28J Records of major malfunctions, significant defects, operating difficulties or irregularities, and major operating problems that involve required radiation safety equipment for 3 years after repairs are completed.
- ✓ 019.28K Records of the receipt, transfer and disposal, of all licensed sealed sources as required by Subsection 003.29 and Subsection 003.24. ?
- ✓ 019.28L Records on the design checks required by 019.16 and the construction control checks as required by 019.17 until the license is terminated. The records must be signed and dated. The title or qualification of the person signing must be included.
- ✓ 019.28M Records related to decommissioning of the irradiator as required by Part 003.17G.

019.29 Reports.

- ✓ 019.29A In addition to the reporting requirements in other parts of Agency regulations, the licensee shall report the following events if not reported under of parts of Agency regulations:
 - ✓ 019.29A1 Source stuck in an unshielded position.
 - ✓ 019.29A2 Any fire or explosion in a radiation room.
 - ✓ 019.29A3 Damage to the source racks.
 - ✓ 019.29A4 Failure of the cable or drive mechanism used to move the source racks.
 - ✓ 019.29A5 Inoperability of the access control system.
 - ✓ 019.29A6 Detection of radiation source by the product exit monitor.
 - ✓ 019.29A7 Detection of radioactive contamination attributable to licensed radioactive material.
 - ✓ 019.29A8 Structural damage to the pool liner or walls.

Title 180
Chapter 1

✓ 019.29A9 Abnormal water loss or leakage from the source storage pool.

✓ 019.29A10 Pool water conductivity exceeding 100 microsiemens per centimeter.

✓ 019.29B The report must include a telephone report within 24 hours as described in Subpart 003.25C1 and a written report within 30 days as described in Subpart 003.25C2.

§ 36.91 Violations
§ 36.93 Criminal penalties } Dir 3 Not included

004.19 If the registrant has met all the specific requirements for access and control specified in other applicable Sections of these regulations, such as, Section 005 for industrial radiography, Section 006 for x-rays in the healing arts, and Section 009 for particle accelerators.

004.20 Control of Access to Very High Radiation Areas.

004.20A In addition to the requirements in 004.19, the licensee or registrant shall institute measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 5 Gy (500 rad) or more in 1 hour at 1 meter from a source of radiation or any surface through which the radiation penetrates. This requirement does not apply to rooms or areas in which diagnostic x-ray systems are the only source of radiation, or to non-self-shielded irradiators.

004.20B The registrant is not required to control entrance or access to rooms or other areas containing sources of radiation capable of producing a very high radiation area as described in 004.20A if the registrant has met all the specific requirements for access and control specified in other applicable Sections of these regulations, such as, Section 005 for industrial radiography, Section 006 for x-rays in the healing arts, and Section 009 for particle accelerators.

004.21 Control of Access to Very High Radiation Areas -- Irradiators.

004.21A Section 004.21 applies to ~~licensees or~~ registrants with sources of radiation in non-self-shielded irradiators. Section 004.21 does not apply to sources of radiation that are used in teletherapy, in industrial radiography, or in completely self-shielded irradiators in which the source of radiation is both stored and operated within the same shielding radiation barrier and, in the designed configuration of the irradiator, is always physically inaccessible to any individual and cannot create high levels of radiation in an area that is accessible to any individual.

004.21B Each area in which there may exist radiation levels in excess of 5 Gy (500 rad) in 1 hour at 1 meter from a source of radiation that is used to irradiate materials shall meet the following requirements:

004.21B1 Each entrance or access point must be equipped with entry control devices which:

004.21B1a Function automatically to prevent any individual from inadvertently entering a very high radiation area; and

004.21B1b Permit deliberate entry into the area only after a control device is actuated that causes the radiation level within the area, from the source of radiation, to be reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of 1 mSv (0.1 rem) in 1 hour; and

004.21B1c Prevent operation of the source of radiation if it would produce radiation levels in the area that could result in a deep dose equivalent to an individual in excess of 1 mSv (0.1 rem) in 1 hour.

004.21B2 Additional control devices shall be provided so that, upon failure of the entry control devices to function as required by 004.21B1:

004.21B2a The radiation level within the area, from the source of radiation, is reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of 1 mSv (0.1 rem) in 1 hour; and

004.21B2b Conspicuous visible and audible alarm signals are generated to make an individual attempting to enter the area aware of the hazard and at least one other authorized individual, who is physically present, familiar with the activity, and prepared to render or summon assistance, aware of the failure of the entry control devices.

004.21B3 The ~~licensee or registrant~~ shall provide control devices so that, upon failure or removal of physical radiation barriers ~~other than the sealed source's shielded storage container~~:

004.21B3a The radiation level from the source of radiation is reduced below that at which it would be possible for an individual to receive a deep dose equivalent in excess of 1 mSv (0.1 rem) in 1 hour; and

004.21B3b Conspicuous visible and audible alarm signals are generated to make potentially affected individuals aware of the hazard and the ~~licensee or registrant~~ or at least one other individual, who is familiar with the activity and prepared to render or summon assistance, aware of the failure or removal of the physical barrier.

004.21B4 ~~When the shield for stored sealed sources is a liquid, the licensee or registrant shall provide means to monitor the integrity of the shield and to signal, automatically, loss of adequate shielding.~~

004.21B54 Physical radiation barriers that comprise permanent structural components, such as walls, that have no credible probability of failure or removal in ordinary circumstances need not meet the requirements of 004.21B3 ~~and 4~~.

004.21B65 Each area shall be equipped with devices that will automatically generate conspicuous visible and audible alarm signals to alert personnel in the area before the source of radiation can be put into operation and in time for any individual in the area to operate a clearly identified control device, which must be installed in the area and which can prevent the source of radiation from being put into operation.

004.21B76 Each area shall be controlled by use of such administrative procedures and such devices as are necessary to ensure that the area is cleared of personnel prior to each use of the source of radiation.

Title 180
Chapter 1

004.21B87 Each area shall be checked by a radiation measurement to ensure that, prior to the first individual's entry into the area after any use of the source of radiation, the radiation level from the source of radiation in the area is below that at which it would be possible for an individual to receive a deep dose equivalent in excess of 1 mSv (0.1 rem) in 1 hour.

004.21B98 The entry control devices required in 004.21B1 shall have been tested for proper functioning. See 004.49 for recordkeeping requirements.

004.21B98a Testing shall be conducted prior to initial operation with the source of radiation on any day, unless operations were continued uninterrupted from the previous day; and

004.21B98b Testing shall be conducted prior to resumption of operation of the source of radiation after any unintentional interruption; and

004.21B98c The ~~licensee or registrant~~ shall submit and adhere to a schedule for periodic tests of the entry control and warning systems.

004.21B409 The ~~licensee or registrant~~ shall not conduct operations, other than those necessary to place the source of radiation in safe condition or to effect repairs on controls, unless control devices are functioning properly.

004.21B410 Entry and exit portals that are used in transporting materials to and from the irradiation area, and that are not intended for use by individuals, shall be controlled by such devices and administrative procedures as are necessary to physically protect and warn against inadvertent entry by any individual through these portals. ~~Exit portals for irradiated materials shall be equipped to detect and signal the presence of any loose radioactive material that is carried toward such an exit and to automatically prevent loose radioactive material from being carried out of the area.~~

004.21C ~~Licensees, Registrants, or applicants for licenses or registrations~~ for sources of radiation within the purview of 004.21B which will be used in a variety of positions or in locations, such as open fields or forests, that make it impracticable to comply with certain requirements of 004.21B, such as those for the automatic control of radiation levels, may apply to the Agency for approval of alternative safety measures. Alternative safety measures shall provide personnel protection at least equivalent to those specified in 004.21B. At least one of the alternative measures shall include an entry-preventing interlock control based on a measurement of the radiation that ensures the absence of high radiation levels before an individual can gain access to the area where such sources of radiation are used.

004.21D The entry control devices required by 004.21B and C shall be established in such a way that no individual will be prevented from leaving the area.

Title 180
Chapter 1

Section 015 TRAINING AND EXPERIENCE REQUIREMENTS FOR USE OF RADIATION SOURCES

015.01 Purpose and Scope	15 - 3
015.02 Definitions	15 - 3
015.03 Exemptions	15 - 3
015.04 Training And Experience Requirements For The Use Of Radiation Sources For Medical Uses Of Radioactive Material For Human Use	15 - 4
015.05 Training And Experience Requirements For Use Of Medical Teletherapy	15 - 10
015.06 Training And Experience Requirements For The Authorized User Of Brachytherapy Sources For Therapy	15 - 12
015.07 Training And Experience Requirements For Ophthalmic Use Of Strontium-90	15 - 14
015.08 Training And Experience Requirements For Use Of Sealed Source For Diagnosis	15 - 15
015.09 Training For On-Site Physician	15 - 16
015.10 Reserved	15 - 16
015.11 Recentness Of Training	15 - 16
015.12 Radiation Safety Officer Training And Experience Requirements For Medical Uses Of Radioactive Material For Human Use	15 - 16
015.13 Minimum Qualifications For Radiological Medical Physicist, Radiological Health Physicist And Qualified Expert	15 - 17
015.14 Training And Experience Requirements For Nuclear Pharmacists	15 - 19
015.15 Training And Experience Requirements For Personnel For Institutional Broad Scope Type License A, B and C Listed In Subsection 003.12	15 - 20
015.16 Personnel Training And Experience Requirements For Licensee's In An Educational Institution Other Than Broad Scope Licenses	15 - 21
015.17 Training And Experience Requirements For Laboratory And Industrial Use Of Radioactive Material Personnel	15 - 22
015.18 Personnel Training And Experience Requirements For Licenses To Manufacture Or Introduction Of Radioactive Material Into Manufactured Products And Devices Specified In Parts 003.13A, B, C, D, E, F, I, L, And M	15 - 23
015.19 Personnel Training And Experience Requirements For Licenses To Manufacture And Introduce Radioactive Material Into Radiopharmaceuticals As Specified In Parts 003.13G, H, J, And K	15 - 24
015.20 Training And Experience Requirements For Nuclear Medicine Technologists	15 - 24
015.21 Training And Experience Requirements For Radiation Therapy Technologists	15 - 26
015.22 Reserved	15 - 28
015.23 Reserved	15 - 28
015.24 Minimum Training Requirements For Operators Of Non-Human X-Ray Or Particle Accelerators Under 1 MeV	15 - 28
015.25 Training And Experience Requirements For Particle Accelerators (Above 1 MeV) Personnel - Non-Human Use	15 - 29
015.26 Reserved Training And Experience Requirements For Irradiator Personnel	15 - 31
015.27 Training And Experience Requirements For Industrial Radiography Personnel	15 - 32
015.28 Training And Experience Requirements For Industrial Gauge Personnel	15 - 33
015.29 Training And Experience Requirements For Analytical X-Ray Equipment Personnel	15 - 33
015.30 Training And Experience Requirements For Gas Chromatograph Personnel	15 - 34
015.31 Training And Experience Requirements For Well Logging Personnel	15 - 34
015.32 Reserved	15 - 37
015.33 Training And Experience Requirements For Management Of Radioactive Waste Personnel	15 - 37

Title 180
Chapter 1

015.34 Training And Experience Requirements For Installation And/Or Servicing Of Radiation Generating Equipment And Associated Radiation Generating Equipment As Supplied By The Employer	15 - 39
015.35 Training And Experience Requirements For Personnel Dosimetry Services Personnel	15 - 40

Title 180
Chapter 1

015.25B2b Be familiar with the location and use of all operating controls.

015.25B2c Be familiar with the requirements of pertinent State regulations.

015.25B2d Be familiar with the registrant's written operating and emergency procedures.

015.25B2e Receive at least one (1) month of on-the-job training before assuming operational responsibility.

015.25B3 All operator's assistants or helpers shall receive the training listed in paragraphs 015.25B1a through 015.25B2a above at not less than twenty (20) hours.

015.26 Reserved. Training And Experience Requirements For Irradiator Personnel:

015.26A Radiation Safety Officer:

015.26A1 A college degree at the bachelor level, or equivalent training and experience in the physical or biological sciences or in engineering; and

015.26A2 Four (4) weeks on-the-job training under the direct supervision of a licensed user; and

015.26A3 Forty (40) hours of formal instruction in:

015.26A3a Radiation physics and instrumentation;

015.26A3b Radiation protection;

015.26A3c Mathematics pertaining to the use and measurement of radioactivity;

015.26A3d Biological effects of radiation; and

015.26A3e Operating and emergency procedures and federal and/or state radiation control regulations.

015.26B Authorized User:

015.26B1 Four (4) weeks on-the-job training under the direct supervision of a licensed user; and

Title 180
Chapter 1

~~015.26B2~~ Forty (40) hours of formal instruction in:

~~015.26B2a~~ Radiation physics and instrumentation;

~~015.26B2b~~ Radiation protection;

~~015.26B2c~~ Mathematics pertaining to the use and measurement of radioactivity;

~~015.26B2d~~ Biological effects of radiation; and

~~015.26B2e~~ Operating and emergency procedures and federal and/or state radiation control regulations.

015.27 Training And Experience Requirements For Industrial Radiography Personnel.

015.27A Radiation Safety Officer. The minimum qualifications of supervisory personnel who will supervise the training program for radiographers and the use of radioactive material shall be:

015.27A1 Eighty (80) hours of successful completion of a training course covering:

015.27A1a Radiation physics and instrumentation;

015.27A1b Radiation protection;

015.27A1c Mathematics pertaining to the use and measurement of radioactivity; and

015.27A1d Biological effects of radiation; and

025.27A2 A qualified radiographer with one-hundred and sixty (160) hours of on-the-job experience.

015.27B Radiographer.

015.27B1 Must have qualified as a radiographer's assistant, as listed in 005.12B, and

015.27B2 Has been instructed and demonstrates competence in subject matter of Appendix 1 of Section 005 by approved testing;

015.27B3 Must demonstrate competence to use the licensee's or registrant's radiographic exposure device,

PLEASE REMOVE STATUTE REVISED JUNE 1, 1995 FOUND IN
THE FRONT OF 180 NAC 1 (NEBRASKA REGULATIONS FOR
CONTROL OF RADIATION-IONIZING) AND REPLACE WITH THIS
COPY

REVISED STATUTES OF NEBRASKA
1943
ARTICLE 35
RADIATION CONTROL ACT

71-3501. Public policy. It is the policy of the State of Nebraska in furtherance of its responsibility to protect occupational and public health and safety and the environment:

- (1) To institute and maintain a regulatory program for sources of radiation so as to provide for:
 - (a) Compatibility and equivalency with the standards and regulatory programs of the federal government;
 - (b) A single effective system of regulation within the state; and
 - (c) A system consonant insofar as possible with those of other states;
- (2) To institute and maintain a program to permit development and utilization of sources of radiation for peaceful purposes consistent with the protection of occupational and public health and safety and the environment;
- (3) To maximize the protection practicable for the citizens of Nebraska from ionizing radiation by establishing requirements for appropriate qualifications of persons practicing medical radiography;
- (4) To provide for the availability of capacity either within or outside the state for the management of low-level radioactive waste generated within the state, except for waste generated as a result of defense or federal research and development activities, and to recognize that such radioactive waste can be most safely and efficiently managed on a regional basis; and
- (5) To maximize the protection practicable for the citizens of Nebraska from radon or its decay products by establishing requirements for:
 - (a) Appropriate qualifications for persons providing measurement and mitigation services of radon or its decay products; and
 - (b) Radon mitigation system installations.

71-3502. Purpose of act; programs provided. It is the purpose of the Radiation Control Act to effectuate the policies set forth in section 71-3501 by providing for:

- (1) A program of effective regulation of sources of radiation for the protection of occupational and public health and safety and the environment;
- (2) A program to promote an orderly regulatory pattern within the state, among the states, and between the federal government and the state and facilitate intergovernmental cooperation with respect to use and regulation of sources of radiation to the end that duplication of regulation may be minimized;

- (3) A program to establish procedures for assumption and performance of certain regulatory responsibilities with respect to sources of radiation;
- (4) A program to permit maximum utilization of sources of radiation consistent with the health and safety of the public; and
- (5) A program which establishes requirements and standards for appropriate education, training, and testing of persons practicing medical radiography.

71-3503. Terms, defined. For purposes of the Radiation Control Act, unless the context otherwise requires:

- (1) Radiation means ionizing radiation and nonionizing radiation as follows:
 - (a) Ionizing radiation means gamma rays, X-rays, alpha and beta particles, high-speed electrons, neutrons, protons, and other atomic or nuclear particles or rays but does not include sound or radio waves or visible, infrared, or ultraviolet light; and
 - (b) Nonionizing radiation means
 - (i) any electromagnetic radiation which can be generated during the operations of electronic products to such energy density levels as to present a biological hazard to occupational and public health and safety and the environment, other than ionizing electromagnetic radiation, and
 - (ii) any sonic, ultrasonic, or infrasonic waves which are emitted from an electronic product as a result of the operation of an electronic circuit in such product and to such energy density levels as to present a biological hazard to occupational and public health and safety and the environment;
- (2) Radioactive material means any material, whether solid, liquid, or gas, which emits ionizing radiation spontaneously. Radioactive material includes, but is not limited to, accelerator-produced material, byproduct material, naturally occurring material, source material, and special nuclear material;
- (3) Radiation-generating equipment means any manufactured product or device, component part of such a product or device, or machine or system which during operation can generate or emit radiation except devices which emit radiation only from radioactive material;
- (4) Sources of radiation means any radioactive material, any radiation-generating equipment, or any device or equipment emitting or capable of emitting radiation or radioactive material;
- (5) Undesirable radiation means radiation in such quantity and under such circumstances as determined from time to time by rules and regulations adopted and promulgated by the department;
- (6) Person means any individual, corporation, partnership, limited liability company, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this state, any other state or political subdivision or agency thereof, and any legal successor, representative, agent, or agency of the foregoing;
- (7) Registration means registration with the department pursuant to the Radiation Control Act;
- (8) Department means the Department of Health;
- (9) Coordinator means the Director of Health;

- (10) Council means the radiation advisory council provided for in section 71-3506;
- (11) Electronic product means any manufactured product, device, assembly, or assemblies of such products or devices which, during operation in an electronic circuit, can generate or emit a physical field of radiation;
- (12) License means:
- (a) A general license issued pursuant to rules and regulations adopted and promulgated by the department without the filing of an application with the department or the issuance of licensing documents to particular persons to transfer, acquire, own, possess, or use quantities of or devices or equipment utilizing radioactive materials;
 - (b) A specific license, issued to a named person upon application filed with the department pursuant to the Radiation Control Act and rules and regulations adopted and promulgated pursuant to the act, to use, manufacture, produce, transfer, receive, acquire, own, or possess quantities of or devices or equipment utilizing radioactive materials;
 - (c) A license issued to a radon measurement specialist, radon measurement technician, radon mitigation specialist, radon mitigation technician, radon measurement business, or radon mitigation business; or
 - (d) A license issued to a medical radiographer or limited radiographer;
- (13) Byproduct material means:
- (a) Any radioactive material, except special nuclear material, yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and
 - (b) The tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium or thorium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute byproduct material;
- (14) Source material means:
- (a) Uranium or thorium or any combination thereof, in any physical or chemical form; or
 - (b) Ores which contain by weight one-twentieth of one percent or more of uranium, thorium, or any combination thereof. Source material does not include special nuclear material;
- (15) Special nuclear material means:
- (a) Plutonium, uranium 233, or uranium enriched in the isotope 233 or in the isotope 235 and any other material that the United States Nuclear Regulatory Commission pursuant to the provisions of section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material but does not include source material; or
 - (b) Any material artificially enriched by any material listed in subdivision (15)(a) of this section but does not include source material;
- (16) Users of sources of radiation means:
- (a) Physicians using radioactive material or radiation-generating equipment for human use;

- (b) Natural persons using radioactive material or radiation-generating equipment for education, research, or development purposes;
 - (c) Natural persons using radioactive material or radiation-generating equipment for manufacture or distribution purposes;
 - (d) Natural persons using radioactive material or radiation-generating equipment for industrial purposes; and
 - (e) Natural persons using radioactive material or radiation-generating equipment for any other similar purpose;
- (17) Civil penalty means any monetary penalty levied on a licensee or registrant because of violations of statutes, rules, regulations, licenses, or registration certificates but does not include criminal penalties;
- (18) Closure means all activities performed at a waste-handling, processing, management, or disposal site, such as stabilization and contouring, to assure that the site is in a stable condition so that only minor custodial care, surveillance, and monitoring are necessary at the site following termination of licensed operation;
- (19) Decommissioning means final operational activities at a facility to dismantle site structures, to decontaminate site surfaces and remaining structures, to stabilize and contain residual radioactive material, and to carry out any other activities to prepare the site for postoperational care;
- (20) Disposal means the permanent isolation of low-level radioactive waste pursuant to the Radiation Control Act and rules and regulations adopted and promulgated pursuant to such act;
- (21) Generate means to produce low-level radioactive waste when used in relation to low-level radioactive waste;
- (22) High-level radioactive waste means:
 - (a) Irradiated reactor fuel;
 - (b) Liquid wastes resulting from the operation of the first cycle solvent extraction system or equivalent and the concentrated wastes from subsequent extraction cycles or the equivalent in a facility for reprocessing irradiated reactor fuel; and
 - (c) Solids into which such liquid wastes have been converted;
- (23) Low-level radioactive waste means radioactive waste not defined as high-level radioactive waste, spent nuclear fuel, or byproduct material as defined in subdivision (13)(b) of this section;
- (24) Management of low-level radioactive waste means the handling, processing, storage, reduction in volume, disposal, or isolation of such waste from the biosphere in any manner, except the commercial disposal of low-level radioactive waste in a disposal facility, designated by the Central Interstate Low-Level Radioactive Waste Compact Commission;
- (25) Source material mill tailings or mill tailings means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from underground solution extraction processes, but not including underground ore bodies depleted by such solution extraction processes;

- (26) Source material milling means any processing of ore, including underground solution extraction of unmined ore, primarily for the purpose of extracting or concentrating uranium or thorium therefrom and which results in the production of source material and source material mill tailings;
- (27) Spent nuclear fuel means irradiated nuclear fuel that has undergone at least one year of decay since being used as a source of energy in a power reactor. Spent nuclear fuel includes the special nuclear material, byproduct material, source material, and other radioactive material associated with fuel assemblies;
- (28) Transuranic waste means radioactive waste containing alpha-emitting transuranic elements, with radioactive half-lives greater than five years, in excess of one hundred nanocuries per gram;
- (29) Licensed practitioner means a person licensed to practice medicine, dentistry, podiatry, chiropractic, osteopathic medicine and surgery, or as an osteopathic physician;
- (30) X-ray system means an assemblage of components for the controlled production of X-rays, including, but not limited to, an X-ray high-voltage generator, an X-ray control, a tube housing assembly, a beam-limiting device, and the necessary supporting structures. Additional components which function with the system are considered integral parts of the system;
- (31) Limited radiographer means a person licensed to practice medical radiography pursuant to subsection (2) of section 71-3515.01. Limited radiographer does not include a person certified under section 9 of this act;
- (32) Medical radiographer means a person licensed to practice medical radiography pursuant to subsection (1) of section 71-3515.01;
- (33) Medical radiography means the application of radiation to humans for diagnostic purposes, including, but not limited to, adjustment or manipulation of X-ray systems and accessories including image receptors, positioning of patients, processing of films, and any other action that materially affects the radiation dose to patients; and
- (34) Licensed Facility operator means any person or entity who has obtained a license under the Low-Level Radioactive Waste Disposal Act to operate a facility, including any person or entity to whom an assignment of a license is approved by the Department of Environmental Quality.

71-3504. Radiation control activities; Director of Health, coordinator; powers and duties.

- (1) The Director of Health shall be the coordinator of radiation control activities, and the Director of Health may designate a Director of Radiation Control. The Director of Health shall:
 - (a) Advise the Governor and agencies of the state on matters relating to radiation; and
 - (b) Coordinate regulatory activities of the state relating to radiation, including cooperation with other states and the federal government.
- (2) The Director of Health shall:
 - (a) Review before and after the holding of any public hearing required under the Administrative Procedure Act, prior to promulgation, the proposed rules and regulations of all agencies of the state relating to use and control of radiation, to assure that such rules and regulations are consistent with rules and regulations of other agencies of the state;
 - (b) When he or she determines that proposed rules or regulations or parts thereof are inconsistent with rules and regulations of other agencies of the state, consult with the radiation advisory council in an effort to resolve such inconsistencies. Upon notification

by the council that such inconsistencies have not been resolved, the Governor may, after consultation with the council and the Director of Health, find that the proposed rules and regulations or parts thereof are inconsistent with rules and regulations of other agencies of the state or the federal government and may issue an order to that effect, in which event the proposed rules and regulations or parts thereof shall not become effective. The Governor may, in the alternative, upon a similar determination, direct the appropriate agency or agencies to amend or repeal existing rules and regulations to achieve consistency with the proposed rules and regulations;

- (c) Advise, consult, and cooperate with other agencies of the state, the federal government, other states, interstate agencies, political subdivisions, and other organizations concerned with control of sources of radiation; and
- (d) Collect and disseminate information relating to the control of sources of radiation and maintain
 - (i) a file of all registrants, license applications, issuances, denials, amendments, transfers, renewals, modifications, inspections, recommendations pertaining to radiation, suspensions, and revocations,
 - (ii) a file of registrants possessing or using sources of radiation requiring registration under the Radiation Control Act and any administrative or judicial action pertaining to such registration, and
 - (iii) a file of all rules and regulations relating to the regulation of sources of radiation, pending or promulgated, and proceedings on such rules and regulations thereon.
- (3) The several agencies of the state and political subdivisions shall keep the coordinator fully and currently informed as to their activities relating to development of new uses and regulation of sources of radiation.

71-3505.

Department of Health; powers and duties. Matters relative to radiation as they relate to occupational and public health and safety and the environment shall be a responsibility of the department. The department shall:

- (1) Develop comprehensive policies and programs for the evaluation and determination of undesirable radiation associated with the production, use, storage, or disposal of radiation sources; and formulate, adopt, promulgate, and repeal rules and regulations which may provide (a) for registration or licensure under section 71-3507 or 71-3509 and (b) for registration or licensure of (i) any other source of radiation, (ii) persons providing services for collection, detection, measurement, or monitoring of sources of radiation, including, but not limited to, radon and its decay products, (iii) persons providing services to reduce the effects of sources of radiation, and (iv) persons practicing medical radiography, as specified by rule or regulation so as to reasonably protect occupational and public health and safety and the environment in a manner compatible with regulatory programs of the federal government. The department for identical purposes may also adopt and promulgate rules and regulations for the issuance of licenses, either general or specific, to persons for the purpose of using, manufacturing, producing, transporting, transferring, receiving, acquiring, owning, or possessing any radioactive material. Such rules and regulations may prohibit the use of radiation for uses found by the department to be detrimental to occupational and public health or safety or the environment and shall carry out the purposes and policies set out in sections 71-3501 and 71-3502. Such rules and regulations shall not prohibit or limit the kind or amount of radiation purposely prescribed for or administered to a patient by doctors of medicine and surgery, dentistry, osteopathic medicine, chiropractic, podiatry, and veterinary medicine, while engaged in the lawful practice of such profession, or administered by other professional personnel, such as allied health personnel, medical radiographers, limited radiographers, nurses, and laboratory workers, acting under the

supervision of a licensed practitioner. Violation of rules and regulations adopted and promulgated by the department pursuant to the Radiation Control Act shall be due cause for the suspension, revocation, or limitation of a license issued by the department. Any licensee may request a hearing before the department on the issue of such suspension, revocation, or limitation. Procedures for notice and opportunity for a hearing before the department shall be pursuant to the Administrative Procedure Act. The decision of the department may be appealed, and the appeal shall be in accordance with the Administrative Procedure Act;

- (2) Inform the council of any such rules and regulations at least thirty days prior to their adoption and consider any recommendations of the council;
- (3) Have the authority to accept and administer loans, grants, or other funds or gifts, conditional or otherwise, in furtherance of its functions, from the federal government and from other sources, public or private;
- (4) Encourage, participate in, or conduct studies, investigations, training, research, and demonstrations relating to the control of sources of radiation;
- (5) Collect and disseminate health education information relating to radiation protection;
- (6) Make its facilities available so that any person or any agency may request the department to review and comment on plans and specifications of installations submitted by the person or agency, with respect to matters of protection and safety, for the control of undesirable radiation;
- (7) Be empowered to inspect radiation sources and their shieldings and surroundings for the determination of any possible undesirable radiation or violations of rules and regulations adopted and promulgated by the department and provide the owner, user, or operator with a report of any known or suspected deficiencies; and
- (8) Collect a fee for emergency response or environmental surveillance, or both, offsite from each nuclear power plant equal to the cost of completing the emergency response or environmental surveillance and any associated report. In no event shall the fee for any nuclear power plant exceed the lesser of the actual annual costs of such activities or thirty-six thousand dollars. The fee collected shall be credited to the Department of Health Cash Fund and shall be used solely for the purpose of defraying the costs of the emergency response and environmental surveillance conducted by the department.

71-3506. Radiation advisory council; members; appointment; term of office; compensation; duties.

- (1) There is hereby established a radiation advisory council within the department consisting of nine members to be appointed by the Governor. The Governor shall appoint to the council one individual with experience relating to radiation from each of the following fields:
 - (a) Radiology;
 - (b) medicine, exclusive of radiology;
 - (c) radiation or health physics;
 - (d) law;
 - (e) agriculture;
 - (f) labor;
 - (g) business or industry;

- (h) dentistry; and
- (i) chiropractic, osteopathic medicine and surgery, or podiatry.

Each appointed member shall hold office for a term of three years, except that any member appointed to fill a vacancy occurring prior to the expiration of the term for which his or her predecessor was appointed, shall be appointed for the remainder of such term. The terms of office of the members first taking office shall expire, as designated at the time of appointment, three at the end of the first year, three at the end of the second year, and three at the end of the third year. After the date of appointment, appointed council members, while serving on business of the council, shall receive compensation at the rate of twenty dollars per day and shall also be entitled to receive actual and necessary travel and subsistence expenses while so serving as provided in sections 81-1174 to 81-1177 for state employees.

(2) The council shall:

- (a) Elect a chairperson to serve at the pleasure of the council;
- (b) Meet on call of the chairperson or at the request of any three members;
- (c) Review and evaluate policies and programs of the state relating to radiation; and
- (d) Make recommendations to the coordinator and the department and furnish such technical advice as may be required on matters relating to development, utilization, and regulation of sources of radiation.

71-3507. Licenses or registration; rules and regulations; exemptions; reciprocity; department; right of entry; surveys and inspections.

(1) The department shall adopt and promulgate rules and regulations for the issuance, amendment, suspension, and revocation of general and specific licenses. Such licenses shall be for byproduct material, source material, special nuclear material, and radioactive material not under the authority of the federal Nuclear Regulatory Commission and for devices or equipment utilizing such materials. The rules and regulations shall provide:

- (a) For written applications for a specific license which include the technical, financial, and other qualifications determined by the department to be reasonable and necessary to protect occupational and public health and safety and the environment;
- (b) For additional written statements and inspections, as required by the department, at any time after filing an application for a specific license and before the expiration of the license to determine whether the license should be issued, amended, suspended, or revoked;
- (c) That all applications and statements be signed by the applicant or licensee;
- (d) The form, terms, and conditions of general and specific licenses;
- (e) That no license or right to possess or utilize sources of radiation granted by a license shall be assigned or in any manner disposed of without the written consent of the department; and
- (f) That the terms and conditions of all licenses are subject to amendment by rules, regulations, or orders issued by the department.

(2) The department may require registration or licensing of radioactive material not enumerated in subsection (1) of this section in order to maintain compatibility and equivalency with the standards

and regulatory programs of the federal government or to protect the occupational and public health and safety and the environment.

- (3) The department shall require licensure of persons providing measurement and mitigation services of radon or its decay products in order to protect the occupational and public health and safety and the environment. The department shall adopt and promulgate rules and regulations establishing education, experience, training, and examination requirements for radon measurement specialists, radon measurement technicians, radon mitigation specialists, and radon mitigation technicians. The department shall adopt and promulgate rules and regulations establishing staffing, proficiency, quality control, reporting, worker health and safety, equipment, and record-keeping requirements for radon measurement businesses and radon mitigation businesses and mitigation system installation requirements for radon mitigation businesses.
- (4) The department shall license persons practicing medical radiography, including medical radiographers and limited radiographers, in order to protect the occupational and public health and safety and the environment. The licenses shall be renewable biennially. For medical radiographers and limited radiographers, the department shall adopt and promulgate rules and regulations establishing examination requirements for licensure, continuing education requirements for renewal of a license, and approval requirements for examinations. For medical radiographers, the department shall adopt and promulgate rules and regulations establishing requirements for education and training and for approval of courses of training. Persons authorized under sections 71-193.15 and 71-193.17 to practice as dental hygienists and dental auxiliaries who meet the requirements of section 71-193.13 shall not be required to be licensed under this section.
- (5) The department may exempt certain sources of radiation or kinds of uses or users from licensing or registration requirements established under the Radiation Control Act when the department finds that the exemption will not constitute a significant risk to occupational and public health and safety and the environment.
- (6) The department may provide by rule and regulation for the recognition of other state or federal licenses compatible and equivalent with the standards established by the department for Nebraska licensees.
- (7) The department may enter at all reasonable times upon any private or public property for the purpose of determining whether or not there is compliance with the act and rules and regulations adopted and promulgated pursuant to the act, except that entry into areas under the jurisdiction of the federal government shall be effected only with the concurrence of the federal government or its duly designated representative.
- (8) The department shall cause to be registered with the department such sources of radiation as the department determines to be reasonably necessary to protect occupational and public health and safety and the environment as follows:
 - (a) The department shall, by public notice, establish a date on or before which date such sources of radiation shall be registered with the department, and the department shall provide appropriate forms for such registration. Each application for registration shall be in writing and shall state such information as the department by rules or regulations may determine to be necessary and reasonable to protect occupational and public health and safety and the environment;
 - (b) Registration of sources of radiation shall be an initial registration with appropriate notification to the department in the case of alteration of equipment, acquisition of new sources of radiation, or the transfer, loss, or destruction of sources of radiation and shall include the registration of persons installing or servicing sources of radiation;

- (c) Failure to register or reregister sources of radiation in accordance with rules and regulations adopted and promulgated by the department shall be subject to a fine of not less than fifty dollars nor more than two hundred dollars; and
 - (d) The department may provide by rule and regulation for reregistration of sources of radiation.
- (9) The results of any surveys or inspections of sources of radiation conducted by the department shall be public records subject to sections 84-712 to 84-712.09. In addition, the following information shall be deemed confidential:
- (a) The names of individuals in dosimetry reports;
 - (b) Emergency response procedures which would present a clear threat to security or disclose names of individuals; and
 - (c) Any other information that is likely to present a clear threat to the security of radioactive material. The department shall make such reports of results of surveys or inspections available to the owner or operator of the source of radiation together with any recommendations of the department regarding deficiencies noted.
- (10) The department shall have the right to survey or inspect again any source of radiation previously surveyed without limitation of the number of surveys or inspections conducted on a given source of radiation.
- (11) The department may enter into contracts with persons or corporations to perform the inspection of X-ray radiation-generating equipment or devices which emit radiation from radioactive materials and to aid the department in the administration of the act.

71-3508. Radiation; possession or use; records; contents; user of sources of radiation; qualifications; exemptions.

- (1) The department shall require each person who possesses or uses a source of radiation to maintain records relating to its receipt, storage, transfer, or disposal and such other records as the department may require subject to such exemptions as may be provided by rules or regulations. These records shall be made available for inspection by or copies shall be submitted to the department on request.
- (2) The department shall require each person who possesses or uses a source of radiation to maintain appropriate records showing the radiation exposure of all individuals for whom personnel monitoring is required by rules and regulations of the department. Copies of these records and those required to be kept by subsection (1) of this section shall be submitted to the department on request. Any person possessing or using a source of radiation shall furnish to each employee for whom personnel monitoring is required a copy of each employee's personal exposure record at any time such employee has received exposure in excess of the amount specified in the rules and regulations of the department and upon termination of employment. A copy of the annual exposure record shall be furnished to the employee as required under rules and regulations adopted under the Radiation Control Act.
- (3) The department may adopt and promulgate rules and regulations establishing qualifications pertaining to the education, knowledge of radiation safety procedures, training, experience, utilization, facilities, equipment, and radiation protection program that an individual user of sources of radiation shall possess prior to using any source of radiation or radiation-generating equipment. Individuals who are currently licensed in the State of Nebraska as podiatrists, chiropractors, dentists, physicians and surgeons, osteopathic physicians, and veterinarians or certified as physician assistants shall be exempt from the rules and regulations of the department

pertaining to the qualifications of persons for the use of X-ray radiation-generating equipment operated for diagnostic purposes.

71-3508.01. Radioactive materials license; terms and conditions; termination of license; transfer of land; effect; department; powers and duties.

- (1) Any radioactive materials license issued or renewed after August 30, 1987, for any activity which results in the production of byproduct material as defined in subdivision (13)(b) of section 71-3503 shall contain such terms and conditions as the department determines to be necessary to assure that prior to termination of such license:
 - (a) The licensee shall comply with decontamination, decommissioning, and reclamation standards prescribed by the department which shall be equivalent, to the extent practicable, or more stringent than those of the federal Nuclear Regulatory Commission for sites
 - (i) at which ores are processed primarily for their source material content and
 - (ii) at which such byproduct material or mill tailings are deposited; and
 - (b) Ownership of any disposal site and such byproduct material or mill tailings which resulted from the licensed activity will, subject to subsection (2) of this section, be transferred to
 - (i) the United States or
 - (ii) this state if the state exercises the option to acquire land used for the disposal of such byproduct material or mill tailings. Any license which is in effect on the August 30, 1987, and which is subsequently terminated without renewal shall comply with subdivisions (1)(a) and (b) of this section upon termination.
- (2)
 - (a) The department shall require by rule, regulation, or order that prior to the termination of any license which is issued after August 30, 1987, title to the land, including any interests therein, other than land held in trust by the United States for any Indian tribe or owned by an Indian tribe subject to a restriction against alienation imposed by the United States or land already owned by the United States or by the state, which is used pursuant to such license for the disposal of byproduct material or source material mill tailings will be transferred to
 - (i) the United States or
 - (ii) this state, unless the federal Nuclear Regulatory Commission determines prior to such termination that transfer of title to such land and such byproduct material or mill tailings is not necessary or desirable to protect the occupational and public health and safety and the environment or to minimize danger to life or property.
 - (b) If transfer to the state of title to such byproduct material or mill tailings and land is required, the state may assume title, following the federal Nuclear Regulatory Commission's determination that the licensee has complied with applicable standards and requirements under the license, and the department shall maintain the byproduct material or mill tailings and land in such manner as will protect the occupational and public health and safety and the environment.
 - (c) The department may undertake such monitoring, maintenance, and emergency measures as are necessary to protect the occupational and public health and safety and the environment for those materials and property to which the state has assumed title pursuant to this section.

- (d) The transfer of title to the United States or this state shall not relieve any licensee of liability for any fraudulent or negligent acts done prior to such transfer.
 - (e) Title transferred pursuant to this section shall be transferred without cost to the United States or this state other than the administrative and legal costs incurred in carrying out such transfer.
- (3) In the licensing and regulation of byproduct material and source material mill tailings or of any activity which results in the production of byproduct material or mill tailings, the department shall require compliance with applicable standards adopted and promulgated by the department which are equivalent, to the extent practicable, or more stringent than standards adopted and enforced by the federal Nuclear Regulatory Commission for the same purpose, including requirements and standards promulgated by the federal Environmental Protection Agency.

71-3508.02. Acquisition of sites; use; management; site; ownership requirements.

- (1) Lands and appurtenances which are used for the management of low-level radioactive waste shall be acquired and held in fee simple absolute by the licensed facility operator so long as owner does not preclude licensure or operation of the facility under federal law and until title to the land and appurtenances is transferred to the state pursuant to subsection (1) of section 81-15, 102. Such lands and appurtenances shall be used exclusively for the disposal of low-level radioactive waste until the department determines that such exclusive use is not required to protect the occupational and public health and safety or the environment. Before such site is leased for other use, the radioactive waste history of the site shall be recorded in the permanent land records of the site.
- (2) The department may contract with third parties management of a low-level radioactive waste site. A contractor shall be subject to the surety and long-term-care funding provisions of section 71-3508.04 and to appropriate licensing by the federal Nuclear Regulatory Commission or by the department.

71-3508.03. Fees; costs; use; exemptions; failure to pay; effect

- (1) The department shall establish by rule and regulation annual fees for the radioactive materials licenses, for inspections of radioactive materials, for the registration and inspection of radiation-generating equipment and other sources of radiation, and for radon measurement and mitigation licenses and inspections of radon mitigation systems installations under the Radiation Control Act, except that the annual fee for registration and inspection of X-ray radiation-generating equipment shall not exceed seventy dollars per X-ray machine. In determining such fees, the department shall, as an objective, obtain sufficient funds from the fees to pay for a portion of the direct and indirect costs of administering the act without loss or reduction of the General Fund allocation to the department. No fee shall exceed the actual cost to the department for licensure, inspection, or registration. The department may also contract with a registrant, a licensee, another state, or a federal agency to partially or fully recover the cost of administering the act. The fees collected shall be deposited in the Department of Health Cash Fund and shall be used solely for the purpose of defraying the direct and indirect costs of administering the act. The department shall collect such fees. The cost of environmental surveillance activities performed by the department to assess the radiological impact of activities conducted by licensees and registrants shall be in addition to the annual fees.
- (2) The department may, upon application by an interested person or on its own initiative, grant such exemptions from the requirements of this section as it determines are in the public interest. Applications for exemption under this subsection may include, but shall not be limited to, the use of licensed materials for educational or noncommercial displays or scientific collections.
- (3) When a registrant or licensee fails to pay the applicable fee, the department may suspend or revoke the registration or license or may issue an appropriate order.

71-3508.04. Licensee; surety; long-term site surveillance and care; funds; disposition; powers and duties.

- (1) For licensed activities involving source material milling, source material mill tailings, and management of low-level radioactive waste, the department shall, and for other classes of licensed activities the department may, adopt and promulgate rules and regulations which establish standards and procedures to ensure that the licensee will provide an adequate surety or other financial arrangement to permit the completion of all requirements established by the department for the licensure, regulation, decontamination, closure, decommissioning, and reclamation of sites, structures, and equipment used in conjunction with such licensed activity in case the licensee should default for any reason in performing such requirements. All sureties required which are forfeited shall be paid to the department and remitted to the State Treasurer for credit to the Department of Health Cash Fund. Money in such fund remitted pursuant to this subsection shall be expended by the department as necessary to complete the closure and reclamation requirements and shall not be used for normal operating expenses of the department.
- (2) For licensed activities involving the disposal of source material mill tailings and management of low-level radioactive waste, the department shall, and for other classes of licensed activities when radioactive material which will require surveillance or care is likely to remain at the site after the licensed activities cease the department may, adopt and promulgate rules and regulations which establish standards and procedures to ensure that the licensee, before termination of the license, will make available such funding arrangements as may be necessary to provide for long-term site surveillance and care. All such funds collected from licensees shall be paid to the department and remitted to the State Treasurer for credit to the fund. All funds accrued as interest on money credited to the fund pursuant to this subsection may be expended by the department for the continuing long-term surveillance, maintenance, and other care of facilities from which such funds are collected as necessary for protection of the occupational and public health and safety and the environment. If title to and custody of any radioactive material and its disposal site are transferred to the United States upon termination of any license for which funds have been collected for such long-term care, the collected funds and interest accrued thereon shall be transferred to the United States.
- (3) The sureties or other financial arrangements and funds required by this section shall be established in amounts sufficient to ensure compliance with standards, if any, established by the department pertaining to licensure, regulation, closure, decommissioning, reclamation, and long-term site surveillance and care of such facilities and sites.
- (4) To provide for the proper care and surveillance of sites subject to subsection (2) of this section which are not subject to section 71-3508.01 or 71-3508.02, the state may acquire by gift or transfer from another governmental agency or private person any land and appurtenances necessary to fulfill the purposes of this section. Any such gift or transfer shall be subject to approval and acceptance by the Legislature.
- (5) The department may by contract, agreement, lease, or license with any person, including another state agency, provide for the decontamination, closure, decommissioning, reclamation, surveillance, or other care of a site subject to this section.
- (6) If a person licensed by any governmental agency other than the department desires to transfer a site to the state for the purpose of administering or providing long-term care, a lump-sum deposit shall be made to the department and remitted to the State Treasurer for credit to the Department of Health Cash Fund. The amount of such deposit shall be determined by the department taking into account the factors stated in subsections (1) and (2) of this section.

71-3509. Sources of radiation; agreements with federal agency; Governor; license; expiration.

- (1) The Governor, on behalf of this state, may enter into agreements with the federal Nuclear Regulatory Commission pursuant to the federal Atomic Energy Act of 1954, section 274b, as

amended, providing for discontinuance of certain of such commission's licensing and related regulatory authority with respect to byproduct material, source material, and special nuclear material and the assumption of regulatory authority for such materials by this state.

- (2) The department may, upon discontinuance of certain of such commission's licensing and related regulatory authority with respect to byproduct material, source material, and special nuclear material and the assumption of regulatory authority for such materials by the state, cause to be licensed by the department such materials over which the state has assumed licensing and related regulatory authority under the terms of the agreement authorized in subsection (1) of this section.
- (3) Any person who, on the effective date of an agreement under subsection (1) of this section, possesses a license issued by the federal Nuclear Regulatory Commission for radioactive material subject to the agreement shall be deemed to possess a license like those issued under the Radiation Control Act. Such license shall expire either ninety days after receipt from the department of a notice of expiration of such license, or on the date of expiration specified in the federal Nuclear Regulatory Commission license, whichever is the earlier.

71-3510. Federal government; other states; agreements; control of sources of radiation; department; powers.

- (1) The department may enter into an agreement or agreements with the federal Nuclear Regulatory Commission pursuant to the federal Atomic Energy Act of 1954, section 274i, as amended, other federal governmental agencies as authorized by law, other states, or interstate agencies whereby this state will perform on a cooperative basis with the federal Nuclear Regulatory Commission, other federal governmental agencies, other states, or interstate agencies inspections or other functions relating to control of sources of radiation.
- (2) The department may institute training programs for the purpose of qualifying personnel to carry out the Radiation Control Act and may make such personnel available for participation in any program or programs of the federal government, other states, or interstate agencies in furtherance of the purposes of such act.

71-3511. Radiation; ordinance, resolution, or regulation; superseded; when. Any ordinance, resolution, or regulation, now or hereafter in effect, of the governing body of a municipality, county, or state agency relating to sources of radiation that is inconsistent with the Radiation Control Act, amendments thereto, or rules and regulations adopted and promulgated pursuant to the act is superseded by the act.

71-3512. Repealed.

71-3513. Rules and regulations; licensure; department; powers; duties; appeal.

- (1) In any proceeding for the issuance or modification of rules or regulations relating to control of sources of radiation, the department shall provide an opportunity for public participation through written comments and a public hearing.
- (2) In any proceeding for the denial of an application for a license or for the amendment, suspension, or revocation of a license, the department shall provide the applicant or licensee an opportunity for a hearing on the record.
- (3) In any proceeding for licensing ores processed primarily for their source material content and management of byproduct material and source material mill tailings, or for licensing management of low-level radioactive waste, the department shall provide:
 - (a) An opportunity, after public notice, for written comments and a public hearing with a transcript,

- (b) An opportunity for cross examination; and
 - (c) A written determination of the action to be taken which is based upon findings included in the determination and upon evidence presented during the public comment period.
- (4) In any proceeding for licensing ores processed primarily for their source material content and disposal of byproduct material and source material mill tailings, or for licensing management of low-level radioactive waste, the department shall prepare, for each licensed activity which has a significant impact on the occupational or public health and safety or the environment, a written analysis of the impact of such licensed activity. The analysis shall be available to the public before the commencement of the hearing and shall include:
 - (a) An assessment of the radiological and nonradiological impacts to the public health;
 - (b) An assessment of any impact on any waterway and groundwater;
 - (c) Consideration of alternatives, including alternative sites and engineering methods, to the activities to be conducted; and
 - (d) Consideration of the long-term impacts, including decommissioning, decontamination, and reclamation of facilities and sites associated with the licensed activities and management of any radioactive materials which will remain on the site after such decommissioning, decontamination, and reclamation.
- (5) The department shall prohibit any major construction with respect to any activity for which an environmental impact analysis is required by this section prior to completion of such analysis.
- (6) Whenever the department finds that an emergency exists with respect to radiation requiring immediate action to protect occupational or public health and safety or the environment, the department may, without notice, hearing, or submission to the coordinator, issue a regulation or order reciting the existence of such emergency and requiring that such action be taken as is necessary to meet the emergency. Notwithstanding any provisions of the Radiation Control Act, such regulation or order shall be effective immediately. Any person to whom such regulation or order is directed shall comply immediately, but on application to the department shall be afforded a hearing not less than fifteen days and not more than thirty days after filing of the application. On the basis of such hearing, the emergency regulation or order shall be continued, modified, or revoked within thirty days after such hearing, and the department shall mail the applicant a copy of its findings of fact and determination.
- (7) Any final department action or order entered pursuant to subsection (1), (2), (3), or (6) of this section may be appealed, and the appeal shall be in accordance with the Administrative Procedure Act.

71-3514.

Violation of act; remedies. Whenever, in the judgment of the department, any person has engaged in or is about to engage in any acts or practices which constitute or will constitute a violation of any provision of the Radiation Control Act or any rule, regulation, or order issued pursuant to the act, the Attorney General or any county attorney may make application to the district court for an order enjoining such acts or practices or for an order directing compliance, and upon a showing by the department that such person has engaged or is about to engage in any such acts or practices, a permanent or temporary injunction, restraining order, or other order may be granted.

71-3515.

Radiation; acts; registration or license required. It shall be unlawful for any person to use, manufacture, produce, distribute, sell, transport, transfer, install, repair, receive, acquire, own, or possess any source of radiation unless registered with or licensed by the department as required by section 71-3505, 71-3507, or 71-3509.

71-3515.01. Medical radiographer; limited radiographer; requirements; exception.

- (1) A person licensed as a medical radiographer by the department may practice medical radiography on any part of the human anatomy for interpretation by and under the direction of a licensed practitioner, excluding interpretative fluoroscopic procedures. Such person shall:
 - (a) Prior to issuance of a license as a medical radiographer, (i) complete an educational program in radiography incorporating the course material as provided in the rules and regulations of the department pursuant to subsection (1) of section 71-3515.02 and (ii) successfully complete an examination approved by the department on the course material. Presentation of proof of registration in radiography with the American Registry of Radiologic Technologists is proof of meeting the requirements of this subdivision (a) of this subsection; and
 - (b) Prior to renewal of licensure as a medical radiographer, have an average of twelve units of continuing education per year as approved by the department. Presentation of proof of current registration in radiography with the American Registry of Radiologic Technologists is proof of meeting the requirements of subdivisions (a) and (b) of this subsection.
- (2) A person licensed as a limited radiographer by the department may practice medical radiography on limited regions of the human anatomy, using only routine radiographic procedures, for the interpretation by and under the direction of a licensed practitioner, excluding computed tomography, the use of contrast media, and the use of fluoroscopic or mammographic equipment. Such person shall:
 - (a) Prior to issuance of a license as a limited radiographer, successfully complete an examination approved by the department, as described in subdivision (2)(a) of section 71-3515.02 and at least one of the anatomical regions listed in subdivision (2)(b) of such section. The license issued shall be specific to the anatomical region or regions for which the applicant has passed an approved examination, except that an applicant may be licensed in the anatomical region of Abdomen upon successful passage of the examinations described in subdivisions (2)(a) and (2)(b)(iv) of section 71-3515.02 and upon a finding by the department that continued provision of service for a community would be in jeopardy; and
 - (b) Prior to renewal of licensure as a limited radiographer, have an average of twelve units of continuing education per year as approved by the department.
- (3) The requirements of this section do not apply to a student while enrolled and participating in an educational program in medical radiography who, as a part of an educational program, applies X-rays to humans while under the supervision of the licensed practitioners or medical radiographers associated with the educational program. Students who have completed at least twelve months of the training course described in subsection (1) of section 71-3515.02 may apply for licensure as a temporary medical radiographer. Temporary medical radiographer licenses shall expire eighteen months after issuance and shall not be renewed. Persons licensed as temporary medical radiographers shall be permitted to perform the duties of a limited radiographer licensed in all anatomical regions of subdivision (2)(b) of such section and Abdomen.

71-3515.02. Educational programs; testing; requirements; provisional licenses; fees.

- (1) The educational program for medical radiographers shall consist of twenty-four months of instruction in radiography approved by the department which includes, but is not limited to, radiographic procedures, imaging equipment, image production and evaluation, film processing, radiation physics, radiation protection, radiation biology, radiographic pathology, and quality assurance activities. The department shall recognize equivalent courses of instruction,

successfully completed by individuals who are applying for licensure as medical radiographers by the department when determining if the requirements of section 71-3515.01 have been met.

- (2) The examination for limited radiographers shall include, but not be limited to:
 - (a) Radiation protection, equipment maintenance and operation, image production and evaluation, and patient care and management; and
 - (b) The anatomy of, and positioning for, specific regions of the human anatomy. The anatomical regions shall include at least one of the following:
 - (i) Chest;
 - (ii) Extremities;
 - (iii) Skull and sinus;
 - (iv) Spine; or
 - (v) Ankle and foot.
- (3) The department shall adopt and promulgate rules and regulations regarding the examinations required in subdivisions (1)(a)(ii) and (2)(a) of section 71-3515.01. Such rules and regulations shall provide for (a) the administration of examinations based upon national standards, such as the Examination in Radiography from the American Registry of Radiologic Technologists for medical radiographers, the Examination for the Limited Scope of Practice in Radiography from the American Registry of Radiologic Technologists for limited radiographers, or equivalent examinations that, as determined by the department, meet the standards for educational and psychological testing as recommended by the American Psychological Association, the American Educational Research Association, and the National Council on Measurement in Education, (b) procedures to be followed for examinations, (c) the method of grading and the passing grades for such examinations, (d) security protection for questions and answers, and (e) for medical radiographers, the contents of such examination based on the course requirements for medical radiographers prescribed in subsection (1) of this section. Any costs incurred in determining the extent to which examinations meet the examining standards of this subsection shall be paid by the individual or organization proposing the use of such examination.
- (4) Any person employed in medical radiography before and on June 1, 1995 who is not otherwise licensed may apply for a license as a provisional limited radiographer before January 1, 1996. A person licensed as a provisional limited radiographer may perform the duties of a limited radiographer licensed in all regions listed in subdivision (2)(b) of section 71-3515.02 and the anatomical region of Abdomen. A provisional limited radiographer shall not radiograph children under the age of six months, except (a) upon a finding by the department that continued provision of service for a community would be in jeopardy if this provision is enforced, (b) for an employee of a hospital licensed and in good standing under Chapter 71 and located in a rural area as defined in subsection (8) of section 71-5653, or (c) in a bona fide emergency situation. No examination shall be required of individuals applying for a license as a provisional limited radiographer. All provisional limited radiographer licenses expire January 1, 2005. A license as a provisional limited radiographer is subject to discipline for violations of the Radiation Control Act and rules and regulations adopted pursuant to the act, including, but not limited to, revocation for nonpayment of fees or failure to meet continuing education requirements of subdivision (2)(b) of section 71-3515.01.
- (5) No applicant for a license as a limited radiographer may take the examination for licensure, or for licensure for any specific anatomical region, more than three times without first waiting a period of one year after the last unsuccessful attempt of the examination and submitting proof to the

department of completion of twelve units of continuing education meeting the requirements of subdivision (2)(b) of section 71-3515.01 for each subsequent attempt.

- (6) The department shall adopt and promulgate rules and regulations establishing fees for the implementation of this section and section 71-3515.01, including an examination fee, initial and renewal licensure fees for persons performing medical radiography, and a fee for approval of courses of instruction. In determining such fees, the department shall obtain sufficient funds from the fees to pay the direct and indirect costs of administering such sections. No fee shall exceed the actual cost to the department for examination and licensure. The fees shall be collected and remitted by the department to the State Treasurer for credit to the Department of Health Cash Fund and shall be used solely for the purpose of defraying the direct and indirect costs of administering such sections.

71-3516. Emergency; impounding sources of radiation; department. The department shall have the authority in the event of an emergency affecting occupational or public health and safety or the environment to impound or order the impounding of sources of radiation in the possession of any person who is not equipped to observe or fails to observe the provisions of the Radiation Control Act or any rules or regulations issued pursuant to such act.

71-3517. Violations; civil and criminal penalties; appeal.

- (1) Any person who violates any of the provisions of the Radiation Control Act shall be guilty of a Class IV misdemeanor.
- (2) In addition to the penalty provided in subsection (1) of this section, any person who violates any provision of the Radiation Control Act or any rule, regulation, or order issued pursuant to such act or any term, condition, or limitation of any license or registration certificate issued pursuant to such act shall be subject to:
- (a) License revocation, suspension, modification, condition, or limitation;
 - (b) The imposition of a civil penalty; or
 - (c) The terms of any appropriate order issued by the department.
- (3) Whenever the department proposes to subject a person to the provisions of subsection (2) of this section, the department shall notify the person in writing.
- (a) setting forth the date, facts, and nature of each act or omission with which the person is charged,
 - (b) specifically identifying the particular provision or provisions of the section, rule, regulation, order, license, or registration certificate involved in the violation,
 - (c) of the time, date, and place at which a full and fair hearing will be had on such charge,
 - (d) that the department may revoke, suspend, modify, condition, or limit a license, impose a civil penalty, or enter an appropriate order, and
 - (e) that upon failure to pay the civil penalty, if any, subsequently determined by the department, the penalty may be collected by civil action. The notice shall be delivered to each alleged violator not less than ten days before the time set for the hearing by personal service, by certified or registered mail to his or her last-known address, or by publication. Notice by publication shall only be made if personal service or service by mail cannot be effectuated.

- (4) Hearings held pursuant to subsection (3) of this section shall be held in accordance with rules and regulations adopted and promulgated by the department and shall provide for the alleged violator to present such evidence as may be proper. Witnesses may be subpoenaed by either party and shall be allowed fees at a rate prescribed by the rules and regulations of the department. A full and complete record shall be kept of the proceedings.
- (5) Following the hearing, the director shall determine whether the charges are true or not, and if true, the director may
- (a) issue a declaratory order finding the charges to be true,
 - (b) revoke, suspend, modify, condition, or limit the license,
 - (c) impose a civil penalty in an amount not to exceed ten thousand dollars for each violation, or
 - (d) enter an appropriate order. If any violation is a continuing one, each day of such violation shall constitute a separate violation for the purpose of computing the applicable civil penalty and the amount of the penalty shall be based on the severity of the violation. A copy of such decision setting forth the finding of facts and the particular reasons upon which it is based shall be sent by either certified or registered mail to the alleged violator. The decision may be appealed, and the appeal shall be in accordance with the Administrative Procedure Act.
- (6) Any civil penalty assessed and unpaid under subsection (5) of this section shall constitute a debt to the State of Nebraska which may be collected in the manner of a lien foreclosure or sued for and recovered in any proper form of action in the name of the State of Nebraska in the district court of the county in which the violator resides or owns property. The department shall, within thirty days from receipt, transmit any collected civil penalty to the State Treasurer for deposit in the Permanent School Fund.

71-3518. License or registration; common carrier exempt. Nothing in the Radiation Control Act shall be deemed to require the licensing or registration by any common carrier, contract carrier, private carrier, railway freight carrier, or railway express carrier transporting, storing, or handling any of the materials described in such act in the ordinary course of such carrier's business.

71-3519. Act how cited. Sections 71-3501 to 71-3519 shall be known and may be cited as the Radiation Control Act.

71-3520. Act, how construed. Nothing in the Radiation Control Act shall be construed to allow the department to duplicate regulation by the federal government.

