



Arkansas Department of Health

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Governor Mike Beebe

Nathaniel Smith, MD, MPH, Director and State Health Officer

March 11, 2014

Pamela J. Henderson, Deputy Director
Division of Materials Safety and State Agreements
Office of Federal and State Materials and
Environmental Management Programs
U.S. Nuclear Regulatory Commission
T8-E24
Washington, D.C. 20555-0001

Dear Ms. Henderson:

Enclosed is a copy of the proposed revisions to the Arkansas State Board of Health's Rules and Regulations for Control of Sources of Ionizing Radiation, effective October 1, 2012. At the earliest, contingent upon the receipt of NRC comments, these 2014 proposed revisions will be made available for public comment on approximately April 28, 2014 with a request for comments by approximately May 29, 2014. The proposed regulations are identified by line-in/line-out text and by a right-sided border. These regulations correspond to the following equivalent amendments to the NRC's regulations:

RATS ID	Title	State Section
2011-2	Licenses, Certifications, and Approvals for Materials Licensees	Sections 2, 3, and 8

We believe that adoption of these revisions satisfies the compatibility and health and safety categories established in the Office of Federal and State Materials and Environmental Programs (FSME) Procedure SA-200. Attached is a cross-reference for the RATS ID listed above.

Also, please review these additional sections:

RH-402.n.	No equivalent
RH-5002.c.	No equivalent
RH-5408.c.	No equivalent
RH-1800.c. (definitions of "radiographer's assistant," "radiographic operations," "radiography," and "collimator")	10 CFR 34.3
RH-8100. (definition of "prescribed dose")	10 CFR 35.2
Appendix A to Section 3	No equivalent
RH-1210.	No equivalent
RH-1303.f.1./RH-1100.	10 CFR 20.1003
RH-1303.f.3.	10 CFR 20.1701

RH-1303.f.5.A.ii.	10 CFR 20.1703(b)
RH-1400.	10 CFR 20.2001
RH-1403.	No equivalent
RH-1408. title	10 CFR 20.2008
RH-1303.b.	10 CFR 20.1902
RH-1803.b.	10 CFR 34.53

If you have any questions, please contact me at (501) 661-2301 [Bernard.Bevill@arkansas.gov] or Angela Minden of my staff at (501) 661-2528 [Angela.Minden@arkansas.gov].

Sincerely,



Bernard (Bernie) Bevill, Section Chief
Radiation Control Section
Arkansas Department of Health

Enclosures: As stated

BB:AM

Licenses, Certifications, and Approvals for Materials Licensees
(76 FR 56951) RATS ID # 2011-2 Effective date 11/14/2011
Date Due for State Adoption 11/14/2014
ARKANSAS' CROSS-REFERENCE

Change to NRC Section	Title	State Section	Comp. Category	Comments
§ 30.4	Definition: commencement of construction, paragraph 1	RH-200.	D	Definitions to no longer have individual letter/number designations
§ 30.4	Definition: commencement of construction, paragraph 2	NA	NRC	
§ 30.4	Definition: construction, paragraph 1-8, 9(i)	RH-200.	D	
§ 30.4	Definition: construction, paragraph 9(ii)	NA	NRC	
§ 30.33	General requirements for issuance of specific licenses.	RH-404.a.	D	
§ 36.2	Definition: commencement of construction, paragraph 1	RH-7002.	D	
§ 36.2	Definition: commencement of construction, paragraph 2	NA	NRC	
§ 36.2	Definition: construction, paragraph 1-8, 9(i)	RH-7002.	D	
§ 36.2	Definition: construction, paragraph 9(ii)	NA	NRC	
§ 36.13(a)	Specific licenses for irradiators.	RH-7013.a.	H&S	
§ 36.15	Commencement of construction.	RH-7015.	D	Title change

Change to NRC Section	Title	State Section	Comp. Category	Comments
§ 39.13	Specific licenses for well logging.	RH-1913.a.	H&S	Leave as is
§ 40.4	Definition: commencement of construction, paragraph 1	RH-200.	C - States with authority to regulate uranium mill activities (11e.(2) byproduct material) D - States without authority	
§ 40.4	Definition: commencement of construction, paragraph 2	NA	NRC	
§ 40.4	Definition: construction, paragraph 1-8, 9(i)	RH-200.	C - States with authority to regulate uranium mill activities (11e.(2) byproduct material) D - States without authority	
§ 40.4	Definition: construction, paragraph 9(ii)	NA	NRC	
§ 40.32	General requirements for issuance of specific licenses.	NA	H&S - States with authority to regulate uranium mill activities (11e.(2) byproduct material) NRC - States without authority	
§ 70.4	Definition: commencement of construction, paragraph 1	RH-200.	D	
§ 70.4	Definition: commencement of construction, paragraph 2	NA	NRC	

Change to NRC Section	Title	State Section	Comp. Category	Comments
§ 70.4	Definition: construction, paragraph 1-8, 9(i)	RH-200.	D	
§ 70.4	Definition: construction, paragraph 9(ii)	NA	NRC	
§ 70.23	Requirements for the approval of applications.	NA	NRC	
§ 150.31 (b)(3)(iv)	Requirements for Agreement State regulation of byproduct material.	NA	C - States with authority to regulate uranium mill activities (11e.(2) byproduct material) NRC - States without authority	

GENERAL REVISIONS AFFECTING ALL SECTIONS OF THE REGULATIONS:

Please note that definitions in all Sections will have their individual letter/number designations removed. This will cause revision of approximately 4 provisions in the Regulation language itself, where the term's definition will be referred to by its RH number only. Also, one section title will be affected (RH-1408); see Part E to Section 3 revisions below.

CHANGES DUE TO ACCELERATOR REGULATIONS REVISIONS:

**SECTION 2.
LICENSING OF RADIOACTIVE MATERIALS**

RH-402. **General Licenses – Radioactive Material Other Than Source Material ...**

n. Incidentally produced radioactive material generated by the operation of a particle accelerator.

A general license is hereby issued to possess radioactive material produced incidentally to the operation of a particle accelerator. The general license is subject to the applicable provisions of this Section and Section 3. A licensee shall transfer this radioactive material in accordance with Part E of this Section and Section 4. A licensee shall dispose of this radioactive material only by way of Department approved procedures.

**SECTION 3.
STANDARDS FOR PROTECTION AGAINST RADIATION**

**PART I:
RADIATION SAFETY REQUIREMENTS
FOR INDUSTRIAL RADIOGRAPHIC OPERATIONS**

RH-1800. **General Provisions.**

a. Purpose.

The Regulations in this Part establish radiation safety requirements for persons utilizing sources of radiation for industrial radiography. The requirements of this Part are in addition to and not in substitution for other applicable requirements of these Regulations.

b. **Scope.**

The Regulations in this Part apply to all licensees or registrants who use sources of radiation for industrial radiography. Except for the Regulations in this Part clearly applicable only to sealed radioactive sources - ~~both~~ radiation machines, accelerators, and sealed radioactive sources are covered by this Part. The provisions of this Part are not applicable to systems designed exclusively for microscopic examination of material, e.g., x-ray diffraction, spectroscopic and electron microscope equipment, or to systems for intentional exposure of humans to x-rays.

RH-1800.c. ...

36. **Radiographer's assistant** - Any individual who, under the direct supervision of a radiographer, uses radiographic exposure devices, ~~sealed sources~~ sources of radiation, or related handling tools, or radiation survey instrumentation in industrial radiography.
40. **Radiographic operations** - ~~All activities associated with the presence of radioactive sources in a radiographic exposure device or x-ray equipment during use of the device or transport (except when being transported by a common or contract transport), to include surveys to confirm the adequacy of boundaries, setting up equipment and any activity inside restricted area boundaries.~~ All activities performed with a radiographic exposure device, or with a radiation machine or accelerator. Activities include using, transporting (except when being transported by a common or contract carrier), or storing at a temporary job site, performing surveys to confirm the adequacy of boundaries, setting up equipment, and any activity inside restricted area boundaries. Transporting a radiation machine or accelerator is not considered a radiographic operation.
41. **Radiography** - ~~The examination of the structure of materials by nondestructive methods, utilizing sealed sources of radioactive materials. See "industrial radiography."~~

SECTION 6.
LICENSES AND RADIATION SAFETY REQUIREMENTS
FOR PARTICLE ACCELERATORS

RH-5002. **Purpose and Scope.**

- a. ~~These Regulations~~ This Section establishes procedures for the licensing and the use of particle accelerators.
- b. In addition to the requirements of this Section, all licensees are subject to applicable requirements in Sections 3 and 4 of these Regulations. Licensees engaged in industrial radiographic operations are subject to the applicable requirements in Part I of Section 3. Licensees engaged in well-logging operations are subject to the applicable requirements of Part J of Section 3. Licensees who use an accelerator for medical therapy are subject to the applicable requirements in Section 11 of these Regulations.
- c. **Production of radioactive material.**
 - 1. A licensee who produces radioactive material incidentally as a result of the operation of an accelerator shall comply with the general license requirements of RH-402.n.
 - 2. A licensee who produces radioactive material intentionally as a result of the operation of an accelerator shall comply with the specific license requirements of Section 2 of these Regulations.

RH-5408. **Ventilation and Waste Disposal Systems and Waste Disposal.**

- a. Adequate ventilation shall be accomplished in irradiated areas where exposures to airborne radioactivity exceed the limits specified in Table I of Appendix A to Section 3. A licensee shall control occupational dose due to airborne radioactivity so as to meet applicable requirements in "Permissible Doses, Levels, and Concentrations," Part C of Section 3.
- b. A licensee shall not vent, release, or otherwise discharge airborne radioactive materials from irradiated areas to an uncontrolled unrestricted area which exceed the limits specified in Table II of Appendix A to Section 3, except as authorized pursuant to RH-1401. For purposes of this paragraph, concentrations may be averaged over a period not greater than one (1) year, unless the requirements of RH-1208., "Dose Limits for Individual Members of the Public," are met. Every reasonable effort shall be made to maintain releases of radioactive material to unrestricted areas as far below these limits as practicable. Compliance with this paragraph shall be demonstrated in accordance with RH-1209.
- c. All solid and liquid radioactive wastes produced at an accelerator facility must be disposed of in accordance with the provisions of RH-1402. and RH-1403. For radioactive material specific licensees, waste disposal shall

be in accordance with Part E of Section 3 of these Regulations and as stated in the specific license. General licensees subject to RH-402.n. shall dispose of incidentally produced radioactive material only by way of Department approved procedures.

CHANGES DUE TO RATS 2011-2:

**SECTION 2.
LICENSING OF RADIOACTIVE MATERIALS**

RH-200. **Definitions.** ...

1. **Commencement of construction** - ~~Any clearing of land, excavation or other substantial action that would adversely affect the environment of a land disposal facility. The term does not mean disposal site exploration, necessary roads for disposal site exploration, borings to determine foundation conditions or other pre-construction monitoring or testing to establish background information related to the suitability of the disposal site or the protection of environmental values. Any action defined as “construction” or any other activity at the site of a facility subject to the regulations in this Section that has a reasonable nexus to radiological health and safety.~~

Construction - The installation of foundations, or in-place assembly, erection, fabrication, or testing for any structure, system, or component of a facility or activity subject to the regulations in this Section that are related to radiological safety or security. The term “construction” does not include:

1. Changes for temporary use of the land for public recreational purposes;
2. Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;
3. Preparation of the site for construction of the facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

4. Erection of fences and other access control measures that are not related to the safe use of, or security of, radiological materials subject to this part;
5. Excavation;
6. Erection of support buildings (e.g., construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;
7. Building of service facilities (e.g., paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines);
8. Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or
9. Taking any other action that has no reasonable nexus to radiological health and safety.

General Requirements for the Issuance of Specific Licenses.

- a. A license application will be approved if the Department determines that:
1. The applicant is qualified by reason of training and experience to use the material in question for the purpose requested in accordance with Section 3 of these Regulations in such a manner as to minimize danger to public health and safety or property;
 2. The applicant's proposed equipment, facilities and procedures are adequate to protect health and minimize danger to public health and safety or property;
 3. The issuance of the license will not be inimical to the health and safety of the public; ~~and the applicant satisfies any applicable special requirements contained in Section 2, Section 3, Section 8, and Section 9 of these Regulations.~~
 4. The applicant satisfies any applicable special requirements contained in Section 2, Section 3, Section 8, and Section 9 of these Regulations; and
 5. In the case of an application for a license to receive and possess radioactive material for the conduct of any activity which the Department determines will significantly affect the quality of the environment, the Director of the Arkansas Department of Health, or his/her designee, before commencement of construction of the plant or facility in which the activity will be conducted, on the basis of information filed and evaluations made pursuant to Subpart A, "National Environmental Policy Act – Regulations Implementing Section 102(2)," of 10 CFR Part 51, has concluded, after weighing the environmental, economic, technical, and other benefits against environmental costs and considering available alternatives, that the action called for is the issuance of the proposed license, with any appropriate conditions to protect environmental values. Commencement of construction prior to such conclusion shall be grounds for denial of a license to receive and possess radioactive material in such plant or facility. Commencement of construction as defined in RH-200. may include non-construction activities if the activity has a reasonable nexus to radiological safety and security.

Commencement of construction - Any action defined as “construction” or any other activity at the site of a facility subject to the regulations in this Section that has a reasonable nexus to radiological health and safety.

Construction - The installation of foundations, or in-place assembly, erection, fabrication, or testing for any structure, system, or component of a facility or activity subject to the regulations in this Section that are related to radiological safety or security. The term “construction” does not include:

1. Changes for temporary use of the land for public recreational purposes;
2. Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;
3. Preparation of the site for construction of the facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;
4. Erection of fences and other access control measures that are not related to the safe use of, or security of, radiological materials subject to this part;
5. Excavation;
6. Erection of support buildings (e.g., construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;
7. Building of service facilities (e.g., paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines);
8. Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or
9. Taking any other action that has no reasonable nexus to radiological health and safety.

RH-7013. **Specific Licenses for 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.

- a. The applicant shall satisfy the general requirements specified in ~~RH-404.~~ RH-404.a.1.-4. of these Regulations and the requirements contained in this Section. ...

RH-7015. **~~Start~~ Commencement of Construction.**

RH-1913. **Specific Licenses for Well Logging.** *(stays as is)*

The Department will approve an application for a specific license for the use of radioactive material in well logging if the applicant meets the following requirements:

- a. The application shall satisfy the general requirements specified in RH-404. of these Regulations, and any special requirements contained in this Part.

GENERAL CLEAN-UP:

In reviewing some definitions:

RH-1800.c. ...

- ~~11.~~ **Collimator** - ~~A device used to limit the size and direction of radiation;~~ a radiation shield that is placed on the end of the guide tube or directly onto a radiographic exposure device to restrict the size of the radiation beam when the sealed source is cranked into position to make a radiographic exposure.
- ~~30.~~ **Personal supervision** - ~~Supervision such that the supervisor is physically present at the radiography site and in such proximity that contact can be maintained and immediate assistance given as required.~~
- ~~38.~~ **Radiographer instructor** - ~~Any radiographer who has been listed on a specific license from the Department and meeting A~~

radiographer who instructs and supervises radiographer's assistants during on-the-job training and who meets the requirements of RH-1803.f.5.

RH-8100. ...

- a. **Address of use** – The building or buildings that are identified on the license and where radioactive material may be ~~produced, prepared,~~ received, prepared, used, or stored.
- e. **Area of use** – A portion of an address of use that has been set aside for the purpose of receiving, preparing, using, or storing radioactive material.
- ae. **Prescribed dose:**
 - 1. For gamma stereotactic radiosurgery, the total dose as documented in the written directive;
 - 2. For teletherapy, the total dose and dose per fraction as documented in the written directive;
 - 3. For manual brachytherapy, either the total source strength and exposure time or the total dose, as documented in the written directive; or
 - 4. For remote brachytherapy, ~~either the total source strength and exposure time or the total dose,~~ the total dose and dose per fraction as documented in the written directive.

SECTION 3. STANDARDS FOR PROTECTION AGAINST RADIATION

Appendix A to Section 3 is being deleted. Appendix A is currently made reference to in RH-1210, RH-1303.f.1., and RH-5408. RH-5408. is being corrected as part of the Section 6, "Licenses and Radiation Safety Requirements for Particle Accelerators," revision.

~~RH-1210. Radioactivity in Effluents to Uncontrolled Areas.~~

- a. ~~A licensee shall not possess, use, or transfer licensed material so as to release to an uncontrolled area radioactive material in concentrations which exceed the limits specified in Table II of Appendix A to Section 3,~~

~~except as authorized pursuant to RH-1401, or paragraph b of this section. For purposes of this section, concentrations may be averaged over a period not greater than one (1) year.~~

~~b. An application for a license or amendment may include proposed limits higher than those specified in paragraph a of this section. The Department will approve the proposed limits if the applicant demonstrates:~~

- ~~1. That the applicant has made a reasonable effort to minimize the radioactivity contained in effluents to uncontrolled areas; and~~
- ~~2. That it is not likely that radioactive material discharged in the effluent would result in the exposure of an individual to concentrations of radioactive material in air or water exceeding the limits specified in Table II of Appendix A to Section 3.~~

~~c. An application for high limits pursuant to paragraph b of this section shall include information demonstrating that the applicant has made a reasonable effort to minimize the radioactivity discharged in effluents to uncontrolled areas and shall include, as pertinent:~~

- ~~1. Information as to flow rates, total volume of effluent, peak concentration of each radionuclide in the effluent and concentration of each radionuclide in the effluent averaged over a period of one (1) year at the point where the effluent leaves a stack, tube, pipe, or similar conduit.~~
- ~~2. A description of the properties of the effluents, including:~~
 - ~~A. Chemical composition;~~
 - ~~B. Physical characteristics, including suspended solids content in liquid effluents and nature of gas or aerosol for air effluents;~~
 - ~~C. The Hydrogen ion concentrations (pH) of liquid effluents; and~~
 - ~~D. The size range of particulates in effluents released into air.~~
- ~~3. A description of the anticipated human occupancy in the uncontrolled area where the highest concentration of radioactive material from the effluent is expected and, in the case of a river or stream, a description of water uses downstream from the point of release of the effluent.~~

~~RH 1210.c. (Cont'd)~~

- ~~4. Information as to the highest concentration of each radionuclide in an uncontrolled area, including anticipated concentrations averaged over a period of one (1) year:
 - ~~A. In air at any point of human occupancy; or~~
 - ~~B. In water at points of use downstream from the point of release of the effluent.~~~~
- ~~5. The background concentration of radionuclides in the receiving river or stream prior to the release of liquid effluent.~~
- ~~6. A description of the environmental monitoring equipment, including sensitivity of the system and procedures and calculations to determine concentrations of radionuclides in the uncontrolled area and possible reconcentrations of radionuclides.~~
- ~~7. A description of the waste treatment facilities and procedures used to reduce the concentration of radionuclides in effluents prior to their release.~~
- ~~d. For the purposes of this section, the concentration limits in Table II of Appendix A to Section 3 shall apply at the boundary of the controlled area. The concentration of radioactive material discharged through a stack, pipe or similar conduit may be determined with respect to the point where the material leaves the conduit. If the conduit discharges within the controlled area, the concentration at the boundary may be determined by applying appropriate factors for dilution, dispersion or decay between the point of discharge and the boundary.~~
- ~~e. In addition to limiting concentrations in effluent streams, the Department may limit quantities of radioactive materials released in air or water during a specified period of time if it appears that the daily intake resulting from continuous exposure to air or water would contain one-third the concentration of radioactive materials specified in Table II of Appendix A to Section 3.~~
- ~~f. The provisions of this section do not apply to disposal of radioactive material into sanitary sewerage systems, which is governed by RH-1402.~~

~~RH 1210. (Cont'd)~~

~~g. — Soil and vegetation limiting concentrations.~~

- ~~1. — No licensee shall possess, receive, use, or transfer radioactive material in such a manner as to cause contamination of soil or vegetation to the extent that the contamination exceeds the following on a dry weight basis:
 - ~~A. — In unrestricted areas, the concentration limits specified in Table II of Appendix A to Section 3, Column 2, with the units changed from $\mu\text{Ci/ml}$ to $\mu\text{Ci/gm}$; and~~
 - ~~B. — In restricted areas, the concentration limits specified in Table I of Appendix A to Section 3, Column 2, with the units changed from $\mu\text{Ci/ml}$ to $\mu\text{Ci/gm}$.~~~~
- ~~2. — Where combinations of radionuclides are involved, the sum of the ratios between the concentrations present and the limits specified in RH-1203.e. shall not exceed one.~~
- ~~3. — Notwithstanding the limits imposed by RH-1210., the concentration of Radium-226 or Radium-228 in soil averaged over any 100 square meters shall not exceed the background level by more than:
 - ~~A. — 5 pCi/gm, averaged over the first 15 cm of soil below the surface; and~~
 - ~~B. — 15 pCi/gm, averaged over 15 cm thick layers of soil more than 15 cm below the surface.~~~~

RH-1303. ... *reviewed our equivalent to NRC's Subpart H*

~~f. **Airborne radioactivity area.**~~

- ~~1. — As used in these Regulations, "airborne radioactivity area" means:
 - ~~A. — Any room, enclosure or operating area in which airborne radioactive materials exist in concentrations in excess of the amounts specified in Table I of Appendix A to Section 3, Column 1; or~~
 - ~~B. — Any room, enclosure or operating area in which airborne radioactive material exists in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the~~~~

~~amounts specified in Table I of Appendix A to Section 3, Column 1.~~

Deleted. Airborne radioactivity area is defined in RH-1100. ...

(RH-1100. stays as is.)

RH-1303.f.3.

3. Use of process or other engineering controls.

The licensee shall use, to the extent ~~practicable~~ practical, process or other engineering controls (e.g., containment, decontamination, or ventilation) to control the concentrations of radioactive material in air. ...

RH-1303.f.5.

5. Use of individual respiratory protection equipment.

A. If the licensee assigns or permits the use of respiratory protection equipment to limit the intake of radioactive material,

i. The licensee shall use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health (NIOSH) except as otherwise noted in this Section.

ii. If the licensee wishes to use equipment that has not been tested or certified by NIOSH, or for which there is no schedule for testing or certification, the licensee shall submit an application for authorized use of this equipment, except as provided in this Section. The application must include evidence that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use. This must be demonstrated either by licensee testing or on the basis of reliable test information.

RH-1210. was made reference to in RH-1400., so we reviewed our Section 3, Part E and its recordkeeping requirement in RH-1500.h.

PART E. WASTE DISPOSAL

RH-1400. General Requirements.

A licensee shall dispose of licensed material only:

- a. By transfer to an authorized recipient as provided in RH-1406. or in Section 2 of these Regulations, or to the Department of Energy; or
- b. By decay in storage; or
- c. By release in effluents within the limits in RH-12101208.; or
- d. As authorized under RH-1401., RH-1402., ~~RH-1403.,~~ RH-1404., RH-1405., or RH-1408.
- e. A person must be specifically licensed to receive waste containing licensed material from other persons for:
 1. Treatment prior to disposal; or
 2. Treatment or disposal by incineration; or
 3. Decay in storage; or
 4. Storage until transferred to a storage or disposal facility authorized to receive the waste.

RH-1401. Method for Obtaining Approval of Proposed Disposal Procedures.

A licensee or applicant for a license may apply to the Department for approval of proposed procedures, not otherwise authorized in these Regulations ~~in this Section,~~ to dispose of licensed material generated in the licensee's activities. Each application shall include: ...

~~RH 1403. Disposal by Burial in Soil.~~

~~No licensee shall dispose of radioactive material by burial in soil unless specific approval has been granted by the Department.~~

Deleted.

...

RH-1405. **Disposal of Specific Wastes.**

- a. Any licensee may dispose of the following licensed material without regard to its radioactivity:
 1. 0.05 microcuries (1.85 kBq), or less, of ~~H~~hydrogen-3, ~~or~~ Ccarbon-14 ~~or Iodine-125~~ per gram of medium; used for liquid scintillation counting; and
 2. 0.05 microcuries (1.85 kBq), or less, of ~~H~~hydrogen-3, ~~or~~ Ccarbon-14 ~~or Iodine-125~~ per gram of animal tissue, averaged over the weight of the entire animal.
- b. A licensee may not dispose of tissue under paragraph RH-1405.a.2. of this ~~S~~section in a manner that would permit its use either as food for humans or as animal feed.
- c. The licensee shall maintain records in accordance with RH-1500.h.
- ~~d. Nothing in Part E to Section 3, however, relieves the licensee of maintaining records showing the receipt, transfer and disposal of such byproduct material as specified in RH-600.; and~~
- ~~e. Nothing in Part E to Section 3 relieves the licensee from complying with other applicable federal, state and local regulation governing any other toxic or hazardous property of these materials.~~

...

RH-1407. **Compliance with Environmental and Health Protection Regulations.**

Nothing in this ~~Subp~~Part relieves the licensee from complying with other applicable Federal, State, and local regulations governing any other toxic or hazardous properties of materials that may be disposed of under this Part ~~E~~.

RH-1408. **Disposal of ~~RH-1100.q. 3. and 4.~~ Certain Byproduct Material.**

RH-1500. ...

h. **Records of waste disposal.**

1. Each licensee or registrant shall maintain records of the disposal of licensed materials made under RH-1401., RH-1402., ~~RH-1403.,~~ RH-1404., RH-1405., ~~RH-1408.,~~ and disposal by burial in soil, including burials authorized before January 28, 1981.^{8/}
2. The licensee or registrant shall retain the records required by ~~RH-1500-paragraph~~ h.1. of this section until the Department terminates each pertinent license requiring the record. Requirements for disposition of these records, prior to license termination, are located in RH-600.

RAM posting (RH-1303.g.) is to be based off of Appendix H to Section 3 instead of the current Appendix B to Section 3. RH-409., regarding financial assurance, is in Section 2, so Appendix B to Section 3 will become Appendix E to Section 2 and move there.

APPENDIX B TO SECTION 3

APPENDIX E TO SECTION 2

(Quantities ~~F~~for use in with RH-409.h. and RH-1303) ...

Note:

~~For purposes of RH-1303 and RH-1403, w~~Where there is involved a combination of ~~isotopes~~ radionuclides in known amounts, the limit for the combination should be derived as follows: Determine, for each ~~isotope~~ radionuclide in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific ~~isotope~~ radionuclide when not in combination. The sum of such ratios for all ~~the isotopes~~ radionuclides in the combination may not exceed "1" (i.e., "unity"). ~~Example: For purposes of RH-1403, if a particular batch contains 20,000 μCi of Au¹⁹⁸ and 50,000 μCi of C¹⁴, it may also include not more than 300 μCi of I¹³¹. This limit was determined as follows:~~

$$\frac{20,000 \mu\text{Ci Au}^{198}}{100,000 \mu\text{Ci}} + \frac{50,000 \mu\text{Ci C}^{14}}{100,000 \mu\text{Ci}} + \frac{300 \mu\text{Ci I}^{131}}{1,000 \mu\text{Ci}} = 1$$

~~The denominator in each of the above ratios was obtained by multiplying the figure in the Table by 1,000 as provided in RH-1403.~~

RH-409. ...

Future changes will be made in conjunction with RATS 2011-1.

h. **Financial assurance and record keeping for decommissioning.**

1. Each applicant for a specific license authorizing the possession and use of unsealed radioactive material of half-life greater than 120 days and in quantities exceeding 10^5 times the applicable quantities set forth in ~~Appendix B to Section 3~~ Appendix E to Section 2, shall submit a decommissioning funding plan as described in RH-409.h.5. of this section. The decommissioning funding plan must also be submitted when a combination of isotopes is involved if R divided by 10^5 is greater than 1 (unity rule), where R is defined here as the sum of the ratios of the quantity of each isotope to the applicable value in ~~Appendix B to Section 3~~ Appendix E to Section 2.
2. Each holder of or applicant for a specific license authorizing the possession and use of sealed sources or plated foils of half-life greater than 120 days and in quantities exceeding 10^{12} times the applicable quantities set forth in ~~Appendix B to Section 3~~ Appendix E to Section 2 (or when a combination of isotopes is involved if R , as defined in RH-409.h.1., divided by 10^{12} is greater than 1) shall either: ...

4. **Table of required amounts of financial assurance for decommissioning by quantity of material.**

Licensees required to submit the \$1,125,000 amount must do so by December 2, 2006. Licensees required to submit the \$113,000 or \$225,000 amount must do so by June 2, 2007. Licensees having possession limits exceeding the upper bounds of this table must base financial assurance on a decommissioning funding plan.

Greater than 10^4 but less than or equal to 10^5 times the applicable quantities in ~~Appendix B to Section 3~~ Appendix E to Section 2 in unsealed form. (For a combination of isotopes, if R , as defined in RH-409.h.1., divided by 10^4 is greater than 1 but R divided by 10^5 is less than or equal to 1)
..... \$1,125,000

Greater than 10^3 but less than or equal to 10^4 times the applicable quantities in ~~Appendix B to Section 3~~ Appendix E to Section 2 in unsealed form. (For a combination of isotopes, if R , as defined in RH-409.h.1., divided by 10^3 is greater than 1 but R divided by 10^4 is less than or equal to 1)
..... \$225,000

Greater than 10^{10} times the applicable quantities in ~~Appendix B to Section 3~~ Appendix E to Section 2 in sealed sources or plated foils. (For a combination of isotopes, if R, as defined in RH-409.h.1., divided by 10^{10} is greater than 1)

..... \$113,000

RH-1303. ... *regarding posting*

b. ~~**Radiation areas.**~~

~~Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words:~~

~~CAUTION~~ ~~DANGER~~
or
~~RADIATION AREA~~ ~~RADIATION AREA~~

b. **Posting requirements.**

1. **Posting of Radiation Areas.**

The licensee or registrant shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

2. **Posting of High Radiation Areas.**

The licensee or registrant shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."

3. **Posting of Very High Radiation Areas.**

The licensee or registrant shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "GRAVE DANGER (not required to use the word GRAVE, this may be omitted), VERY HIGH RADIATION AREA."

4. **Posting of Airborne Radioactivity Area.**

The licensee or registrant shall post each airborne radioactivity area with a conspicuous sign or signs bearing the radiation symbol

and the words “CAUTION, AIRBORNE RADIOACTIVITY AREA” or “DANGER, AIRBORNE RADIOACTIVITY AREA.”

5. Posting of Areas or Rooms in which Licensed or Registered Material is Used or Stored.

The licensee or registrant shall post each area or room in which there is used or stored an amount of licensed or registered material exceeding ten (10) times the quantity of such material specified in Appendix H to Section 3 with a conspicuous sign or signs bearing the radiation symbol and the words “CAUTION, RADIOACTIVE MATERIAL(S)” or “DANGER, RADIOACTIVE MATERIAL(S).”

~~e. High radiation areas.~~

- ~~1. Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words:~~

~~CAUTION _____ DANGER
or
HIGH RADIATION AREA _____ HIGH RADIATION AREA ...~~

~~Deleted. See RH-1303.b.~~

~~d. ... 2. Posting of very high radiation areas.~~

~~The licensee or registrant shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words:~~

~~GRAVE DANGER, VERY HIGH RADIATION AREA ...~~

~~Deleted. See RH-1303.b.~~

- ~~f. ... 2. Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words:~~

~~CAUTION _____ DANGER
or
AIRBORNE RADIOACTIVITY AREA _____ AIRBORNE RADIOACTIVITY AREA ...~~

~~Deleted. See RH-1303.b.~~

g. **Additional requirements.**

1. ~~Each area or room in which any radioactive material, other than natural uranium or thorium, is used or stored in an amount exceeding ten (10) times the quantity of radioactive material specified in Appendix B to Section 3 shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words:~~

~~CAUTION ————— DANGER~~

~~or~~

~~RADIOACTIVE MATERIAL ————— RADIOACTIVE MATERIAL~~

2. ~~Each area or room in which natural uranium or thorium is used or stored in an amount exceeding 100 times the quantity specified in Appendix B to Section 3 shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words:~~

~~CAUTION ————— DANGER~~

~~or~~

~~RADIOACTIVE MATERIAL ————— RADIOACTIVE MATERIAL~~

~~It shall also provide sufficient information^{3/} to permit individuals handling or using the containers or working in the vicinity thereof, to take precautions to avoid or minimize exposures.~~

Deleted. See RH-1303.b.

Posting reference revision...

RH-1803. **Precautionary procedures in radiographic operations. ...**

b. **Posting.**

All areas in which industrial radiography is being performed must be conspicuously posted as required by RH-1303.b.1. and b.2. ~~and RH-1303.e.~~ Exceptions listed in RH-1304. do not apply to industrial radiographic operations.

RH-1310. **Exemptions to Labeling Requirements.**

A licensee is not required to label:

- a. Containers holding licensed material in quantities less than the quantities listed in Appendix H to Section 3 entitled "Quantities of Licensed or Registered Material Requiring Labeling"; or ...

FOOTNOTES TO SECTION 3

This footnote is to be deleted due to the deletion of RH-1303.g.

~~^{3/} As appropriate, the information will include radiation levels, kinds of material, estimate of activity, date for which activity is estimated, etc.~~

These footnotes are to be deleted because of the deletion of Appendix A to Section 3.

~~^{10/} The duration of sample collection and the duration of measurement should be sufficiently short compared to the time between collection and measurement, as not to have a statistically significant effect upon the results.~~

~~^{16/} Soluble (S); Insoluble (I)~~

~~^{17/} "Sub" means that values given are for submersion in a semi-spherical infinite cloud of airborne material.~~

~~^{18/} For purposes of these Regulations, it may be assumed that the daughter activity concentrations in the following table are equivalent to an air concentration of 10^{-7} microcuries of Radon-222 per milliliter of air in equilibrium with the Radium daughters RaA, RaB, RaC and RaC'.~~

~~^{19/} For soluble mixtures of U-238, U-234 and U-235 in air, chemical toxicity may be the limiting factor. If the percent by weight (enrichment) of U-235 is less than 5, the concentration value for a 40-hour workweek, Table I, is 0.2 milligrams uranium per cubic meter or air average. For any enrichment, the product of the average of concentration and time of exposure during a 40-hour workweek shall not exceed 8×10^{-3} SA $\mu\text{Ci-hr/ml}$, where SA is the specific activity of the uranium inhaled. The concentration value for Table II is 0.007 milligrams uranium per cubic meter of air. The specific activity for natural uranium is 6.77×10^{-7} curies per gram U. The specific activity for other mixtures of U-238, U-235 and U-234, if not known, shall be:~~

$$\text{SA} = 3.6 \times 10^{-7} \text{ Curies/gram U} \text{ ——— U-depleted}$$

$$\text{SA} = [0.4 + 0.38 (\text{enrichment}) + 0.0034 (\text{enrichment})^2] \times 10^{-6} \geq 0.72$$

~~where enrichment is the percentage by weight of U-235, expressed as percent.~~