|  **Requirements for Expanded Definition of Byproduct Material 10 CFR Parts 20, 30, 31, 32, 33, 35, 50, 61, 62, 72, 110, 150, 170, and 171****(72 FR 55864, 73 FR 42671) RATS ID # 2007-3 Effective date 11/30/07****Date Due for State Adoption 11/30/10** |
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| **Change to NRC****Section** | **Title** | **State****Section** | **Compatibility****Category** | **Summary of Change to CFR** | **Difference****Yes/No** | **Significant****Yes/No** | **If Difference, Why or Why Not Was a Comment Generated** |
| 20.1003 | Definition: Accelerator-produced radioactive material |  | H&S | **In § 20.1003, the definition of *Accelerator-produced******radioactive material,* is added to read as follows:***Accelerator-produced radioactive material* means any material maderadioactive by a particle accelerator. |  |  |  |
| 20.1003 | Definition: Byproduct Material |  | [H&S]**\*\*\*****(\*\*\*please note 10 CFR 20.1003 Definition of Byproduct Material was changed from a Compatibility Category A to a Compatibility Category H&S)** | **In § 20.1003, the definition of*****Byproduct material* is revised to read as follows:***Byproduct material* means—(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute ‘‘byproduct material’’ within thisdefinition;(3)(i) Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, orafter August 8, 2005, for use for a commercial, medical, or research activity; or(ii) Any material that—(A) Has been made radioactive by use of a particle accelerator; and(B) Is produced, extracted, orconverted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and(4) Any discrete source of naturally occurring radioactive material, other than source material, that—(i) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate Federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and(ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity.\* \* \* \* |  |  |  |
| 20.1003 | Definition: Discrete Source |  | H&S | **In § 20.1003, the definition of *Discrete source* isadded to read as follows:***Discrete source* means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities. |  |  |  |
| 20.1003 | Definition: Particle Accelerator |  | H&S | **In § 20.1003, the definition of *Particle accelerator* is added to read as follows:***Particle accelerator* means anymachine capable of acceleratingelectrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium atenergies usually in excess of 1megaelectron volt. For purposes of this definition, ‘‘accelerator’’ is an equivalent term. |  |  |  |
| 20.1003 | Definition: Waste |  | B | **In § 20.1003, the definition of*****Waste* is added to read as follows:***Waste* means those low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclearfuel, or byproduct material as defined in paragraphs (2), (3), and (4) of the definition of Byproduct material set forth in this section. |  |  |  |
| 20.1009 | List of OMB approved information collections |  | D | N/A | N/A |  |  |
| 20.2001 (a)(4) | General requirements |  | C | **In § 20.2001, paragraph (a)(4) is****revised to read as follows:**a) \* \* \*(4) As authorized under §§20.2002, 20.2003, 20.2004, 20.2005, or 20.2008. |  |  |  |
| 20.2006 (e) | Transfer for disposal and manifests |  | B | **In § 20.2006, paragraph (e) is added to read as follows:**(e) Any licensee shipping byproduct material as defined in paragraphs (3) and (4) of the definition of *Byproduct* *material* set forth in § 20.1003 intended for ultimate disposal at a land disposal facility licensed under part 61 of this chapter must document the information required on the NRC’s Uniform Low- Level Radioactive Waste Manifest and transfer this recorded manifest information to the intended consignee in accordance with appendix G to this part. |  |  |  |
| 20.2008 | Disposal of 11e.(3) and 11e.(4) byproduct material |  | B | **Section 20.2008 is added to read as follows:**(a) Licensed material as defined in paragraphs (3) and (4) of the definition of *Byproduct material* set forth in §20.1003 may be disposed of in accordance with part 61 of this chapter, even though it is not defined as low level radioactive waste. Therefore, any licensed byproduct material being disposed of at a facility, or transferred for ultimate disposal at a facilitylicensed under part 61 of this chapter, must meet the requirements of §20.2006.(b) A licensee may dispose ofbyproduct material, as defined inparagraphs (3) and (4) of the definition of *Byproduct material* set forth in §20.1003, at a disposal facility authorized to dispose of such material in accordance with any Federal or State solid or hazardous waste law, includingthe Solid Waste Disposal Act, asauthorized under the Energy Policy Act of 2005. |  |  |  |
| Part 20 Appendix B | Annual Limitson Intake (ALIs) and Derived AirConcentrations (DACs) ofRadionuclides for OccupationalExposure; Effluent Concentrations;Concentrations for Release to Sewerage |  | A | **In Appendix B to part 20, the List of Elements table is amended by adding Nitrogen and Oxygen in alphabetical order, and page 1 of Tables 1, 2, and 3 following the List of Elements is revised to read as follows:**See tables at the end of the document. |  |  |  |
| 30.3(a) | Activities requiring license |  | C | **Section 30.3(a) is revised to read as follows:**(a) Except as provided in paragraphs (b)(2), (b)(3), (c)(2), and (c)(3) of this section and for persons exempt as provided in this part and part 150 of this chapter, no person shall manufacture, produce, transfer, receive, acquire, own, possess, or use byproduct material except as authorized in a specific or general license issued in accordance with the regulations in this chapter. |  |  |  |
| 30.3(b) (1), (2), & (3) | Activities requiring license |  | NRC | **Section 30.3(b)(1), (2), & (3) is revised to read as follows:** (b)(1) The requirements, includingprovisions that are specific to licensees, in this part and parts 19, 20, 21, and 71 of this chapter, as well as the additional requirements for specific broad scope, industrial radiography, irradiator, or well logging uses in 10 CFR parts 33, 34, 36, or 39, respectively, shall apply toGovernment agencies or Federally recognized Indian Tribes on November 30, 2007, when conducting activities under the authority provided by paragraphs (b)(2) and (b)(3) of this section.(2) A specifically licensedGovernment agency or Federallyrecognized Indian Tribe that possesses and uses accelerator-produced radioactive material or discrete sources of radium-226 for which a license amendment is required to authorize the activities in paragraph (a) of this section, may continue to use these materials for uses permitted under this part until the date of the NRC’s final licensing determination, provided that the licensee submits an amendment application on or before June 2, 2008.(3) A Government agency or Federally recognized Indian Tribe that possesses and uses accelerator-produced radioactive material or discrete sources of radium-226 for which a specificlicense is required in paragraph (a) of this section, may continue to use such material for uses permitted under this part until the date of the NRC’s final licensing determination provided that the agency or Indian Tribe submits an application for a license authorizing activities involving these materials on or before December 1, 2008. |  |  |  |
| 30.3(c) (1), (2), (3), & (d) | Activities requiring license |  | D | N/A | N/A |  |  |
| 30.4 | Definition: Accelerator produced radioactive material |  | H&S | **In § 30.4, the definition of*****Accelerator-produced******radioactive material,* is added to read as follows:***Accelerator-produced radioactive material* means any material made radioactive by a particle accelerator. |  |  |  |
| 30.4 | Definition: Byproduct material |  | [H&S]**\*\*\*****(\*\*\*please note 10 CFR 30.4 Definition of Byproduct Material was changed from a Compatibility Category A to a Compatibility Category H&S)** | **In § 30.4, the definition of*****Byproduct material* is revised, to read as follows:***Byproduct material* means—(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;(2)(i) Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for acommercial, medical, or researchactivity; or(ii) Any material that(A) Has been made radioactive by use of a particle accelerator; and(B) Is produced, extracted, orconverted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and(3) Any discrete source of naturally occurring radioactive material, other than source material, that—(i) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of anyother appropriate Federal agency,determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and(ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity. |  |  |  |
| 30.4 | Definition: Consortium |  | C | **In § 30.4, the definition of  *Consortium,* is added to read as follows:***Consortium* means an association of medical use licensees and a PET radionuclide production facility in the same geographical area that jointly own or share in the operation and maintenance cost of the PET radionuclide production facility that produces PET radionuclides for use in producing radioactive drugs within the consortium for noncommercial distributions among its associated members for medical use. The PET radionuclide production facility within the consortium must be located at an educational institution or a Federal facility or a medical facility. |  |  |  |
| 30.4 | Definition:Cyclotron |  | D | N/A | N/A |  |  |
| 30.4 | Definition: Discrete Source |  | H&S | **In § 30.4, the definition of *Discrete source*, is added to read as follows:***Discrete source* means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities. |  |  |  |
| 30.4 | Definition: Particle accelerator |  | H&S | **In § 30.4, the definition of *Particle* *accelerator* is added to read as follows:***Particle accelerator* means anymachine capable of acceleratingelectrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium atenergies usually in excess of 1megaelectron volt. For purposes of this definition, accelerator is an equivalent term. |  |  |  |
| 30.15 (a)(1)(viii) | Certain items containing byproduct material |  | B | **In § 30.15, paragraph (a)(1)(viii) is added to read as follows:**(a) \* \* \*(1) \* \* \*(viii) 0.037 megabecquerel (1microcurie) of radium-226 per timepiece in intact timepieces manufactured prior to November 30, 2007. |  |  |  |
| 30.18 (b) | Exempt quantities |  | B | **In § 30.18, paragraph (b) is revised to read as follows:**(b) Any person, who possessesbyproduct material received or acquired before September 25, 1971, under the general license then provided in § 31.4 of this chapter or similar general license of a State, is exempt from the requirements for a license set forth in section 81 of the Act and from the regulations in parts 30 through 34, 36 and 39 of this chapter to the extent that this person possesses, uses, transfers, or owns byproduct material. |  |  |  |
| 30.20(a) | Gas and aerosol detectors containing byproduct material |  | B | **In § 30.20, paragraph (a) is revised to read as follows:**(a) Except for persons whomanufacture, process, produce, orinitially transfer for sale or distribution gas and aerosol detectors containing byproduct material, any person is exempt from the requirements for alicense set forth in section 81 of the Act and from the regulations in parts 19, 20, and 30 through 36, and 39 of this chapter to the extent that the person receives, possesses, uses, transfers,owns, or acquires byproduct material in gas and aerosol detectors designed to protect life or property from fires and airborne hazards, and manufactured,processed, produced, or initiallytransferred in accordance with a specific license issued under § 32.26 of this chapter, which license authorizes the initial transfer of the product for useunder this section. This exemption also covers gas and aerosol detectors manufactured or distributed before November 30, 2007 in accordance with a specific license issued by a State under comparable provisions to § 32.26of this chapter authorizing distribution to persons exempt from regulatory requirements. |  |  |  |
| 30.32(g) | Application for specific licenses |  | C | **In § 30.32, paragraphs (g)(1) and****(g)(2) are revised and paragraphs (g)(3) are added to read as follows:**(g) \* \* \*(1) Identify the source or device bymanufacturer and model number as registered with the Commission under § 32.210 of this chapter, with an Agreement State, or for a source or a device containing radium-226 or accelerator-produced radioactive material with a State under provisions comparable to § 32.210 of this chapter; or(2) Contain the information identified in § 32.210(c) of this chapter; or(3) For sources or devices containing naturally occurring or accelerator produced radioactive material manufactured prior to November 30, 2007 that are not registered with the Commission under § 32.210 of this chapter or with an Agreement State, and for which the applicant is unable toprovide all categories of information specified in §32.210(c) of this chapter, the applicant must provide:(i) All available information identified in § 32.210(c) of this chapter concerning the source, and, if applicable, the device; and(ii) Sufficient additional informationto demonstrate that there is reasonable assurance that the radiation safety properties of the source or device are adequate to protect health and minimize danger to life and property. Suchinformation must include a description of the source or device, a description of radiation safety features, the intended use and associated operatingexperience, and the results of a recent leak test. |  |  |  |
| 30.32(j) | Application for specific licenses |  | B | **In § 30.32, paragraph (j) is added to read as follows:**(j) An application from a medicalfacility, educational institution, orFederal facility to produce Positron Emission Tomography (PET) radioactive drugs for noncommercial transfer to licensees in its consortium authorized for medical use under part 35 of this chapter or equivalent Agreement Staterequirements shall include:(1) A request for authorization for the production of PET radionuclides or evidence of an existing license issued under part 30 of this chapter or Agreement State requirements for a PETradionuclide production facility within its consortium from which it receives PET radionuclides.(2) Evidence that the applicant isqualified to produce radioactive drugs for medical use by meeting one of the criteria in § 32.72(a)(2) of this chapter. (3) Identification of individual(s) authorized to prepare the PET radioactive drugs if the applicant is a pharmacy, and documentation that each individual meets the requirements of an authorized nuclear pharmacist as specified in § 32.72(b)(2) of this chapter.(4) Information identified in§ 32.72 (a)(3) of this chapter on the PET drugs to be noncommercially transferred to members of its consortium.  |  |  |  |
| 30.34 (g) | Terms and conditions of licenses |  | H&S**\*\*\*****(\*\*\*please note 10 CFR 30.34(g) Terms and Conditions of Licenses was changed from a Compatibility Category D to a Compatibility Category H&S)** | **In § 30.34, paragraph (g) is revised to read as follows:**(g) Each licensee preparingtechnetium-99m radiopharmaceuticalsfrom molybdenum-99/technetium-99m generators or rubidium-82 from strontium-82/rubidium-82 generators shall test the generator eluates for molybdenum-99 breakthrough or strontium-82 and strontium-85 contamination, respectively, in accordance with § 35.204 of this chapter. The licensee shall record the results of each test and retain each record for 3 years after the record is made. |  |  |  |
| 30.34(j) | Terms and conditions of licenses |  | B | **In § 30.34, paragraph (j) is added to read as follows:**(j)(1) Authorization under § 30.32(j) to produce Positron Emission Tomography (PET) radioactive drugs for noncommercial transfer to medical use licensees in its consortium does not relieve the licensee from complying with applicable FDA, other Federal, and State requirements governing radioactive drugs.(2) Each licensee authorized under § 30.32(j) to produce PET radioactive drugs for noncommercial transfer tomedical use licensees in its consortium shall:(i) Satisfy the labeling requirements in § 32.72(a)(4) of this chapter for each PETradioactive drug transport radiation shield and each syringe, vial, or other container used to hold a PET radioactive drug intended for noncommercial distribution to members of its consortium.(ii) Possess and use instrumentation to measure the radioactivity of the PETradioactive drugs intended fornoncommercial distribution to members of its consortium and meet the procedural, radioactivity measurement, instrument test, instrument check, and instrument adjustment requirements in § 32.72(c) of this chapter.(3) A licensee that is a pharmacyauthorized under § 30.32(j) to produce PET radioactive drugs fornoncommercial transfer to medical use licensees in its consortium shall require that any individual that prepares PET radioactive drugs shall be:(i) an authorized nuclear pharmacist that meets the requirements in § 32.72(b)(2) of this chapter, or(ii) an individual under the supervision of an authorized nuclear pharmacist as specified in § 35.27 of this chapter.(4) A pharmacy, authorized under§ 30.32(j) to produce PET radioactive drugs for noncommercial transfer to medical use licensees in its consortium that allows an individual to work as an authorized nuclear pharmacist, shall meet the requirements of § 32.72(b)(5) of this chapter. |  |  |  |
| 30.71 | Schedule B |  | B | **Section 30.71 is amended by****adding Cesium 129 (Cs 129), Cobalt 57 (Co 57), Gallium 67 (Ga 67), Germanium 68 (Ge 68), Gold 195 (Au 195), Indium 111 (In 111), Iodine 123 (I 123), Iron 52n (Fe 52), Potassium 43 (K 43), Rubidium 81 (Rb 81), Sodium 22 (Na 22), Yttrium 87 (Y 87), and Yttrium 88 (Y 88) in alphabetical order by element as follows:**See table at end of document. |  |  |  |
| 30.72 | Schedule C – Quantities of radioactive material requiring consideration of the need for an emergency plan for responding to a release |  | H&S | **Section 30.72 is amended by****adding radium-226 in alphabetical order to read as follows:**See table at end of document. |  |  |  |
| 31.4 | List of OMB approved Information collections |  | D | N/A | N/A |  |  |
| 31.5 (b)(1) & (c)(13) | Certain detecting, measuring, gauging, or controlling devices and/or an ionizing atmosphere |  | B | **In § 31.5, paragraphs (b)(1)(i),****(b)(1)(ii), and (c)(13)(i) are revised and paragraph (b)(1)(iii) is added to read as follows:**(b)(1) \* \* \*(i) A specific license issued under§ 32.51 of this chapter; or(ii) An equivalent specific licenseissued by an Agreement State; or(iii) An equivalent specific licenseissued by a State with provisions comparable to § 32.51 of this chapter.\* \* \* \* \*(c) \* \* \*(13)(i) Shall register, in accordance with paragraphs (c)(13)(ii) and (iii) of this section, devices containing at least 370 megabecquerels (10 millicuries) ofcesium-137, 3.7 megabecquerels (0.1 millicurie) of strontium-90, 37megabecquerels (1 millicurie) of cobalt-60, 3.7 megabecquerels (0.1 millicurie) of radium-226, or 37 megabecquerels (1 millicurie) of americium-241 or any other transuranic (i.e., element with atomic number greater than uranium (92)), based on the activity indicated on the label. Each address for a location ofuse, as described under paragraph (c)(13)(iii)(D) of this section, represents a separate general licensee and requiresa separate registration and fee. |  |  |  |
| 31.8 | Americium-241 in the form of calibration and reference sources |  | D | N/A | N/A |  |  |
| 31.11 | General license for use of byproduct material for certain in vivo clinical and laboratory testing |  | D | N/A | N/A |  |  |
| 31.12 | General license for certain items and self-luminous products containing radium-226 |  | C | **Sections 31.12, 31.13, and 31.14****are redesignated as § 31.21, § 31.22, and § 31.23, respectively, §§31.13 through 31.20 are reserved, and a new § 31.12 is****added to read as follows:**(a) A general license is hereby issued to any person to acquire, receive, possess, use, or transfer, in accordance with the provisions of paragraphs (b), (c), and (d) of this section, radium-226 contained in the following products manufactured prior to November 30, 2007.(1) Antiquities originally intended for use by the general public. For the purposes of this paragraph, antiquities mean products originally intended for use by the general public and distributed in the late 19th and early 20th centuries, such as radium emanator jars, revigators, radium water jars, radon generators, refrigerator cards, radium bath salts, and healing pads.(2) Intact timepieces containing greater than 0.037 megabecquerel (1 microcurie), nonintact timepieces, and timepiece hands and dials no longer installed in timepieces.(3) Luminous items installed in air, marine, or land vehicles.(4) All other luminous products, provided that no more than 100 items are used or stored at the same location at any one time.(5) Small radium sources containing no more than 0.037 megabecquerel (1 microcurie) of radium-226. For the purposes of this paragraph, ‘‘small radium sources’’ means discrete surveyinstrument check sources, sources contained in radiation measuring instruments, sources used in educational demonstrations (such as cloud chambers and spinthariscopes), electron tubes, lightning rods, ionization sources, static eliminators, or as designated by the NRC.(b) Persons who acquire, receive,possess, use, or transfer byproduct material under the general license issued in paragraph (a) of this sectionare exempt from the provisions of 10 CFR parts 19, 20, and 21, and § 30.50 and 30.51 of this chapter, to the extent that the receipt, possession, use, or transfer of byproduct material is withinthe terms of the general license;provided, however, that this exemption shall not be deemed to apply to any such person specifically licensed under this chapter.(c) Any person who acquires,receives, possesses, uses, or transfers byproduct material in accordance with the general license in paragraph (a) ofthis section:(1) Shall notify the NRC should there be any indication of possible damage to the product so that it appears it could result in a loss of the radioactive material. A report containing a brief description of the event, and the remedial action taken, must be furnished to the Director of the Office of Federal and State Materials andEnvironmental Management Programs, U.S. Nuclear Regulatory Commission,Washington, DC 20555–0001 within 30 days.(2) Shall not abandon products containing radium-226. The product, and any radioactive material from the product, may only be disposed of according to § 20.2008 of this chapter or by transfer to a person authorized by a specific license to receive the radium- 226 in the product or as otherwise approved by the NRC.(3) Shall not export productscontaining radium-226 except inaccordance with part 110 of this chapter.(4) Shall dispose of productscontaining radium-226 at a disposal facility authorized to dispose of radioactive material in accordance with any Federal or State solid or hazardous waste law, including the Solid WasteDisposal Act, as authorized under the Energy Policy Act of 2005, by transfer to a person authorized to receive radium-226 by a specific license issued under part 30 of this chapter, or equivalent regulations of an Agreement State, or as otherwise approved by the NRC.(5) Shall respond to written requests from the NRC to provide information relating to the general license within 30 calendar days of the date of the request, or other time specified in the request. Ifthe general licensee cannot provide the requested information within the allotted time, it shall, within that same time period, request a longer period to supply the information by providing theDirector of the Office of Federal and State Materials and Environmental Management Programs, by an appropriate method listed in § 30.6(a) of this chapter, a written justification for the request.(d) The general license in paragraph (a) of this section does not authorize the manufacture, assembly, disassembly, repair, or import of products containing radium-226, except that timepieces may be disassembled and repaired. |  |  |  |
| 32.1 (c)(1) | Purpose and scope |  | NRC | **In § 32.1, paragraph (c) is added to read as follows:**(c)(1) The requirements in this part, including provisions that are specific to licensees, shall apply to Government agencies and Federally recognized Indian Tribes with respect to accelerator-produced radioactive material or discrete sources of radium- 226 on November 30, 2007 except thatthe agency or tribe may continue to manufacture or initially transfer items containing accelerator-produced radioactive material or discrete sources of radium-226 for sale or distribution to persons exempted from the licensingrequirements of part 30 of this chapter, and to persons generally licensed under part 31 of this chapter, and radioactivedrugs and sources and devices to medical use licensees, until the date of the NRC’s final licensing determination, provided that the agency or tribe submits a new license application for these activities on or before December 1, 2008 or an amendment application for these activities on or before June 2, 2008. |  |  |  |
| 32.1 (c)(2) | Purpose and scope |  | D | N/A | N/A |  |  |
| 32.57 | Calibration or reference sources containing americium-241 or radium- 226: Requirements for license to manufacture or initially transfer |  | B | **In § 32.57, the heading and the****introductory text are revised to read as follows:**An application for a specific license to manufacture or initially transfer calibration or reference sources containing americium-241 or radium-226, for distribution to persons generally licensed under § 31.8 of this chapter, will be approved if:(a) The applicant satisfies the general requirements of § 30.33 of this chapter;(b) The applicant submits sufficient information regarding each type of calibration or reference source pertinent to evaluation of the potential radiation exposure, including:(1) Chemical and physical form and maximum quantity of americium 241 or radium-226 in the source;(2) Details of construction and design;(3) Details of the method of incorporation and binding of the americium-241 or radium-226 in the source;(4) Procedures for and results of prototype testing of sources, which are designed to contain more than 0.005 microcurie of americium-241 or radium-226, to demonstrate that the americium-241 or radium-226 contained in each source will not be released or be removed from the source under normal conditions of use;(5) Details of quality control procedures to be followed in manufacture of the source;(6) Description of labeling to be affixed to the source or the storage container for the source;(7) Any additional information, including experimental studies and tests, required by the Commission to facilitate a determination of the safety of the source.(c) Each source will contain no more than 5 microcuries of americium-241 or radium-226.(d) The Commission determines, with respect to any type of source containing more than 0.005 microcurie of americium-241 or radium-226, that:(1) The method of incorporation and binding of the americium-241 or radium-226 in the source is such that the americium-241 will not be released or be removed from the source under normal conditions of use and handling of the source; and(2) The source has been subjected to and has satisfactorily passed the prototype tests prescribed by § 32.102, Schedule C, of this part. |  |  |  |
| 32.58 | Same: labeling of devices |  | B | **Section 32.58 is revised to read as follows:**Each person licensed under § 32.57 shall affix to each source, or storage container for the source, a label which shall contain sufficient information relative to safe use and storage of the source and shall include the following statement or a substantially similarstatement which contains theinformation called for in the following statement: The receipt, possession, use, andtransfer of this source, Model , Serial No., are subject to a general license and the regulations of the United States Nuclear Regulatory Commission or of a State with which the Commission has entered into an agreement for the exercise of regulatory authority. Do not remove this label. CAUTION-RADIOACTIVE MATERIAL–THISSOURCE CONTAINS AMERICIUM-241 (or RADIUM-226). DO NOT TOUCHRADIOACTIVE PORTION OF THIS SOURCE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Name of manufacturer or initial transferor) |  |  |  |
| 32.59 | Same: Leak testing of each source |  | B | **Section 32.59 is revised to read as follows:**Each person licensed under § 32.57 shall perform a dry wipe test upon each source containing more than 3.7 kilobecquerels (0.1 microcurie) of americium-241 or radium-226 before transferring the source to a general licensee under § 31.8 of this chapter. This test shall be performed by wiping the entire radioactive surface of the source with a filter paper with the application of moderate finger pressure. The radioactivity on the paper shall be measured by using radiation detection instrumentation capable of detecting 0.185 kilobecquerel (0.005 microcurie) of americium-241 or radium-226. If this test discloses more than 0.185 kilobecquerel (0.005 microcurie) of radioactive material, the source shall be deemed to be leaking or losing americium-241 or radium-226 and shall not be transferred to a general licensee under § 31.8 of this chapter or equivalent regulations of an Agreement State. |  |  |  |
| 32.71 (b)(8) & (c)(1) | Manufacture and distribution of byproduct material for certain in vitro clinical or laboratory testing under general license |  | B | **In § 32.71, paragraph (b)(8) is****added, and paragraph (c)(1) is revised to read as follows:**(b) \* \* \*(8) Cobalt-57 in units not exceeding 0.37 megabecquerel (10 microcuries) each.(c) \* \* \*(1) Identifying the radioactivecontents as to chemical form andradionuclide, and indicating that the amount of radioactivity does not exceed 0.37 megabecquerel (10 microcuries) of iodine-131, iodine-125, selenium-75, orcarbon-14; 1.85 megabecquerels (50 microcuries) of hydrogen-3 (tritium); or 0.74 megabecquerel (20 microcuries) of iron-59; or Mock Iodine-125 in units notexceeding 1.85 kilobecquerels (0.05 microcurie) of iodine-129 and 0.185 kilobecquerel (0.005 microcurie) of americium-241 each; or cobalt-57 in units not exceeding 0.37 megabecquerel(10 microcuries); and |  |  |  |
| 32.72 (a)(2)(i), (iii), (iv), (v), & (b) | Manufacture, preparation, or transfer for commercial distribution of radioactive drugs, containing byproduct material for certain in vitro clinical or laboratory testing under general license |  | B | **In § 32.72, paragraphs (a)(2)(i),****(a)(2)(iii), (a)(2)(iv), (b)(2)(ii), (b)(4), and (b)(5) are revised, and a new paragraph (a)(2)(v) is added to read as follows:**(a) \* \* \*(2) \* \* \*(i) Registered with the U.S. Food and Drug Administration (FDA) as the owner or operator of a drugestablishment that engages in themanufacture, preparation, propagation, compounding, or processing of a drug under 21 CFR 207.20(a);\* \* \* \* \*(iii) Licensed as a pharmacy by a State Board of Pharmacy;(iv) Operating as a nuclear pharmacy within a Federal medical institution; or(v) A Positron Emission Tomography (PET) drug production facility registeredwith a State agency.\* \* \* \* \*(b) \* \* \*(2) \* \* \*(ii) This individual meets therequirements specified in § 35.55(b) and 35.59 of this chapter, and the licensee has received an approved license amendment identifying this individual as an authorized nuclear pharmacist; or\* \* \* \* \*(4) May designate a pharmacist (as defined in § 35.2 of this chapter) as an authorized nuclear pharmacist if:(i) The individual was a nuclearpharmacist preparing only radioactive drugs containing accelerator-producedradioactive material, and(ii) The individual practiced at apharmacy at a Government agency or Federally recognized Indian Tribe before November 30, 2007 or at all other pharmacies before August 8, 2009, or anearlier date as noticed by the NRC.(5) Shall provide to the Commission:(i) A copy of each individual’scertification by a specialty board whose certification process has been recognized by the Commission or an Agreement State as specified in § 35.55(a) of this chapter with the written attestation signed by a preceptoras required by § 35.55(b)(2) of thischapter; or(ii) The Commission or AgreementState license, or(iii) Commission master materialslicensee permit, or(iv) The permit issued by a licensee or Commission master materials permittee of broad scope or the authorization froma commercial nuclear pharmacyauthorized to list its own authorized nuclear pharmacist, or(v) Documentation that onlyaccelerator-produced radioactivematerials were used in the practice of nuclear pharmacy at a Government agency or Federally recognized Indian Tribe before November 30, 2007 or at all other locations of use before August 8,2009, or an earlier date as noticed by the NRC; and(vi) A copy of the State pharmacylicensure or registration, no later than 30 days after the date that the licensee allows, under paragraphs (b)(2)(i) and (b)(2)(iii) of this section, the individual to work as an authorized nuclearpharmacist. |  |  |  |
| 32.102 | Schedule-C prototype tests for calibration or reference sources containing americium-241 |  | B | **In § 32.102, the heading and the****introductory paragraph are revised to read as follows:**An applicant for a license under§ 32.57 shall, for any type of source which is designed to contain more than 0.185 kilobecquerel (0.005 microcurie)of americium-241 or radium-226,conduct prototype tests, in the order listed, on each of five prototypes of the source, which contains more than 0.185 kilobecquerel (0.005 microcurie) ofamericium-241 or radium-226, asfollows:  |  |  |  |
| 33.100 | Schedule A |  | D | N/A | N/A |  |  |
| 35.2 | Definition: Cyclotron |  | D | N/A | N/A |  |  |
| 35.2 | Definition: Positron Emission Tomography (PET) radionuclide production facility |  | H&S | **In § 35.2, new definition for *Positron Emission* *Tomography (PET) radionuclide* *production facility* is added to read as follows:***Positron Emission Tomography (PET) radionuclide production facility* isdefined as a facility operating acyclotron or accelerator for the purposeof producing PET radionuclides. |  |  |  |
| 35.10(a)& (g) | Implementation |  | D | N/A | N/A |  |  |
| 35.11(a) | License required |  | C | **In § 35.11, paragraph (a) is revised to read as follows:**(a) A person may manufacture,produce, acquire, receive, possess, prepare, use, or transfer byproduct material for medical use only in accordance with a specific license issued by the Commission or an Agreement State, or as allowed in paragraph (b) or (c) of this section. |  |  |  |
| 35.11 (c)(1) | License required |  | NRC | **In § 35.11 paragraph (c) is added to read as follows:**(c)(1) A Government agency or aFederally recognized Indian Tribe, that possesses and uses accelerator-produced radioactive material or discrete sources of radium-226 for which a specificmedical use license is required inparagraph (a) of this section, maycontinue to use such materials formedical uses until the date of the NRC’s final licensing determination, provided that the person submits a medical uselicense application on or beforeDecember 1, 2008. |  |  |  |
| 35.11 (c)(2) | License required |  | D | N/A | N/A |  |  |
| 35.13 (a)(1) | License amendments |  | NRC | **In § 35.13, paragraphs (a)(1) is revised to read as follows:**(a) Before it receives, prepares, or uses byproduct material for a type of use that is permitted under this part, but is not authorized on the licensee’s current license issued under this part; except that—(1) A Government agency or aFederally recognized Indian Tribelicensee who possesses and usesaccelerator-produced radioactivematerial or discrete sources of radium-226 may continue to use such material for medical uses permitted under this part until the date of the NRC’s final licensing determination, provided that the licensee submits an amendmentapplication on or before June 2, 2008.  |  |  |  |
| 35.13 (a)(2), (b)(5), (e),  | License amendments |  | D | N/A | N/A |  |  |
| 35.14 (a) & (b)(5) | Notifications |  | D | N/A | N/A |  |  |
| 35.15 (f) | Exemptions regarding Type A specific licenses of broad scope |  | D | N/A | N/A |  |  |
| 35.57 (a)(3) & (b)(3) | Training for experienced Radiation Safety Officer, teletherapy or medical physicist, authorized user, and nuclear pharmacist |  | D | N/A | N/A |  |  |
| 35.63 (b)(2)(ii), (b)(2)(iii), & (c)(3) | Determination of dosages of unsealed byproduct material for medical use |  | H&S | **In § 35.63, paragraphs (b)(2)(ii)****and (c)(3) are revised, and paragraph (b)(2)(iii) is added to read as follows:**(b) \* \* \*(2) \* \* \*(ii) An NRC or Agreement Statelicensee for use in research inaccordance with a Radioactive Drug Research Committee-approved protocol or an Investigational New Drug (IND)protocol accepted by FDA; or(iii) A PET radioactive drug producer licensed under § 30.32(j) of this chapter or equivalent Agreement State requirements.(c) \* \* \*(3) Combination of volumetricmeasurements and mathematicalcalculations, based on the measurement made by:(i) A manufacturer or preparerlicensed under § 32.72 of this chapter or equivalent Agreement State requirements; or(ii) A PET radioactive drug producer licensed under § 30.32(j) of this chapter or equivalent Agreement State requirements. |  |  |  |
| 35.100 (a) & (b) | Use of unsealed byproduct material for uptake, dilution, and excretion studies for which a written directive is not required |  | H&S | **In § 35.100, paragraph (a) and the introductory text of paragraph (b) are revised to read as follows:**(a) Obtained from:(1) A manufacturer or preparerlicensed under § 32.72 of this chapter or equivalent Agreement State requirements; or(2) A PET radioactive drug producer licensed under § 30.32(j) of this chapter or equivalent Agreement State requirements; or(b) Excluding production of PETradionuclides, prepared by: |  |  |  |
| 35.200 (a) & (b) | Use of unsealed byproduct material for imaging and localization studies for which a written directive is not required. |  | H&S | **In § 35.200, paragraph (a) and the introductory text of paragraph (b) are revised to read as follows:**(a) Obtained from:(1) A manufacturer or preparerlicensed under § 32.72 of this chapter or equivalent Agreement State requirements; or(2) A PET radioactive drug producer licensed under § 30.32(j) of this chapter or equivalent Agreement State requirements; or(b) Excluding production of PETradionuclides, prepared by: |  |  |  |
| 35.204 (a) | Permissible molybdenum-99 concentrations |  | H&S | **In § 35.204, the heading and****paragraph (a) are revised to read as follows:** (a) A licensee may not administer to humans a radiopharmaceutical that contains:(1) More than 0.15 kilobecquerel of molybdenum-99 per megabecquerel of technetium-99m (0.15 microcurie ofmolybdenum-99 per millicurie oftechnetium-99m); or(2) More than 0.02 kilobecquerel of strontium-82 per megabecquerel of rubidium-82 chloride injection (0.02 microcurie of strontium-82 per millicurie of rubidium-82 chloride); or more than 0.2 kilobecquerel of strontium-85 per megabecquerel of rubidium-82 chloride injection (0.2 microcurie of strontium-85 permillicurie of rubidium-82). |  |  |  |
| 35.204 (c) & (d) | Permissible molybdenum-99 concentrations |  | D | N/A | N/A |  |  |
|  35.300 (a) & (b) | Use of unsealed byproduct material for which a written directive is required |  | H&S | **In § 35.300, paragraph (a) and the introductory text of paragraph (b) are revised to read as follows:**(a) Obtained from:(1) A manufacturer or preparerlicensed under § 32.72 of this chapter or equivalent Agreement State requirements; or(2) A PET radioactive drug producer licensed under § 30.32(j) of this chapter or equivalent Agreement State requirements; or(b) Excluding production of PETradionuclides, prepared by: |  |  |  |
| 35.2204 | Records of molybdenum-99 concentrations |  | D | N/A | N/A |  |  |
| 50.2 | Definition: Byproduct Material |  | NRC | **In § 50.2, the definition of*****Byproduct material* is revised to read as follows:***Byproduct material* means—(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;(2)(i) Any discrete source of radium- 226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for acommercial, medical, or researchactivity; or(ii) Any material that—(A) Has been made radioactive by use of a particle accelerator; and(B) Is produced, extracted, orconverted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and(3) Any discrete source of naturally occurring radioactive material, other than source material, that—(i) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of anyother appropriate Federal agency,determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and (ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity. |  |  |  |
| 61.2 | Definition: Waste |  | B | **In § 61.2, the definition for *Waste* is revised to read as follows:***Waste* means those low-levelradioactive wastes containing source, special nuclear, or byproduct material that are acceptable for disposal in a landdisposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclearfuel, or byproduct material as defined in paragraphs (2), (3), and (4) of the definition of *Byproduct material* set forth in § 20.1003 of this chapter. |  |  |  |
|  62.2 | Definition: Low- Level radioactive waste |  | NRC | **In § 62.2, the definition for *Low-level radioactive waste (LLW)* is revised to read as follows:***Low-level radioactive waste (LLW)*means radioactive material that—(1) Is not high-level radioactive waste, spent nuclear fuel, or byproduct material (as defined in paragraphs (2), (3), and (4) of the definition of *Byproduct Material* set forth in § 20.1003 of this chapter); and(2) The NRC, consistent with existing law and in accordance with paragraph (1) of this definition, classifies as low levelradioactive waste. |  |  |  |
|  72.3 | Definition: Byproduct Material |  | NRC | **In § 72.3, the definition for*****Byproduct material* is revised to read as follows:***Byproduct material* means—(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;(2)(i) Any discrete source of radium- 226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for acommercial, medical, or researchactivity; or(ii) Any material that—(A) Has been made radioactive by use of a particle accelerator; and(B) Is produced, extracted, orconverted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and(3) Any discrete source of naturally occurring radioactive material, other than source material, that—(i) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of anyother appropriate Federal agency,determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and(ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity. |  |  |  |
| 110.2 | Definition: Accelerator produced radioactive material |  | NRC | **In § 110.2, definition of*****Accelerator-produced radioactive material* is added to read as follows:***Accelerator-produced radioactive**material* means any material maderadioactive by a particle accelerator. |  |  |  |
| 110.2 | Definition:Discrete Source |  | NRC | In § 110.2, definition of *Discrete source* is added to read as follows:*Discrete source* means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities. |  |  |  |
| 110.2 | Definition: Particle accelerator |  | NRC | **In § 110.2, definition of*****Particle accelerator* is added to read as follows:***Particle accelerator* means anymachine capable of acceleratingelectrons, protons, deuterons, or other charged particles in a vacuum and of discharging the resultant particulate or other radiation into a medium at energies usually in excess of 1megaelectron volt. For purposes of this definition, ‘‘accelerator’’ is an equivalent term. |  |  |  |
| 150.3 | Definition: Byproduct material |  | H&S**\*\*\*****(\*\*\*please note 10 CFR 150.3 Definition of Byproduct Material was changed from a Compatibility Category A to a Compatibility Category H&S)** | **In § 150.3, the definition of*****Byproduct material* is revised to read as follows:***Byproduct material* means—(1) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processedprimarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute‘‘byproduct material’’ within thisdefinition; (3)(i) Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for acommercial, medical, or researchactivity; or(ii) Any material that—(A) Has been made radioactive by use of a particle accelerator; and(B) Is produced, extracted, orconverted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and(4) Any discrete source of naturally occurring radioactive material, other than source material, that—(i) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of anyother appropriate Federal agency,determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and(ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity. |  |  |  |
| 150.3 | Definition: Discrete source |  | H&S | **In § 150.3, the definition of *Discrete source* is added to read as follows:***Discrete source* means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities. |  |  |  |

**Appendix B**

 **List of Elements**

|  |  |
| --- | --- |
| **Name** | **Atomic** |
| **Symbol** | **No.** |
| \*\*\*\*\* | \*\* | \*\* |
| Nitrogen | N | 7 |
| \*\*\*\*\*\* | \*\* | \*\* |
| Oxygen | O | 8 |
| \*\*\*\*\*\* | \*\* | \*\* |



**Footnotes**

1 ‘‘Submersion’’ means that values givenare for submersion in a hemispherical semi-infinitecloud of airborne material.

2 These radionuclides have radiological half-lives of less than 2 hours. The total effective dose equivalent received during operations with these radionuclides might include a significant contribution from external exposure. The DAC values for all radionuclides, other than those designated Class ‘‘Submersion,’’ are based upon the committed effective dose equivalent due to the intake of the radionuclide into the body and do not include potentially significant contributions to dose equivalent from external exposures. The licensee may substitute 1E–7 μCi/ml for the listed DAC to account for the submersion dose prospectively, but should use individual monitoring devices or other radiation measuring instruments that measure external exposure to demonstrate compliance with the limits. (See § 20.1203.)

\* \* \* \* \*

**30.71 Schedule B**

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| Byproduct material Microcuries\* \* \* \* \*Cesium 129 (Cs 129) ........... 100\* \* \* \* \*Cobalt 57 (Co 57) ................. 100\* \* \* \* \*Gallium 67 (Ga 67) ............... 100\* \* \* \* \*Germanium 68 (Ge 68) ........ 10\* \* \* \* \*Gold 195 (Au 195) ................ 10\* \* \* \* \*Indium 111 (In 111) .............. 100\* \* \* \* \*Iodine 123 (I 123) ................. 100\* \* \* \* \*Iron 52 (Fe 52) ..................... 10\* \* \* \* \*Potassium 43 (K 43) ............. 10\* \* \* \* \*Rubidium 81 (Rb 81) ............ 10\* \* \* \* \*Sodium 22 (Na 22) ............... 10\* \* \* \* \*Yttrium 87 (Y 87) .................. 10Yttrium 88 (Y 88) .................. 10\* \* \* \* \* |

**30.72 Schedule C**

|  |
| --- |
|  Radioactive material 1 Release fraction Quantity (curies) \* \* \* \* \*Radium-226 ...... 0.001 100 \* \* \* \* \* |