

**391-3-17-.07 NOTICES, INSTRUCTIONS, AND REPORTS TO WORKERS;
INSPECTIONS. AMENDED.**

- (1) Purpose and Scope. This Rule, 391-3-17-.07, establishes requirements for notices, instructions, and reports by licensees to individuals engaged in activities under a license and options available to such individuals in connection with Department inspections of licensees to ascertain compliance with the provisions of the Act and Regulations, Orders, and licenses issued thereunder regarding radiological working conditions. The Regulations in this Rule apply to all persons who receive, possess, use, own, or transfer sources of radiation licensed by the Department pursuant to Rules 391-3-17-.02, .04, .05, .08, and .09.
- (2) Posting of Notices to Workers.
- (a) Each licensee shall post current copies of the following documents:
1. This Rule and Rule 391-3-17-.03 of this Chapter;
 2. The license, license conditions and documents incorporated into the license by reference and amendments thereto;
 3. The operating procedures applicable to activities under the license; and
 4. Any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or Order issued pursuant to this Chapter, and any response from the licensee.
- (b) If posting of a document specified in (2)(a)1., 2., or 3. of this Rule is not practicable, the licensee may post a notice which describes the document and states where it may be examined.
- (c) Department's form "Notice to Employees" shall be posted by each licensee.
- (d) Department documents posted pursuant to (2)(a)4. of this Rule shall be posted within 5 working days after receipt of the documents from the Department; the licensee's response, if any, shall be posted within five working days after dispatch from the licensee. Such documents shall remain posted for a minimum of five working days or until action correcting the violation has been completed, whichever is later.

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- (e) Documents, notices, or forms posted pursuant to (2) of this Rule shall appear in a sufficient number of places to permit individuals engaged in work under the license to observe them on the way to or from any particular work location to which the document applies, shall be conspicuous and shall be replaced if defaced or altered.

(3) Instructions to Workers.

- (a) All individuals who in the course of employment are likely to receive in a year an occupational dose in excess of 100 mrem (1 mSv) shall be:
 1. Kept informed of the storage, transfer, or use of sources of radiation in the licensee's facility;
 2. Instructed in the health protection problems associated with exposure to radiation or radioactive material to the individual and potential offspring, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed;
 3. Instructed in, and instructed and required to observe, to the extent within the workers' control, the applicable provisions of this Chapter and the license for the protection of personnel from exposures to radiation or radioactive material;
 4. Instructed of their responsibility to report promptly to the licensee any condition which may constitute, lead to, or cause a violation of the Act, this Chapter, and the license or unnecessary exposure to radiation or radioactive material;
 5. Instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation or radioactive material; and
 6. Advised as to the radiation exposure reports which workers shall be furnished pursuant to (4) of this Rule.

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- (b) In determining those individuals subject to the requirements of (3)(a) above, licensees must take into consideration assigned activities during normal and abnormal situations involving exposure to radiation or radioactive material which can reasonably be expected to occur during the life of the facility. The extent of these instructions shall be commensurate with potential radiological health protection problems present in the workplace.

(4) Notifications and Reports to Individuals.

- (a) Radiation exposure data for an individual and the results of any measurements, analyses, and calculations of radioactive material deposited or retained in the body of an individual, when required by Rule 391-3-17-.03(78)(b) of this Chapter, shall be reported to the individual as specified in (4) of this Rule. The information reported shall include data and results obtained pursuant to this Chapter, Orders, or license conditions, as shown in records maintained by the licensee pursuant to this Chapter. Each notification and report shall:
 - 1. Be in writing;
 - 2. Include appropriate identifying data such as the name of the licensee, the name of the individual, and the individual's identification number, preferably social security number;
 - 3. Include the individual's exposure information; and
 - 4. Contain the following statement: "This report is furnished to you under the provisions of Rule 391-3-17-.07. You should preserve this report for further reference."
- (b) Each licensee shall furnish to each worker annually a written report of the worker's dose as shown in records maintained by the licensee pursuant to Rule 391-3-17-.03(1314)(g). of this Chapter.

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- (c) Each licensee shall furnish a written report of a worker's exposure to sources of radiation at the request of the worker formerly engaged in activities controlled by the licensee. The report shall include the dose record for each year the worker was required to be monitored pursuant to Rule 391-3-17-.03(78)(b). Such report shall be furnished within 30 days from the date of the request, or within 30 days after the dose of the individual has been determined by the licensee, whichever is later. The report shall cover the period of time that the worker's activities involved exposure to sources of radiation and shall include the dates and locations of work under the license in which the worker participated during this period.
 - (d) When a licensee is required pursuant to Rule 391-3-17-.03(415)(c) and (d) of this Chapter to report to the Department any exposure of an individual to sources of radiation, the licensee shall also provide the individual a report on the exposure data included therein. Such reports shall be transmitted at a time not later than the transmittal to the Department.
 - (e) At the request of a worker who is terminating employment with the licensee in work involving exposure to radiation or radioactive material, during the current year, each licensee shall provide at termination to each such worker, or to the worker's designee, a written report regarding the radiation dose received by that worker from operations of the licensee during the current year or fraction thereof. If the most recent individual monitoring results are not available at that time, a written estimate of the dose shall be provided together with a clear indication that this is an estimate.
- (5) Presence of Representatives of Licensees and Workers During Inspection.
- (a) Each licensee shall afford to the Department at all reasonable times opportunity to inspect materials, activities, facilities, premises, and records pursuant to this Chapter.
 - (b) During an inspection, Department inspectors may consult privately with workers as specified in (6) of this Rule. The licensee may accompany Department inspectors during other phases of an inspection.
 - (c) If, at the time of inspection, an individual has been authorized by the workers to represent them during Department inspections, the licensee shall notify the inspectors of such authorization and shall give the workers' representative an opportunity to accompany the inspectors during the inspection of physical working conditions.

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- (d) Each workers' representative shall be routinely engaged in work under control of the licensee and shall have received instructions as specified in (3) of this Rule.
- (e) Different representatives of the licensee and workers may accompany the inspectors during different phases of an inspection if there is no resulting interference with the conduct of the inspection. However, only one workers' representative at a time may accompany the inspectors.
- (f) With the approval of the licensee and the workers' representative, an individual who is not routinely engaged in work under control of the licensee, for example, a consultant to the licensee or to the workers' representative, shall be afforded the opportunity to accompany Department inspectors during the inspection of physical working conditions.
- (g) Notwithstanding the other provisions of (5) of this Rule, Department inspectors are authorized to refuse to permit accompaniment by any individual who deliberately interferes with a fair and orderly inspection. With regard to areas containing information classified by an agency of the U.S. Government in the interest of national security, an individual who accompanies an inspector may have access to such information only if authorized to do so. With regard to any area containing proprietary information, the workers' representative for that area shall be an individual previously authorized by the licensee to enter that area.

(6) Consultation with Workers During Inspections.

- (a) Department inspectors may consult privately with workers concerning matters of occupational radiation protection and other matters related to applicable provisions of this Chapter and the license to the extent the inspectors deem necessary for the conduct of an effective and thorough inspection.
- (b) During the course of an inspection, any worker may bring privately to the attention of the inspectors, either orally or in writing, any past or present condition which the worker has reason to believe may have contributed to or caused any violation of the Act, this Chapter, or license conditions, or any unnecessary exposure of an individual to sources of radiation under the licensee's control. Any such notice in writing shall comply with the requirements of (7)(a) of this Rule.

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- (c) The provisions of (6)(b) of this Rule shall not be interpreted as authorization to disregard instructions pursuant to (3) of this Rule.

(7) Requests by Workers for Inspections

- (a) Any worker or representative of workers believing that a violation of the Act, this Chapter, or license conditions exists or has occurred in work under a license with regard to radiological working conditions in which the worker is engaged may request an inspection by giving notice of the alleged violation to the Department's Radioactive Materials Program. Any such notice shall be in writing, shall set forth the specific grounds for the notice, and shall be signed by the worker or representative of the workers. A copy shall be provided to the licensee by the Department no later than at the time of inspection except that, upon the request of the worker giving such notice, such worker's name and the name of individuals referred to therein shall not appear in such copy or on any record published, released, or made available by the Department, except for good cause shown.
- (b) If, upon receipt of such notice, the Department determines that the complaint meets the requirements set forth in (7)(a) of this Rule, and that there are reasonable grounds to believe that the alleged violation exists or has occurred, an inspection shall be made as soon as practicable to determine if such alleged violation exists or has occurred. Inspections pursuant to (7) of this Rule need not be limited to matters referred to in the complaint.
- (c) No licensee or contractor or subcontractor of a licensee shall discharge or in any manner discriminate against any worker because such worker has filed any complaint or instituted or caused to be instituted any proceeding under this Chapter or has testified or is about to testify in any such proceeding or because of the exercise by such worker on behalf of such worker or others of any option afforded by this Rule.

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(8) Inspections Not Warranted; Informal Review

- (a) If the Department's Radioactive Materials Program determines, with respect to a complaint under (7) of this Rule, that an inspection is not warranted because there are no reasonable grounds to believe that a violation exists or has occurred, the Radioactive Materials Program shall notify the complainant in writing of such determination. Such determination shall be without prejudice to the filing of a new complaint meeting the requirements of (7)(a) of this Rule. The complainant may obtain review of such determination by submitting a written statement of position with the Director of the Environmental Protection Division. The Department will provide the licensee with a copy of such statement by certified mail, excluding, at the request of the complainant, the name of the complainant. The licensee may submit an opposing written statement of position to the Director of the Environmental Protection Division who will provide the complainant with a copy of such statement by certified mail.
- (b) Upon the request of the complainant, the Director of the Environmental Protection Division may hold an informal conference in which the complainant and the licensee may orally present their views. An informal conference may also be held at the request of the licensee, but disclosure of the identity of the complainant will be made only following receipt of written authorization from the complainant. After considering all written and oral views presented, the Director of the Environmental Protection Division shall affirm, modify, or reverse the determination of the Manager of Radioactive Materials Program, and furnish the complainant and the licensee a written notification of the decision and the reason for it.

Authority Ga. L. 1964, pp. 499-507, 566-575, as amended (Georgia Radiation Control Act).

391-3-17-.08 REGULATION AND LICENSING OF NATURALLY-OCCURRING RADIOACTIVE MATERIALS (NORM).

(1) Purpose

This Rule, 391-3-17-.08, establishes radiation protection standards for the possession, use, transfer, and disposal of naturally-occurring radioactive materials (NORM) not subject to regulation under the Atomic Energy Act of 1954, as amended. All numbered and lettered references within this Rule refer to parts of this Rule, unless stated otherwise.

(2) Scope

(a) This Rule applies to any person who engages in the extraction, mining, storage, beneficiating, processing, use, transfer, or disposal of NORM in such a manner as to alter the chemical properties or physical state of the NORM or its potential exposure pathways to humans.

(b) This Rule addresses the introduction of NORM into products in which neither the NORM nor the radiation emitted from the NORM is considered to be beneficial to the products. The manufacture and distribution of products containing NORM in which the NORM and/or its associated radiation(s) is considered to be a beneficial attribute are licensed under the provisions of Rule .02 of this Chapter.

(c) This Rule also addresses waste management and disposal standards.

(3) Definitions

As used in this Rule, the following definitions apply:

(a) "Beneficial attribute" or "Beneficial to the product" means that the radioactivity of the product is necessary to the use of the product.

(b) "Beneficiating" means the processing of materials for the purpose of altering the chemical or physical properties to improve the quality, purity, or assay grade.

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- (c) "General environment" means the total terrestrial, atmospheric, and aquatic environments outside sites within which any activity, operation, or process authorized by a general or specific license issued under this Rule is performed.
- (d) "Naturally-occurring radioactive material" (NORM) means any nuclide which is radioactive in its natural physical state (i.e., not man-made), but does not include byproduct, source, or special nuclear material.
- (e) "Product" means something produced, made, manufactured, refined, or beneficiated.
- (f) "Recycling" means a process by which materials that have served their intended use are collected, separated, or processed and returned to use in the form of raw materials in the production of new products. Recycling shall not include the use of a material in a manner that constitutes disposal in accordance with Rule .03(12).
- (g) "Technologically-enhanced" means the chemical properties or physical state of natural sources of radiation have been altered or the potential exposure pathways of natural sources of radiation to humans have been altered.
- (h) "Working Level" (WL) means any combination of short-lived radon decay products in one liter of air that will result in the ultimate emission of alpha particles with a total energy of 130 billion electron volts (2.1×10^{-8} J).

(4) Exemptions

- (a) Persons who receive, possess, use, process, store, transfer, commercially distribute, or dispose of NORM are exempt from the requirements of this Chapter if the materials contain or are contaminated by concentrations of:
 - 1. Either:
 - (i) 30 picocuries (1.11 Bq) per gram or less of technologically-enhanced radium-226 or radium-228 in soil, averaged over any 100 square meters and averaged over the first 15 centimeters of soil below the surface, provided that the radon emanation rate is less than 20 pCi (.74 Bq) per square meter per second, or

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- (ii) 30 pCi (1.11Bq) per gram or less of technologically-enhanced radium-226 or radium-228 in media other than soil, provided that the radon emanation rate is less than 20 pCi (.74 Bq) per square meter per second;
- 2. Either:
 - (i) 5 pCi (.185 Bq) per gram or less of technologically-enhanced radium-226 or radium-228 in soil, averaged over any 100 square meters and averaged over the first 15 centimeters of soil below the surface, in which the radon emanation rate is equal to or greater than 20 pCi (.74 Bq) per square meter per second, or
 - (ii) 5 pCi (.185 Bq) per gram or less of technologically-enhanced radium-226 or radium-228 in media other than soil, in which the radon emanation rate is equal to or greater than 20 pCi (.74 Bq) per square meter per second; or
- 3. Either:
 - (i) 150 pCi (5.55 Bq) or less per gram of any other NORM radionuclide in soil, averaged over any 100 square meters and averaged over the first 15 centimeters of soil below the surface, provided that these concentrations are not exceeded at any time, or
 - (ii) 150 pCi (5.55 Bq) or less per gram of any other NORM radionuclide in media other than soil, provided that these concentrations are not exceeded at any time.
- (b) Persons who receive products or materials containing NORM distributed in accordance with a specific license issued by the Department pursuant to (12)(c) or an equivalent license issued by another Licensing State are exempt from this Chapter.
- (c) The manufacturing, commercial distribution, use, and disposal of the following products/materials are exempt from the requirements of this Chapter:
 - 1. Potassium and potassium compounds which have not been isotopically enriched in the radionuclide K-40;

2. Brazil nuts; and

Rule .08(4)(c)3.

3. Byproducts from fossil fuel combustion (bottom ash, fly ash, and flue-gas emission control byproducts);
 4. Materials used for building and highway construction, industrial processes, sand blasting, metal casings, or other material containing NORM, in which the radionuclide content has not been concentrated to levels higher than found in its natural state.
- (d) The wholesale and retail distribution (including custom blending), possession, and use of the following products/materials are exempt from the requirements of this Chapter:
1. Phosphate and potash fertilizer;
 2. Phosphogypsum for agricultural uses; and
 3. Materials used for building and highway construction, industrial processes, sand blasting, metal casings, or other material containing NORM, in which the radionuclide content has not been concentrated to levels higher than found in its natural state.
- (e) The possession, storage, transportation, commercial distribution, and use of natural gas and natural gas products and crude oil and crude oil products as a fuel are exempt from the requirements of this Chapter. The distribution of natural gas and crude oil and the manufacturing and distribution of natural gas and crude oil products are exempt from the specific license requirements of this Rule but are subject to the general license requirements in (7), (8), and (9).
- (f) Materials in the recycling process, including scale or residue not otherwise exempted, and other equipment containing NORM are exempt from the requirements of this Rule if the maximum radiation exposure level does not exceed 50 microrentgens per hour including the background radiation level at any accessible point.
- (g) Possession of produced waters from crude oil and natural gas production is exempt from the requirements of this Rule if the produced waters are reinjected in a well approved by the Department or if the produced waters are discharged under the authority of the Department.

(5) Radiation Survey Instruments

- (a) Radiation survey instruments used to determine exemptions pursuant to (4)(f) and radiation survey instruments used to make surveys in

accordance

Rule .08(5)(a)

with (7) shall be able to measure from 1 microroentgen per hour through at least 500 microroentgens per hour.

- (b) Radiation survey instruments used to make surveys required by this Rule shall be calibrated, appropriate, and operable.
- (c) Each radiation survey instrument shall be calibrated:
 - 1. By a person licensed by the Department, another Agreement State or Licensing State, or by the U.S. Nuclear Regulatory Commission to perform such service;
 - 2. At energies appropriate for the licensee's use;
 - 3. At intervals not to exceed 12 months, and after each instrument servicing other than battery replacement; and
 - 4. To demonstrate an accuracy within plus or minus 20 percent using a reference source provided by a person authorized pursuant to (5)(c)1.
- (d) Records of these calibrations shall be maintained for Department inspection for 5 years after the calibration date.

(6) Effective Date

The provisions and requirements of this Rule shall take effect upon March 26, 1994, and shall apply to all facilities or sites owned or controlled by a person on that date. Products distributed and disposals made prior to that date are not subject to the provisions of this Rule.

(7) General License

- (a) A general license is hereby issued to mine, extract, receive, possess, own, use, store, transfer, process, and dispose of NORM not exempted in (4) without regard to quantity. This general license does not authorize the manufacturing or commercial distribution of products containing NORM in concentrations greater than those specified in (4) nor the disposal of wastes from other persons.
- (b) Facilities and equipment contaminated with NORM in excess of the levels set forth in the Appendix of this Rule shall not be released for unrestricted

use. The decontamination of equipment and facilities shall be performed only by persons specifically licensed by the Department or another Licensing State to conduct such work. Each general licensee shall establish written

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procedures for the evaluation (or screening) of equipment, components, and facilities prior to release for unrestricted use to ensure that the levels in this Appendix are not exceeded.

- (c) No person shall transfer land for unrestricted use where the concentration of radium-226 or radium-228 in soil averaged over any 100 square meters exceeds the background level by more than:
 - 1. 5 pCi/gm (185 Bq/kg), averaged over the first 15 cm of soil below the surface; and
 - 2. 15 pCi/gm (555 Bq/kg), averaged over 15 cm thick layers of soil more than 15 cm below the surface.
- (d) The handling or processing by a general licensee of NORM-contaminated materials not otherwise exempted from these Rules for the purpose of recycling is authorized by the Department if the radiation level 18 inches from the NORM-contaminated material does not exceed 2 millirem per hour.
- (e) Equipment contaminated with NORM in excess of the levels set forth in the Appendix of this Rule may be released for maintenance and/or overhaul provided the recipient is specifically licensed to perform the activity on contaminated equipment.
- (f) The decontamination of equipment, facilities, and land, as described in (10)(b), shall only be performed by persons specifically licensed by the Department or another Licensing State to conduct such work.
- (g) Transfer of NORM
 - 1. The transfer of NORM not exempt from this Chapter from one general licensee to another general licensee may be authorized by the Department if:
 - (i) The equipment and facilities contaminated with NORM are to be used by the recipient for the same purpose or at the same time,
 - (ii) The transfer of control or ownership of land contaminated with NORM includes an annotation in the deed records to indicate the presence of NORM,

- (iii) The materials being transferred are ores or raw materials for processing or refinement, or

Rule .08(7)(g)1.(iv)

- (iv) The material being transferred is in the recycling process.

- 2. Transfers made under (7)(g)1. do not relieve the general licensee who makes the transfer from the responsibilities of assessing the extent of NORM contamination or material present, evaluating the hazards of the NORM, informing the general licensee receiving the NORM of these assessments and evaluations, and maintaining records required by this Chapter.

(8) Protection of Workers and the General Population During Operations

Each person subject to a general license in (7) or to a specific license shall conduct operations in compliance with the standards for radiation protection set forth in Rules .03 and .07 of this Chapter, except for disposal, which shall be governed by (9).

(9) Disposal and Transfer of Waste for Disposal

- (a) Each person subject to the general license in (7) or a specific license shall manage and dispose of wastes containing NORM:
 - 1. In accordance with the applicable requirements of the U.S. Environmental Protection Agency for disposal of such wastes;
 - 2. In a manner equivalent to the requirements for uranium and thorium byproduct materials in 40 CFR 192;
 - 3. By transfer of the wastes for disposal to a land disposal facility licensed by the U.S. Nuclear Regulatory Commission, an Agreement State, or a Licensing State; or
 - 4. In accordance with alternate methods authorized by the Department upon application or upon the Department's initiative.
- (b) Records of disposal, including manifests, shall be maintained pursuant to the provisions of Rule .03 of this Chapter.
- (c) Transfers of waste containing NORM for disposal shall be made only to a person specifically authorized to receive such waste.

(10) Specific Licenses

- (a) Unless otherwise exempted under the provisions of (4) or licensed under the provisions of Rule .02 of this Chapter, the manufacturing and commercial distribution of any material or product containing NORM shall be specifically

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licensed pursuant to the requirements of this Rule or pursuant to equivalent regulations of another Licensing State.

- (b) Persons conducting the following activities involving equipment or facilities contaminated with NORM in excess of the levels set forth in the Appendix of this Rule or land contaminated in excess of the limits set forth in (7)(c) shall be specifically licensed pursuant to the requirements of this Rule:

1. Decontamination of equipment, facilities, and land; or
2. Disposal or storage of the resulting waste.

(11) Filing Application for Specific Licenses

- (a) Applications for specific licenses shall be filed in a manner and on a form prescribed by the Department.
- (b) The Department may at any time after the filing of the original application, and before the expiration of the license, require further statements in order to enable the Department to determine whether the application should be granted or denied or whether a license should be modified or revoked.
- (c) Each application shall be signed by the applicant or licensee or a person duly authorized to act for and on behalf of the licensee.
- (d) An application for a specific license may include a request for a license authorizing one or more activities.
- (e) In an application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Department provided such references are clear and specific by page and paragraph.
- (f) Applications and documents submitted to the Department may be made available for public inspection pursuant to the open records act, O.C.G.A. Section 50-18-70, et seq., except that the Department may withhold any document or part thereof from public inspection if disclosure of its contents is not required by law.

(12) Requirements for the Issuance of Specific Licenses

- (a) An application for a specific license will be approved if the Department determines that:

Rule .08(12)(a)1.

1. The applicant is qualified by reason of training and experience to use the NORM in question for the purpose requested in accordance with these Rules in such a manner as to minimize danger to public health and safety, the environment, or property;
2. The applicant's proposed equipment, facilities, and procedures are adequate to minimize danger to public health and safety, the environment, and property;
3. The issuance of the license will not be inimical to the health and safety of the public;
4. The applicant satisfied any applicable special requirement in this Rule;
5. The applicant has met the financial surety requirements of (21); and
6. The applicant has appointed a qualified Radiation Safety Officer (RSO). The applicant, through the RSO, shall ensure that Radiation Safety activities are being performed in accordance with approved procedures and regulatory requirements in the daily operation of the applicant's program.
 - (i) The Radiation Safety Officer shall:
 - (I) Investigate overexposures, accidents, spills, losses, thefts, unauthorized receipts, uses, transfers, and disposals, and other deviations from approved radiation safety practices. The RSO shall have the authority to assume control and implement corrective actions, including shut down of operations when emergency or unsafe conditions exist.
 - (II) Have a thorough knowledge of the licensee's management policies and administrative procedures.

- (III) Implement policies and procedures for:
 - I. Keeping an inventory record of radioactive material;
 - II. Using radioactive material safely and in accordance with the ALARA philosophy;

Rule .08(12)(a)6.(i)(III)III

- III. Taking emergency action if control of radioactive material is lost;
- IV. Performing periodic radiation surveys;
- V. Performing checks and calibrations of survey instruments and other safety equipment;
- VI. Disposing of radioactive material;
- VII. Training personnel who work in or frequent areas where radioactive material is used or stored; and
- VIII. Keeping a copy of all records and reports required by the Regulations, a copy of this Chapter, a copy of each licensing request, the license and its amendments, and the written policy and procedures required by the Regulations.

- (ii) The RSO's qualifications shall be submitted to the Department and shall include:
 - (I) Possession of a high school diploma or a certificate of high school equivalency based on the GED test;
 - (II) Completion of the training and testing requirements of the activities for which the license application is submitted; and
 - (III) Training and experience necessary to supervise the Radiation Safety aspects of the licensed activity.

- (b) An application for a specific license to decontaminate equipment, land, or facilities contaminated with NORM in excess of the levels set forth in (4),

(7)(c), or the Appendix of this Rule, as applicable, and to dispose of the resulting waste will be approved if:

1. The applicant satisfies the general requirements specified in (12)(a); and
2. The applicant has adequately addressed the following items in the application:

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- (i) Procedures and equipment for monitoring and protection of workers;
 - (ii) An evaluation of the radiation levels and concentrations of contamination expected during normal operations;
 - (iii) Operating and emergency procedures, including procedures for waste reduction and quality assurance of items released for unrestricted use; and
 - (iv) Method of disposing of the NORM removed from contaminated equipment, facilities, and/or land.
- (c) An application for a specific license to manufacture and/or distribute products or materials containing NORM to persons exempted from this Chapter pursuant to (4)(b) will be approved if:
1. The applicant satisfied the general requirements specified in (12)(a);
 2. The NORM is not contained in any food, beverage, cosmetic, drug, or other commodity designed for ingestion or inhalation by, or application to, a human being without approval by the U.S. Food and Drug Administration; and
 3. The applicant submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, and conditions of handling, storage, use, and disposal of the NORM material or product to demonstrate that the material or product will meet the safety criteria set forth in (13). The information shall include:
 - (i) A description of the material or product and its intended use or uses;

- (ii) The type, quantity, and concentration of NORM in each material or product;
- (iii) The chemical and physical form of the NORM in the material or product, and changes in chemical and physical form that may occur during the useful life of the material or product;
- (iv) An analysis of the solubility in water and body fluids of the NORM in the material or product;
- (v) The details of manufacture and design of the material or Rule

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product relating to containment and shielding of the NORM and other safety features under normal and severe conditions of handling, storage, use, reuse, and disposal of the material or product;

- (vi) The type and degree of access of human beings to the material or product during normal handling, use, and disposal;
- (vii) The total quantity of NORM expected to be distributed annually in the material or product;
- (viii) The expected useful life of the material or product;
- (ix) The proposed method of labeling or marking each unit of the material or product with identification of the manufacturer and/or initial transferor of the product and the radionuclide(s) and quantity of NORM in the material or product;
- (x) The procedures for prototype testing of the material or product to demonstrate the effectiveness of the containment, shielding, and other safety features under both normal and severe conditions of handling, storage, use, reuse, and disposal;
- (xi) The results of the prototype testing of the material or product, including any change in the form of the NORM contained in it, the extent to which the NORM may be released to the environment, any change in radiation levels, and any other

changes in safety features;

- (xii) The estimated external radiation doses and dose commitments relevant to the safety criteria in (13) and the basis for such estimates;
- (xiii) A determination that the probabilities with respect to doses referred to in (13) meet the safety criteria;
- (xiv) The quality control procedures to be followed in the production of production lots of the material or product, and the quality control standards the material or product will be required to meet; and
- (xv) Any additional information, including experimental studies and tests, required by the Department to facilitate a determination of the radiation safety of the material or product.

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- (d) Notwithstanding the provisions of (13)(b), the Department may deny an application for a specific license if the end uses of the product are frivolous or cannot be reasonably foreseen.

(13) Safety Criteria for Specific Licenses

An applicant for a specific license under (12)(c) shall demonstrate that the product is designed and will be manufactured so that:

- (a) In normal use, handling, storage, and disposal, the dose to any individual likely to be exposed to radiation from the material or product will not exceed the limits set forth in Rule .03 of this Chapter.
- (b) In normal use, disposal, handling, and storage, it is unlikely that the radon released from the material or product will result in an increase in the average radon concentration in air of more than 0.4 picocurie (.0148 Bq) per liter.
- (c) It is unlikely that there will be a significant reduction in the effectiveness of the containment, shielding, or other safety features of the material or product from wear and abuse likely to occur in normal handling and use of the material or product during its useful life.

(14) Issuance of Specific Licenses

- (a) Upon a determination that an application meets the requirements of the Act and Rules of the Department, the Department will issue a specific

license authorizing the proposed activity in such form and containing such conditions and limitations as it deems appropriate or necessary.

- (b) The Department may incorporate in any license at the time of issuance, or thereafter by amendment, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of NORM subject to this Rule as it deems appropriate or necessary in order to:
1. Minimize danger to public health and safety, to property, and to the environment;
 2. Require such reports, require the keeping of such records, and to provide for such inspections of activities under the license as may be appropriate or necessary; and
 3. Prevent loss or theft of NORM subject to this Rule.

Rule .08(15)

(15) Conditions of Specific Licenses Issued Under (12)

- (a) General Terms and Conditions
1. Each license issued pursuant to this Rule shall be subject to all the provisions of the Act, now or hereafter in effect, and to all Rules, Regulations, and Orders of the Director.
 2. No license issued or granted under this Rule and no right to possess or utilize NORM granted by any license issued pursuant to this Rule shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of any license to any person unless the Department shall, after securing full information, find that the transfer is in accordance with the provisions of the Act, and shall give its consent in writing.
 3. Each person licensed by the Department pursuant to this Rule shall confine use and possession of the NORM licensed to the locations and purposes authorized in the license.
 4. Each person licensed by the Department pursuant to this Rule is subject to the license provisions of (8) and (9).

5. Notification

(i) Each licensee shall notify the Department in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under the Chapters of Title # 11 (Bankruptcy) of the United States Code (11 U.S.C.) by or against:

(I) A licensee;

(II) An entity [as that term is defined in 11 U.S.C. 101 (14)] controlling a licensee or listing the license or licensee as property of the estate; or

(III) An affiliate [as that term is defined in 11 U.S.C. 101 (2)] of the licensee.

(ii) This notification must indicate:

(I) The bankruptcy court in which the petition for bankruptcy was filed; and

Rule .08(15)(a)5.(ii)(II)

(II) The date of the filing of the petition.

(b) Quality Control, Labeling, and Reports of Transfer. Each person listed under (12)(c) shall:

1. Carry out adequate control procedures in the manufacture of the material or product to assure that each production lot meets the quality control standards approved by the Department;

2. Label or mark each unit so that the manufacturer, processor, producer, or initial transferor of the material or product and the NORM in the material or product can be identified; and

3. Maintain records identifying, by name and address, each person to whom NORM is transferred for use under (4)(b) or the equivalent regulations of another Licensing State, and stating the kinds, quantities, and uses of the NORM transferred. An annual summary report stating the total quantity of each radionuclide transferred under the specific license shall be filed with the Department. Each report shall cover the year ending December 31, and shall be filed within 30 days thereafter. If no transfers of NORM have been made pursuant to (13)(c) during the reporting period, the report shall so indicate.

(16) Expiration and Termination of Specific Licenses

- (a) Except as provided in (17)(b) and (16)(d)6., each specific license shall expire at the end of the specified day in the month and year stated therein.
- (b) Each licensee shall notify the Department immediately, in writing, and request termination of the license when the licensee decides to terminate all activities involving NORM authorized under the specific license or when the licensee decides to terminate a licensed location. This notification and request for termination of the license must include the reports and information specified in (16)(d)4. The licensee is subject to the provisions of (16)(d) and (16)(e), as applicable.
- (c) No less than 30 days before the expiration date specified in a specific license, the licensee shall either:
 - 1. Submit an application for license renewal under (17), or
 - 2. Notify the Department in writing, under (16)(b), if the licensee decides to discontinue all activities involving NORM.
- (d) If the licensee terminates a licensed location, or if a licensee does not submit

Rule .08(16)(d)

an application for license renewal under (17), the licensee shall on or before the expiration date specified in the specific license:

- 1. Terminate use of NORM;
- 2. Remove NORM contamination to the extent practicable;
- 3. Properly dispose of the NORM; and
- 4. Submit a report of the disposal of NORM and radiation survey(s) to confirm the absence of NORM or to establish the levels of residual NORM contamination. The licensee shall, as appropriate:
 - (i) Report levels of radiation in units of microrads (μGy) per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces and report levels of radioactivity in units of disintegrations per minute (or microcuries or becquerels) per 100 square centimeters

removable and fixed on surfaces, microcuries (becquerels) per milliliter in water, and picocuries per gram (Bq/kg) in contaminated solids such as soils or concrete; and

- (ii) Specify the instrument(s) used and certify that each instrument is properly calibrated and tested.
5. If no radioactivity attributable to activities conducted under the license is detected, the licensee shall submit a certification that no detectable NORM contamination was found. If the Department determines that the information submitted under (16)(d)2. and (16)(d)4. is adequate and surveys confirm the findings, the Department will notify the licensee in writing that the license is terminated.
 6. If detectable levels of residual NORM attributable to activities conducted under the license are found, the specific license continues in effect beyond the expiration date, if necessary, with respect to possession of residual NORM until the Department notifies the licensee in writing that the license is terminated. During this time, the licensee is subject to the provisions of (16)(e). In addition to the information submitted under (16)(d)4., the licensee shall submit a plan, if appropriate, for decontaminating the location(s) and disposing of the residual NORM.
- (e) Each licensee who possesses residual NORM under (16)(d)6., following the expiration date specified in the specific license, shall:

Rule .08(16)(e)1.

1. Be limited to actions involving NORM related to preparing the location(s) for release for unrestricted use; and
2. Continue to control entry to restricted areas until the location(s) is (are) suitable for release for unrestricted use and the Department notifies the licensee in writing that the license is terminated.

(17) Renewal of Specific Licenses

- (a) Applications for renewal of specific licenses shall be filed in accordance with (11).
- (b) In any case in which a licensee, not less than 30 days prior to the expiration of an existing specific license, has filed an application in proper form for renewal or for a new specific license authorizing the same

activities, such existing license shall not expire until final action by the Department.

(18) Amendment of Specific Licenses at Request of Licensee

Applications for amendment of a license shall be filed in accordance with (11) and shall specify the respects in which the licensee desires the license to be amended and the grounds for such amendment.

(19) Department Action on Applications to Renew and Amend Specific Licenses

In considering an application by a licensee to renew or amend the specific license, the Department will apply the criteria set forth in (12).

(20) Reciprocal Recognition of Licenses

Subject to this Chapter, any person who holds a specific license from a Licensing State, and issued by the agency having jurisdiction where the licensee maintains an office for directing the licensed activity and at which radiation safety records are normally maintained, is hereby granted a general license to conduct the activities authorized in such licensing document within this State for a period not in excess of 180 days in any calendar year provided that:

- (a) The licensing document does not limit the activity authorized by such document to specified installations or locations;
- (b) The out-of-state licensee notifies the Department in writing at least 3 days prior to engaging in such activity. Such notification shall indicate the location, period, and type of proposed possession and use within the State, and shall be accompanied by a copy of the pertinent licensing document. If, for a specific case, the 3-day period would impose an undue hardship on

Rule .08(20)(b)

the out-of-state licensee, the licensee may, upon application to the Department, obtain permission to proceed sooner. The Department may waive the requirement for filing additional written notifications during the remainder of the calendar year following the receipt of the initial notification from a person engaging in activities under the general license provided in (20)(a);

- (c) The out-of-state licensee complies with all applicable Regulations of the Department and with all the terms and conditions of the licensing document, except any such terms and conditions which may be inconsistent with applicable Regulations of the Department;
- (d) The out-of-state licensee supplies such other information as the Department

may request; and

(e) The out-of-state licensee shall not transfer or dispose of NORM possessed or used under the general license provided in (20)(a) except by transfer to a person:

1. Specifically licensed by the Department or by another Licensing State to receive such NORM; or
2. Exempt from the requirements for a license for such NORM under (4).

(21) Financial Surety Arrangements for Specific Licenses

(a) Each licensee or applicant for a specific license under (12) shall post with the Department financial surety, or security, according to the requirements of Rule .02(8)(g), of this Chapter to ensure the protection of the public health and safety, property, and the environment in the event of abandonment, default, or other inability or unwillingness of the licensee to meet the requirements of the Act and this Chapter. Financial surety arrangements shall:

1. Consist of surety bonds, cash deposits, certificates of deposit, government securities, irrevocable letters or lines of credit, or any combination of these.
2. Be in an amount sufficient to meet the applicant's or licensee's obligations under the Act and this Chapter and shall be based upon Department-approved cost estimates.
3. Be established prior to issuance of the specific license or the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the facility.
4. Be continuous for the duration of the license and for a period coincident with the applicant/licensee's responsibility under the Act

Rule .08(21)(a)4.

and this Chapter.

5. Be available in Georgia subject to judicial process and execution in the event required for the purposes set forth.
6. Be established within 90 days of April 1, 1994, for licenses in effect on that date.

- (b) No later than 90 days after the licensee notifies the Department that decontamination and decommissioning have been completed, the Department shall determine if these have been conducted in accordance with this Chapter and the conditions of the specific license. If the Department finds that the requirements have been met, the Director of the Radioactive Materials Program shall direct the return or release of the licensee's security in full plus any accumulated interest. If the Department

(22) Modification and Revocation of Licenses

finds that the requirements have not been met, the Department will notify the licensee in writing of the steps necessary for compliance.

- (a) The terms and conditions of all licenses shall be subject to amendment, revision, or modification or the license may be suspended or revoked by reason of amendments to the Act, by reason of rules or Regulations promulgated by the Board, and Orders issued by the Director.
- (b) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any material false statement of fact required under provisions of the Act or this Chapter, or because of conditions revealed by such application or statement of fact or any report, record, or inspection or other means which would warrant the Department to refuse to grant a license on an original application, or for violation of, or failure to observe, any of the terms and conditions of the Act, of the license, or of any Rule, Regulation, or Order of the Director.
- (c) Except in cases of willfulness or those in which the public health, interest, or safety requires otherwise, no license shall be modified, suspended, or revoked unless, prior to the institution of proceedings therefor, facts or conduct which may warrant such action shall have been called to the attention of the licensee in writing and the licensee shall have been accorded an opportunity to demonstrate or achieve compliance with all lawful requirements.

Appendix

APPENDIX

ACCEPTABLE SURFACE CONTAMINATION LEVELS FOR NORM

<u>NUCLIDE</u> ^a	<u>AVERAGE</u> ^{bcf}	<u>MAXIMUM</u> ^{bdf}	<u>REMOVABLE</u> ^{bcef}
U-nat, U-235, and associated products (including Po-210), except Ra-226, Th-230, Ac-227, and Pa-231	5,000 dpm alpha/ 100 cm ²	15,000 dpm alpha/ 100 cm ²	1,000 dpm alpha/ 100 cm ²

Transuranics, Ra-226, Ra-228, Th-230, Th-228 Pa-231, Ac-227	100 dpm/100 cm ²	300 dpm/100 cm ²	20 dpm/100 cm ²
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Beta-/gamma-emitters (nuclides with decay modes other than alpha emission or spontaneous fission, including Pb-210), except others noted above.	5,000 dpm beta, gamma/100 cm ²	15,000 dpm beta, gamma/100 cm ²	1,000 dpm beta, gamma/100 cm ²
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- a Surfaces contaminated with alpha- and beta-emitting naturally-occurring radionuclides may be surveyed with a detector that responds to both types of radiation. The same method may be employed when evaluating wipe samples for removable contamination.
- b As used in this table, dpm (disintegrations per minute) means the rate of emission by naturally-occurring radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation using a ratemeter or scaler and detector appropriate for the type and energy of emissions being monitored. The detector shall be capable of responding to alpha, beta, and/or gamma radiation.
- c Measurements of average contamination level should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.
- d The maximum contamination level applies to an area of not more than 100 cm².
- e The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying

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moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

- f All surveys and efficiency determinations shall be made with the detector's active surface no greater than 1 centimeter from the surface being surveyed, wipe being analyzed, or source being used. A scaler must be used when evaluating wipe samples and count times must be sufficient to detect 10 percent of the applicable limit with 95 percent confidence that the activity would be detected.

- ⁹ Notwithstanding the levels in the table above, equipment containing NORM shall not exceed a maximum radiation exposure level of 50 microrentgens per hour, including the background radiation level at any accessible point.

391-3-17-.08(15) Conditions of Specific Licenses Issued Under (12)

(a) General Terms and Conditions

5. Notification

- (i) Each licensee shall notify the Department in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under the Chapters of Title # 11 (Bankruptcy) of the United States Code (11 U.S.C.) by or against:

391-3-17-.09 LICENSING AND RADIATION SAFETY REQUIREMENTS FOR IRRADIATORS.**(1) Purpose and scope**

- (a) This Rule, 391-3-17-.09, 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 Rule also contains radiation safety requirements for operating irradiators. The requirements of this Rule are in addition to other requirements of this Chapter. In particular, the provisions of Rules 391-3-17-.02, .03, and .07 apply to applications and licenses subject to this Rule. Nothing in this Rule 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.
- (b) The Regulations in this Rule 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 500 rads (5 Grays) 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 Rule.
- (c) This Rule does not apply to self-contained dry-source-storage irradiators (those in which both the source and the areas 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.
- (d) Any sealed source licensed pursuant to this Rule shall have a solubility equal to or less than the solubility of cobalt-60 metal in water.

(2) Definitions

- (a) "Annually" means once every 12 calendar months or no later than the last day of the same calendar month of the following year.
- (b) "Doubly 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.

Rule .09(2)(c)

- (c) "Irradiator" means a facility that uses radioactive sealed sources for the irradiation of objects or materials.
- (d) "Irradiator" operator" means an individual who has successfully completed the training and testing described in (5)(a) of this Rule and is authorized by the terms of the license to operate the irradiator without a supervisor present.
- (e) "Large irradiator" means an irradiator where radiation dose rates exceeding 500 rads (5 Grays) per hour exist at 1 meter from the sealed radioactive sources in air or in 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.
- (f) "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.
- (g) "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.
- (h) "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.
- (i) "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.
- (j) "Product conveyor system" means system for moving the product to be irradiated to, from, and within the area where irradiation takes place.
- (k) "Radiation room" means a shielded room in which irradiations take place. Underwater irradiators do not have radiation rooms.
- (l) "Radiation Safety Officer" means an individual with responsibility for the overall Radiation Safety Program at the facility.

Rule .09(2)(m)

- (m) "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.
- (n) "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.
- (o) "Solubility of one liquid or solid in another" means the mass of a substance contained in the solution which is in equilibrium with an excess of the substance.
- (p) "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.

(3) Specific Licensing Requirements

- (a) Application for a specific license.
 - 1. A person, as defined in Rule 391-3-17-.01 may file an application for a specific license authorizing the use of sealed sources in large irradiators in accordance with Rule .02 of this Chapter.
 - 2. A separate license is required for each large irradiator, radiation room, or under water irradiator.
- (b) Specific licenses for large irradiators. The Department 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 section.
 - 1. The applicant shall satisfy the general requirements specified in Rule 391-3-17-.02 and the requirements contained in this Rule.
 - 2. The applicant shall describe its training for irradiator operators that shall include, at a minimum, the following:
 - (i) A minimum of 40 hours of classroom training;

Rule .09(3)(b)2.(ii)

- (ii) A minimum of 160 hours of on-the-job training;
 - (iii) Safety reviews;
 - (iv) The means the applicant will use to test each operator's understanding of and ability to comply with the Department's Regulations and licensing requirements and the irradiator operating and emergency procedures; and
 - (v) Minimum training and experience of personnel who may provide training.
3. The applicant shall submit an outline or summary of the written operating and emergency procedures listed in this Rule that describes the radiation safety aspects of the procedures.
 4. The application shall describe the organizational structure for managing the irradiator, specifically the radiation safety responsibilities or authorities. In particular, the application must specify who, within the management structure, has the authority to stop unsafe operations. The applicant shall also describe the training and experience required for the position of Radiation Safety Officer.
 5. The application must include a description of the access control system required by (4)(b) of this Rule, the radiation monitors required by (4)(e) of this Rule, the method of detecting leaking sources required by (5)(e) of this Rule including the sensitivity of the method, and a diagram of the facility that shows the locations of all required interlocks and radiation monitors.
 6. The applicant shall provide assurance that any radioactive source not used in the irradiation process shall be removed from the irradiator pool and disposed of or returned to the manufacturer.
 7. 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 Department for approval. The procedures must include the following:
 - (i) Instruments to be used;

Rule .09(3)(b)7.(ii)

- (ii) Methods of performing the analysis; and
 - (iii) Pertinent experience of the individual who analyzes the samples.
8. 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 at his facility, the loading or unloading must be done by an organization specifically licensed by the Department, an Agreement State, or the U.S. Nuclear Regulatory Commission to load or unload irradiator sources.
9. The applicant shall perform the following operational tests to ensure proper functioning of all equipment and safety devices before the irradiator is loaded with sources:
- (i) Interlock and radiation safety systems;
 - (ii) Pool integrity and plumbing;
 - (iii) Source rack mechanical positioning system;
 - (iv) Source rack movement and position sensing systems;
 - (v) Source rack electrical control system;
 - (vi) Uninterruptable electrical power supply for radiation monitoring warning systems;
 - (vii) Fire protection system;
 - (viii) Emergency systems for returning a stuck source rack into the pool;
 - (ix) Systems used for transferring sources to and from transport vehicles; and
 - (x) Product conveyor system.

Rule .09(3)(b)10.

10. The applicant shall describe the operational inspection and maintenance program, including the frequency of the checks required by (5)(f) of this Rule.
 11. The roof plug opening or removable shielding providing access for the loading and removal of sources shall be large enough to accommodate the largest applicable transportation cask.
- (c) The applicant shall not begin construction of a new irradiator facility prior to the issuance of a license by the Department. 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 excavation, and other similar tasks. Any activities undertaken prior to the issuance of license with respect to the requirements of this Chapter shall be at the risk of the applicant and have no bearing on the issuance of a license in accordance with this Chapter.
- (d) Applications for exemptions.
1. The Department may, upon application of any interested person or upon its own initiative, grant any exemptions from the requirements in this Rule that it determines are authorized by law and will not endanger public health, safety, or property.
 2. Any application for a license or for an amendment of a license authorizing use of a teletherapy-type unit for irradiation of materials or objects may include proposed alternatives for the requirements of this Rule. The Department 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.
- (e) Request for written statements.
1. After the filing of the original application, the Department may request further information necessary to enable the Department to determine whether the application should be granted or denied.

Rule .09(3)(e)2.

2. Each license is issued with the condition that the licensee will, at any time before expiration of the license, upon the Department's

request, submit written statements or other sufficient information to enable the Department to determine whether the license should be modified, suspended, or revoked.

(4) Design and Performance Requirements for Irradiators

(a) Performance criteria for sealed sources.

1. Requirements. Sealed sources installed after January 1, 1994:
 - (i) Must have a certificate of registration issued under 10 CFR 32.210;
 - (ii) Must be doubly encapsulated;
 - (iii) 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;
 - (iv) 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
 - (v) In prototype testing of the sealed source, must have been leak tested and found leak-free after each of the following tests:
2. Temperature. The test source must be held at -40°C for 20 minutes, 600°C for 1 hour, and then be subjected to a thermal shock test with a temperature drop from 600°C to 20°C within 15 seconds.
3. 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.
4. Impact. A 2-kilogram steel weight, 2.5 centimeters in diameter, must be dropped from height of 1 meter onto the test source.

Rule .09(4)(a)5.

5. 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.

6. 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.
7. 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.

(b) Access control.

1. 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 are reliable 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.
2. 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 full 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 in how to respond to the alarm and prepared to promptly render or summon assistance.

Rule .09(4)(b)3.

3. 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 (4)(b)2. of this Rule. The monitor may be located in the entrance (normally referred to as the maze) but not in the direct radiation beam.

4. 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.
5. 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.
6. 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.
7. 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 (or danger) radioactive material." Panoramic irradiators must also have a sign stating "Very High radiation area," but the sign may be removed, covered, or otherwise made inoperative when the sources are fully shielded.
8. 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 the shield is not placed properly or by an operating procedure requiring inspection including documentation of inspection, of shielding before operation.

Rule .09(4)(b)9.

9. Panoramic irradiators shall not operate if the requirements in (4)(b) of this Rule are not met.

10. 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.
- (c) Shielding.
1. The radiation dose rate in areas that are normally occupied during operation of a panoramic irradiator may not exceed 2 millirems (0.02 millisievert) 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 an area not to exceed 100 square centimeters having no linear dimension greater than 20 cm. Areas where the radiation dose rate exceeds 2 millirems (0.02 millisievert) per hour must be locked, roped off, or posted and not entered without written approval or in the physical presence of the Radiation Safety Officer.
 2. The radiation dose at 30 centimeters over the edge of the pool of a pool irradiator may not exceed 2 millirems (0.02 millisievert) per hour when the sources are in the fully shielded position.
 3. 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 2 millirems (0.02 millisievert) per hour and at 5 centimeters from the shield must not exceed 20 millirems (0.02 millisievert) per hour.
- (d) Fire protection.
1. The radiation room at a panoramic irradiator must have heat and smoke detectors. The detectors must activate an audible alarm.

Rule .09(4)(d)1.

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.

2. 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.

(e) Radiation monitors.

1. 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 paragraph.
2. For pool irradiators, the licensee shall provide a means to detect radioactive contamination in pool water each day the irradiator operates. The means may be either an on-line radiation monitor on the pool water purification system or an analysis of pool water. If the licensee uses an on-line radiation monitor, the detection of above normal background radiation levels must activate the alarm. The alarm set-point must be set as low as practical, but high enough to avoid false alarms. If a false alarm due to background radiation occurs, the alarm set-point must be increased. Activation of the alarm must automatically cause the water purification system to shut off. However, the licensee may reset the alarm set-point to a higher level if necessary to operate the pool purification system to clean up contamination in the pool as specifically provided in written emergency procedures.
3. 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.

Rule .09(4)(e)3.

The alarm must be capable of alerting an individual who is prepared to respond promptly.

(f) Control of source movement.

1. 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.
2. 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.
3. The control console of a panoramic irradiator must have an emergency control that promptly returns the sources to the shielded position.
4. Each control for a panoramic irradiator must be clearly marked as to its function.

(g) Irradiator pools.

1. For licenses initially issued after January 1, 1994, irradiator pools must either:
 - (i) Have a water-tight stainless steel liner or a liner metallurgically compatible with other components in the pool; or
 - (ii) 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.

Rule .09(4)(g)2.

2. For licenses initially issued after January 1, 1994, 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.
 3. A means must be provided to replenish water losses from the pool.
 4. A visible indicator must be provided in a clearly visible location to indicate the pool water level is below the normal low water level or above the normal high water level.
 5. 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 micromhos per centimeter or less and with a clarity so that the sources can be seen clearly.
 6. 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.
 7. 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 2 millirems (0.02 millisievert) per hour.
- (h) 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.
- (i) Power failures.
1. If electrical power at a panoramic irradiator is lost for longer than 10 seconds, the sources must automatically return to the shielded

position.

Rule .09(4)(i)2.

2. The lock on the door of the radiation room of a panoramic irradiator shall not be deactivated by a power failure.
3. 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.

(j) Design requirements.

Irradiators whose construction begins after January 1, 1994, must meet the design requirements of this section.

1. **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 (4)(c) of this Rule. If the irradiator will use more than 5 million Curies (1.85×10^{17} becquerels) of activity, the licensee shall evaluate the effects of heating of the shielding walls by the irradiator sources.
2. **Foundations.** For panoramic irradiators, the licensee shall design the foundation, with consideration given to soil characteristics, to ensure that it is adequate to support the weight of the facility shield walls.
3. **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 (4)(c)2. of this Rule, and that metal components are metallurgically compatible with other components in the pool.
4. **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 (4)(g) of this Rule. The system must be designed so that water leaking from the system does not drain to unrestricted areas without being monitored.

5. Radiation monitors. For all irradiators, the licensee shall evaluate the location and sensitivity of the monitor to detect sources

Rule .09(4)(j)5.

carried by the product conveyor system as required by (4)(e)1. of this Rule. 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 (5)(e)2. of this Rule, 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.

6. 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.
7. 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 (4)(b) of this Rule.
8. 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.
9. 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.

10. 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

Rule .09(4)(j)10.

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.

11. 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.
 12. Product carriers. For irradiators utilizing product carriers, the basic design of the carrier shall prevent the carrier from opening or coming into contact with the source rack or protective barrier. The basic design shall be submitted to the Department for approval.
 13. Floor penetrations. All floor penetrations, including expansion joints, floor joints, and drains, shall not allow the uncontrolled release of water, which has not been analyzed for its radioactive content, from the radiation room.
 14. The lift mechanisms for the source rack and source transport cask must be designed for working and breaking strength to safely lift a source transport cask and sources into and out of the irradiator pool.
 15. Ventilation. All radiation rooms in a panoramic irradiator shall be maintained under negative pressure. Any exhaust from radiation rooms shall be through a high-efficiency nuclear air cleaning system. This system shall consist of standard roughing and absolute (HEPA) filters that have been tested in line in accordance with and has met the requirements of ANSI N510.
- (k) Construction monitoring and acceptance testing.

The requirements of (4)(k) of this Rule must be met for irradiators whose construction begins after January 1, 1994. Additionally, the requirements for shielding, (4)(k)1., foundations, (4)(k)2., pool integrity, (4)(k)3., and wiring, (4)(k)11. of this Rule must be certified by a registered professional engineer. The requirements must be met prior to loading sources.

Rule .09(4)(k)1.

1. Shielding. For panoramic irradiators, the licensee shall monitor the construction of the shielding to verify that its construction meets design specifications and generally accepted building code requirements for reinforced concrete.
2. Foundations. For panoramic irradiators, the licensee shall monitor the construction of the foundations to verify that their construction meets design specifications.
3. 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 (4)(f)2. of this Rule.
4. 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.
5. 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 (4)(e)1. of this Rule. For pool irradiators, the licensee shall verify the proper operation of the radiation monitors and the related alarm if used to meet (4)(e)2. of this Rule. For underwater irradiators, the licensee shall verify the proper operation of the over-the-pool monitor, alarms, and interlocks required by (4)(e)2. of this Rule.
6. 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 (4)(h) of this Rule 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.
7. Access control. For panoramic irradiators, the licensee shall test the completed access control system to assure that it functions

Rule .09(4)(k)7.

as designed and that all alarms, controls, and interlocks work properly.

8. 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 system.
9. Source return. For panoramic irradiators, the licensee shall demonstrate that the source racks can be returned to their fully shielded positions without offsite power.
10. 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.
11. Wiring. For panoramic irradiators, the licensee shall verify that the electrical wiring and electrical equipment that were installed meet the design specifications.

(5) Operation of Irradiators

(a) Training.

1. Before an individual is permitted to operate an irradiator without a supervisor present, the individual must be instructed in the following:
 - (i) The fundamentals of radiation protection applied to irradiators (including the differences between external radiation and radioactive contamination, units of radiation dose, Department's dose limits, why large radiation doses must be avoided, how shielding and access controls prevent large doses, how an irradiator is designed to prevent contamination, the proper use of survey meters and personnel dosimeters, other radiation safety features of an

Rule .09(5)(a)1.(i)

irradiator, and the basic function of the irradiator);

- (ii) The requirements of this Rule and Rule 391-3-17-.07 that are applicable to the irradiator;
 - (iii) The operation of the irradiator;
 - (iv) Those operating and emergency procedures listed in (5)(b) of this Rule that the individual is responsible for performing; and
 - (v) Case histories of accidents or problems involving irradiators.
2. 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 individual is responsible for performing and other operations necessary to safely operate the irradiator without supervision.
3. 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.
4. 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:
- (i) Changes in operating and emergency procedures since the last review, if any;
 - (ii) Changes in Regulations and license conditions since the last review, if any;
 - (iii) Reports on recent accidents, mistakes, or problems that have occurred at irradiators, if any;

Rule .09(5)(a)4.(iv)

- (iv) Relevant results of inspections of operator safety performance;
 - (v) Relevant results of the facility's inspection and maintenance checks; and
 - (vi) A drill to practice an emergency or abnormal event procedure.
5. The licensee shall evaluate the safety performance of each irradiator operator at least annually to ensure that the 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.
6. Individuals who 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 (5)8. of this Rule that they are expected to perform or comply with, and their proper response to alarms required in this Rule. Tests may be oral.
7. Individuals who must be prepared to respond to alarms required by (4)(b)2., (4)(b)10., (4)(d)1., (4)(e)1., and (5)(e)2. of this Rule shall be trained and tested on how to respond. Each individual shall be retested at least once a year. Tests may be oral.
- (b) Operating and emergency procedures.
1. The licensee shall have and follow written operating procedures for the following:
- (i) Operation of the irradiator, including entering and leaving the radiation room;
 - (ii) Use of personnel dosimeters;
 - (iii) Surveying the shielding of panoramic irradiators;

Rule .09(5)(b)1.(iv)

- (iv) Monitoring pool water for contamination while the water is in the pool and before release of pool water to unrestricted areas;
- (v) Leak testing of sources;
- (vi) Inspection and maintenance checks required by (5)(f) of this Rule;
- (vii) Loading, unloading, and repositioning sources, if the operations will be performed by the licensee; and
- (viii) Inspection of movable shielding required by (4)(b)8. of this Rule, if applicable.

2. The licensee shall have and follow emergency or abnormal event procedures, appropriate for the irradiator type, for the following:

- (i) Sources stuck in the unshielded position;
- (ii) Personnel overexposures;
- (iii) A radiation alarm from the product exit portal monitor or pool monitor;
- (iv) Detection of leaking sources, pool contamination, or alarm caused by contamination of pool water;
- (v) A low or high water level indicator, an abnormal water loss, or leakage from the source storage pool;
- (vi) A prolonged loss of electrical power;
- (vii) A fire alarm or explosion in the radiation room;
- (viii) An alarm indicating unauthorized entry into the radiation room, area around the pool, or another alarm area;
- (ix) Natural phenomena, including an earthquake, tornado, flooding, or other phenomena as appropriate for the geographical location of the facility; and

Rule .09(5)(b)2.(x)

- (x) The jamming of the automatic conveyor system.
3. The licensee may revise operating and emergency procedures without Department approval only if all of the following conditions are met:
- (i) The revisions do not reduce the safety of the facility,
 - (ii) The revisions are consistent with the outline or summary of procedures submitted with the license application,
 - (iii) The revisions have been reviewed and approved by the Radiation Safety Officer, and
 - (iv) The users or operators are instructed and tested on the revised procedures before they are put into use.
- (c) Personnel monitoring.
- 1. Irradiator operators shall wear ~~either a film badge or a thermoluminescent dosimeter (TLD)~~ a personnel monitoring device while operating a panoramic irradiator or while in the area around the pool of an underwater irradiator. The ~~film badge or TLD~~ personnel monitoring device processor must be accredited by the National Voluntary Laboratory Accreditation Program for high energy photons in the normal and accident dose ranges. Each ~~film badge or TLD~~ personnel monitoring device must be assigned to and worn by only one individual. ~~Film badges must be processed at least monthly, and TLDs~~ Personnel monitoring devices must be processed at least quarterly.
 - 2. 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 paragraph, 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.
- (d) Radiation surveys.

Rule .09(5)(d)1.

1. 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 operations after addition of new sources or any modification to the radiation room shielding or structure that might increase dose rates.
 2. If the radiation levels specified in (4)(c) of this Rule are exceeded, the facility must be modified to comply with the requirements in (4)(c) of this Rule.
 3. Portable radiation survey meters must be calibrated at least annually to an accuracy of ± 20 percent of 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.
 4. 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 10 CFR Part 20, Table 2, Column 2 or Table 3 of Appendix B, "Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage".
 5. Before releasing resins for unrestricted use, they must be monitored before release in an area with a background level of less than 0.5 millirem (0.005 millisievert) 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 millirem (0.005 millisievert) per hour.
- (e) Detection of leaking sources.
1. Each dry-source-storage sealed source must be tested for leakage

at intervals not to exceed 6 months using a leak test kit or

Rule .09(5)(e)1.

method approved by the Department, an Agreement State, or the U.S. Nuclear Regulatory Commission. 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 0.005 microcurie (200 becquerels) of radioactive material and must be performed by a person approved by the Department, an Agreement State, or the U.S. Nuclear Regulatory Commission to perform the test.

2. 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 a 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.
3. 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 the Department, Agreement State, or U.S. Nuclear Regulatory Commission 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 products are found, the licensee shall arrange to have them decontaminated or

Rule .09(5)(e)3.

disposed of by a Department, U.S. Nuclear Regulatory Commission, or 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 Table 2, Column 2, Appendix B to 20.1001 to 20.2401 of 10 CFR 20.

- (f) Inspection and maintenance.
1. 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:
 - (i) Operability of each aspect of the access control system required by (4)(b) of this Rule.
 - (ii) Functioning of the source position indicator required by (4)(f) of this Rule.
 - (iii) Operability of the radiation monitor for radioactive contamination in pool water required by (5)(e)2. of this Rule using a radiation check source, if applicable.
 - (iv) Operability of the over-the-pool radiation monitor at underwater irradiators as required by (4)(e)3. of this Rule.
 - (v) Operability of the product exit monitor required by (4)(e)1. of this Rule.
 - (vi) Operability of the emergency source return control required by (4)(f)3. of this Rule.
 - (vii) Leak-tightness of systems through which pool water circulates (visual inspection).
 - (viii) Operability of the heat and smoke detectors and extinguisher system required by (4)(d) of this Rule (but without turning extinguishers on).
 - (ix) Operability of the means of pool water replenishment required by (4)(g)3. of this Rule.

Rule .09(5)(f)1.(x)

- (x) Operability of the indicators of high and low pool water levels required by (4)(g)4. of this Rule.
 - (xi) Operability of the intrusion alarm required by (4)(b)10. of this Rule, if applicable.
 - (xii) Functioning and wear of the system, mechanism, and cables used to raise and lower sources.
 - (xiii) Condition of the barrier to prevent products from hitting the sources or source mechanism as required by (4)(h) of this Rule.
 - (xiv) Amount of water added to the pool to determine if the pool is leaking.
 - (xv) Electrical wiring on required safety systems for radiation damage.
 - (xvi) Pool water conductivity measurements and analysis as required by (5)(g)2. of this Rule.
2. Malfunctions and defects found during inspection and maintenance checks must be repaired without undue delay.
- (g) Pool water purity.
- 1. The pool water purification system must be run sufficiently to maintain the conductivity of the pool water below 20 micromhos per centimeter under normal circumstances. If pool water conductivity rises above 20 micromhos per centimeter, the licensee shall take prompt actions to lower the pool water conductivity, and shall take corrective actions to prevent future recurrences.
 - 2. The licensee shall measure the pool water conductivity frequently enough, but not less than weekly, to assure that the conductivity remains below 20 micromhos per centimeter. Conductivity meters must be calibrated at least annually.
- (h) Attendance during operation.

Rule .09(5)(h)1.

1. 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:
 - (i) Whenever the irradiator is operated using an automatic product conveyor system; and
 - (ii) Whenever the product is move into or out of the radiation room when the irradiator is operated in a batch mode.
2. 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 (5)(a)7. of this Rule must be onsite.
3. 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 (5)(a)6. and 7. of this Rule. Static irradiations may be performed without a person present at the facility.
4. Irradiator operators shall not be on duty more than 12 hours in any 24 hour period without at least 8 hours uninterrupted rest, unless an emergency exists and prior authorization has been given by the Department.
 - (i) Entering and leaving the radiation room.
 1. 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 while entering the radiation room. The survey meter must be of a type that does not saturate and read zero at high radiation dose rates.

Rule .09(5)(i)2.

2. Before exiting from and locking the door to the radiation room of a panoramic irradiator prior to a planned irradiation, the irradiator operator shall:
 - (i) Visually inspect the entire radiation room to verify that no one else is in it; and
 - (ii) 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.
3. 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 (4)(e)3. of this Rule is operating with backup power.

(j) Irradiation of explosive or flammable materials.

1. Irradiation of explosive material is prohibited unless the licensee has received prior written authorization from the Department. 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.
2. 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 Department. 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.

(6) Records.

(a) Records and retention periods.

The licensee shall maintain the following records at the irradiator for the periods specified:

Rule .09(6)(a)1.

1. 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 Department terminates the license for documents not superseded.
2. Records of each individual's training, tests, and safety reviews provided to meet the requirements of (5)(a)1., 2., 3., 4., 5., and 7. of this Rule for 3 years after the evaluation.
3. Records of the annual evaluations of the safety performance of irradiator operators required by (5)(a)5. of this Rule for 3 years after the evaluation.
4. A copy of the current operating and emergency procedures required by (5)(b) of this Rule until superseded or the Department terminates the license. Records of the Radiation Safety Officer's review and approval of changes in procedures as required by (5)(b)3.iii of this Rule are to be retained for 3 years from the date of the change.
5. Personnel monitoring results required by (5)(c) of this Rule shall be retained until the Department terminates each pertinent license requiring the record. Upon termination of the license, the licensee shall permanently store records on Department Form, "Occupational Radiation Exposure History", or equivalent, or shall make provisions with the Department for transfer to the Department.
6. Records of radiation surveys required by (5)(d) of this Rule for 3 years from the date of the survey.
7. Records of radiation survey meter calibrations required by (5)(d) of this Rule and pool water conductivity meter calibrations required by (5)(g)2. of this Rule until 3 years from the date of calibration.
8. Records of the results of leak tests required by (5)(e)1. of this Rule and the results of contamination checks required by (5)(e)2. of this Rule for 3 years from the date of each test.
9. Records of inspection and maintenance checks required by (5)(f) of this Rule for 3 years.

Rule .09(6)(a)10.

10. 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.
11. Records of the receipt, transfer, and disposal of all licensed sealed sources for 3 years after the transfer or disposal of the sealed source.
12. Records of the design checks required by (4)(j) of this Rule and the construction control checks as required by (4)(k) of this Rule until the license is terminated. The records must be signed and dated. The title or qualification of the person signing must be included.
13. Records related to decommissioning of the irradiator as required by Rule 391-3-17-.02(8)(g)7.

(b) Reports.

1. In addition to the reporting requirements in other Rules of this Chapter, the licensee shall report the following events if not reported under other Rules of this Chapter:
 - (i) Source stuck in an unshielded position.
 - (ii) Any fire or explosion in a radiation room.
 - (iii) Damage to the source racks.
 - (iv) Failure of the cable or drive mechanism used to move the source racks.
 - (v) Inoperability of the access control system.
 - (vi) Detection of a radiation source by the product exit monitor.
 - (vii) Detection of radioactive contamination attributable to licensed radioactive material.
 - (viii) Structural damage to the pool liner or walls.

Rule .09(6)(b)1.(ix)

- (ix) Abnormal water loss or leakage from the source storage pool.
 - (x) Pool water conductivity exceeding 100 micromhos (100 μ S) per centimeter.
2. The report must include a telephone report within 24 hours and a written report within 30 days as described in Rule 391-3-17-.03(14)(b).

391-3-17-10 ADMINISTRATION. AMENDED.

- (1) Scope. The provisions of this Rule, 391-3-17-10, shall apply to the administrative procedures required by this Chapter.
- (2) Administration.
 - (a) **Administrative Examination of Applications.** Applications for the issuance of a license, amendment of a license at the request of the holder, and renewal of a license will be given a docket or other identifying number for administrative examination. The applicant may be required to submit additional information and may be requested to confer informally regarding the application. The Department will give to others such notice of the filing of applications as is required under the applicable provisions of this Chapter and such additional notices as it deems appropriate.
 - (b) **Effect of Timely Renewal Application.** In the case of an application for renewal, if the licensee has made application for the renewal of an existing license at least 30 days prior to its expiration date, the license shall not be deemed to have expired until such application shall have been determined.
 - (c) **Filing of Papers.** Unless otherwise specified, papers required to be filed with the Department shall be filed with the Georgia Department of Natural Resources, 205 Butler Street, Atlanta, Georgia, 30334. Papers required to be filed with the Department shall be deemed filed upon actual receipt with the Department at the location specified. Unless otherwise specified, the filing, when by mail or telegram, shall upon actual receipt be deemed complete as of the date of deposit in the mail or with the telegraph company. Papers may be filed at the Department's offices in Atlanta, Georgia.
 - (d) **Payment of Fees.** All licensees shall remit annual, licensing and inspection fees, in accordance with the Board of Natural Resources approved fee schedule. Licensees shall be invoiced for annual fees and inspection fees. Such fees shall be due and payable thirty (30) days after the invoice date. Fees for applications for licenses, amendments and renewal of licenses shall accompany the request. Licensees with fees which are delinquent shall not have any request for amendment or renewal of their licenses, except in the interest of public health and safety, honored by the Department until such fees are paid in full or a payment plan has been accepted by the Department.

Rule .10(3)

(3) Penalties.

(a) Any person who engages in any of the following conduct shall be guilty of a misdemeanor as found in O.C.G.A. Section 31-13-13:

1. Hindering, obstructing, or otherwise interfering with any representative of the Department in the discharge of his official duties in making inspections or impounding radioactive materials as provided in Code Section 31-13-5 and 31-13-11 respectively; or
2. Violating the provisions of Code Section 31-13-7 (permits for disposal of radioactive waste; bonding of permittees), or any Rule or Regulation promulgated thereunder; or
3. Violating the provisions of Code Section 31-13-12 (Prohibited Uses of Sources of Radiation).

(b) Any person who submits any false statements or writings, concealment of facts, and fraudulent documents in matters within jurisdiction of the department shall be guilty of a felony as found O.C.G. A. Section 16-10-20:

1. A person who knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact; makes a false, fictitious, or fraudulent statement or representation; or makes or uses any false writing or document, knowing the same to contain any false, fictitious, or fraudulent statement or entry, in any matter within the jurisdiction of the department shall, upon conviction thereof, be punished by a fine of not more than \$1,000.00 or by imprisonment for not less than one nor more than five years, or both.

(b)(c) Any person who:

1. Violates any licensing provision of this 31-13-1, et. seq., or any Rule, Regulation, or Order issued under 31-13-1, et. seq., or any term, condition, or limitation of any license issued under this Chapter; or
2. Commits any violation for which a license may be revoked under rules or regulations issued pursuant to this 31-13-1, et. seq., may be subject to a civil penalty, to be imposed by the Department, not to exceed \$10,000.00. If any violation is a continuing one, each day

of such violation shall constitute a separate violation for the purpose of
Rule .10(3)(c)2.

computing the applicable civil penalty.

3. If a violation is found to exist during an inspection or visit and is then found to exist on a subsequent inspection or visit, there shall arise a rebuttable presumption that the violation continued throughout the period of time between the initial inspection or visit and the subsequent inspection or visit.

(e)(d) Whenever the Department proposes to subject a person to the imposition of a civil penalty, it shall notify such person in writing:

1. Setting forth the date, facts, and nature of each act or omission with which the person is charged;
2. Specifically identifying the particular provision or provisions of the Code section, Rule, Regulation, Order, or license condition involved in the violation; and
3. Advising of each penalty which the Department proposes to impose and its amount.

(d)(e) Such written notice shall be sent by registered or certified mail by the Department to the last known address of such person. The person so notified shall be granted an opportunity to show in writing, within ten days from receipt of such notice, why such penalty should not be imposed. The notice shall also advise such person that upon failure to pay the civil penalty subsequently determined by the Department, if any, the penalty may be collected by civil action.

(e)(f) Upon receipt of a written response from the person so notified, alleging that a penalty should not be imposed, the Department shall consider the response and make a final decision on the appropriateness and amount of the penalty. The Department may, at its discretion, conduct an onsite inspection in order to make a final decision. In making this decision, the Department may, as deemed appropriate by the Department, consider such factors as: errors concerning the amount or nature of the penalty, corrective action taken by the licensee, and approved disposal of radioactive material by the licensee.

(f)(g) The Department shall inform the licensee of its final decision by registered

or certified mail to the last known address of the licensee. Within 10 days
Rule .10(3)(g)

of receipt of the Department's final determination concerning the civil penalty, the licensee may request an administrative hearing pursuant to the Georgia Administrative Procedure Act, O.C.G.A. 50-13-1, et. seq.

Authority Ga. L. 1964, pp. 499, 507, 566-575, as amended (Georgia Radiation Control Act).

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
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**New Dosimetry Technology – Parts 34, 36, 39 (65 FR 63749, October 24, 2000; 66 FR 1573, January 9, 2001)
RATS ID 2000-2 Effective January 8, 2001**

34.47	Personnel Monitoring	Part E (not yet included)	C	Amended to delete the limitation to the use of film badges and TLDs and to allow the use of any personnel dosimeter that requires processing to determine the radiation dose, provided that the processor of the dosimeter holds appropriate NVLAP accreditation.	Included in revisions for 2002 (391-3-17-.04(19)(a))
34.83 Paragraphs © and (d)	Records of Personnel Monitoring Procedures	Part E (not yet included)	C	The existing requirement to retain exposure records of lost or damaged film badges or TLDs until license termination is modified to use conforming terminology of "personnel dosimeter" in place of "film badges or TLDs."	Included in revisions for 2002 (391-3-17-.04(33))
36.55	Personnel Monitoring	Part Q (not yet included)	D	Amended to allow irradiator operators to wear any personnel dosimeter requiring processing to determine radiation dose, provided that the dosimeter is processed and evaluated by an accredited NVLAP processor.	Included in revisions for 2002 (391-3-17-.09(5)(c))
36.81	Records and Retention Periods	Part Q (not yet included)	D	No modifications necessary.	391-3-17-.09(6)(a)5.
39.65	Personnel Monitoring	Part W (not yet included)	C Paragraph (a) D Paragraph (c)	Revised to remove the limitation to the use of film badges and TLDs, and to permit the use of a personnel dosimeter that is processed by an accredited NVLAP processor. The frequency of processing dosimeters specified and the record retention requirement are revised to incorporate conforming language.	N/A no well logging licensees

**Energy Compensation Sources for Well Logging and Other Regulatory Clarifications – Part 39 (65 FR 20337; April 17, 2000)
RATS ID 2000-1 Effective May 17, 2000**

39.2	Definitions	Part W (not yet included)	B	Two new definitions are added – "Energy Compensation Source (ECS)" and "Tritium neutron generator target source."	N/A no well logging licensees
39.15(a)(5)(ii)	Agreement with well owner or operator	Part W (not yet included)	B	Revised to allow a more performance-based approach to prevent inadvertent intrusion on an abandoned source.	N/A no well logging licensees

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
39.15(a)(5)(iii)	Agreement with well owner or operator	Part W (not yet included)	B	Revised to meet NRC's metrification policy.	N/A no well logging licensees
39.35(b)	Leak testing of sealed sources (b) Method of testing	Part W (not yet included)	B	Revised to meet NRC's metrification policy	N/A no well logging licensees
39.35(c)(1)	Leak testing of sealed sources (c) Test frequency	Part W (not yet included)	B	Essentially repeats the existing paragraph on leak testing frequency, but notes that ECSs are not included in this paragraph.	N/A no well logging licensees
39.35(c)(2)	Leak testing of sealed sources (c) Test frequency	Part W (not yet included)	B	Allows a three-year leak testing interval for ECSs.	N/A no well logging licensees
39.35(d)	Leak testing of sealed sources (d) Removal of leaking source from service	Part W (not yet included)	B	Revised to meet NRC's metrification policy.	N/A no well logging licensees
39.35(c)(1)	Leak testing of sealed sources	Part W (not yet included)	B	An editorial change to indicate that hydrogen-3 and tritium are the same.	N/A no well logging licensees
39.35(c)(4) and (5)	Leak testing of sealed sources	Part W (not yet included)	B	Revised to meet NRC's metrification policy.	N/A no well logging licensees
39.41(a)	Design and performance criteria for sources	Part W (not yet included)	B	A new paragraph that describes the applicable requirements for a sealed source which includes requirements from the existing §39.41(a)(1) and (2).	N/A no well logging licensees
39.41(b)	Design and performance criteria for sources	Part W (not yet included)	B	A new paragraph to allow pre-1989 sources to meet USASI standards.	N/A no well logging licensees
39.41(c)	Design and performance criteria for sources	Part W (not yet included)	B	A new paragraph providing the use of current ANSI standards.	N/A no well logging licensees
39.41(d)	Design and performance criteria for sources	Part W (not yet included)	B	Replaces the existing §39.41(a)(3).	N/A no well logging licensees

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
39.41(d)(1)(v)	Design and performance criteria for sources	Part W (not yet included)	B	Revised to meet the NRC's metrification policy (the existing §39.41(a)(3)).	N/A no well logging licensees
39.41(e)	Design and performance criteria for sources	Part W (not yet included)	B	Replaces the existing §39.41(b) and edited to be consistent with the above changes.	N/A no well logging licensees
39.41(f)	Design and performance criteria for sources	Part W (not yet included)	B	A new paragraph clarifying that this section does not apply to ECSs.	N/A no well logging licensees
39.49	Uranium sinker bars	Part W (not yet included)	C	Revised to eliminate an obsolete date.	N/A no well logging licensees
39.53	Energy compensation source	Part W (not yet included)	C	A new section providing requirements for ECSs.	N/A no well logging licensees
39.55	Tritium neutron generator source	Part W (not yet included)	C	A new section providing requirements for tritium neutron generator target sources.	N/A no well logging licensees
39.77(c)(1)(i) and (ii)	Notification of incidents and lost sources; abandonment procedures for irretrievable source	Part W (not yet included)	C	Revised to allow an option to immediately abandon a well without receiving prior NRC approval when the licensee believes there is an immediate threat to public health and safety.	Included in revisions for 2002 (391-3-17-.03(15)(h)2.(iii))
39.77(d)(9)	Notification of incidents and lost sources; abandonment procedures for irretrievable source	Part W (not yet included)	C	A new paragraph that requires the licensee to justify in writing why it was necessary to immediately abandon a well without prior NRC approval.	Included in revisions for 2002 (391-3-17-.03(15)(h)3.(ix), 3.(x), and 3.(xi))

Respiratory Protection and Controls to Restrict Internal Exposures (64 FR 54543; October 7, 1999; 64 FR 55524, October 13, 1999)
RATS ID 1999-3 Effective February 2, 2000

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.1003	Definitions	Part D (not yet included)	B	The following definitions are added to clarify the new regulations at §§ 20.1701 through 20.1705: Air purifying respirator, Atmosphere-supplying respirator, Assigned Protection Factor (APF), Demand respirator, Disposable respirator, Fit factor, Fit test, Filtering facepiece (dust mask), Helmet, Hood, Loose-fitting facepiece, Negative pressure respirator, Positive pressure respirator, Powered air-purifying respirator, Pressure demand respirator, Qualitative fit test, Quantitative fit test, Self-contained breathing apparatus, Supplied-air respirator, Tight-fitting facepiece, and User seal check (fit check). Because of their precise operational meanings, they should be adopted essentially identical to help insure effective communication and to promote a common understanding for licensees who operate in multiple jurisdictions.	Included in revisions for 2002 (391-3-17-03(2)(a), (b), (c), (o), (r), (x), (y), (z), (bb), (dd), (gg), (hh), (jj), (mm), (nn), (oo), (pp), (uu), (aaa), (bbb), & (ddd).
20.1701	Use of process or other engineering controls	Part D (not yet included)	H & S	The word "decontamination" is added to the list of examples of process or engineering controls that licensees should consider for controlling the concentration of radioactive material in air.	Included in revisions for 2002 (391-3-17-03(10)(a)
20.1702	Use of other controls	Part D (not yet included)	H & S	This section is revised to clarify that if a licensee performs an ALARA analysis to determine whether or not respirators should be used, the licensee may consider safety factors other than radiological.	Included in revisions for 2002 (391-3-17-03(10)(c)
20.1703 (except 20.1703(c)(4))	Use of individual respiratory protection equipment	Part D (not yet included)	H & S D	This section defines the minimum respiratory protection program expected of any licensee who assigns or permits the use of respirators to limit intake. The written procedures addressed in 20.1703(c)(4) are not required for compatibility.	Included in revisions for 2002 (391-3-17-03(10)(d)
20.1704	Further restrictions on the use of respiratory protection equipment	Part D (not yet included)	D	Section 20.1704(a) is revised to clarify that the Commission will use ALARA considerations in any additional restrictions imposed by the Commission on the use of respiratory protection equipment for the purpose limiting exposure of individuals to airborne radioactive material.	Included in revisions for 2002 (391-3-17-03(10)(e)

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.1705	Application for use of higher assigned protection factors	Part D (not yet included)	B	Permits the licensee to apply for the use of higher APFs on a case-by-case basis.	Included in revisions for 2002 (391-3-17-.03)(10)(f)
Appendix A to Part 20	Assigned Protection Factors for Respirators	Part D (not yet included)	B	The appendix is modified extensively to recognize new devices, revise APFs to be consistent with current ANSI guidance and technical knowledge, and the footnotes are moved, deleted, revised, or adjusted so that only those necessary to explain the table remain.	Included by reference in revisions for 2002 (391-3-17-.03)

Requirements for Those Who Possess Certain Industrial Devices Containing Byproduct Material to Provide Requested Information
RATS ID 1999-2 (64 FR 42269, August 4, 1999) Effective October 4, 1999

31.5	Certain Measuring, gauging, or controlling devices	Part C (not yet included)	D	Section 31.5 is amended by adding paragraph (c)(11) which is an explicit requirement that general licensees, who possess certain measuring, gauging, or controlling devices that contain byproduct material, provide the NRC with information concerning these devices.	Not Included – Compatibility Category D
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Radiological Criteria for License Termination of Uranium Recovery Facilities (64 FR 17506, April 12, 1999) RATS ID 1999-1
Effective June 11, 1999

Appendix A, 10 CFR Part 40	Criterion 6(6)	Part U (not included yet)	C	A second paragraph is added to Criterion 6(6) to include radiological dose criteria for decommissioning of lands and structures at uranium recovery facilities conforming to EPA's standards for radium in soil and also providing ground-water protection criteria.	N/A no uranium recovery licensee facilities.
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Transfer for Disposal and Manifests; Minor Technical Conforming Amendment (63 FR 50127, September 21, 1998) RATS ID 1998-6
Effective November 20, 1998

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.1002	Scope	Part D (not included yet)	D	An omission is corrected by adding the reference to Part 36, "Licenses and Radiation Safety Requirement for Irradiators."	Not Included – Compatibility Category D
20.2006	Transfer for disposal and manifests	Part D (not included yet)	B	This section is simplified by removing the obsolete manifest requirement in Appendix F to avoid confusion. The manifest requirement in Appendix G is retained.	Included in revisions for 2002 (391-3-17-.03(13)(i) is from Part 20 Appendix G

**Minor Corrections, Clarifying Changes, and a Minor Policy Change (63 FR 39477, July 23, 1998 and 63 FR 45393, August 26, 1998)
RATS ID 1998-5 Effective October 26, 1998**

20.1003	Definitions Declared pregnant woman High radiation area Very high radiation area Individual monitoring devices Lens dose equivalent (LDE)	Part D (not yet included)	A A A C A	Minor corrections and clarifying changes are made in the definitions of Part 20, "Standards for Protection Against Radiation." A written declaration of pregnancy is to be given to the licensee rather than the employer, unless the employer is also the licensee. High and Very high radiation areas are revised to make it clear that these designations exist solely to note radiation levels from sources external to an individual. Individual monitoring devices is revised to correct the misuse of the term thermoluminescent to describe thermoluminescence dosimeters. "Lens dose equivalent (LDE)" replaces "Eye dose equivalent" to avoid confusion.	Included in revisions for 2002 (391-3-17-.03(2)(l), .01(2)(ss), .01(2)(ggggg), .03(2)(eee), .01(2)(ww), & .03(2)(ff))
20.1201 20.1208	Occupational dose limits for adults Dose to an embryo/fetus	Part D (not yet included)	A A	In paragraphs (a)(2)(i) and (c) clarifying changes are made to "lens dose equivalent." In paragraphs (A), (c), (c)(2) and (d), "Dose to an embryo/fetus" is changed to "dose equivalent to the embryo/fetus" to make it clear that it applies to the dose equivalent.	Included in revisions for 2002 (391-3-17-.03(5)(h)1.,3.,3.(i), 3.(ii), 3.(ii)(I), 3.(ii)(II) 7 .03(5)(h) 4. & 5.)
32.54	Same: Labeling of devices	Part C (not yet included)	B	The reference in paragraph (a) is revised from Section 20.203(a) to 20.1901.	391-3-17-.02(11)(e)2. no change required.

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.2101	General provisions	Part D (not yet included)	C	Permits licensees to add SI units to special units and replaces "eye dose equivalent" with "lens dose equivalent."	Included in revisions for 2002 (391-3-17-.03(14)(a)1. & 2. and (14)(g)1.)
20.2106	Records of individual monitoring results	Part D (not yet included)	C	In paragraphs (a)(2) and (a)(3) the reference to "body burden" are removed because this term is obsolete. Paragraph (a)(4) is revised by adding a reference to 20.1204(a) that requires licensees to take certain measurements that are specified.	Included in revisions for 2002 (391-3-17-.03(14)(g)1.)
20.2202	Notification of incidents	Part D (not yet included)	C	A revision to paragraph (d) results in the application of the same incident reporting requirements to all licensees.	Included in revisions for 2002 (391-3-17-.03(15)(b)1.)
39.33	Radiation detection instruments	Part W (not yet included)	C	Paragraph (a) is made to conform by replacing the term milliroentgens with the term millisieverts (mSV) and millirem (mrem) to be consistent with revised Part 20.	No well logging licensees; See 391-3-17-.03(15)(h)
39.71	[Amended]	Part W (not yet included)	C	The reference in paragraph (b) is corrected to read Section 20.1003 instead of Section 20.3.	No well logging licensees; See 391-3-17-.03(15)(h)
20.1101	Radiation protection programs	Part D (not yet included)	D, H & S	In paragraph (b) "practicable" is changed to "practical" to remove the basis for an incorrect perception among some licensees.	Included in revisions for 2002 (391-3-17-.03(4)(b))
20.1206	Planned special exposures	Part D (not yet included)	D	Paragraph (a) is revised to clarify what was intended by the term, "higher exposure" used in the rule previously.	Not Included – Compatibility Category D
20.1501	General	Part D (not yet included)	D, H & S	Paragraphs (a)(2)(i) and (iii) are revised for clarification.	Included in revisions for 2002 (391-3-17-.03(7)(a)2.(i) & (ii))
20.1502	Conditions requiring individual monitoring of external and internal occupations dose	Part D (not yet included)	D, H, & S	In paragraphs (a)(2) and (b)(2), monitoring requirements for minors and pregnant women are revised. In addition, for minors the dose limits in (a)(2) apply for an entire year, while for a declared pregnant woman the dose limit in (b)(2) applies only to the 9-month gestation period.	Included in revisions for 2002 (391-3-17-.03(8)(b)1.(iii) & 2.(iii))
20.1903	Exceptions to posting requirements	Part D (not yet included)	D	A new paragraph is added to exempt teletherapy rooms in a hospital from posting requirements under certain conditions.	Not Included – Compatibility Category D

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.1906	Procedures for receiving and opening packages	Part D (not yet included)	D, H, & S	Paragraph (d) is revised to require licensees to notify the NRC Operations Center instead of an NRC Regional Office.	Included in revisions for 2002 (391-3-17-.03(12)(f))
35.641 35.643	Radiation surveys for teletherapy facilities Modification of teletherapy unit....	Part G (not yet included)	D	Paragraphs 35.641(a)(2)(I) and (a)(2)(ii) and 35.643(a) are revised to be consistent with the dose limits for occupationally exposed individual and public. In paragraph 35.643(a)(1) a misreference is corrected.	Not Included – Compatibility Category D
36.23	Access control	Part Q (not yet included)	D, H & S	Paragraph (g) is revised to conform with posting requirements for high or very high radiation areas.	Included in revisions for 2002 (391-3-17-.09(4)(b)7.)

**Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations;
Clarifying Amendments and Corrections (63 FR 37059, July 9, 1998) RATS ID 1998-4
Effective July 9, 1998[**

34.27	Leak testing and replacement of sealed sources	Part C (not yet included) and Part E (included)	C	The third sentence of paragraph (e) is amended by using text similar to that in the first sentence of paragraph (d) regarding the correct way to detect wear in the guide tube. Also, the implementation date for DU testing is one year from the effective date of the rule June 27, 1997, not the publication date, May 28, 1997.	Included in revisions for 2002 (391-3-17-.04(9)(c)5.)
34.41	Conducting industrial radiography operations	Parts C and E (not yet included)	B D-paragraph (c)	A new paragraph (d) is added to specify the effective date of June 27, 1998 for having two qualified individuals present at locations other than a permanent radiographic installation.	Included in revisions for 2002 (391-3-17-.04(14)(a))
34.42	Radiation safety officer for industrial radiography	Part C (not yet included) and Part E (included)	D, H, & S for the first sentence only of this section.	In paragraph (d), the effective date of the requirement is corrected to June 27, 1999.	Included in revisions for 2002 (391-3-17-.04(15)(d))

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.43	Training	Parts C and E (not yet included)	B D-paragraphs (a)(2) and (c)	In paragraph (a)(2), the effective date of the requirement is corrected to June 27, 1999. In paragraph (h), the effective date of the requirement is corrected to June 27, 1998. A new paragraph (I) is added with a compliance date of June 27, 1999, and a clarification of the records of radiographer certification maintenance for appropriate affirmation or certification.	Included in revisions for 2002 (391-3-17-.04(16))

License Term for Medical Use Licenses (63 FR 31604, June 10, 1998) RATS ID 1998-3
Effective July 10, 1998

35.18	License issuance		D	The introductory text of 35.18 is revised to eliminate the 5-year term limit for medical use licenses so that the term for medical use licenses will be set by policy.	Not Included – Compatibility Category D
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Self-Guarantee of Decommissioning Funding by Nonprofit and Non-Bond-Issuing Licenses (63 FR 29535, June 1, 1998) RATS ID 1998-2
Effective July 1, 1998

30.35(f)(2) Appendix D Appendix E 40.36(e)(2) 70.25(f)(2)	Financial assurance and recordkeeping for decommissioning	Part C (not yet included)	D D D D D	Section 30.35 is amended to permit self-guarantee for financial assurance which can be used by qualified nonprofit licensees and non-bond-issuing licensees. Appendix D is added to 10 CFR Part 30 to establish requirements for self-guarantee by non-bond-issuing commercial licensees. Appendix E is added to 10 CFR Part 30 to establish requirements for self-guarantee for nonprofit college, university, and hospital licensees. 40.36(e)(2) and 70.25(f)(2) are similar.	Included in revisions for 2002 (391-3-17-.02(8)(g)6.(ii))
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Deliberate Misconduct by Unlicensed Persons (63 FR 1890, January 13, 1998; 63 FR 13773: March 23, 1998) RATS ID 1998-1
Effective February 12, 1998

30.10 40.10 61.9b 70.10 150.2	Deliberate Misconduct by Unlicensed Persons	Part C (not yet included)	C C C C C	Amended to extend the Deliberate Misconduct Rule to additional categories of persons (only those applicable to Agreement States are listed): applicants for NRC licenses; certificates of registration issued under Parts 30 and 32; and the employees, contractors, subcontractors and consultants of the above categories.	Included in revisions for 2002 (391-3-17-.10(3)(b))
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REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
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**Exempt Distribution of a Radioactive Drug Containing One Microcurie of Carbon-14 Urea (62 FR 63634, December 2, 1997) RATS ID 1997-7
Effective January 2, 1998**

30.21	Radioactive drug: Capsules containing carbon-14 urea for "in vivo" diagnostic use for humans	Part C (not yet included)	B	A new section to permit any person to receive, possess, use, transfer, own, or acquire for "in vivo" diagnostic use, capsules containing one microcurie of C-14 urea without a license; a reminder that persons receiving the capsules would not be relieved from other laws governing drugs; does not extend to use of the capsules for research involving human subjects; and any person desiring to use the capsules for human research is required to obtain a specific license.	Included in revisions for 2002 (391-3-17-.02(3)(c)5.)
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**Radiological Criteria for License Termination (62 FR 39057, July 21, 1997) RATS ID 1997-6
Effective August 20, 1997**

20.1003	Definitions Background radiation Critical group Decommission Distinguishable from Background Residual Radioactivity	Part A (not yet included)	A B [C] B B	The definition of Background radiation is revised and new definitions Critical Group, Decommission, Distinguishable from background, and Residual radioactivity are added.	Amendments included in revisions for 2002 (391-3-17-.03(2)(k), (m), (u), & (rr))
20.1009	Information collection requirements: OMB approval	Part D (not yet included)	D	Paragraph (b) is revised to include the new subparts.	Not Included – Compatibility Category D
Subpart E	Radiological Criteria for Decommissioning	Part D (not yet included)		A new Subpart E entitled "Radiological Criteria for License Termination," is added.	
20.1401	General provisions and scope	Part D (not yet included)	C	Outlines that the criteria in Subpart E apply only to decommissioning of facilities licensed under 10 CFR Parts 30, 40, 50, 60, 61, 70 and 72 and other facilities subject to NRC's jurisdiction. Sites to which Subpart E do not apply are listed.	Included in revisions for 2002 (391-3-17-.03(7)(a))

REGULATIO N SECTION	SECTION TITLE	SSRs	COMPAT/ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
20.1402	Radiological criteria for unrestricted use	Part D (not yet included)	C	Describes the criteria under which a site will be considered acceptable for unrestricted use so the license can be terminated. The principal criterion is that the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group does not exceed 25 mrem (0.25 mSV) per year.	Included in revisions for 2002 (391-3-17-.03(7)(b))
20.1403	Criteria for license termination under restricted conditions	Part D (not yet included)	C	Describes the criteria under which a site will be considered acceptable for restricted use so the license can be terminated. The criteria include ALARA considerations, legally enforceable institutional controls, sufficient financial assurance, and submission of a decommissioning plan.	Did not include provisions for restricted use. If situation arises will review on a case by case basis.
20.1404	Alternate criteria for license termination	Part D (not yet included)	C	Gives alternate criteria for a licensee, greater than those cited above, for the Commission to terminate a license. The use of these criteria requires the approval of the Commission after consideration by NRC staff, Environmental Protection Agency, and the public.	Included in revisions for 2002 (391-3-17-.03(7)(c))
20.1405	Public notification and public participation	Part D (not yet included)	C	Describes Commission actions pursuant to the receipt of a decommissioning plan, such as notification and solicitation of comments from local and State government, Environmental Protection Agency, the publication of notices, and soliciting comments from affected parties.	Included in revisions for 2002 (391-3-17-.03(7)(d))
20.1406	Minimization of contamination	Part D (not yet included)	C	Requires applicants to describe, through design and operation, to minimize contamination of the facility and the environment and the generation of radioactive waste.	Included in revisions for 2002 (391-3-17-.03(7)(e))
20.2402(b)	Criminal penalties	Part D (not yet included)	D	Revised to include Section 20.1405, as an exception.	Not Included – Compatibility Category D
30.4	Definitions Decommission	Part A (not yet included)	C	Revised the definition of decommission to include release of property under restricted conditions.	See 391-3-17-.03(2)(m) Restricted conditions not included.

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT/H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
30.35(f)(5) 30.35(g)(3)(iv)	Financial assurance and recordkeeping for decommissioning	Part C (not yet included)	D	Paragraph (f)(5) is added to cover arrangements for governmental entities. Paragraph (g)(3)(iv) is revised to cover requirements for the licensee for either decontamination or disposal for areas outside of the restricted areas.	391-3-17-.02(8)(g)7.(iii)(IV)
30.36(j)(2) 30.36(k)(3)(I) & (ii)	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	Part C (not yet included)	D, H, & S	The introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to cover the requirements for radiation surveys and the demonstration of compliance with the criteria for decommissioning in 10 CFR Part 20, Subpart E.	391-3-17-.02(18)(d)2. & (18)(e).
40.4	Definitions Decommission	Part A (not yet included) Part C (not yet included)	[C]	Revised the definition of decommission to include release of property under restricted conditions. This definition also appears in 10 CFR 30.4. For purposes of compatibility, the language of the Part 30 definition should be used where it is assigned to Compatibility Category C.	See 391-3-17-.03(2)(m) Restricted conditions not included.
40.36(e)(5) 40.36(f)(3)(iv)	Financial assurance and recordkeeping for decommissioning	Part C (not yet included)	D	Paragraph (e)(5) is added to cover arrangements for government entities. Paragraph (f)(3)(iv) is revised to cover requirements for the licensee for either decontamination or disposal for areas outside of the restricted areas.	Not Included – Compatibility Category D
40.42(j)(2) 40.42(k)(3)	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	Part C (not yet included)	D, H, & S	The introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to cover the requirements for radiation surveys and the demonstration of compliance with the criteria for decommissioning in 10 CFR Part 20, Subpart E.	391-3-17-.02(18)(d)2
70.4	Definitions Decommission	Part A (not yet included)	[C]	Revised the definition of decommission to include release of property under restricted conditions. This definition also appears in 10 CFR 30.4. For purposes of compatibility, the language of the Part 30 definition should be used where it is assigned to Compatibility Category C.	See 391-3-17-.03(2)(m) Restricted conditions not included.

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
70.25(f)(5) 70.25(g)(3)(iv)	Financial assurance and recordkeeping for decommissioning	Part C (not yet included)	D	Paragraph (f)(5) is added to cover arrangements for governmental entities. Paragraph (g)(3)(iv) is revised to cover requirements for the licensee for either decontamination or disposal for areas outside of the restricted areas.	Not Included – Compatibility Category D
70.38(j)(2) 70.38(k)(3)	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	Part C (not yet included)	D, H, & S	The introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to cover the requirements for radiation surveys and the demonstration of compliance with the criteria for decommissioning in 10 CFR Part 20, Subpart E.	391-3-17-.02(18)(d)2

**Licenses for Industrial Radiography and Radiation Safety – Requirements for Industrial Radiography Operations (62 FR 28948, May 28, 1997)
RATS ID 1997-5 Effective June 27, 1997]**

30.4	Definitions Radiographer Radiographer's Assistant Radiography	Part C (not yet included) and Part E (included)	Not applicable	These definitions were removed.	391-3-17-.04 updated 2002 in accordance with the 1999 SSRCR Part E.
34.1	Purpose and Scope	Part C (not yet included) and Part E (included)	D	Minor clarifying changes were made. Other NRC regulations, such as Parts 19, 20, 21, 30, 71, 150, 170 and 171, that apply to radiography licensees are now referenced by number, and "radiography" is changed to "industrial radiography" to distinguish it from medical uses.	Not Included – Compatibility Category D
34.3	Definitions	Part C (not yet included) and Part F (included)	B	Five new definitions were added: Control cable, Control drive mechanism, Lay-barge radiography, Offshore platform radiography, and Underwater radiography. Some of the definitions were changed in response to public comments.	Included in revisions for 2002 (391-3-17-.04(2)(g), (h),(q)&(r). (oo) - Underwater radiography was defined in earlier revision.
34.5	Interpretations	Part C (not yet included) and Part E (included)	D	Added because this is standard regulatory language used to state that only the General Counsel of the NRC has the authority to provide interpretations of the regulations which will be binding on the Commission.	Not Included – Compatibility Category D

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.8	Information collection requirements: OMB approval	Not applicable	D	Lists the requirements for OMB approval.	Not Included – Compatibility Category D
Subpart B	Specific Licensing Provisions				
34.11	Application for a specific license	Part C (not yet included) and Part E (included)	D	Tells how to file an application for a specific license for use of sealed sources in industrial radiography.	Not Included – Compatibility Category D
34.13	Specific license for industrial radiography	Part C (not yet included) and Part E (included)	C	Provides the basic requirements for submittal of a license application which must be met satisfactorily before NRC will approve the application.	Additional paragraphs included in revisions for 2002 (391-3-017-.04(4))
Subpart C	Equipment				
34.20	Performance requirements of industrial radiography equipment	Part C (not yet included) and Part E (included)	B	Specifies requirements for industrial radiographic equipment performance and use.	391-3-17-.04(5)
34.21	Limits on external radiation levels from storage containers and source changers	Part C (not yet included) and Part E (included)	B	Specifies the limits on radiation exposure levels for various equipment associated with industrial radiography, such as storage containers and source changers.	391-3-17-.04(6)(a)
34.23	Locking of radiographic exposure devices, storage containers and source changers	Part C (not yet included) and Part E (included)	B	Requires locking of radiographic equipment to protect the public from inadvertent exposure to radiation. Locks or out locks are required for exposure devices, sealed source storage containers and source changers.	391-3-17-.04(7)(a)
34.25	Radiation survey instruments	Part C (not yet included) and Part E (included)	C	Specifies requirements for radiation survey instruments, such as calibration, frequency, accuracy and recordkeeping.	391-3-17-.04(8)(b)
34.27	Leak testing and replacement of sealed sources	Part C (not yet included) and Part E (included)	C	Stipulates that licensees leak test sealed sources while in use and radiographic exposure devices that employ depleted uranium for shielding.	Included in revisions for 2002 (391-3-17-.04(9)(a), (b), and (c) and for DU (9)(c)5.)

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.29	Quarterly inventory	Part C (not yet included) and Part E (included)	C	Specifies requirements for conducting a quarterly inventory to account for all sealed sources and for devices containing depleted uranium.	391-3-17-.04(10)
34.31	Inspection and maintenance of radiographic exposure devices.	Part C (not yet included) and Part E (included)	C	Addresses requirements for the various types of inspection and maintenance activities that licensees must perform to ensure that equipment is in good operating condition, sources are properly shielded, required labels are present, and components important to safety are functioning properly.	Included in revisions for 2002(391-3-17-.04(11))
34.33	Permanent radiographic installations	Part C (not yet included) and Part E (included)	D, H, & S	Specifies the safety requirements that must be in place for any permanent radiographic installation that includes entrance control, warning signals, and alarm system.	391-3-17-.04(12)
34.35	Labeling, storage, and transportation	Part C (not yet included) and Part E (included)	B	Specifies requirements for labeling, storage, and transportation of radioactive material used in industrial radiography.	Included in revisions for 2002 (391-3-17-.04(13))
Subpart D	Radiation Safety Requirements	Part C (not yet included) and Part E (included)			
34.41	Conducting industrial radiography operations	Part C (not yet included) and Part E (included)	D – Paragraph (c)	Specifies certain conditions that must be met before performing radiographic operations in order to ensure that adequate safety measures are in place before conducting radiographic operations. These include two-person crew outside of a permanent radiographic installation and approved procedures for lay-barge, underwater, and off-shore platform radiography.	Amendments included in revisions for 2002 (391-3-17-.04(14)9a) thru(d)
34.42	Radiation safety officer for industrial radiography	Part C (not yet included) and Part E (included)	D, H & S for the first sentence only of this section	Identifies the minimum qualifications, training, experience and specific duties of the radiation safety officer (RSO) for industrial radiography. Licensees have until May 28, 1999 to meet the requirements.	Amendments included in revisions for 2002 (391-3-17-.04(15)(a))

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.43	Training	Part C (not yet included) and Part E (included)	B D – Paragraphs (a) (2) and (c)	Addresses training requirements for industrial radiographers and radiographers' assistants, such as two months of on-the-job training and certification.	Amendments included in revisions for 2002 (391-3-17-.04(16)(a)(b) & (c))
34.45	Operating and emergency procedures	Part C (not yet included) and Part E (included)	C – Paragraph (a) D – Paragraphs (a)(9) & (b)	Identifies the procedures for all activities, e.g., source recovery, that licensees must develop and submit to the NRC in their application. Procedures include handling of licensed sealed sources and radiographic exposure devices, surveys, controlling access, locking and securing, monitoring, and transportation.	Amendments included in revisions for 2002 (391-3-17-.04(17))
34.46	Supervision of radiographer's assistants	Part C (not yet included) and Part E (included)	B	Specifies requirements for radiographers' assistants to handle equipment associated with radiographic operations.	Amendments included in revisions for 2002 (391-3-17-.04(18))
34.47	Personnel monitoring	Part C (not yet included) and Part E (included)	C	Addresses requirements for monitoring radiation exposures to radiographic personnel.	Amendments included in revisions for 2002 (391-3-17-.04(19))
34.49	Radiation surveys	Part C (not yet included) and Part E (included)	C – Paragraphs (a) through (c) D – Paragraph (d)	Addresses requirements for surveys that must be made during and after radiographic operations to ensure that the radioactive source is safely secured when radiographic operations are not being performed and that public dose limits in 10 CFR Part 20 are met.	Amendments included in revisions for 2002 (391-3-17-.04(20))
34.51	Surveillance	Part C (not yet included) and Part E (included)	C	Specifies requirements for radiographers to maintain surveillance of a high radiation area during industrial radiographic operations to protect against unauthorized entry.	Included in revisions for 2002 (391-3-17-.04(21))
34.53	Posting	Part C (not yet included) and Part E (included)	C	Specifies requirements for identifying areas where radioactive material is being used to comply with radiation protection requirements discussed in 10 CFR Part 20.	Amendments included in revisions for 2002 (391-3-17-.04(22))
Subpart E	Recordkeeping Requirements				

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.61	Records of the specific license for industrial radiography	Part C (not yet included) and Part E (included)	D	Requires licensees to maintain a copy of their licenses until their licenses are terminated by the Commission.	Included in revisions for 2002 (391-3-17-.04(23))
34.63	Records of receipt and transfer of sealed sources	Part C (not yet included) and Part E (included)	C	Requires licensees to maintain records or receipt and disposition of radioactive sources used under their license.	Included in revisions for 2002 (391-3-17-.04(24))
34.65	Records of radiation survey instruments	Part C (not yet included) and Part E (included)	C	Contains the recordkeeping requirements for radiation instruments required under Sec. 34.25.	Included in revisions for 2002 (391-3-17-.04(25))
34.67	Records of leak testing	Part C (not yet included) and Part E (included)	C	Contains recordkeeping requirements and requires licensees to maintain records of leak tests for 3 years after the record is made.	Included in revisions for 2002 (391-3-17-.04(26))
34.69	Records of quarterly inventory	Part C (not yet included) and Part E (included)	C	Contains recordkeeping requirements and requires licensees to maintain records of quarterly inventories for 3 years after the record is made.	Included in revisions for 2002 (391-3-17-.04(27))
34.71	Utilization logs	Part C (not yet included) and Part E (included)	B	Contains recordkeeping requirements such as a utilization log for each sealed source, and keep the log for 3 years.	Included in revisions for 2002 (391-3-17-.04(28))
34.73	Records of inspection and maintenance of radiographic exposure devices.....	Part C (not yet included) and Part E (included)	C	Contains recordkeeping requirements and specifies that inspection and maintenance records must be maintained by the licensee for 3 years.	Included in revisions for 2002 (391-3-17-.04(29))
34.75	Records of alarm system and entrance control checks at permanent.....	Part C (not yet included) and Part E (included)	D	Requires the maintenance of records of alarm system and entrance control device tests and requires that each record must be maintained for 3 years.	Included in revisions for 2002 (391-3-17-.04(30))
34.79	Records of training and certification	Part C (not yet included) and Part E (included)	C	Includes recordkeeping requirements and specifies that records verifying radiographer certification and annual safety reviews are to be retained for 3 years after the record is made.	Included in revisions for 2002 (391-3-17-.04(31))

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.81	Copies of operating and emergency procedures	Part C (not yet included) and Part E (included)	C	Requires the maintenance of a copy of current operating and emergency procedures until the Commission terminates the license.	Included in revisions for 2002 (391-3-17-.04(32))
34.83	Records of personnel monitoring procedures	Part C (not yet included) and Part E (included)	C	Requires that each licensee to maintain exposure records as specified in Sec. 34.47.	Included in revisions for 2002 (391-3-17-.04(33))
34.85	Records of radiation surveys	Part C (not yet included) and Part E (included)	C	Requires the licensee to maintain records of exposure device surveys conducted before the radiographic exposure device is placed in storage for 3 years from the date the record was made.	Included in revisions for 2002 (391-3-17-.04(34))
34.87	Form of records	Part C (not yet included) and Part E (included)	C	Specifies how records must be maintained, including storage by electronic media.	Included in revisions for 2002 (391-3-17-.04(35))
34.89	Location of documents and records	Part C (not yet included) and Part E (included)	C	Addresses requirements for licensees to maintain certain records at locations where radiographic operations occur, such as at a permanent installation, temporary jobsite, or field station, where radioactive material is stored and from which it is dispatched for use at a temporary jobsite.	Amendments included in revisions for 2002 (391-3-17-.04(36))
Subpart F	Notifications				
34.101	Notifications	Part C (not yet included) and Part E (included)	C	Addresses requirements for licensees to notify the NRC of incidents having safety significance.	Amendments included in revisions for 2002 (391-3-17-.04(37))
Subpart G	Exemptions				
34.111	Exemptions	Part C (not yet included) and Part E (included)	D	Addresses exemptions and is basically the same as Sec. 34.51 in the form 10 CFR Part 34, except for minor word changes for consistency with the other parts of the rule.	Not Included – Compatibility Category D
Subpart H	Violations				

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
34.121	Violations	Part A (not yet included)	D	Addresses violations and is basically the same as Sec. 34.61 in the former 10 CFR Part 34.	Not Included – Compatibility Category D
34.123	Criminal penalties	Part A (not yet included)	D	Addresses criminal penalties and is basically the same as Sec. 34.63 in the prior 10 CFR Part 34.	Not Included – Compatibility Category D
Appendix A	Radiographer certification	Part C (not yet included) and Part E (included)	B	Part I provides the requirements for an independent certifying organization and only applies to organizations other than the Agreement States. Parts II and III provide the requirements for certification programs and written examinations for a certifying entity, and include the Agreement States.	Included in revisions for 2002 (391-3-17-.04 Appendix A)
71.101	Quality assurance requirements	Part C (not yet included) and Part E (included)	D	A new paragraph (g) is added to state that the inspection and maintenance programs for radiographic exposure devices, source changers, or packages transporting these devices that meet the provision of Sec. 34.31(b) or equivalent Agreement State regulations, need not be submitted separately as a QA program for Commission approval.	Not Included – Compatibility Category D
150.20(b)	Recognition of Agreement State licenses	Part C (not yet included) and Part E (included)	C, Any fee provisions are Compatibility Category D.	Paragraph (b) introductory text is revised to include the new subparts that were added to the final 10 CFR Part 34. The Agreement State should adopt these requirements so that the State reciprocally recognizes licenses issued by other Agreement States and NRC within its jurisdiction, including provisions for notifying the regulatory agency when work is to be performed under reciprocity.	Included in revisions for 2002 (391-3-17-.04(40)) & 391-3-17-.02(20)(a)

**Fissile Material Shipments and Exemptions (62 FR 5907, February 10, 1997) RATS ID 1997-4
Effective February 10, 1997**

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
71.18	GL: Fissile material, limited quantity per package	Part T (not yet included)	D	A new paragraph (d) covers general licenses for packages containing no more than a Type A quantity of radioactive material where fissile material is mixed with substances having an average hydrogen density greater than water (defined in Sec. 71.20). New paragraph (e) restricts the quantity of beryllium, graphite, or hydrogenous material enriched in deuterium in a package to no greater than 0.1% of the fissile material mass. New paragraph (f) is a modification of the old paragraph (d) that includes a simplified formula for calculation of the minimum transport index.	Not Included – Compatibility Category D
71.22	GL: Fissile material, limited quantity, controlled shipment	Part T (not yet included)	D	Old paragraph (d) is modified with the addition of a new table and accompanying formula which restrict the mass of U-235 and other fissile material in a controlled shipment. The table gives both new limits of 290 g and 180 g for U-235 and other fissile materials, when these materials are mixed with substances having hydrogen density greater than water; the table also gives the old Sec. 71.22 limits for shipments of U-235 and other fissile material when mixed with substances having a hydrogen density less than or equal to water. New paragraph (e) restricts the quantity of beryllium, graphite, or hydrogenous material enriched in deuterium in a package to no greater than 0.1% of the fissile material mass.	Not Included – Compatibility Category D
71.53	Fissile material exemptions	Part T (not yet included)	NRC	The introductory paragraph restates the old Sec. 71.53 language that packages are exempted from the fissile material standards of Sec. 71.55 and Sec. 71.59; however, the same paragraph restricts these exempted packages to only situations when beryllium, graphite, or deuterium is not present in quantities exceeding 0.1% of the fissile material mass. New paragraph (a) is added which contains a formula and an accompanying table to limit individual consignment, but also includes the requirements in old paragraph (a), (b)(1) and (2), and (d).	Not Included – Compatibility Category NRC

Criteria for the Release of Individuals Administered Radioactive Material (62 FR 4120, January 29, 1997) **RATS ID 1997-3**

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Updated 09/26/01

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
Effective May 29, 1997					
20.1002 20.1003	Scope Definitions Occupational dose Public dose	Part D (not yet included)	D A A	For the sake of consistency and clarity, the same words are used in Scope, public dose, occupational dose, and 20.1301, below.	Included in revisions for 2002 (391-3-17-.01(2)(ppp) & (xxx))
20.1301(a)	Dose limits for individual members of the public	Part D (not yet included)	A	Section 20.1301(a)(1) is changed to state specifically that the dose to individual members of the public from a licensed operation does not include doses received by individuals exposed to patients who were released by the licensed operation under the provisions of 10 CFR 35.75, not 10 CFR 20.1301. The exclusion of dose from background radiation and from voluntary participation in medical research programs is added. The footnote which reads, "except as delineated in other parts of 10 CFR Chapter 1," is deleted. With the publication of this rule, that footnote is no longer needed. Section 20.1301(a)(2) is changed to state specifically that the limit on dose in unrestricted areas does not include dose contributions from individuals administered radioactive material and released in accordance with 10 CFR 35.75.	Included in revisions for 2002 (391-3-17-.05(i)1.(i))
20.1903	Exceptions to posting requirements	Part D (not yet included)	D	Section 20.1903(b) is changed to use the term "licensee control" rather than "confinement" because the latter term no longer applies to 10 CFR 35.75.	Included in revisions for 2002 (391-3-17-.03(12)(c)2.)
35.8	Information collection requirements: OMB approval	Not applicable	D	A revised paragraph (b) is added to include new subparts.	Not Included – Compatibility Category D

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
35.75	Release of individuals containing radiopharmaceuticals or permanent implants	Part G (not yet included, but current revision will reflect NRC via parallel process)	C – Paragraph (a) D – Paragraphs (b), (c) and (d)	<p>A new Section 35.75(a) is added to change the patient release criteria from 30 millicuries of activity in a patient or a dose rate of 5 millirems per hour at 1 meter from a patient to a dose limit of 5 millisieverts (0.5 rem) total effective dose equivalent to an individual from exposure to a released patient. A footnote informs licensees that the NRC has made available guidance on rule implementation.</p> <p>A new Section 35.75(b) is added to require that the licensee provide released patients with instructions, including written instructions, on how to maintain doses to other individuals as low as is reasonably achievable if the total effective dose equivalent to any individual other than the released patient is likely to exceed 1 millisievert (0.1 rem).</p>	Currently .05(7)(k) will be in some form in the revised .05.
35.315	Safety precautions	Not applicable	Not applicable	Section 35.315(a)(6) is deleted because those paragraphs are redundant now that 10 CFR 35.75 has requirements for instructions.	Not Included – Not Applicable
35.415(a)(1)	Safety precautions	Not applicable	Not applicable	Reworded to clarify the original intent of the paragraph which was to limit the dose rate at 2 meters from the patient.	Not Included – Not Applicable

**Recognition of Agreement State Licenses in Areas Under Exclusive Federal Jurisdiction Within an Agreement State
(62 FR 1662, January 13, 1997) RATS ID 1997-2 Effective February 27, 1997**

150.20(a) & (b)	Reciprocal recognition of AS licenses	Part A (not yet included)	C, D for fee provisions	A specific reference to areas of exclusive Federal jurisdiction is given. There is clearly indication that licensees operating pursuant to the rule's provisions must comply with all NRC regulations applicable to materials licensees. The relevant fee requirement in 10 CFR Part 170 is added.	Included in revisions for 2002 (391-3-17-.02(20)(a))
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REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
150.20(c)	Filing Form 241	Part A (not yet included)		The procedures are clarified for filing an NRC Form 241 for reciprocity described in Sec. 150.20(b), including identifying what needs to be submitted, specifying the procedures to use when an emergency filing is necessary, and making revisions to the initial filing. These clarifications do not impose any additional requirements on the Agreement State licensee.	Not Included – Compatibility Category D

**Resolution of Dual Regulation of Airborne Effluents of Radioactive Materials; Clean Air Act (61 FR 65120; December 10, 1996)
RATS ID 1997-1 Effective January 9, 1997**

20.1003	Definitions, Constraint	Part D (not yet included)	C	The definition of Constraint is added.	Included in revisions for 2002 (391-3-17-.03(2)(j))
20.1101(d)	Radiation Protection Programs	Part D (not yet included)	C – Paragraph (d)	The language was changed to indicate that Rn-222 and all daughters produced after the release of the radon are categorically excluded from this rule.	Included in revisions for 2002 (391-3-17-.03(4)(d))
20.2203(a)(2)(vi)	Report of exceeding of constraint dose	Part D (not yet included)	C	The Section heading 20.2203 is revised and a new paragraph (a)(2)(vi) is added to indicate that the constraint applies only to release of airborne radioactive effluents to the environment and, thus, dose to the nearest resident, offsite business or school, is to be constrained.	Included in revisions for 2002 (391-3-17-.03(15)(c)1.(ii)(VI)) and (391-3-17-.03(15)(c)2.(i)(VI))
20.2203(b)(2)	Report contents	Part D (not yet included)	C	Revised to require the name, social security number, and date of birth only for occupationally overexposed individuals and not for members of the public who have received doses in excess of the public limits, including the constraint.	Included in revisions for 2002 (391-3-17-.03(15)(c)2.(ii))

**Termination or Transfer of Licensed Activities: Recordkeeping Requirements (61 FR 24669; May 16, 1996) RATS ID 1996-3
Effective June 17, 1996**

20.2108(b)	Records of Waste Disposal	Part D (not yet included)	D	Amended to state that there are additional requirements for disposition of records in 10 CFR Parts 30, 40, and 70.	Not Included – Compatibility Category D
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REGULATION SECTION	SECTION TITLE	SSRs	COMPAT/H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
30.36(g) 40.36(f) 70.25(g)	Financial assurance and recording for decommissioning	Part C (not yet included)	H & S H & S D	Specifies records important to decommissioning. Paragraphs 30.35(g) and 40.36(f) revised to require the transfer of records pertaining to decommissioning to the new licensee.	Included in revisions for 2002 (391-3-17-.02(8)(h))
30.36(k)(4) 40.42(k)(4) 70.38(k)(4)	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	Part C (not yet included)	D	Added to state that license will not be terminated until the NRC receives the records required by revised Secs. 30.51, 40.61, and 70.51.	Not Included – Compatibility Category D 391-3-17-.02(8)(g)7. requires transfer of information to new owner/licensee.
30.51(d),(e),(f) 40.61(d),(e),(f) 70.51(b)(6) 70.51(b)(7)	Records Material balance, inventory, and records requirements	Part C (not yet included)	D, H & S, D D, H & S, D D H & S	Added to clarify that records pertaining to decommissioning, offsite releases, and certain records pertaining to waste disposal assignment, or to the NRC prior to license termination.	Included in revisions for 2002 (391-3-17-.02(18)(e)4. & 5.)
61.30(a)(3) 61.30(c)(3)	Transfer of license Termination of license	Part C (not yet included)	D H & S	Added to clarify that records required by Secs. 61.80(e) and (f) are to be transferred to the disposal site owner, or to the party responsible for institutional control of the disposal site, respectively.	Not Included – Compatibility Category D and no disposal site in state.

One-Time Extension of Certain Byproduct, Source and Special Nuclear Materials Licenses (61 FR 1109) RATS ID 1996-2

30, 40, and 70				Not required for Agreement States.	N/A
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**10 CFR Part 71: Compatibility with the International Atomic Energy Agency – (60 FR 50248 & 61 FR 28724)
RATS ID 1996-1 Effective April 1, 1996**

71		PART T			May 6, 1997 (391-3-17-.06 (3)(4)(7)(8)(9)(10)&(12))
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**Medical Administration of Radiation and Radioactive Materials (60 FR 48623) RATS ID 1995-7
Effective October 20, 1995**

20		PART D			
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REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
35.2	Definitions	PART G		Misadministration definitions	May 6, 1997 (391-3-17-.05(2)(k)&(6)(l))
35.33(a)(2) through (c)	Notifications			Requires written report	

**Clarification of Decommissioning Funding Requirements (60 FR 38235) RATS ID 1995-6
Effective November 24, 1995**

30.36, 40.36(c)(2) and 70				Requires financial assurance and decommissioning funding plan	May 6, 1997 (391-3-17-.02(8)(g))
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**Radiation Protection Requirements: Amended Definitions and Criteria (60 FR 36038) RATS ID 1995-5
Effective August 14, 1995**

19					May 6, 1997 (391-3-17-.07(4))
20		PART D			May 6, 1997 (391-3-17-.03(14)(e) & (f))

**Performance Requirements for Radiography Equipment (60 FR 28323) RATS ID 1995-4
Effective June 30, 1995**

34		PART C			March 16, 1994 (391-3-17-.04(4)) & May 6, 1997 (391-3-17-.04(4))
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**Low-Level Waste Shipment Manifest Information and Reporting (60 FR 15649 & 60 FR 25983) RATS ID 1995-3
Effective March 1, 1995**

20 and 61		PART D and			October 24, 1994(391-3-17-.03(12)(r))
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Frequency of Medical Examinations for Use of Respiratory Protection Equipment (60 FR 7900) RATS ID 1995-2

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
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Effective March 13, 1995

20.1703(a)(3)(v)	Use of individual respiratory protection equipment	PART D	D/H & S	Changes requirement for physician evaluation from "every 12 months" to "either every 12 months or periodically at a frequency determined by a physician..."	October 24, 1994(391-3-17-.03(9)(c))
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Preparation, Transfer for Commercial Distribution, and Use of Byproduct Material for Medical Use (59 FR 61767; 59 FR 65243; 60 FR 322)

RATS ID 1995-1 Effective January 1, 1995]

30					
32					
35.2	Definitions	PART G		Authorized Nuclear Pharmacist, Medical Use, Pharmacist, Recordable event, written directive.	October 24, 1994(391-3-17-.02(11)(i))
35.6	Provisions for research involving human subjects				
35.7	FDA & other requirements				
35.11(a) & (c)	License required		Adds authorized Nuclear Pharmacist to the rules		

Timeliness in Decommissioning Material Facilities (59 FR 36026) RATS ID 1994-3 Effective August 15, 1994

30, 40, and 70					May 6, 1997 (391-3-17-.02(8)(h))
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Uranium Mill Tailings Regulations: Conforming NRC Requirements to EPA Standards (59 FR 28220) RATS ID 1994-2 Effective July 1, 1994

REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
40.Appendix A	Appendix A --			Definitions in Appendix: "As expeditiously as practicable considering technological feasibility," "Available technology," "Factors beyond the control of the licensee," "Final radon barrier," "Milestone," "Operation," and "Reclamation plan." Also adds Criterion 6 and 6A concerning radon, closure, barriers and timeliness of barrier installation.	N/A
Self-Guarantee as an Additional Financial Mechanism (58 FR 68726; 59 FR 1618) RATS ID 1994-1					
30, 40, and 70				Allows qualifying licensees to use self-guarantee as a financial assurance mechanism. Not required for Agreement States.	N/A
Decommissioning Recordkeeping and License Termination: Documentation Additions (58 FR 39628) RATS ID 1993-1 Effective October 25, 1993					
30 and 40				Adds requirements for restricted areas and spill sites.	March 16, 1994(391-3-17-.02(8)(g))
Definition of Land Disposal and Waste Site QA Program (58 FR 33886) RATS ID 1993-3 Effective July 22, 1993					
61					Reviewed (391-3-17-.03(12)(f)) prior to 3/94 revision. No amendment required
Licensing and Radiation Safety Requirements for Irradiators (58 FR 7715) RATS ID 1993-2 Effective July 1, 1993					
36					March 16, 1994 (391-3-17-.09)
Eliminating the Recordkeeping Requirements for Departures from Manufacturer's Instructions (57 FR 45566) RATS ID 1992-2					
30 and 35			NRC	Not required for Agreement States	N/A

Quality Management Program and Misadministrations (56 FR 34104 RATS ID 1992-1)
Effective January 27, 1992

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REGULATION SECTION	SECTION TITLE	SSRs	COMPAT./ H&S CAT.	SUMMARY OF CHANGE	STATE STATUS
35		PART G			March 16, 1994 (391-3-17-.05(6)(h)) & May 6, 1997 (391-3-17-.05(6)(k))

**Notification of Incidents (56 FR 64980) RATS ID 1991-4
Effective October 15, 1991**

20, 30, 31, 34, 39, 40 & 70		Many			March 16, 1994 (391-3-17-.03(14)(b))
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**ASNT Certification of Radiographers (56 FR 11504) RATS ID 1991-2
Effective January 27, 1992**

34		PART C		Not required	N/A
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**Safety Requirements for Radiographic Equipment (55 FR 843) RATS ID 1991-1
Effective January 10, 1991]**

34		PART C			May 22, 1991 (391-3-17-.04(5)(a)(& (b))
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**Standards for Protection Against Radiation (56 FR 23360 plus others) RATS ID 1991-3
Effective January 1, 1991**

20	Standards for Protection Against Radiation	PART D	various		Emergency rule 1/1/94 Permanent rule 3/16/94
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