



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 29, 1997

Mr. Robert Quillin, Director  
Laboratory and Radiation Services Division  
Department of Public Health and Environment  
8100 Lowry Boulevard  
Denver, CO 80220-6928

Dear Mr. Quillin:

The comments below address the review of Colorado regulations sent to the Office of State Programs on March 27 and April 2, 1997.

A. Final Colorado Regulations

1. Licensing Requirements for Land Disposal of Low Level Radioactive Waste, Part 14, Section 14.2, Definitions, "Land disposal facility," and Section 14.7.10 Quality Assurance Program, dated January 1, 1997. The final regulation was reviewed by comparison to the equivalent NRC regulations in 10 CFR Part 61. As a result of our review, we have determined that the regulations are compatible with the equivalent NRC regulations. However, we have one comment as enclosed.
2. Licenses and Radiation Safety Requirements for Irradiators, Part 19, dated July 1, 1997, which became effective January 1, 1997. The final regulation was reviewed by comparison to the equivalent NRC regulation in 10 CFR Part 36. As a result of our review, we have determined that the regulation is compatible with the equivalent NRC regulation.
3. Emergency Plans, RH Part 3, Section 3.9.11, dated January 1, 1994. The final regulation was reviewed by comparison to the equivalent NRC regulations in 10 CFR Parts 30 and 40. As the result of our review, we have determined that the regulation is compatible with the equivalent NRC regulations.
4. Radiation Safety Requirements for Industrial Radiographic Operations, RH Part 5, dated June 30, 1994, and RH 3.10.5, dated December 30, 1990. The final regulation was reviewed by comparison to the equivalent NRC regulation in 10 CFR Part 34. As a result of our review, we have two comments, as enclosed; the second comment needs to be addressed to establish compatible regulations.
5. Uranium Mill Tailings, RH Part 18, Appendix A, dated December 30, 1990, as amended to July 1, 1995. The final regulations were reviewed by

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comparison to the equivalent NRC regulations in 10 CFR Part 40, Appendix A. As a result of our review, we have one comment, as enclosed, that needs to be addressed to establish compatible regulations.

6. Notification of Incidents, RH 4.51 effective January 1, 1994 (§20.2201), RH 4.52, 4.53, 4.54 effective November 30, 1994 (§20.2202-2204), RH 4.52, 4.53 effective November 30, 1994 (§30.50), RH 4.58 effective November 1, 1994 (§34.25), RH 7.13 effective December 30, 1990 (§35.33), RH 4.52, 4.53 effective November 30, 1994 (§40.60, §70.50). The final regulations were reviewed by comparison to the equivalent NRC regulations in 10 CFR Parts 20, 30, 31, 34, 35, 40, and 70, which became effective on December 30, 1990, January 1, 1994, and November 30, 1994. We also discussed our review of the regulations with Jake Jacobi, who was contacted on April 23, 1997. As a result of our review we have one comment, as enclosed, that needs to be addressed to establish compatible regulations.

B. Proposed Colorado Regulations

1. Standards for Protection Against Radiation, RH 4.33.2.4, dated April 1, 1997. The proposed regulation was reviewed by comparison to the equivalent NRC regulation 10 CFR 20.2001 (a) (1). As a result of our review, we have no comment.
2. Notice and Disposition of Records Prior to License Termination and Decommissioning Recordkeeping, RH Part 3, Sections 3.15.4 and 3.16.6.8, dated February 4, 1997. The proposed regulations were reviewed by comparison with the equivalent NRC regulations in 10 CFR 30.35, 10 CFR 30.36, and 10 CFR Part 30, Appendices A and C. As a result of our review, we have no comment.
3. Self-Guarantee as an Additional Financial Assurance Mechanism, RH Part 3.9.5.1.2.5, dated February 4, 1997. The proposed regulation was reviewed by comparison with the equivalent NRC regulations in 10 CFR Parts 30 and 40. As a result of our review, we have no comment.

The proposed regulations, Licensing of Radioactive Material, RH 3.1.1 and RH 3.1.2, dated April 1, 1997, were not reviewed because the equivalent NRC regulations do not impose regulatory requirements that should be adopted by Agreement States for the purpose of program compatibility (Compatibility Division 3).

Please note that we are providing comments only on issues that appear to conflict with Divisions 1 or 2 compatibility requirements. Also, please be aware that under our current procedure, a finding that a regulation meets the compatibility requirements may only be made based on a review of the final text of the regulation. However, we have determined that if the proposed regulations we reviewed were adopted without other significant change, they would be compatible.

Mr. Robert Quillin

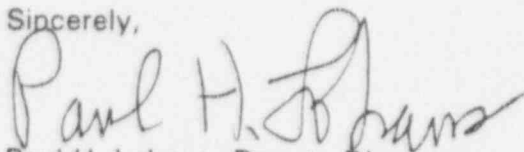
- 3 -

We request that when the proposed regulations are adopted and published as final regulations, a copy of the "as published" regulations be provided to us for review. As requested in our All Agreement States Letter SP-96-027, "Request to Highlight Changes to Agreement State Regulations Submitted to NRC for Compatibility Review" (March 1, 1996), please highlight the final changes and send one copy in a computer readable format, if possible.

Finally, we will correspond separately with you on three other proposed regulations provided to us on April 2, 1997 (Transportation, Timeliness in Decommissioning and LLW Shipment Manifests).

For these regulations, if you have any questions regarding the comments, the compatibility criteria, or the NRC regulation used in the review, please contact me or Dr. Stephen N. Salomon of my staff at (301) 415-2368, or INTERNET: SNS@NRC.GOV.

Sincerely,

A handwritten signature in dark ink, appearing to read "Paul H. Lohaus", written in a cursive style.

Paul H. Lohaus, Deputy Director  
Office of State Programs

Enclosure:  
As stated

Mr. Robert Quillin

- 3 -

MAY 29 1997

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Sincerely,

Original Signed By:  
PAUL H. LOHAUS

Paul H. Lohaus, Deputy Director  
Office of State Programs

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\* See Previous Concurrence.

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DATE	05/16/97*	05/16/97*	05/28/97* By telephone	05/29/97	

OSP FILE CODE: SP-AG-5



## COMMENTS ON FINAL COLORADO REGULATIONS

<u>Div.</u>	<u>State Regulation</u>	<u>NRC Regulation</u>	<u>Subject and Comments</u>
2	RH 14.7.10	61.12(j)	<p>The substitution of "quality assurance program" for "quality control program" is correct. However, the concept of "quality assurance" instead of "quality control" later in the sentence was not carried forward. We recommend that Colorado complete the substitution of "quality assurance" for "quality control" at a future time when the regulation is revised.</p>
2	RH 3.10.5	34.11	<p>Issuance of specific licenses for use of sealed sources in Industrial Radiography.</p> <p>This regulation uses the term "radiographer's assistant." Since a definition of this term has not been adopted, a clarifying revision is recommended. As an alternative to adopting the definition, we recommend that consideration be given to using the term "radiographer trainee," as used in Part 5.</p>
2	RH 5.10	34.25	<p>Leak Testing, Repair, Tagging, Opening, Modification, and Replacement of Sealed Sources.</p> <p>RH 5.10.5 requires the labeling of exposure devices, while the equivalent NRC regulation in 10 CFR 34.25(e) requires the labeling of sealed sources not fastened to or contained in exposure devices. Regulatory requirements for the labeling of exposure devices are found in 10 CFR 34.20(b) and the equivalent Colorado regulation RH 5.5.2. As a result of this, the Colorado regulations do not meet the compatibility criteria with respect to the requirements for labeling of sealed sources not fastened to or contained in exposure devices. As such, RH 5.10.5 should be amended to incorporate the text of 10 CFR 34.25(e).</p>

<u>Div.</u>	<u>State Regulation</u>	<u>NRC Regulation</u>	<u>Subject and Comments</u>
2	RH Part 18 Appendix A	40 App A (except criteria 12)	<p>Criteria for mill operation and 11 e.(2) tailings disposal.</p> <p>The Colorado appendix does not include the definitions and the equivalent of criterion 7 in the NRC regulation. Unless the missing provisions are located elsewhere, the Colorado regulations do not meet the compatibility criteria, and the missing provisions should be adopted.</p>
2	7.13.2	35.33	<p>Notifications, reports of misadministrations.</p> <p>For section 7.13.2 to be compatible the words, "why the event occurred," should be added.</p>

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Paul H. Lohaus, Deputy Director  
Office of State Programs

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\*\* Telephone concurrence.

\* See Previous Concurrence.

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*Telephone approval  
with*

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# < TRANSACTION REPORT >

05-29-1997(THU) 14:26

[ TRANSMIT ]

NO.	DATE	TIME	DESTINATION STATION	PG.	DURATION	MODE	RESULT
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				6	0° 02' 39"		

# < TRANSACTION REPORT >

05-29-1997(THU) 14:15

[ TRANSMIT ]

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32236	5-29	14:12	303 343 3697 <i>B. Quillin</i>	6	0° 02' 54"	NORM.E	OK
				6	0° 02' 54"		

# AGREEMENT STATE REGULATIONS REVIEW RECORD

Colorado rules equivalent to:

10 CFR 30.32, 10 CFR Part 34, 10 CFR Part 40 Appendix A (**Final rules**)

and

10 CFR 30.35, 10 CFR 40.36, 10 CFR Part 30 Appendices A & C (**Proposed rules**)

April 1997

**Rule Package: Colorado 1997 IMPEP**

<u>Div</u>	<u>Definition</u>	<u>CFR Citation</u>	<u>State Citation</u>	<u>Comments</u>
2	Permanent radiographic installation	34.2	[RH 5.3]	:
2	Radiographer	34.2	[RH 5.3]	:
2	Radiographer's assistant	34.2	[]	:
	OR: Radiographer trainee	-	[RH 5.3]	:
2	Radiographic exposure device	34.2	[RH 5.3]	:
2	Radiography (Industrial radiography)	34.2	[RH 5.3]	:
2	Source changer	34.2	[RH 5.3]	:
2	Sealed source	use definition in	30.4	:
2	Storage area	34.2	[RH 5.3]	:
2	Storage container	34.2	[RH 5.3]	:

ALL OTHER DEFINITIONS UNCHANGED

**Rule Package:** Colorado 1997 IMPEP

Division and  
CFR citation

Rule subject

State citation

Comments

**10 CFR PART 30 - RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL**

2	30.32(i)	Application - emergency planning	[RH 3.9.11]	:final rule meets compatibility criteria
2	30.35	Financial assurance and recordkeeping for decommissioning	[RH 3.9.5]	:subsections reviewed as noted below:
2	30.35 (a) - (d)	- applicability	[RH 3.9.5.1.2.5]	:proposed rule - adds provisions from part 40, meets compatibility criteria
2	30.35 (e)	- decommissioning plans	[RH 3.9.5.3.1]	:proposed rule - adopts equivalent requirements, meets compatibility criteria
2	30.35 (f)(2)	- guarantee methods	[RH 3.9.5.2.4]	:proposed rule - adopts self-guarantee provisions, meets compatibility criteria
2	30.35(g)	- decommissioning recordkeeping requirements	[RH 3.16.6.8]	:proposed rule - adopts equivalent requirements, meets compatibility criteria
2*	30.51[except(e)]	Records	[RH 3.15.4]	:proposed rule - adopts disposition of records rule, meets compatibility criteria
2	30 Appendix A	Financial tests and parent company guarantees for decommissioning	[Part 3 appendix A]	:proposed amendments to existing rule, meets compatibility criteria
2	30 Appendix C	Financial tests and self guarantees for decommissioning	[Part 3 Appendix B]	:proposed rule, meets compatibility criteria

**10 CFR Part 34 LICENSES FOR RADIOGRAPHY AND RADIATION SAFETY REQUIREMENTS  
FOR RADIOGRAPHIC OPERATIONS**

1	34.2	Definitions	[RH 5.3]	:all submitted rules in part 5 are final rules
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**Rule Package: Colorado 1997 IMPEP**Division and  
CFR citation

Rule subject

State citation

Comments

2 34.11	Issuance of specific licenses for use of sealed sources in Industrial Radiography	[RH 3.10.5]	:addresses radiographer assistants, not radiographer trainees, does not meet compatibility criteria
2 34.20	Performance requirements for radiography equipment	[RH 5.5]	:does not include the 6/30/95 amendments due for States by 6/30/98, otherwise meets compatibility criteria
2 34.21	Radiation level limits for IR equipment	[RH 5.6]	:
2 34.22	Locking of radiographic equipment	[RH 5.7]	:
2 34.23	Storage precautions	[RH 5.8]	:
2 34.24	Radiation survey instruments	[RH 5.9]	:
2 34.25	Leak Testing, Repair, Tagging, Opening, Modification, and Replacement of Sealed Sources	[RH 5.10]	:RH 5.10.5 addresses exposure devices, while 34.25(e) addresses sealed sources, does not meet compatibility criteria
2 34.26	Quarterly inventory	[RH 5.11]	:
2 34.27	Utilization logs	[RH 5.12]	:
2 34.28	Inspection and maintenance of radiographic equipment	[RH 5.13]	:
2 34.30	Reporting requirements	[RH 5.15]	:
2 34.31	Training	[RH 5.16]	:
2 34.32	Operating and emergency procedures	[RH 5.17]	:
2 34.33	Personnel monitoring	[RH 5.18]	:
2 34.41	Security	[RH 5.20]	:

**Rule Package:** Colorado 1997 IMPEP

Division and

<u>CFR citation</u>	<u>Rule subject</u>	<u>State citation</u>	<u>Comments</u>
* 34.42	Posting	[RH 5.21]	:Category C under draft revised B.7
2 34.43	Radiation surveys	[RH 5.22]	:
2 34 Appendix A	Required subjects for training instruction	[Part 5 appendix A]	:

**10 CFR Part 40 DOMESTIC LICENSING OF SOURCE MATERIAL**

2* 40 Appendix A (except criteria 12)	Criteria for mill operation and 11e.(2) tailings disposal	[Part 18 Appendix A]	:final rule, does not include definitions; Criterion 6A(3), first line, change "report" to "request"; does not include the equivalent of criteria 7 which may be located elsewhere in the rules; does not include the equivalent of criteria 9 or 10, which may be located in part 9 of the rules.
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ALL OTHER RULES UNCHANGED

EXECUTIVE TASK MANAGEMENT SYSTEM

<<< PRINT SCREEN UPDATE FORM >>>

TASK # - 7S-85

DATE- 04/07/97

MAIL CTRL. - 1997

TASK STARTED - 04/07/97

TASK DUE - 04/21/97

TASK COMPLETED - / /

TASK DESCRIPTION - COLORADO DEFINITION OF LAND DISPOSAL AND WASTE SITE QA  
PROGRAM, PART 61

REQUESTING OFF. - COL

REQUESTER - QUILLIN

WITS - 0 FYP - N

PROG. - SNS

PERSON -

STAFF LEAD - SNS

PROG. AREA -

PROJECT STATUS -

OSP DUE DATE: 4/22/97

PLANNED ACC. - N

LEVEL CODE - 1

## PART 14

### LICENSING REQUIREMENTS FOR LAND DISPOSAL OF LOW LEVEL RADIOACTIVE WASTE

#### General Provisions

#### RH 14.1 Purpose and Scope.

14.1.1 The regulations in this part establish procedure, criteria, and terms and conditions upon which the Department issues licenses for the land disposal of low-level radioactive wastes received from other persons. The requirements of this part are in addition to, and not in substitution for, other applicable requirements of these regulations.

14.1.2 The regulations in this part do not apply to disposal of byproduct material as defined in the second definition of "byproduct material" in RH 1.4 of these regulations in quantities greater than 10,000 kilograms containing more than 185 MBq (5 millicuries) of radium-226, or disposal of waste as provided for in Part 4 of these regulations.

14.1.3 This part establishes procedural requirements and performance objectives applicable to any method of land disposal. It establishes specific technical requirements for near-surface disposal of low-level radioactive waste which involves disposal in the uppermost portion of the earth, approximately 30 meters. Burial deeper than 30 meters may also be satisfactory.

#### RH 14.2 Definitions. As used in this part, the following definitions apply:

"Active maintenance" means any significant activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives in RH 14.18 and 14.19 are met. Such active maintenance includes ongoing activities such as the pumping and treatment of water from a disposal unit or one-time measures such as replacement of a disposal unit cover. Active maintenance does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit covers, and general disposal site upkeep such as mowing grass.

"Buffer zone" means a portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site.

"Chelating agent" means amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acid and polycarboxylic acids.

"Commencement of construction" means any clearing of land, excavation, or other substantial action that would adversely affect the environment of a disposal facility. The term does not mean disposal site exploration, necessary roads for disposal site exploration, borings to determine foundation conditions, or other preconstruction monitoring or testing to establish background information related to the suitability of the disposal site or the protection of environmental values.

"Custodial Agency" means an agency of the government designated to act on behalf of the federal or state government owner of the disposal site.

"Disposal" means the isolation of radioactive wastes from the biosphere inhabited by man and his food chains by emplacement in a land disposal facility with no intention of retrieval.

"Disposal site" means the portion of a land disposal facility which is used for disposal of waste. It consists of disposal units and a buffer zone.

"Disposal unit" means a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal the unit is usually a trench.

"Engineered barrier" means a man-made structure or device that is intended to improve the land disposal facility's ability to meet the performance objectives in this part.

"Explosive material" means any chemical compound, mixture, or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks of flame.

"Hazardous waste" means those wastes designated as hazardous by U.S. Environmental Protection Agency regulations in 40 CFR Part 261.

"Hydrogeologic unit" means any soil or rock unit or zone which by virtue of its porosity or permeability, or lack thereof, has a distinct influence on the storage or movement of groundwater.

"Inadvertent intruder" means a person who might occupy the disposal site after closure and engage in normal activities, such as agriculture, dwelling construction, or other pursuits in which an individual might be unknowingly exposed to radiation from the waste.

"Intruder barrier" means a sufficient depth of cover over the waste that inhibits contact with waste and helps to ensure that radiation exposures to an inadvertent intruder will meet the performance objectives set forth in this part, or engineered structures that provide equivalent protection to the inadvertent intruder.

✓ "Land disposal facility" means the land, buildings and structures, and equipment which are intended to be used for the disposal of low-level radioactive wastes.



"Monitoring" means observing and making measurements to provide data to evaluate the performance and characteristics of the disposal site.

"Near-surface disposal facility" means a land disposal facility in which low-level radioactive waste is disposed of within approximately the upper 30 meters of the earth's surface.

"Pyrophoric liquid" means any liquid that ignites spontaneously in dry or moist air at or below 130°F (54.4°C).

"Pyrophoric solid" means any solid material, other than one classed as an explosive, which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and which ignited burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard. Included are spontaneously combustible and water-reactive materials.

"Site closure and stabilization" means those actions that are taken upon completion of operations that prepare the disposal site for custodial care and that assure that the disposal site will remain stable and will not need ongoing active maintenance.

"Stability" means structural stability.

"Surveillance" means monitoring and observation of the disposal site for purposes of visual detection of need for maintenance, custodial care, evidence of intrusion, and compliance with other license and regulatory requirements.

"Waste" means radioactive waste other than:

1. Waste generated as a result of the defense activities of the federal government or federal research and development activities;
2. High-level waste such as irradiated reactor fuel, liquid waste from reprocessing irradiated reactor fuel, or solids into which any such liquid waste has been converted;
3. Waste materials containing transuranic elements with contamination levels greater than one hundred nanocuries (3700 bq) per gram of material;
4. Byproduct material as defined in Section 11.e.(2) of the "Atomic Energy Act of 1954", as amended on November 8, 1978;\* or
5. Waste from mining, milling, smelting, or similar processing of ores and mineral-bearing material primarily for minerals other than radium;\*

\* The disposal of these materials is licensed under Part III of the regulations.

PH 14.3      License Required

14.3.1      No person may receive, possess, and dispose of waste received from other persons at a land disposal facility unless authorized by a license issued by the Department pursuant to this Part, and Part III of these regulations.

14.3.2      Each person shall file an application with the Department pursuant RH 3.8 of these regulations and obtain a license as provided in this part before commencement of construction of land disposal facility. Failure to comply with this requirement may be grounds for denial of a license.

RH 14.4      Reserved

RH 14.5      Content of Application. In addition to the requirements set forth in RH 3.9 of these regulations, an application to receive from others, possess and dispose of wastes shall consist of general information, specific technical information, institutional information, and financial information as set forth in RH 14.6 through 14.10.

14.5.1      The licensee shall submit written statements under oath upon request of the Department, to enable the Department to determine the qualifications of individuals, the status of site operators, and whether or not additional actions at the site might be warranted.

RH 14.6      General Information. The general information shall include each of the following:

14.6.1      Identity of the application including:

14.6.1.1      The full name, address, telephone number and description of the business or occupation of the applicant;

14.6.1.2      If the applicant is a partnership, the name and address of each partner and the principal location where the partnership does business;

14.6.1.3      If the applicant is a corporation or an unincorporated association, (i) the state where it is incorporated or organized and the principal location where it does business, and (ii) the names and addresses of its directors and principal officers; and

14.6.1.4      If the applicant is acting as an agent or representative of another person in filing the application, all information required under 14.6.1 must be supplied with respect to the other person.

- 14.6.2       Qualifications of the applicant:
- 14.6.2.1       The organizational structure of the applicant, both offsite and onsite, including a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contract provisions, or otherwise;
- 14.6.2.2       The technical qualifications, including training and experience, of the applicant and members of the applicant's staff to engage in the proposed activities. Minimum training and experience requirements for personnel filling key positions described in 14.6.2.1 must be provided.
- 14.6.2.3       A description of the applicant's personnel training program; and
- 14.6.2.4       The plan to maintain an adequate complement of trained personnel to carry out waste receipt, handling, and disposal operations in a safe manner.
- 14.6.3       A description of:
- 14.6.3.1       The location of the proposed disposal site;
- 14.6.3.2       The general character of the proposed activities;
- 14.6.3.3       The types and quantities of waste to be received, possessed, and disposal of;
- 14.6.3.4       Plans for use of the land disposal facility for purposes other than disposal of wastes; and
- 14.6.3.5       The proposed facilities and equipment.
- 14.6.4       Proposed schedules for construction, receipt of waste, and first emplacement of waste at the proposed land disposal facility.
- RH 14.7       Specific Technical Information. The specific technical information shall include the following information needed for demonstration that the performance objectives and the applicable technical requirements of this part will be met:
- 14.7.1       A description of the natural and demographic disposal site characteristics as determined by disposal site selection and characterization activities. The description shall include, but not be limited to, geologic, geotechnical, geochemical, ecologic, archeological, hydrologic, meteorologic, climatologic, and biotic features of the disposal site and vicinity.

- 14.7.2 A description of the design features of the land disposal facility and the disposal units. For near-surface disposal, the description shall include those design features related to infiltration of water; integrity of covers for disposal units, structural stability of backfill, wastes, and covers; contact of wastes with standing water; disposal site drainage; disposal site closure and stabilization; elimination to the extent practicable of long-term disposal site maintenance; inadvertent intrusion; occupational exposures; disposal site monitoring; and adequacy of the size of the buffer zone for monitoring and potential mitigative measure.
- 14.7.3 A description of the principal design criteria and their relationship to the performance objectives.
- 14.7.4 A description of the design basis natural events or phenomena and their relationship to the principal design criteria.
- 14.7.5 A description of codes and standards which the applicant has applied to the design and which will apply to construction of the land disposal facilities.
- 14.7.6 A description of the construction and operation of the land disposal facility. The description shall include as a minimum the methods of construction of disposal units; waste emplacement; the procedure for and areas of waste segregation; types of intruder barriers; onsite traffic and drainage systems; survey control program; methods and areas of waste storage; and methods to control surface water and groundwater access to the wastes. The description shall also include a description of the methods to be employed in the handling and disposal of wastes containing chelating agents or other non-radiological substances that might affect meeting the performance objectives of this part.
- 14.7.7 A description of the disposal site closure plan, including those design features which are intended to facilities disposal site closure and to eliminate the need for ongoing active maintenance.
- 14.7.8 An identification of the known natural resources at the disposal site, whose exploitation could result in inadvertent intrusion into the waste after removal of active institutional control.
- 14.7.9 A description of the kind, amount, classification and specifications of the radioactive materials proposed to be received, possessed, and disposed of at the land disposal facility.
- 14.7.10 A description of the quality assurance program developed and applied by the applicant for the determination of natural disposal site characteristics and for quality control during the design, construction, operation and closure of the land disposal facility and the receipt, handling, and emplacement of waste. Audits and managerial controls must be included.

- 14.7.11 A description of the radiation safety program for control and monitoring of radioactive effluents to ensure compliance with the performance objective in RH 14.19 and occupational radiation exposure to ensure compliance with the requirements of Part IV of these regulations and to control contamination of personnel, vehicles, equipment, buildings, and the disposal site. Both routine operations and accidents shall be addressed. The program description must include procedures, instrumentation, facilities, and equipment.
- 14.7.12 A description of the environmental monitoring program to provide data to evaluate potential health and environmental impacts and the plan for taking corrective measures if migration is indicated.
- 14.7.13 A description of the administrative procedures that the applicant will apply to control activities at the land disposal facility.
- 14.7.14 A description of the facility electronic recordkeeping system as required in RH 14.33.
- RE 14.8 Technical Analyses. The specific technical information shall also include the following analyses needed to demonstrate that the performance objectives of this part will be met:
- 14.8.1 Pathways analyzed in demonstrating protection of the general population from release of radioactivity shall include air, soil, groundwater, surface water, plant uptake, and exhumation by burrowing animals. The analyses shall clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses shall clearly demonstrate that there is reasonable assurance that the exposures to humans from the release of radioactivity will not exceed the limits set forth in RH 14.19.
- 14.8.2 Analyses of the protection of individuals from inadvertent intrusion shall include demonstration that there is reasonable assurance the waste classification and segregation requirements will be met and that adequate barriers to inadvertent intrusion will be provided.
- 14.8.3 Analyses of the protection of individuals during operations shall include assessments of expected exposures due to routine operations and likely accidents during handling, storage, and disposal of waste. The analyses shall provide reasonable assurance that exposures will be controlled to meet the requirements of Part IV of these regulations.
- 14.8.4 Analyses of the long-term stability of the disposal site and the need for ongoing active maintenance after closure shall be based upon analyses of active natural processes such as erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal areas and adjacent soils, and surface drainage of the disposal site. The analyses shall provide reasonable assurance that there will not be a need for ongoing active maintenance of the disposal site following closure.



- RH 14.9      Institutional Information. The institutional information submitted by the applicant shall include:
- 14.9.1      A certification by the federal or state custodial agency which owns the disposal site that the federal or state agency is prepared to accept transfer of the license when the provisions of RH 14.16 are met, and will assume responsibility for institutional control after site closure and post-closure observation and maintenance.
- 14.9.2      Where the proposed disposal site is on land not owned by the federal or state government, the applicant shall submit evidence that arrangements have been made for assumption of ownership in fee by the federal or a state agency before the Department issues a license.
- RH 14.10     Financial Information. The financial information shall be sufficient to demonstrate that the financial qualifications of the applicant are adequate to carry out the activities for which the license is sought and meet other financial assurance requirements of this part.
- RH 14.11     Requirements for Issuance of a License. A license for the receipt, possession, and disposal of waste containing or contaminated with radioactive material will be issued by the Department upon finding that:
- 14.11.1      The issuance of the license will not constitute an unreasonable risk to the health and safety of the public;
- 14.11.2      The applicant is qualified by reason of training and experience to carry out the disposal operations requested in a manner that protects health and minimizes danger to life or property;
- 14.11.3      The applicant's proposed disposal site, disposal design, land disposal facility operations, including equipment, facilities, and procedures, disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they provide reasonable assurance that the general population will be protected from releases of radioactivity as specified in the performance objective in Rh 14.19;
- 14.11.4      The applicant's proposed disposal site, disposal site design, land disposal facility operations, including equipment, facilities, and procedures, disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they will provide reasonable assurance that individual inadvertent intruders are protected in accordance with the performance objective in RH 14.20;
- 14.11.5      The applicant's proposed land disposal facility operations, including equipment, facilities, and procedures, are adequate to protect the public health and safety in that they will provide reasonable assurance that the standards for radiation protection set out in Part IV of these regulations will be met;

- 14.11.6 The applicant's proposed disposal site, disposal site design, land disposal facility operations, disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they will provide reasonable assurance that long-term stability of the disposed waste and the disposal site will be achieved and will eliminate to the extent practicable the need for ongoing active maintenance of the disposal site following closure;
- 14.11.7 The applicant's demonstration provides reasonable assurance that the applicable technical requirements of this part will be met;
- 14.11.8 The applicant's proposal for institutional control provides reasonable assurance that such control will be provided for the length of time found necessary to ensure the findings in Rh 14.11.3 through 14.11.6 and that the institutional control meets the requirements of 14.28; and
- 14.11.9 The financial or surety arrangement meets the requirements of this part.
- RH 14.12 Conditions of Licensure.
- 14.12.1 A license issued under these regulations for the purpose of near-surface land disposal of low-level radioactive wastes, or any right thereunder, may be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, only if the Department finds, after securing full information, that the transfer is in accordance with the provisions of the Act and gives its consent in writing in the form of a license amendment.
- 14.12.2 The license will be terminated only on the full implementation of the final closure plan as approved by the Department, including postclosure observation and maintenance.
- 14.12.3 The licensee shall be subject to the provisions of the Act now or hereafter in effect, and to all rules, regulations, and orders of the Department. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to, or by reason of rules, regulations, and orders issued in accordance with the terms of the Act.
- 14.12.4 Each person licensed by the Department pursuant to the regulations in this part shall confine possession and use of materials to the locations and purposes authorized in the license.
- 14.12.5 The licensee shall not dispose of waste until the Department has inspected the land disposal facility and has found it to be in conformance with the description, design, and construction described in the application for a license.

- 14.12.6 The Department may incorporate in any license at the time of issuance, or thereafter, by appropriate rule, regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession, and disposal of waste as it deems appropriate or necessary in order to:
- 14.12.6.1 Protect health or to minimize danger to life or property;
- 14.12.6.2 Require reports and the keeping of records, and to provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of the Act and regulations thereunder.
- 14.12.7 The authority to dispose of wastes expires on the date stated in the license. Any expiration date on a license applied only to the above ground activities and to the authority to dispose of waste. Failure to renew the license shall not relieve the licensee of responsibility for carrying out site closure, postclosure observation and transfer of the license to the site owner.
- RH 14.13 Application for Renewal or Closure.
- 14.13.1 An application for renewal, or an application for closure under RH 14 must be filed at least one year prior to license expiration.
- 14.13.2 Applications for renewal of a license must be filed in accordance with RH 14.5 through 14.10. Applications for closure must be filed in accordance with RH 14.14. Information contained in previous applications, statements or reports filed with the Department under the license may be incorporate by reference if the references are clear and specific.
- 14.13.3 In any case in which a licensee has filed an application in proper form for renewal of a license, the license does not expire until the Department has taken final action on the application for renewal.
- 14.13.4 In determining whether a license will be renewed, the Department will apply the criteria set forth in RH 14.11.
- RH 14.14 Contents of Application for Site Closure and Stabilization.
- 14.14.1 Prior to final closure of the disposal site, or as otherwise directed by the Department, the applicant shall submit an application to amend the license for closure. This closure application shall include a final revision and specific details of the disposal site closure plan included as part of the license application submitted under RH 14.7.8 that includes each of the following:
- 14.14.1.1 Any additional geologic, hydrologic, or other data pertinent to the long-term containment of emplaced wastes obtained during the operational period.

- 14.14.1.2 The results of tests, experiments, or any other analyses relating to backfill of excavated areas, closure and sealing, waste migration and interaction with emplacement media, or any other tests, experiments, or analysis pertinent to the long-term containment of emplaced waste within the disposal site.
- 14.14.1.3 Any proposed revision of plans for:
- 14.14.1.3.1 Decontamination and/or dismantlement of surface facilities;
- 14.14.1.3.2 Backfilling of excavated areas; or
- 14.14.1.3.3 Stabilization of the disposal site for post closure care.
- 14.14.1.4 Any significant new information regarding the environmental impact of closure activities and long-term performance of the disposal site.
- 14.14.2 Upon review and consideration of an application to amend the license for closure submitted in accordance with RH 14.14.1, the Department shall issue an amendment authorizing closure if there is reasonable assurance that the long-term performance objectives of this part will be met.
- RH 14.15 Post-Closure Observation and Maintenance. The licensee shall observe, monitor, and carry out necessary maintenance and repairs at the disposal site until the site closure is complete and the license is transferred by the Department in accordance with RH 14.16. Responsibility for the disposal site must be maintained by the licensee for 5 years following closure. A shorter or longer time period for post-closure observation and maintenance may be established and approved as part of the site closure plan, based on site-specific conditions.
- RH 14.16 Transfer of License. Following closure and the period of post-closure observation and maintenance, the licensee may apply for an amendment to transfer the license to the disposal site owner. The license shall be transferred when the Department finds:
- 14.16.1 That the closure of the disposal site has been made in conformance with the licensee's disposal site closure plan, as amended and approved as part of the license;
- 14.16.2 That reasonable assurance has been provided by the licensee that the performance objectives of this part are met;
- 14.16.3 That any funds and necessary records for care will be transferred to the disposal site owner;
- 14.16.4 That the post-closure monitoring program is operational for implementation by the disposal site owner; and

14.16.5 That the federal or state agency which will assume responsibility for institutional control of the disposal site is prepared to assume responsibility and ensure that the institutional requirements found necessary under RH 14.11.8 will be met.

RH 14.17 Termination of License.

14.17.1 Following any period of institutional control needed to meet the requirements found necessary under RH 14.11, the licensee may apply for an amendment to terminate the license.

14.17.2 This application will be reviewed in accordance with the provisions of RH 3.8 of these regulations.

14.17.3 A license shall be terminated only when the Department finds:

14.17.3.1 That the institutional control requirements found necessary under RH-14.11.8 have been met;

14.17.3.2 That any additional requirements resulting from new information developed during the institutional control period have been met; and

14.17.3.3 That permanent monuments or markers warning against intrusion have been installed.

Performance Objectives

RH 14.18 General Requirement. Land disposal facilities shall be sited, designed, operated, closed, and controlled after closure so that reasonable assurance exists that exposures to individuals are within the requirements established in the performance objectives in RH 14.19 through 14.22.

RH 14.19 Protection of the General Population from Releases of Radioactivity. Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals shall not result in an annual dose exceeding an equivalent of 25 millirems (0.25 mSv) to the thyroid, and 25 millirems (0.25 mSv) to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

RH 14.20 Protection of Individuals from Inadvertent Intrusion. Design, operation, and closure of the land disposal facility shall ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed.



- RH 14.21 Protection of Individuals During Operations. Operations at the land disposal facility shall be conducted in compliance with the standards for radiation protection set out in Part IV of these regulations, except for releases of radioactivity in effluents from the land disposal facility, which shall be governed by RH 14.19. Every reasonable effort should be made to maintain radiation exposures as low as is reasonably achievable.
- RH 14.22 Stability of the Disposal Site After Closure. The disposal facility shall be sited, designed, used, operated, and closed to achieve long-term stability of the disposal site and to eliminate, to the extent practicable, the need for ongoing active maintenance of the disposal site following closure so that only surveillance, monitoring, or minor custodial care are required.

Technical Requirements for Land Disposal Facilities

- RH 14.23 Disposal Site Suitability Requirements for Land Disposal.
- 14.23.1 Disposal Site Suitability for Near-Surface Disposal. The primary emphasis in near-surface disposal site suitability is given to isolation of wastes, and to the disposal site features that ensure that the long-term performance objectives are met.
- 14.23.1.1 The disposal site shall be capable of being characterized, modeled, analyzed and monitored.
- 14.23.1.2 Within the region where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet the performance objectives of this part.
- 14.23.1.3 Areas shall be avoided having known natural resources which, if exploited, would result in failure to meet the performance objectives of this part.
- 14.23.1.4 The disposal site shall be generally well drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area or wetland, as defined in Executive Order 1988, "Flood plain Management Guidelines."
- 14.23.1.5 Upstream drainage areas shall be minimized to decrease the amount of runoff which could erode or inundate waste disposal units.
- 14.23.1.6 The disposal site shall provide sufficient depth to the water table that ground water intrusion, perennial or otherwise, into the waste will not occur. The Department will consider an exception to the requirement to allow disposal below the water table if it can be conclusively shown that disposal site characteristics will result in molecular diffusion being the predominant means of radionuclide movement and the rate of movement will result in the performance objectives being met. In no case will waste disposal be permitted in the zone of fluctuation of the water table.

- 14.23.1.7 The hydrogeologic unit used for disposal shall not discharge ground water to the surface within the disposal site.
- 14.23.1.8 Areas shall be avoided where tectonic processes such as faulting, folding, seismic activity, or vulcanism may occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of this part or may preclude defensible modeling and prediction of long-term impacts.
- 14.23.1.9 Area shall be avoided where surface geologic processes such as mass wasting, erosion, slumping, landsliding, or weathering occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of this part, or may preclude defensible modeling and prediction of long-term impacts.
- 14.23.1.10 The disposal site must not be located where nearby facilities or activities could adversely impact the ability of the site to meet the performance objectives of this part or significantly mask the environmental monitoring program.
- 14.23.2 Reserved
- RH 14.24 Disposal Site Design for Land Disposal.
- 14.24.1 Disposal Site Design for Near-Surface Disposal.
- 14.24.1.1 Site design features shall be directed toward long-term isolation and avoidance of the need for continuing active maintenance after site closure.
- 14.24.1.2 The disposal site design and operation shall be compatible with the disposal site closure and stabilization plan and lead to disposal site closure provides reasonable assurance that the performance objectives will be met.
- 14.24.1.3 The disposal site shall be designed to complement and improve, where appropriate, the ability of the disposal site's natural characteristics to assure that the performance objectives will be met.
- 14.24.1.4 Covers shall be designed to minimize to the extent practicable water infiltration, to direct percolating or surface water away from the disposed waste, and to resist depredation by surface geologic processes and biotic activity.
- 14.24.1.5 Surface features shall direct surface water drainage away from disposal units at velocities and gradients which will not result in erosion that will require ongoing active maintenance in the future.



- 14.24.1.6 The disposal site shall be designed to minimize to the extent practicable the contact of water with waste during storage, the contact of standing water with waste during disposal, and the contact of percolating or standing water with wastes after disposal.
- 14.24.2 Reserved
- RH 14.25 Land Disposal Facility Operation and Disposal Site Closure.
- 14.25.1 Near-Surface Disposal Facility Operation and Disposal Site Closure.
- 14.25.1.1 Wastes designated as Class A pursuant to Part 4, Appendix E of these regulations shall be segregated from other wastes by placing in disposal units which are sufficiently separated from disposal units for the other waste classes so that any interaction between Class A wastes and other wastes will not result in the failure to meet the performance objectives of this part. This segregation is not necessary for Class A wastes if they meet the stability requirements in Part 4, Appendix E, II(b) of these regulations.
- 14.25.1.2 Wastes designated as Class C pursuant to Part 4, Appendix E, of these regulations shall be disposed of so that the top of the waste is a minimum of sixteen feet (5 meters) below the top surface of the cover or must be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for at least 500 years.
- 14.25.1.3 Except as provided in RH 14.25.1.12 only waste classified as Class A, B, or C shall be acceptable for near-surface disposal. All waste shall be disposed of in accordance with requirements of RH 14.25.1.4 through 14.25.1.11.
- 14.25.1.4 Wastes shall be emplaced in a manner that maintains the package integrity during emplacement, minimizes the void spaces between packages, and permits the void spaces to be filled.
- 14.25.1.5 Void spaces between waste package shall be filled with earth or other material to reduce future subsidence within the fill.
- 14.25.1.6 Waste shall be placed and covered in a manner that limits the radiation dose rate at the surface of the cover to levels that at a minimum will permit the licensee to comply with all provisions of RH 4.15.2.2 of these regulations at the time the license is transferred pursuant to RH 14.16.

- 14.25.1.7 The boundaries and locations of each disposal unit shall be accurately located and mapped by means of a land survey. Near-surface disposal units shall be marked in such a way that the boundaries of each unit can be easily defined. Three permanent survey marker control points, referenced to United States Geological Survey (USGS) or National Geodetic Survey (NGS) survey control stations, shall be established on the site to facilitate surveys. The USGS or NGS control stations shall provide horizontal and vertical controls as checked against USGS or NGS record files.
- 14.25.1.8 A buffer zone of land shall be maintained between any buried waste and the disposal site boundary and beneath the disposal waste. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in RH 14.26.4 and take mitigative measure if needed.
- 14.25.1.9 Closure and stabilization measures as set forth in the approval site closure plan shall be carried out as each disposal unit is filled and covered.
- 14.25.1.10 Active waste disposal operations shall not have any adverse effect on completed closure and stabilization measures.
- 14.25.1.11 Only wastes containing or contaminated with radioactive material shall be disposed of at the disposal site.
- 14.25.1.12 Proposals for disposal of waste that is not generally acceptable for near-surface disposal because the waste form and disposal methods must be different, and in general more stringent than those specified for Class C waste may be submitted to the Department for approval.
- 14.25.2 Reserved
- RH 14.26 Environmental Monitoring.
- 14.26.1 At the time a license application is submitted, the applicant shall have conducted a preoperational monitoring program to provide basic environmental data on the disposal site characteristics. The applicant shall obtain information about the ecology, meteorology, climate, hydrology, geology, geochemistry, and seismology of the disposal site. For those characteristics that are subject to seasonal variation, data must cover at least a twelve month period.
- 14.26.2 During the land disposal facility site construction and operation, the licensee shall maintain an environmental monitoring program. Measurements and observations must be made and recorded to provide data to evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system must be capable of providing early warning of releases of waste from the disposal site before they leave the site boundary.

- 14.26.3 After the disposal site is closed, the licensee responsible for post-operational surveillance of the disposal site shall maintain a monitoring system based on the operating history and the closure and stabilization of the disposal site. The monitoring system must be capable of providing early warning of releases of waste from the disposal site before they leave the site boundary.
- 14.26.4 The licensee shall have plans for taking corrective measures if the environmental monitoring program detects migration of waste which would indicate that the performance objectives may not be met.
- RH 14.27 Alternative Requirements for Design and Operations. The Department may, upon request or on its own initiative, authorize provision other than those set forth in RH 14.24 through 14.26 for the segregation and disposal of waste and for the design and operation of a land disposal facility on a specific basis, if it finds reasonable assurance of compliance with the performance objectives of this part.
- RH 14.28 Institutional Requirements.
- 14.28.1 Land Ownership. Disposal of waste received from other persons may be permitted only on land owned in fee by the federal or a state government.
- 14.28.2 Institutional Control. The land owner or custodial agency shall conduct an institutional control program to physically control access to the disposal site following transfer or control of the disposal site from the disposal site operator. The institutional control program shall also include, but not be limited to, conducting an environmental monitoring program at the disposal site, periodic surveillance, minor custodial and other requirements as determined by the Department; and administration of funds to cover the costs for these activities. The period of controls will be determined by the Department, but controls may not be relied upon for more than 100 years following transfer of control of the disposal site to the owner.
- RH 14.29 Alternative Requirements for Waste Classification and Characteristics. The Department may, upon request or on its own initiative, authorize other provisions for the classification and characteristics of waste on a specific basis, if, after evaluation of the specific characteristics of the waste, disposal site, method of disposal, it finds reasonable assurance of compliance with the performance objectives specified in this part.

#### Financial Assurances

- RH 14.30 Applicant Qualifications and Assurances. Each applicant shall show that it either possesses the necessary funds or has reasonable assurance of obtaining the necessary funds, or by a combination of the two, to cover the estimated costs of conducting all licensed activities over the planned operating life of the project, including costs construction and disposal.

RH 14.31 Funding for Disposal Site Closure and Stabilization.

- 14.31.1 The applicant shall provide assurance prior to the commencement of operations that sufficient funds will be available to carry out disposal site closure and stabilization, including: (1) decontamination or dismantlement of land disposal facility structures; and (2) closure and stabilization of the disposal site so that following transfer of the disposal site to the site owner, the need for ongoing active maintenance is eliminated to the extent practicable and only minor custodial care, surveillance, and monitoring are required. These assurance shall be based on Department-approved cost estimates reflecting the Department-approved plan for disposal site closure and stabilization. The applicant's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the closure and stabilization work.
- 14.31.2 In order to avoid unnecessary duplication and expense, the Department will accept financial sureties that have been consolidated with earmarked financial or surety arrangements established to meet requirements of federal or other state agencies for such decontamination, closure and stabilization. The Department will accept these arrangements only if they are considered adequate to satisfy the requirements of RH 14.31 and that the portion of the surety which covers the closure of the disposal site is clearly identified and committed for use in accomplishing these activities.
- 14.31.3 The licensee's financial surety arrangement shall be submitted annually for review by the Department to assure that sufficient funds will be available for completion of the closure plan.
- 14.31.4 The amount of the licensee's financial surety arrangement shall change in accordance with changes in predicted costs of closure and stabilization. Factors affecting closure and stabilization cost estimates include: inflation, increase in the amount of disturbed land, changes in engineering plans, closure and stabilization that has already been accomplished, and any other conditions affecting costs. The financial or surety arrangement shall be sufficient at all times to cover the costs of closure and stabilization of the disposal units that are expected to be used before the next license renewal.
- 14.31.5 The financial or surety arrangement shall be written for a specified period of time and shall be automatically renewed unless the person who issues the surety notifies the Department, the beneficiary (the site owner), and the principal (the licensee) not less than 90 days prior to the renewal date of its intention not to renew. In such a situation the licensee must submit a replacement surety within 30 days after notification of cancellation. If the licensee fails to provide a replacement acceptable to the Department, the beneficiary may collect on the original surety arrangement.

- 14.31.6 Proof of forfeiture shall not be necessary to collect the surety so that in the event the licensee could not provide an acceptable replacement surety within the required time, the surety shall be automatically collected prior to its expiration. the conditions described above shall be clearly stated on any surety instrument.
- 14.31.7 Financial or surety arrangements generally acceptable to the Department include: surety bonds, cash deposits, certificates of deposit, deposits of government securities, escrow accounts, irrevocable letters or lines of credit, trust funds, and combinations of the above or such other types of arrangements as may be approved by the Department. Self-insurance, or any arrangement which essentially constitutes self-insurance shall not satisfy the surety requirement for private sector applicant.
- 14.31.8 The licensee's financial surety arrangement shall remain in effect until the closure and stabilization program has been completed and approved by the Department, and the license has been transferred to the site owner.
- RH 14.32 Financial Assurances for Institutional Controls.
- 14.32.1 Prior to the issuance of the license, the applicant shall provide a binding arrangement for Department approval, between the applicant and the disposal site owner that ensures that sufficient funds will be available to cover the costs of monitoring and any required maintenance during the institutional control period. The binding arrangement shall be reviewed annually by the Department to ensure that changes in inflation, technology, and disposal facility operations are reflected in the arrangements.
- 14.32.2 Subsequent changes to the binding arrangement specified in RH 14.32.1 relevant to institutional control shall have prior approval by the Department.

#### Records, Reports, Tests, and Inspections

- RH 14.33 Maintenance of Records, Reports, and Transfers.
- 14.33.1 Each licensee shall maintain any records and make any reports in connection with the licensed activities as may be required by the conditions of the license or by the rules, regulations, and orders of the Department.
- 14.33.2 Records which are required by these regulations or by license conditions shall be maintained for a period specified by the appropriate regulations or by license condition. If a retention period is not otherwise specified, these records must be maintained and transferred to the officials specified in RH 14.33.4 as a condition of license termination unless the Department otherwise authorizes their disposition.
- 14.33.3 Records which shall be maintained pursuant to this part may be the original or a reproduced copy or microfilm if this reproduced copy or microfilm is capable of producing copy that is clear and legible at the end of the required retention period.



- 14.33.4 Notwithstanding RH 14.33.1 through 14.33.3, copies of records of the location and the quantity of wastes contained in the disposal site must be transferred upon license termination to the chief executive of the nearest municipality, the chief executive of the county in which the facility is located, the county zoning board or land development and planning agency, the state governor and other local, state and federal governmental agencies as designated by the Department at the time of license termination.
- 14.33.5 Following receipt and acceptance of a shipment of radioactive waste, the licensee shall record the date that the shipment is received at the disposal facility, the date of disposal of the waste, a traceable shipment manifest number, a description of any engineered barrier or structural overpack provided for the disposal of the waste, the location of disposal at the disposal site, the containment integrity of the waste disposal containers as received, any discrepancies between materials listed on the manifest and those received, the volume of any pallets, bracing, or other shipping or onsite generated materials that are contaminated, and are disposed of as contaminated or suspect materials, and any evidence of leaking or damaged disposal containers or radiation or contamination levels in excess of limits specified in the U.S. Department of Transportation and Department regulations. The licensee shall briefly describe any repackaging operations of any of the disposal containers included in the shipment, plus any other information required by the Department as a license condition. The licensee shall retain these records in accordance with RH 3.15.4 until the license that authorizes the activities described in this section is transferred or terminated.
- 14.33.6 Each licensee authorized to dispose of waste received from other persons shall file a copy of its financial report or a certified financial statement annually with the Department in order to update the information base for determining financial qualifications.
- 14.33.7 Annual Reports.
- 14.33.7.1 Each licensee authorized to dispose of waste received from other persons, pursuant to this part, shall submit annual reports to the Department. Reports shall be submitted by the end of the first calendar quarter of each year for the preceding year.
- 14.33.7.2 The reports shall include:
- 14.33.7.2.1 Specification of the quantity of each of the principal contaminants released to unrestricted areas in liquid and in airborne effluents during the preceding year,
- 14.33.7.2.2 the results of the environmental monitoring program,
- 14.33.7.2.3 a summary of licensee disposal unit survey and maintenance activities,
- 14.33.7.2.4 a summary, by waste class, of activities and quantities of radionuclides disposed of,

- 14.33.7.2.5 any instances in which observed site characteristics were significantly different from those described in the application for a license, and
- 14.33.7.2.6 any other information the Department may require.
- 14.33.7.2.7 If the quantities of waste released during the reporting period, monitoring results, or maintenance performed are significantly different from those predicted, the report must cover this specifically.
- 561.80  
(1)  
14.33.8 In addition to the other requirements of this section, the licensee shall store, or have stored, manifest and other information pertaining to receipt and disposal of radioactive waste in an electronic recordkeeping system.
- 14.33.8.1 The manifest information that must be electronically stored is:
- 14.33.8.1.1 That required in Appendix G of Part 4, with the exception of shipper and carrier telephone numbers and shipper and consignee certifications;
- 14.33.8.1.2 That information required in RH 14.33.5.
- 14.33.8.2 As specified in facility license conditions, the licensee shall report the stored information, or subsets of this information, on a computer readable medium.
- RH 14.34 Tests on Land Disposal Facilities. Each licensee shall perform, or permit the Department to perform, any tests the Department deems appropriate or necessary for the administration of the regulations in this part, including, but not limited to, tests of:
- 14.34.1 Wastes;
- 14.34.2 Facilities used for the receipt, storage, treatment, handling or disposal of wastes;
- 14.34.3 Radiation detection and monitoring instruments; and
- 14.34.4 Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage, or disposal of waste.
- RH 14.35 Agency Inspections of Land Disposal Facilities.
- 14.35.1 Each licensee shall afford to the Department at all reasonable times opportunity to inspect radioactive waste not yet disposed of, and the premises, equipment, operations, and facilities in which wastes are received, possessed, handled, treated, stored, or disposed.
- 14.35.2 Each licensee shall make available to the Department for inspection, upon reasonable notice, records kept by it pursuant to these regulations. Authorized representatives of the Department may copy and take away copies of, for the Department's use, any record required to be kept pursuant to these regulations.



UNITED STATES NUCLEAR REGULATORY COMMISSION  
RULES and REGULATIONS

TITLE 10, CHAPTER 1, CODE OF FEDERAL REGULATIONS — ENERGY

**PART  
61**

**LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE**

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Authority: Secs. 53, 57, 82, 83, 85, 81, 161, 182, 183, 66 Stat. 930, 932, 933, 935, 948, 953, 954, as amended (42 U.S.C. 2073, 2077, 2092, 2093, 2095, 2111, 2201, 2232, 2233); secs. 202, 206, 88 Stat. 1244, 1246, (42 U.S.C. 5842, 5846); secs. 10 and 14, Pub. L. 95-601, 92 Stat. 2951 (42 U.S.C. 2021a and 5851) and Pub. L. 102-486, sec. 2902, 106 Stat. 3123, (42 U.S.C. 5851).

**Subpart A—General Provisions**

§ 61.1 Purpose and scope.  
(a) The regulations in this part establish, for land disposal of radioactive waste, the procedures, criteria, and terms and conditions upon which the Commission issues licenses for the disposal of radioactive wastes containing byproduct, source and special nuclear material received from other persons. Disposal of waste by an individual licensee is set forth in Part 20 of this chapter. Applicability of the

requirements in this Part to Commission licenses for waste disposal facilities in effect on the effective date of this rule will be determined on a case-by-case basis and implemented through terms and conditions of the license or by orders issued by the Commission.

(b) Except as provided in Part 150 of this chapter, which addresses assumption of certain regulatory authority by Agreement States, and § 61.6 "Exemptions," the regulations in this part apply to all persons in the United States. The regulations in this part do not apply to (1) disposal of high-level waste as provided for in Part 60 of this chapter; (2) disposal of uranium or thorium tailings or wastes (byproduct material as defined in § 40.4(a-1)) as provided for in Part 40 of this chapter in quantities greater than 10,000 kilograms and containing more than five (5) millicuries of radium-226; or (3) disposal of licensed material as provided for in Part 20 of this chapter.

(c) This part also gives notice to all persons who knowingly provide to any licensee, contractor, or subcontractor, components, equipment, materials, or other goods or services, that relate to a licensee's activities subject to this part, that they may be individually subject to NRC enforcement action for violation of § 61.9b.

#### § 61.2 Definitions.

As used in this part:

"Active maintenance" means any significant remedial activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives in §§ 61.41 and 61.42 are met. Such active maintenance includes ongoing activities such as the pumping and treatment of water from a disposal unit or one-time measures such as replacement of a disposal unit cover. Active maintenance does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit covers, and general disposal site upkeep such as mowing grass.

"Buffer zone" is a portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site.

"Chelating agent" means amine polycarboxylic acids (e.g., EDTA, DTPA), hydroxy-carboxylic acids, and polycarboxylic acids (e.g., citric acid, carboxylic acid, and glucinic acid).

"Commencement of construction" means 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 preconstruction monitoring or testing to establish background information related to the suitability of the disposal site or the protection of environmental values.

"Commission" means the Nuclear Regulatory Commission or its duly authorized representatives.

"Custodial Agency" means an agency of the government designated to act on behalf of the government owner of the disposal site.

"Director" means the Director, Office of Nuclear Material Safety and Safeguards, U. S. Nuclear Regulatory Commission.

"Disposal" means the isolation of radioactive wastes from the biosphere inhabited by man and containing his food chains by emplacement in a land disposal facility.

"Disposal site" means that portion of a land disposal facility which is used for disposal of waste. It consists of disposal units and a buffer zone.

"Disposal unit" means a discrete portion of the disposal site into which waste is placed for disposal. For near surface disposal the unit is usually a trench.

"Engineered barrier" means a man-made structure or device that is intended to improve the land disposal facility's ability to meet the performance objectives in Subpart C.

"Explosive material" means any chemical compound, mixture, or device, which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

"Government agency" means any executive department, commission, independent establishment, or corporation, wholly or partly owned by the United States of America which is an instrumentality of the United States; or any board, bureau, division, service, office, officer, authority, administration, or other establishment in the executive branch of the government.

"Hazardous waste" means those wastes designated as hazardous by Environmental Protection Agency regulations in 40 CFR Part 261.

"Hydrogeologic unit" means any soil or rock unit or zone which by virtue of its porosity or permeability, or lack thereof, has a distinct influence on the storage or movement of groundwater.

"Inadvertent intruder" means a person who might occupy the disposal site after closure and engage in normal activities, such as agriculture, dwelling construction, or other pursuits in which the person might be unknowingly exposed to radiation from the waste.

"Indian Tribe" means an Indian tribe as defined in the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450).

"Intruder barrier" means a sufficient depth of cover over the waste that inhibits contact with waste and helps to ensure that radiation exposures to an inadvertent intruder will meet the performance objectives set forth in this part, or engineered structures that provide equivalent protection to the inadvertent intruder.

"Land disposal facility" means the land, buildings and structures, and equipment which are intended to be used for the disposal of radioactive wastes. For purposes of this chapter, a "geologic repository" as defined in part 60 is not considered a "land disposal facility."

"License" means a license issued under the regulations in Part 61 of this chapter. "Licensee" means the holder of such a license.

"Monitoring" means observing and making measurements to provide data to evaluate the performance and characteristics of the disposal site.

"Near-surface disposal facility" means a land disposal facility in which radioactive waste is disposed of in or within the upper 30 meters of the earth's surface.

"Person" means (1) any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, government agency other than the Commission or the Department of Energy (except that the Department of Energy is considered a person within the meaning of the regulations in this part to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the Commission pursuant to law), any State or any political subdivision of or any political entity within a State, any foreign government or nation or any political subdivision of any such government or nation, or other entity; and (2) any legal successor, representative, agent, or agency of the foregoing.

"Pyrophoric liquid" means any liquid that ignites spontaneously in dry or moist air at or below 130°F (54.5°C). A pyrophoric solid is any solid material, other than one classified as an explosive, which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling, or disposal hazard. Included are spontaneously combustible and water-reactive materials.

"Site closure and stabilization" means those actions that are taken upon completion of operations that prepare the disposal site for custodial care and that assure that the disposal site will remain stable and will not need ongoing active maintenance.

"State" means any State, Territory, or possession of the United States, Puerto Rico, and the District of Columbia.

"Stability" means structural stability.

"Surveillance" means observation of the disposal site for purposes of visual detection of need for maintenance, custodial care, evidence of intrusion, and compliance with other license and regulatory requirements.

"Tribal Governing Body" means a Tribal organization as defined in the Indian Self-Determination and Education Assistance Act (25 U.S.C. 480).

"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 waste has the same meaning as in the Low-Level Waste Policy Act, that is radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in section 11a.(2) of the Atomic Energy Act (uranium or thorium tailings and waste).

#### § 61.3 License required.

(a) No person may receive, possess, and dispose of radioactive waste containing source, special nuclear, or byproduct material at a land disposal facility unless authorized by a license issued by the Commission pursuant to this part, or unless exemption has been granted by the Commission under § 61.6 of this part.

(b) Each person shall file an application with the Commission and obtain a license as provided in this part before commencing construction of a land disposal facility. Failure to comply with this requirement may be grounds for denial of a license.

#### § 61.4 Communications.

Except where otherwise specified, all communications and reports concerning the regulations in this part and applications filed under them should be addressed to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Communications, reports, and applications may be delivered in person at the Commission's Offices at 2120 L Street, NW., Washington, DC, or 11555 Rockville Pike, Rockville, Maryland.

#### § 61.5 Interpretations.

Except as specifically authorized by the Commission in writing, no interpretation of the meaning of the regulations in this part by any officer or employee of the Commission other than a written interpretation by the General Counsel will be considered binding upon the Commission.

#### § 61.6 Exemptions.

The Commission may, upon application by any interested person, or upon its own initiative, grant any exemption from the requirements of the regulations in this part as it determines is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest.

#### § 61.7 Concepts.

(a) *The disposal facility.* (1) Part 61 is intended to apply to land disposal of radioactive waste and not to other methods such as sea or extraterrestrial disposal. Part 61 contains procedural requirements and performance objectives applicable to any method of land disposal. It contains specific technical requirements for near-surface disposal of radioactive waste, a subset of land disposal, which involves disposal in the uppermost portion of the earth, approximately 30 meters. Near-surface disposal includes disposal in engineered facilities which may be built totally or partially above-grade provided that such facilities have protective earthen covers. Near-surface disposal does not include disposal facilities which are partially or fully above-grade with no protective earthen cover, which are referred to as "above-ground disposal." Burial deeper than 30 meters may also be satisfactory. Technical requirements for alternative methods may be added in the future.

(2) *Near-surface disposal of radioactive waste* takes place at a near-surface disposal facility, which includes all of the land and buildings necessary to carry out the disposal. The disposal site is that portion of the facility which waste is used for disposal of waste and consists of disposal units and a buffer zone. A disposal unit is a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal, the disposal unit is usually a trench. A buffer zone is a portion of the disposal site that is controlled by the licensee and that lies under the site and between the boundary of the disposal site and any disposal unit. It provides controlled space to establish monitoring locations which are intended to provide an early warning of radionuclide movement, and to take mitigative measures if needed. In choosing a disposal site, site characteristics should be considered in terms of the indefinite future and evaluated for at least a 500 year time frame.



(b) *Waste Classification and Near-Surface Disposal.* (1) Disposal of radioactive waste in near-surface disposal facilities has the following safety objectives: protection of the general population from releases of radioactivity, protection of individuals from inadvertent intrusion, and protection of individuals during operations. A fourth objective is to ensure stability of the site after closure.

(2) A cornerstone of the system is stability—stability of the waste and the disposal site so that once emplaced and covered, the access of water to the waste can be minimized. Migration of radionuclides is thus minimized, long-term active maintenance can be avoided, and potential exposures to intruders reduced. While stability is a desirable characteristic for all waste much radioactive waste does not contain sufficient amounts of radionuclides to be of great concern from these standpoints; this waste, however, tends to be unstable, such as ordinary trash type wastes. If mixed with the higher activity waste, their deterioration could lead to failure of the system and permit water to penetrate the disposal unit and cause problems with the higher activity waste. Therefore, in order to avoid placing requirements for a stable waste form on relatively innocuous waste, these wastes have been classed as Class A waste. The Class A waste will be disposed of in separate disposal units at the disposal site. However, Class A waste that is stable may be mixed with other classes of waste. Those higher activity wastes that should be stable for proper disposal are classed as Class B and C waste. To the extent that it is practicable, Class B and C waste forms or containers should be designed to be stable, i.e., maintain gross physical properties and identity, over 300 years. For certain radionuclides prone to

migration, a maximum disposal site inventory based on the characteristics of the disposal site may be established to limit potential exposure.

(3) It is possible but unlikely that persons might occupy the site in the future and engage in normal pursuits without knowing that they were receiving radiation exposure. These persons are referred to as inadvertent intruders. Protection of such intruders can involve two principal controls: institutional control over the site after operations by the site owner to ensure that no such occupation or improper use of the site occurs; or, designating which waste could present an unacceptable risk to an intruder, and disposing of this waste in a manner that provides some form of intruder barrier that is intended to prevent contact with the waste. This regulation incorporates both types of protective controls.

(4) Institutional control of access to the site is required for up to 100 years. This permits the disposal of Class A and Class B waste without special provisions for intrusion protection, since these classes of waste contain types and quantities of radioisotopes that will decay during the 100-year period and will present an acceptable hazard to an intruder. The government landowner administering the active institutional control program has flexibility in controlling site access which may include allowing productive uses of the land provided the integrity and long-term performance of the site are not affected.

(5) Waste that will not decay to levels which present an acceptable hazard to an intruder within 100 years is designated as Class C waste. This waste is disposed of at a greater depth than the other classes of waste so that subsequent surface activities by an intruder will not disturb the waste. Where site conditions prevent deeper disposal, intruder barriers such as concrete covers may be used. The effective life of these intruder barriers should be 500 years. A maximum concentration of radionuclides is specified for all wastes so that at the end of the 500 year period, remaining radioactivity will be at a level that does not pose an unacceptable hazard to an intruder or public health and safety. Waste with concentrations above these limits is generally unacceptable for near-surface disposal. There may be some instances where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design. These will be evaluated on a case-by-case basis. Class C waste must also be stable.

(c) *The Licensing Process.* (1) During the preoperational phase, the potential applicant goes through a process of disposal site selection by selecting a region of interest, examining a number of possible disposal sites within the area of interest and narrowing the choice to the proposed site. Through a detailed investigation of the disposal site characteristics the potential applicant obtains data on which to base an analysis of the disposal site's suitability. Along with these data and analyses, the applicant submits other more general information to the Commission in the form of an application for a license for land disposal. The Commission's review of the application is in accordance with administrative procedures established by rule and may involve participation by affected State governments or Indian tribes. While the proposed disposal site must be owned by a State or the Federal government before the Commission will issue a license, it may be privately owned during the preoperational phase if suitable arrangements have been made with a State or the Federal government to take ownership in fee of the land before the license is issued.

(2) During the operational phase, the licensee carries out disposal activities in accordance with the requirements of this regulation and any conditions on the license. Periodically, the authority to conduct the above ground operations and dispose of waste will be subject to a license renewal, at which time the operating history will be reviewed and a decision made to permit or deny continued operation. When disposal operations are to cease, the licensee applies for an amendment to his license to permit site closure. After final review of the licensee's site closure and stabilization plan, the Commission may approve the final activities necessary to prepare the disposal site so that ongoing active maintenance of the site is not required during the period of institutional control.

(3) During the period when the final site closure and stabilization activities are being carried out, the licensee is in a disposal site closure phase. Following that, for a period of 5 years, the licensee must remain at the disposal site for a period of post-closure observation and maintenance to assure that the disposal site is stable and ready for institutional control. The Commission may approve shorter or require longer periods if conditions warrant. At the end of this period, the licensee applies for a license transfer to the disposal site owner.

(4) After a finding of satisfactory disposal site closure, the Commission will transfer the license to the State or

47 FR 57446

Federal government that owns the disposal site. If the Department of Energy is the Federal agency administering the land on behalf of the Federal government the license will be terminated because the Commission lacks regulatory authority over the Department for this activity. Under the conditions of the transferred license, the owner will carry out a program of monitoring to assure continued satisfactory disposal site performance, physical surveillance to restrict access to the site and carry out minor custodial activities. During this period, productive uses of the land might be permitted if those uses do not affect the stability of the site and its ability to meet the performance objectives. At the end of the prescribed period of institutional control, the license will be terminated by the Commission.

58 FR 33886

#### § 61.8 Information collection requirements: OMB approval.

(a) The Nuclear Regulatory Commission has submitted the information collection requirements contained in this part to the Office of Management and Budget (OMB) for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). OMB has approved the information collection requirements contained in this part under control number 3150-0135.

(b) The approved information collection requirements contained in this part appear in §§ 61.3, 61.6, 61.9, 61.10, 61.11, 61.12, 61.13, 61.14, 61.15, 61.16, 61.20, 61.22, 61.24, 61.26, 61.27, 61.28, 61.30, 61.31, 61.53, 61.55, 61.57, 61.58, 61.61, 61.62, 61.63, 61.72, and 61.80.

58 FR 52406

#### § 61.9 Employee protection.

(a) Discrimination by a Commission licensee, an applicant for a Commission license, or a contractor or subcontractor of a Commission licensee or applicant against an employee for engaging in certain protected activities is prohibited. Discrimination includes discharge and other actions that relate to compensation, terms, conditions, or privileges of employment. The protected activities are established in section 211 of the Energy Reorganization Act of 1974, as amended, and in general are related to the administration or enforcement of a requirement imposed under the Atomic Energy Act or the Energy Reorganization Act.

(1) The protected activities include but are not limited to:

(i) Providing the Commission or his or her employer information about alleged violations of either of the statutes named in paragraph (a) introductory text of the section or possible violations of requirements imposed under either of those statutes;

(ii) Refusing to engage in any practice made unlawful under either of the statutes named in paragraph (a) introductory text or under these requirements if the employee has identified the alleged illegality to the employer;

(iii) Requesting the Commission to institute action against his or her employer for the administration or enforcement of these requirements;

(iv) Testifying in any Commission proceeding, or before Congress, or at any Federal or State proceeding regarding any provision (or proposed provision) of either of the statutes named in paragraph (a) introductory text.

(v) Assisting or participating in, or is about to assist or participate in, these activities.

(2) These activities are protected even if no formal proceeding is actually initiated as a result of the employee assistance or participation.

(3) This section has no application to any employee alleging discrimination prohibited by this section who, acting without direction from his or her employer (or the employer's agent), deliberately causes a violation of any requirement of the Energy Reorganization Act of 1974, as amended, or the Atomic Energy Act of 1954, as amended.

(b) Any employee who believes that he or she has been discharged or otherwise discriminated against by any person for engaging in protected activities specified in paragraph (a)(1) of this section may seek a remedy for the discharge or discrimination through an administrative proceeding in the Department of Labor. The administrative proceeding must be initiated within 180 days after an alleged violation occurs. The employee may do this by filing a complaint alleging the violation with the Department of Labor, Employment Standards Administration, Wage and Hour Division. The Department of Labor may order reinstatement, back pay, and compensatory damages.

(c) A violation of paragraph (a), (e), or (f) of this section by a Commission licensee, an applicant for a Commission license, or a contractor or subcontractor of a Commission licensee or applicant may be grounds for—

(1) Denial, revocation, or suspension of the license.

58 FR 52406

(2) Imposition of a civil penalty on the licensee or applicant.

(3) Other enforcement action.

(d) Actions taken by an employer, or others, which adversely affect an employee may be predicated upon nondiscriminatory grounds. The prohibition applies when the adverse action occurs because the employee has engaged in protected activities. An employee's engagement in protected activities does not automatically render him or her immune from discharge or discipline for legitimate reasons or from adverse action dictated by nonprohibited considerations.

➤ (e)(1) Each licensee and each applicant for a license shall prominently post the revision of NRC Form 3, "Notice to Employees," referenced in 10 CFR 19.11(c). This form must be posted at locations sufficient to permit employees protected by this section to observe a copy on the way to or from their place of work. Premises must be posted not later than 30 days after an application is docketed and remain posted while the application is pending before the Commission, during the term of the license, and for 30 days following license termination.

(2) Copies of NRC Form 3 may be obtained by writing to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in Appendix D to Part 20 of this chapter or by calling the NRC Information and Records Management Branch at (301) 415-7230.

(f) No agreement affecting the compensation, terms, conditions, or privileges of employment, including an agreement to settle a complaint filed by an employee with the Department of Labor pursuant to section 211 of the Energy Reorganization Act of 1974, as amended, may contain any provision which would prohibit, restrict, or otherwise discourage an employee from participating in protected activity as defined in paragraph (a)(1) of this section including, but not limited to, providing information to the NRC or to his or her employer on potential violations or other matters within NRC's regulatory responsibilities.

#### § 61.9a Completeness and accuracy of information.

(a) Information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

(b) Each applicant or licensee shall notify the Commission of information identified by the applicant or licensee as having for the regulated activity a significant implication for public health and safety or common defense and security. An applicant or licensee violates this paragraph only if the applicant or licensee fails to notify the Commission of information that the applicant or licensee has identified as having a significant implication for public health and safety or common defense and security. Notification shall be provided to the Administrator of the appropriate Regional Office within two working days of identifying the information. This requirement is not applicable to information which is already required to be provided to the Commission by other reporting or updating requirements.

#### § 61.9b Deliberate misconduct.

(a) Any licensee or any employee of a licensee; and any contractor (including a supplier or consultant), subcontractor, or any employee of a contractor or subcontractor, of any licensee, who knowingly provides to any licensee, contractor, or subcontractor, components, equipment, materials, or other goods or services, that relate to a licensee's activities subject to this part, may not:

(1) Engage in deliberate misconduct that causes or, but for detection, would have caused, a licensee to be in violation of any rule, regulation, or order, or any term, condition, or limitation of any license issued by the Commission, or

(2) Deliberately submit to the NRC, a licensee, or a licensee's contractor or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to the NRC.

(b) A person who violates paragraph (a)(1) or (a)(2) of this section may be subject to enforcement action in accordance with the procedures in 10 CFR part 2, subpart B.

(c) For purposes of paragraph (a)(1) of this section, deliberate misconduct by a person means an intentional act or omission that the person knows:

(1) Would cause a licensee to be in violation of any rule, regulation, or order, or any term, condition, or limitation, of any license issued by the Commission, or

(2) Constitutes a violation of a requirement, procedure, instruction, contract, purchase order or policy of a licensee, contractor, or subcontractor.

### Subpart B—Licenses

#### § 61.10 Content of application.

An application to receive from others, possess and dispose of wastes containing or contaminated with source byproduct or special nuclear material by land disposal must consist of general information, specific technical information, institutional information, and financial information as set forth in §§ 61.11 through 61.16. An environmental report prepared in accordance with Subpart A of Part 51 of this chapter must accompany the application.

#### § 61.11 General information.

The general information must include each of the following:

(a) Identity of the applicant including:

(1) The full name, address, telephone number and description of the business or occupation of the applicant;

(2) If the applicant is a partnership, the name, and address of each partner and the principal location where the partnership does business;

(3) If the applicant is a corporation or an unincorporated association, (i) the state where it is incorporated or organized and the principal location where it does business, and (ii) the names and addresses of its directors and principal officers; and



(e) If the applicant is acting as an agent or representative of another person in filing the application, all information required under this paragraph must be supplied with respect to the other person.

(b) Qualifications of the applicant:

(1) The organizational structure of the applicant, both offsite and onsite, including a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contract provisions, or otherwise;

(2) The technical qualifications, including training and experience, of the applicant and members of the applicant's staff to engage in the proposed activities. Minimum training and experience requirements for personnel filling key positions described in Paragraph 61.11(b)(1) must be provided;

(3) A description of the applicant's personnel training program; and

(4) The plan to maintain an adequate complement of trained personnel to carry out waste receipt, handling, and disposal operations in a safe manner.

(c) A description of:

(1) The location of the proposed disposal site;

(2) The general character of the proposed activities;

(3) The types and quantities of radioactive waste to be received, possessed, and disposed of;

(4) Plans for use of the land disposal facility for purposes other than disposal of radioactive wastes; and

(5) The proposed facilities and equipment.

(d) Proposed schedules for construction, receipt of waste, and first emplacement of waste at the proposed land disposal facility.

§ 61.12 Specific technical information.

The specific technical information must include the following information needed for demonstration that the performance objectives of Subpart C of this part and the applicable technical requirements of Subpart D of this part will be met:

(a) A description of the natural and demographic disposal site characteristics as determined by disposal site selection and characterization activities. The description must include geologic, geotechnical, hydrologic, meteorologic, climatologic, and biotic features of the disposal site and vicinity.

(b) A description of the design features of the land disposal facility and the disposal units. For near-surface disposal, the description must include those design features related to infiltration of water; integrity of covers for disposal units; structural stability of backfill, wastes, and covers; contact of wastes with standing water; disposal site drainage; disposal site closure and stabilization; elimination to the extent practicable of long-term disposal site maintenance; inadvertent intrusion; occupational exposures; disposal site monitoring; and adequacy of the size of

the buffer zone for monitoring and potential mitigative measures.

(c) A description of the principal design criteria and their relationship to the performance objectives.

(d) A description of the design basis natural events or phenomena and their relationship to the principal design criteria.

(e) A description of codes and standards which the applicant has applied to the design and which will apply to construction of the land disposal facilities.

(f) A description of the construction and operation of the land disposal facility. The description must include as a minimum the methods of construction of disposal units; waste emplacement; the procedures for and areas of waste segregation; types of intruder barriers; onsite traffic and drainage systems; survey control program; methods and areas of waste storage; and methods to control surface water and groundwater access to the wastes. The description must also include a description of the methods to be employed in the handling and disposal of wastes containing chelating agents or other non-radiological substances that might affect meeting the performance objectives in Subpart C of this part.

(g) A description of the disposal site closure plan, including those design features which are intended to facilitate disposal site closure and to eliminate the need for ongoing active maintenance.

(h) An identification of the known natural resources at the disposal site, the exploitation of which could result in inadvertent intrusion into the low-level wastes after removal of active institutional control.

(i) A description of the kind, amount, classification and specifications of the radioactive material proposed to be received, possessed, and disposed of at the land disposal facility.

(j) A description of the quality assurance program, tailored to LLW disposal, developed and applied by the applicant for the determination of natural disposal site characteristics and for quality assurance during the design, construction, operation, and closure of the land disposal facility and the receipt, handling, and emplacement of waste.

(k) A description of the radiation safety program for control and monitoring of radioactive effluents to ensure compliance with the performance objective in § 61.41 of this part and occupational radiation exposure to ensure compliance with the requirements of Part 20 of this chapter and to control contamination of personnel, vehicles, equipment, buildings, and the disposal site. Both routine operations and accidents must be addressed. The program description must include procedures, instrumentation, facilities, and equipment.

(l) A description of the environmental monitoring program to provide data to evaluate potential health and environmental impacts and the plan for taking corrective measures if migration of radionuclides is indicated.

(m) A description of the administrative procedures that the applicant will apply to control activities at the land disposal facility.

(n) A description of the facility electronic recordkeeping system as required in § 61.80.

#### § 61.13 Technical analyses.

The specific technical information must also include the following analyses needed to demonstrate that the performance objectives of Subpart C of this part will be met:

(a) Pathways analyzed in demonstrating protection of the general population from releases of radioactivity must include air, soil, groundwater, surface water, plant uptake, and exhumation by burrowing animals. The analyses must clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses must clearly demonstrate that there is reasonable assurance that the exposure to humans from the release of radioactivity will not exceed the limits set forth in § 61.41.

(b) Analyses of the protection of individuals from inadvertent intrusion must include demonstration that there is reasonable assurance the waste classification and segregation requirements will be met and that adequate barriers to inadvertent intrusion will be provided.

(c) Analyses of the protection of individuals during operations must include assessments of expected exposures due to routine operations and likely accidents during handling, storage, and disposal of waste. The analyses must provide reasonable assurance that exposures will be controlled to meet the requirements of Part 20 of this chapter.

(d) Analyses of the long-term stability of the disposal site and the need for ongoing active maintenance after closure must be based upon analyses of active natural processes such as erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration

through covers over disposal areas and adjacent soils, and surface drainage of the disposal site. The analyses must provide reasonable assurance that there will not be a need for ongoing active maintenance of the disposal site following closure.

#### § 61.14 Institutional information.

The institutional information must include:

(a) A certification by the Federal or State government which owns the disposal site that the Federal or State government is prepared to accept transfer of the license when the provisions of § 61.30 are met, and will assume responsibility for custodial care after site closure and postclosure observation and maintenance.

(b) Where the proposed disposal site is on land not owned by the Federal or a State government, the applicant must submit evidence that arrangements have been made for assumption of ownership in fee by the Federal or a State government before the Commission issues a license.

#### § 61.15 Financial information.

The financial information must be sufficient to demonstrate that the financial qualifications of the applicant are adequate to carry out the activities for which the license is sought and meet other financial assurance requirements as specified in Subpart E of this part.

#### § 61.16 Other information.

Depending upon the nature of the wastes to be disposed of, and the design and proposed operation of the land disposal facility, additional information may be requested by the Commission including the following:

(a) Physical security measures, if appropriate. Any application to receive and possess special nuclear material in quantities subject to the requirements of Part 73 of this chapter shall demonstrate how the physical security requirements of Part 73 will be met. In determining whether receipt and possession will be subject to the requirements of Part 73, the applicant shall not consider the quantity of special nuclear material that has been disposed of.

(b) Safety information concerning criticality, if appropriate.

(1) Any application to receive and possess special nuclear material in quantities that would be subject to the requirements of § 70.24, "Criticality accident requirements" of Part 70 of this chapter shall demonstrate how the requirements of that section will be met, unless the applicant requests an exemption pursuant to § 70.24(d). In determining whether receipt and possession would be subject to the requirements of § 70.24, the applicant shall not consider the quantity of special nuclear material that has been disposed of.

(2) Any application to receive and possess special nuclear material shall describe proposed procedures for avoiding accidental criticality, which address both storage of special nuclear material prior to disposal and waste emplacement for disposal.

#### § 61.20 Filing and distribution of application.

(a) An application for a license under this part, and any amendments thereto, shall be filed with the Director, must be signed by the applicant or the applicant's authorized representative under oath, and must consist of 1 signed original and 2 copies.

(b) Another 85 copies of the application must be retained by the applicant for distribution in accordance with written instructions from the Director or designee.

(c) *Fees.* Application, amendment, and inspection fees applicable to a license covering the receipt and disposal of radioactive wastes in a land disposal facility are required by Part 170 of this chapter.

#### § 61.21 Elimination of repetition.

In its application, the applicant may incorporate by reference information contained in previous applications, statements, or reports filed with the Commission if these references are clear and specific.

#### § 61.22 Updating of application.

(a) The application must be as complete as possible in the light of information that is available at the time of submittal.

(b) The applicant shall supplement its application in a timely manner, as necessary, to permit the Commission to review, prior to issuance of a license, any changes in the activities proposed to be carried out or new information regarding the proposed activities.

#### § 61.23 Standards for issuance of a license.

A license for the receipt, possession, and disposal of waste containing or contaminated with source, special nuclear, or byproduct material will be issued by the Commission upon finding that the issuance of the license will not be inimical to the common defense and security and will not constitute an unreasonable risk to the health and safety of the public, and:

(a) The applicant is qualified by reason of training and experience to carry out the disposal operations requested in a manner that protects health and minimizes danger to life or property.

(b) The applicant's proposed disposal site, disposal design, land disposal facility operations (including equipment, facilities, and procedures), disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they provide reasonable assurance that the general population will be protected from releases of radioactivity as specified in the performance objective in § 61.41, Protection of the general population from releases of radioactivity.

(c) The applicant's proposed disposal site, disposal site design, land disposal facility operations (including equipment, facilities, and procedures), disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they will provide reasonable assurance that individual inadvertent intruders are protected in accordance with the performance objective in § 61.42, Protection of individuals from inadvertent intrusion.

(d) The applicant's proposed land disposal facility operations, including equipment, facilities, and procedures, are adequate to protect the public health and safety in that they will provide reasonable assurance that the standards for radiation protection set out in Part 20 of this chapter will be met.

(e) The applicant's proposed disposal site, disposal site design, land disposal facility operations, disposal site closure, and postclosure institutional control are adequate to protect the public health and safety in that they will provide reasonable assurance that long-term stability of the disposed waste and the disposal site will be achieved and will eliminate to the extent practicable the need for ongoing active maintenance of the disposal site following closure.

(f) The applicant's demonstration provides reasonable assurance that the applicable technical requirements of Subpart D of this part will be met.

(g) The applicant's proposal for institutional control provides reasonable assurance that institutional control will be provided for the length of time found necessary to ensure the findings in paragraphs (b)-(e) of this section and that the institutional control meets the requirements of § 61.50, Institutional requirements.

(h) The information on financial assurances meets the requirements of Subpart E of this part.

(i) The applicant's physical security information provides reasonable assurance that the requirements of Part 73 of this chapter will be met, insofar as they are applicable to special nuclear material to be possessed before disposal under the license.

(j) The applicant's criticality safety procedures are adequate to protect the public health and safety and provide reasonable assurance that the requirements of § 70.24, Criticality accident requirements, of Part 70 of this chapter will be met, insofar as they are applicable to special nuclear material to be possessed before disposal under the license.

(k) Any additional information submitted as requested by the Commission pursuant to § 61.16, Other information, is adequate.

(l) The requirements of Subpart A of Part 51 of this chapter have been met.

#### § 61.24 Conditions of license.

(a) A license issued under this part, or any right thereunder, may be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any person, only if the Commission finds, after securing full information, that the transfer is in accordance with the provisions of the Atomic Energy Act and gives its consent in writing in the form of a license amendment.

(b) The licensee shall submit written statements under oath upon request of the Commission, at any time before termination of the license, to enable the Commission to determine whether or not the license should be modified, suspended, or revoked.

(c) The license will be transferred to the site owner only on the full implementation of the final closure plan as approved by the Commission, including postclosure observation and maintenance.

(d) The licensee shall be subject to the provisions of the Atomic Energy Act now or hereafter in effect, and to all rules, regulations, and orders of the Commission. The terms and conditions of the license are subject to amendment,



## PART 61 • LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE

revision, or modification, by reason of amendments to, or by reason of rules, regulations, and orders issued in accordance with the terms of the Atomic Energy Act.

(e) Any license may be revoked, suspended or modified in whole or in part for any material false statement in the application or any statement of fact required under Section 182 of the Act, or because of conditions revealed by any application or statement of fact or any report, record, or inspection or other means which would warrant the Commission to refuse to grant a license to the original application, or for failure to operate the facility in accordance with the terms of the license, or for any violation of, or failure to observe any of the terms and conditions of the Act, or any rule, regulation, license or order of the Commission.

(f) Each person licensed by the Commission pursuant to the regulations in this part shall confine possession and use of materials to the locations and purposes authorized in the license.

(g) No radioactive waste may be disposed of until the Commission has inspected the land disposal facility and has found it to be in conformance with the description, design, and construction described in the application for a license.

(h) The Commission may incorporate in any license at the time of issuance, or thereafter, by appropriate rule, regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession, and disposal of source, special nuclear or byproduct material as it deems appropriate or necessary in order to:

(1) Promote the common defense and security;

(2) Protect health or to minimize danger to life or property;

(3) Require reports and the keeping of records, and to provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of the Act and regulations thereunder.

(i) Any licensee who receives and possesses special nuclear material under this part in quantities that would be subject to the requirements of § 70.24 of Part 70 of this chapter shall comply with the requirements of that section. The licensee shall not consider the quantity of special nuclear material that has been disposed of.

(j) The authority to dispose of wastes expires on the date stated in the license except as provided in § 61.27(a) of this part.

(k)(1) Each licensee shall notify the appropriate NRC Regional Administrator, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United States Code by or against:

(i) The licensee;

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

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

(2) This notification must indicate:

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

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

#### § 61.25 Changes.

(a) Except as provided for in specific license conditions, the licensee shall not make changes in the land disposal facility or procedures described in the license application. The license will include conditions restricting subsequent changes to the facility and the procedures authorized which are important to public health and safety. These license restrictions will fall into three categories of descending importance to public health and safety as follows: (1) those features and procedures which may not be changed without (i) 60 days prior notice to the Commission, (ii) 30 days notice of opportunity for a prior hearing, and (iii) prior Commission approval; (2) those features and procedures which may not be changed without (i) 60 days prior notice to the Commission, and (ii) prior Commission approval; and (3) those features and procedures which may not be changed without 60 days prior notice to the Commission. Features and procedures falling in paragraph (a)(3) of this section may not be changed without prior Commission approval if the Commission, after having received the required notice, so orders.

(b) Amendments authorizing site closure, license transfer, or license termination shall be included in paragraph (a)(1) of this section.

(c) The Commission shall provide a copy of the notice for opportunity for hearings provided in paragraph (a)(1) of this section to State and local officials or tribal governing bodies specified in § 2.104(e) of Part 2 of this chapter.

#### § 61.26 Amendment of license.

(a) An application for amendment of a license must be filed in accordance with § 61.20 and shall fully describe the changes desired.

(b) In determining whether an amendment to a license will be

approved, the Commission will apply the criteria set forth in § 61.23.

#### § 61.27 Application for renewal or closure.

(a) Any expiration date on a license applies only to the above ground activities and to the authority to dispose of waste. Failure to renew the license shall not relieve the licensee of responsibility for carrying out site closure, postclosure observation and transfer of the license to the site owner. An application for renewal or an application for closure under § 61.28 must be filed at least 30 days prior to license expiration.

(b) Applications for renewal of a license must be filed in accordance with §§ 61.10 through 61.16 and § 61.20. Applications for closure must be filed in accordance with §§ 61.20 and 61.28. Information contained in previous applications, statements or reports filed with the Commission under the license may be incorporated by reference if the references are clear and specific.

(c) In any case in which a licensee has timely filed an application for renewal of a license, the license for continued receipt and disposal of licensed materials does not expire until the Commission has taken final action on the application for renewal.

(d) In determining whether a license will be renewed, the Commission will apply the criteria set forth in § 61.23.

#### § 61.28 Contents of application for closure.

(a) Prior to final closure of the disposal site, or as otherwise directed by the Commission, the applicant shall submit an application to amend the license for closure. This closure application must include a final revision and specific details of the disposal site closure plan included as part of the license application submitted under § 61.12(g) that includes each of the following:

(1) Any additional geologic, hydrologic, or other disposal site data pertinent to the long-term containment of emplaced radioactive wastes obtained during the operational period.

(2) The results of tests, experiments, or other analyses relating to backfill of excavated areas, closure and sealing, waste migration and interaction with emplacement media, or any other tests, experiments, or analysis pertinent to the long-term containment of emplaced waste within the disposal site.

(3) Any proposed revision of plans for:

(i) Decontamination and/or dismantlement of surface facilities;

(ii) Backfilling of excavated areas; or

(iii) Stabilization of the disposal site for post-closure care.

(b) An environmental report or a supplement to an environmental report prepared in accordance with Subpart A of Part 51 of this chapter must accompany the application.

(c) Upon review and consideration of an application to amend the license for closure, submitted in accordance with paragraph (a) of this section, the Commission shall issue an amendment authorizing closure if there is reasonable assurance that the long-term performance objectives of Subpart C of this part will be met.

#### § 61.28 Post-closure observation and maintenance.

Following completion of closure authorized in § 61.28, the licensee shall observe, monitor, and carry out necessary maintenance and repairs at the disposal site until the license is transferred by the Commission in accordance with § 61.30. Responsibility for the disposal site must be maintained by the licensee for 5 years. A shorter or longer time period for post-closure observation and maintenance may be established and approved as part of the site closure plan, based on site-specific conditions.

#### § 61.30 Transfer of license.

(a) Following closure and the period of post-closure observation and maintenance, the licensee may apply for an amendment to transfer the license to the disposal site owner. The license shall be transferred when the Commission finds:

(1) That the closure of the disposal site has been made in conformance with the licensee's disposal site closure plan, as amended and approved as part of the license;

(2) That reasonable assurance has been provided by the licensee that the performance objectives of Subpart C of this part are met;

(3) That any funds and necessary records for care will be transferred to the disposal site owner;

(4) That the post-closure monitoring program is operational for implementation by the disposal site owner; and

(5) That the Federal or State government agency which will assume responsibility for institutional control of the disposal site is prepared to assume responsibility and ensure that the institutional requirements found necessary under § 61.23(g) will be met.

(b) [Reserved]

#### § 61.31 Termination of license.

(a) Following any period of institutional control needed to meet the requirements found necessary under § 61.23, the licensee may apply for an amendment to terminate the license.

(b) This application must be filed, and will be reviewed, in accordance with the provision of § 61.20 and of this section.

(c) A license is terminated only when the Commission finds:

(1) That the institutional control requirements found necessary under § 61.23(g) have been met; and

(2) That any additional requirements resulting from new information developed during the institutional control period have been met, and that permanent monuments or markers warning against intrusion have been installed.

#### Subpart C—Performance Objectives

##### § 61.40 General requirement.

Land disposal facilities must be sited, designed, operated, closed, and controlled after closure so that reasonable assurance exists that exposures to humans are within the limits established in the performance objectives in §§ 61.41 through 61.44.

##### § 61.41 Protection of the general population from releases of radioactivity.

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

##### § 61.42 Protection of individuals from inadvertent intrusion.

Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed.

##### § 61.43 Protection of individuals during operations.

Operations at the land disposal facility must be conducted in compliance with the standards for radiation protection set out in Part 20 of this chapter, except for releases of radioactivity in effluents from the land disposal facility, which shall be governed by § 61.41 of this part. Every reasonable effort shall be made to maintain radiation exposures as low as is reasonably achievable.

##### § 61.44 Stability of the disposal site after closure.

The disposal facility must be sited, designed, used, operated, and closed to achieve long-term stability of the disposal site and to eliminate the

extent practicable the need for ongoing active maintenance of the disposal site following closure so that only surveillance, monitoring, or minor custodial care are required.

#### Subpart D—Technical Requirements for Land Disposal Facilities

##### § 61.50 Disposal site suitability requirements for land disposal.

(a) Disposal site suitability for near-surface disposal.

(1) The purpose of this section is to specify the minimum characteristics a disposal site must have to be acceptable for use as a near-surface disposal facility. The primary emphasis in disposal site suitability is given to isolation of wastes, a matter having long-term impacts, and to disposal site features that ensure that the long-term performance objectives of Subpart C of this part are met, as opposed to short-term convenience or benefits.

(2) The disposal site shall be capable of being characterized, modeled, analyzed and monitored.

(3) Within the region or state where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet the performance objectives of Subpart C of this part.

(4) Areas must be avoided having known natural resources which, if exploited, would result in failure to meet the performance objectives of Subpart C of this part.

(5) The disposal site must be generally well drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area or wetland, as defined in Executive Order 11988, "Floodplain Management Guidelines."

(6) Upstream drainage areas must be minimized to decrease the amount of runoff which could erode or inundate waste disposal units.

(7) The disposal site must provide sufficient depth to the water table that ground water intrusion, perennial or otherwise, into the waste will not occur. The Commission will consider an exception to this requirement to allow disposal below the water table if it can be conclusively shown that disposal site characteristics will result in molecular diffusion being the predominant means of radionuclide movement and the rate of movement will result in the performance objectives of Subpart C of this part being met. In no case will waste disposal be permitted in the zone of fluctuation of the water table.

(8) The hydrogeologic unit used for disposal shall not discharge ground water to the surface within the disposal site.

(9) Areas must be avoided where tectonic processes such as faulting, folding, seismic activity, or vulcanism may occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of Subpart C of this part, or may preclude defensible modeling and prediction of long-term impacts.

(10) Areas must be avoided where surface geologic processes such as mass wasting, erosion, slumping, landsliding, or weathering occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of Subpart C of this part, or may preclude defensible modeling and prediction of long-term impacts.

(11) The disposal site must not be located where nearby facilities or activities could adversely impact the ability of the site to meet the performance objectives of Subpart C of this part or significantly mask the environmental monitoring program.

(b) Disposal site suitability requirements for land disposal other than near-surface (reserved).

#### § 61.51 Disposal site design for land disposal.

(a) Disposal site design for near-surface disposal.

(1) Site design features must be directed toward long-term isolation and avoidance of the need for continuing active maintenance after site closure.

(2) The disposal site design and operation must be compatible with the disposal site closure and stabilization plan and lead to disposal site closure that provides reasonable assurance that the performance objectives of Subpart C of this part will be met.

(3) The disposal site must be designed to complement and improve, where appropriate, the ability of the disposal site's natural characteristics to assure that the performance objectives of Subpart C of this part will be met.

(4) Covers must be designed to minimize to the extent practicable water infiltration, to direct percolating or surface water away from the disposed waste, and to resist degradation by surface geologic processes and biotic activity.

(5) Surface features must direct surface water drainage away from disposal units at velocities and gradients which will not result in erosion that will require ongoing active maintenance in the future.

(6) The disposal site must be designed to minimize to the extent practicable the contact of water with waste during storage, the contact of standing water

with waste during disposal, and the contact of percolating or standing water with wastes after disposal.

(b) Disposal site design for other than near-surface disposal (reserved).

#### § 61.52 Land disposal facility operation and disposal site closure.

(a) Near-surface disposal facility operation and disposal site closure.

(1) Wastes designated as Class A pursuant to § 61.55, must be segregated from other wastes by placing in disposal units which are sufficiently separated from disposal units for the other waste classes so that any interaction between Class A wastes and other wastes will not result in the failure to meet the performance objectives in Subpart C of this Part. This segregation is not necessary for Class A wastes if they meet the stability requirements in § 61.55(b) of this part.

(2) Wastes designated as Class C pursuant to § 61.55, must be disposed of so that the top of the waste is a minimum of 5 meters below the top surface of the cover or must be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for a least 500 years.

(3) All wastes shall be disposed of in accordance with the requirements of paragraphs (a)(4) through (11) of this section.

(4) Wastes must be emplaced in a manner that maintains the package integrity during emplacement, minimizes the void spaces between packages, and permits the void spaces to be filled.

(5) Void spaces between waste packages must be filled with earth or other material to reduce future subsidence within the fill.

(6) Waste must be placed and covered in a manner that limits the radiation dose rate at the surface of the cover to levels that at a minimum will permit the licensee to comply with all provisions of §§ 20.1301 and 20.1302 of this chapter at the time the license is transferred pursuant to § 61.30 of this part.

(7) The boundaries and locations of each disposal unit (e.g., trenches) must be accurately located and mapped by means of a land survey. Near-surface disposal units must be marked in such a way that the boundaries of each unit can be easily defined. Three permanent survey marker control points, referenced to United States Geological Survey (USGS) or National Geodetic Survey (NGS) survey control stations, must be established on the site to facilitate surveys. The USGS or NGS control stations must provide horizontal and vertical controls as checked against USGS or NGS record files.

(8) A buffer zone of land must be maintained between any buried waste and the disposal site boundary and beneath the disposed waste. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in § 61.53(d) of this part and take mitigative measures if needed.

(9) Closure and stabilization measures as set forth in the approved site closure plan must be carried out as each disposal unit (e.g., each trench) is filled and covered.

(10) Active waste disposal operations must not have an adverse effect on completed closure and stabilization measures.

(11) Only wastes containing or contaminated with radioactive materials shall be disposed of at the disposal site.

(b) Facility operation and disposal site closure for land disposal facilities other than near-surface (reserved).

#### § 61.53 Environmental monitoring.

(a) At the time a license application is submitted, the applicant shall have conducted a preoperational monitoring program to provide basic environmental data on the disposal site characteristics. The applicant shall obtain information about the ecology, meteorology, climate, hydrology, geology, geochemistry, and seismology of the disposal site. For those characteristics that are subject to seasonal variation, data must cover at least a twelve month period.

(b) The licensee must have plans for taking corrective measures if migration of radionuclides would indicate that the performance objectives of Subpart C may not be met.

(c) During the land disposal facility site construction and operation, the licensee shall maintain a monitoring program. Measurements and observations must be made and recorded to provide data to evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and the need for mitigative measures. The monitoring system must be capable of providing early warning of releases of radionuclides from the disposal site before they leave the site boundary.

(d) After the disposal site is closed, the licensee responsible for post-operational surveillance of the disposal site shall maintain a monitoring system based on the operating history and the closure and stabilization of the disposal site. The monitoring system must be capable of providing early warning of releases of radionuclides from the



disposal site before they leave the site boundary.

**§ 61.54 Alternative requirements for design and operations.**

The Commission may, upon request or on its own initiative, authorize provisions other than those set forth in §§ 61.51 through 61.53 for the segregation and disposal of waste and for the design and operation of a land disposal facility on a specific basis, if it finds reasonable assurance of compliance with the performance objectives of Subpart C of this part.

**§ 61.55 Waste classification.**

(a) Classification of waste for near surface disposal.

(1) *Considerations.* Determination of the classification of radioactive waste involves two considerations. First, consideration must be given to the concentration of long-lived radionuclides (and their shorter-lived precursors) whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective. These precautions delay the time when long-lived radionuclides could cause exposures. In addition, the magnitude of the potential dose is limited by the concentration and availability of the radionuclide at the time of exposure. Second, consideration must be given to the concentration of shorter-lived radionuclides for which requirements on institutional controls, waste form, and disposal methods are effective.

(2) *Classes of waste.* (i) Class A waste is waste that is usually segregated from other waste classes at the disposal site. The physical form and characteristics of Class A waste must meet the minimum requirements set forth in § 61.56(a). If Class A waste also meets the stability requirements set forth in § 61.56(b), it is not necessary to segregate the waste for disposal.

(ii) Class B waste is waste that must meet more rigorous requirements on waste form to ensure stability after disposal. The physical form and characteristics of Class B waste must meet both the minimum and stability requirements set forth in § 61.56.

(iii) Class C waste is waste that not only must meet more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility to protect against inadvertent intrusion. The physical form and characteristics of Class C waste must meet both the minimum and stability requirements set forth in § 61.56.

(iv) Waste that is not generally acceptable for near-surface disposal is waste for which form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in Part 60 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.

(3) Classification determined by long-lived radionuclides. If radioactive waste contains only radionuclides listed in Table 1, classification shall be determined as follows:

(i) If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A.

(ii) If the concentration exceeds 0.1 times the value in Table 1 but does not exceed the value in Table 1, the waste is Class C.

(iii) If the concentration exceeds the value in Table 1, the waste is not generally acceptable for near-surface disposal.

(iv) For wastes containing mixtures of radionuclides listed in Table 1, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.

TABLE 1

Radionuclide	Concentration curies per cubic meter
C-14	8
C-14 in activated metal	80
Ni-56 in activated metal	250
Ni-56 in activated metal	0.2
Ti-56	8
I-129	0.06
Alpha emitting transuranic nuclide with half-life greater than five years	1,100
Pu-241	2,800
Cm-242	80,000

<sup>1</sup> Units are microcuries per gram.

(4) Classification determined by short-lived radionuclides. If radioactive waste does not contain any of the radionuclides listed in Table 1, classification shall be determined based on the concentrations shown in Table 2. However, as specified in paragraph (a)(6) of this section, if radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.

(i) If the concentration does not exceed the value in Column 1, the waste is Class A.

(ii) If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.

(iii) If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.

(iv) If the concentration exceeds the value in Column 3, the waste is not generally acceptable for near-surface disposal.

(v) For wastes containing mixtures of the nuclides listed in Table 2, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.

TABLE 2

Radionuclide	Concentration, curies per cubic meter		
	Col. 1	Col. 2	Col. 3
Total of all nuclides with less than 5 year half life	700	(1)	(1)
H-3	40	(1)	(1)
Co-60	700	(1)	(1)
Ni-63	3.8	70	700
Ni-63 in activated metal	25	700	7000
Br-80	0.04	150	7000
Ce-137	1	44	4500

<sup>1</sup> There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

(5) Classification determined by both long- and short-lived radionuclides. If radioactive waste contains a mixture of radionuclides, some of which are listed in Table 1, and some of which are listed in Table 2, classification shall be determined as follows:

(i) If the concentration of a nuclide listed in Table 1 does not exceed 0.1 times the value listed in Table 1, the class shall be that determined by the concentration of nuclides listed in Table 2.

(ii) If the concentration of a nuclide listed in Table 1 exceeds 0.1 times the value listed in Table 1 but does not exceed the value in Table 1, the waste shall be Class C, provided the concentration of nuclides listed in Table 2 does not exceed the value shown in Column 3 of Table 2.

(6) Classification of wastes with radionuclides other than those listed in Tables 1 and 2. If radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.

(7) The sum of the fractions rule for mixtures of radionuclides. For determining classification for waste that contains a mixture of radionuclides, it is necessary to determine the sum of fractions by dividing each nuclide's concentration by the appropriate limit and adding the resulting values. The appropriate limits must all be taken from the same column of the same table. The sum of the fractions for the column must be less than 1.0 if the waste class is to be determined by that column. Example: A waste contains Sr-90 in a

concentration of  $50 \text{ Ci/m}^3$  and  $\text{Cs-137}$  in a concentration of  $22 \text{ Ci/m}^3$ . Since the concentrations both exceed the values in Column 1, Table 2, they must be compared to Column 2 values. For Sr-90 fraction  $50/150 = 0.33$ ; for Cs-137 fraction,  $22/44 = 0.5$ ; the sum of the fractions = 0.83. Since the sum is less than 1.0, the waste is Class B.

(6) *Determination of concentrations in wastes.* The concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements. The concentration of a radionuclide may be averaged over the volume of the waste, or weight of the waste if the units are expressed as nanocuries per gram.

#### § 61.56 Waste characteristics.

(a) The following requirements are minimum requirements for all classes of waste and are intended to facilitate handling at the disposal site and provide protection of health and safety of personnel at the disposal site.

(1) Waste must not be packaged for disposal in cardboard or fiberboard boxes.

(2) Liquid waste must be solidified or packaged in sufficient absorbent material to absorb twice the volume of the liquid.

(3) Solid waste containing liquid shall contain as little free standing and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the volume.

(4) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(5) Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged in accordance with paragraph (a)(7) of this section.

(6) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(7) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at  $20^\circ\text{C}$ . Total activity must not exceed 100 curies per container.

(8) Waste containing hazardous, biological, pathogenic, or infectious material must be treated to reduce to the

maximum extent practicable the potential hazard from the non-radiological materials.

(b) The requirements in this section are intended to provide stability of the waste. Stability is intended to ensure that the waste does not structurally degrade and affect overall stability of the site through slumping, collapse, or other failure of the disposal unit and thereby lead to water infiltration. Stability is also a factor in limiting exposure to an inadvertent intruder, since it provides a recognizable and nondispersible waste.

(1) Waste must have structural stability. A structurally stable waste form will generally maintain its physical dimensions and its form, under the expected disposal conditions such as weight of overburden and compaction equipment, the presence of moisture, and microbial activity, and internal factors such as radiation effects and chemical changes. Structural stability can be provided by the waste form itself, processing the waste to a stable form, or placing the waste in a disposal container or structure that provides stability after disposal.

(2) Notwithstanding the provisions in §§ 61.56(a) (2) and (3), liquid wastes, or wastes containing liquid, must be converted into a form that contains as little free standing and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the volume of the waste when the waste is in a disposal container designed to ensure stability, or 0.5% of the volume of the waste for waste processed to a stable form.

(3) Void spaces within the waste and between the waste and its package must be reduced to the extent practicable.

#### § 61.57 Labeling.

Each package of waste must be clearly labeled to identify whether it is Class A waste, Class B waste, or class C waste in accordance with § 61.55.

#### § 61.58 Alternative requirements for waste classification and characteristics.

The Commission may, upon request or on its own initiative, authorize other provisions for the classification and characteristics of waste on a specific basis, if, after evaluation, of the specific characteristics of the waste, disposal site, and method of disposal, it finds reasonable assurance of compliance with the performance objectives in Subpart C of this part.

#### § 61.59 Institutional requirements.

(a) *Land ownership.* Disposal of radioactive waste received from other persons may be permitted only on land

owned in fee by the Federal or a State government.

(b) *Institutional control.* The land owner or custodial agency shall carry out an institutional control program to physically control access to the disposal site following transfer of control of the disposal site from the disposal site operator. The institutional control program must also include, but not be limited to, carrying out an environmental monitoring program at the disposal site, periodic surveillance, minor custodial care, and other requirements as determined by the Commission; and administration of funds to cover the costs for these activities. The period of institutional controls will be determined by the Commission, but institutional controls may not be relied upon for more than 100 years following transfer of control of the disposal site to the owner.

#### Subpart E—Financial Assurances

##### § 61.61 Applicant qualifications and assurances.

Each applicant shall show that it either possesses the necessary funds or has reasonable assurance of obtaining the necessary funds, or by a combination of the two, to cover the estimated costs of conducting all licensed activities over the planned operating life of the project, including costs of construction and disposal.

##### § 61.62 Funding for disposal site closure and stabilization.

(a) The applicant shall provide assurance that sufficient funds will be available to carry out disposal site closure and stabilization, including: (1) Decontamination or dismantlement of land disposal facility structures; and (2) closure and stabilization of the disposal site so that following transfer of the disposal site to the site owner, the need for ongoing active maintenance is eliminated to the extent practicable and only minor custodial care, surveillance, and monitoring are required. These assurances shall be based on Commission-approved cost estimates reflecting the Commission-approved plan for disposal site closure and stabilization. The applicant's cost estimates must take into account total capital costs that would be incurred if an independent contractor were hired to perform the closure and stabilization work.

(b) In order to avoid unnecessary duplication and expense, the Commission will accept financial sureties that have been consolidated with earmarked financial or surety arrangements established to meet

requirements of other Federal or State agencies and/or local governing bodies for such decontamination, closure and stabilization. The Commission will accept this arrangement only if they are considered adequate to satisfy these requirements and that the portion of the surety which covers the closure of the disposal site is clearly identified and committed for use in accomplishing these activities.

(c) The licensee's surety mechanism will be annually reviewed by the Commission to assure that sufficient funds are available for completion of the closure plan, assuming that the work has to be performed by an independent contractor.

(d) The amount of surety liability should change in accordance with the predicted cost of future closure and stabilization. Factors affecting closure and stabilization cost estimates include: inflation; increases in the amount of disturbed land; changes in engineering plans; closure and stabilization that has already been accomplished and any other conditions affecting costs. This will yield a surety that is at least sufficient at all times to cover the costs of closure of the disposal units that are expected to be used before the next license renewal.

(e) The term of the surety mechanism must be open ended unless it can be demonstrated that another arrangement would provide an equivalent level of assurance. This assurance could be provided with a surety mechanism which is written for a specified period of time (e.g., five years) yet which must be automatically renewed unless the party who issues the surety notifies the Commission and the beneficiary (the site owner) and the principal (the licensee) not less than 90 days prior to the renewal date of its intention not to renew. In such a situation the licensee must submit a replacement surety within 30 days after notification of cancellation. If the licensee fails to provide a replacement surety acceptable to the Commission, the site owner may collect on the original surety.

(f) Proof of forfeiture must not be necessary to collect the surety so that in the event that the licensee could not provide an acceptable replacement surety within the required time, the surety shall be automatically collected prior to its expiration. The conditions described above would have to be clearly stated on any surety instrument which is not open-ended, and must be agreed to by all parties. Liability under the surety mechanism must remain in effect until the closure and stabilization program has been completed and approved by the Commission and the license has been transferred to the site owner.

(g) Financial surety arrangements generally acceptable to the Commission include: surety bonds, cash deposits, certificates of deposits, deposits of

government securities, escrow accounts, irrevocable letters or lines of credit, trust funds, and combinations of the above or such other types of arrangements as may be approved by the Commission. However, self-insurance, or any arrangement which essentially constitutes pledging the assets of the licensee, will not satisfy the surety requirement for private sector applicants since this provides no additional assurance other than that which already exists through license requirements.

#### § 61.63 Financial assurances for institutional controls.

(a) Prior to the issuance of the license, the applicant shall provide for Commission review and approval a copy of a binding arrangement, such as a lease, between the applicant and the disposal site owner that ensures that sufficient funds will be available to cover the costs of monitoring and any required maintenance during the institutional control period. The binding arrangement will be reviewed periodically by the Commission to ensure that changes in inflation, technology and disposal facility operations are reflected in the arrangements.

(b) Subsequent changes to the binding arrangement specified in paragraph (a) of this section relevant to institutional control shall be submitted to the Commission for approval.

### Subpart F—Participation by State Governments and Indian Tribes

#### § 61.70 Scope.

This subpart describes mechanisms through which the Commission will implement a formal request from a State or tribal government to participate in the review of a license application for a land disposal facility. Nothing in this subpart may be construed to bar the State or tribal governing body from participating in subsequent Commission proceedings concerning the license application as provided under Federal law and regulations.

#### § 61.71 State and Tribal government consultation.

Upon request of a State or tribal governing body, the Director shall make available Commission staff to discuss with representatives of the State or tribal governing body information submitted by the applicant, applicable Commission regulations, licensing procedures, potential schedules, and the type and scope of State activities in the license review permitted by law. In addition, staff shall be made available to consult and cooperate with the State or tribal governing body in developing proposals for participation in the license review.

#### § 61.72 Filing of proposals for State and Tribal participation.

(a) A State or tribal governing body whose interest is affected by a near-surface disposal facility at the proposed site may submit to the Director a proposal for participation in the review of a license application. Proposals must be submitted within the following time periods:

(1) For the State in which the disposal facility will be located, or any State that is member of an interstate compact that includes the State in which the disposal facility is located, no later than 45 days following publication in the Federal Register of the notice of tendering of an application submitted under § 61.20.

(2) For any other State, or for a tribal governing body, no later than 120 days following publication in the Federal Register of the notice of tendering of an application submitted under § 61.20.

(b) Proposals for participation in the licensing process must be made in writing and must be signed by the Governor of the State or the official otherwise provided for by State or tribal law.

(c) At a minimum, proposals must contain each of the following items of information:

(1) A general description of how the State or tribe wishes to participate in the licensing process specifically identifying those issues it wishes to review.

(2) A description of material and information which the State or tribe plans to submit to the Commission for consideration in the licensing process. A tentative schedule referencing steps in the review and calendar dates for planned submittals should be included.

(3) A description of any work that the State or tribe proposes to perform for the Commission in support of the licensing process.

(4) A description of State or tribal plans to facilitate local government and citizen participation.

(5) A preliminary estimate of the types and extent of impacts which the State expects, should a disposal facility be located as proposed.

(6) If desired, any requests for educational or information services (seminars, public meetings) or other actions from the Commission such as establishment of additional Public Document Rooms or exchange of State personnel under the Intergovernmental Personnel Act.

#### § 61.73 Commission approval of proposals.

(a) Upon receipt of a proposal submitted in accordance with § 61.72, the Director shall arrange for a meeting between the representatives of the State or tribal governing body and the Commission staff to discuss the proposal and to ensure full and effective participation by the State or tribe in the Commission's license review.

(b) If requested by a State or tribal



## PART 61 • LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE

governing body, the Director may approve all or any part of a proposal if the Director determines that:

(1) The proposed activities are within the scope of Commission statutory responsibility and the type and magnitude of impacts which the State or tribe may bear are sufficient to justify their participation; and

(2) The proposed activities will contribute productively to the licensing review.

(c) The decision of the Director will be transmitted in writing to the governor or the designated official of the tribal governing body.

(d) Participation by a State or Indian tribe shall not effect their rights to participate in an adjudicatory hearing as provided by Part 2 of this chapter.

#### Subpart G—Records, Reports, Tests, and Inspections

##### § 61.80 Maintenance of records, reports, and transfers.

(a) Each licensee shall maintain any records and make any reports in connection with the licensed activities as may be required by the conditions of the license or by the rules, regulations, and orders of the Commission.

(b) Records which are required by the regulations in this part or by license conditions must be maintained for a period specified by the appropriate regulations in this chapter or by license condition. If a retention period is not otherwise specified, these records must be maintained and transferred to the officials specified in paragraph (e) of this section as a condition of license termination unless the Commission otherwise authorizes their disposition.

(c) Records which must be maintained pursuant to this part may be the original or a reproduced copy or a microform if this reproduced copy or microform is capable of producing copy that is clear and legible at the end of the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records such as letters, drawings, specifications, must include all pertinent information such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and loss of records.

(d) If there is a conflict between the Commission's regulations in this part, license condition, or other written Commission approval or authorization pertaining to the retention period for the same type of record, the longest retention period specified takes precedence.

(e) Notwithstanding paragraphs (a) through (d) of this section, the licensee shall record the location and the quantity of radioactive wastes contained in the disposal site and transfer these records upon license termination to the chief executive of the nearest municipality, the chief executive of the county in which the facility is located, the county zoning board or land development and planning agency, the State governor and other State, local, and Federal governmental agencies as designated by the Commission at the time of license termination.

(f) Following receipt and acceptance of a shipment of radioactive waste, the licensee shall record the date that the shipment is received at the disposal facility, the date of disposal of the waste, a traceable shipment manifest number, a description of any engineered barrier or structural overpack provided for disposal of the waste, the location of disposal at the disposal site, the containment integrity of the waste disposal containers as received, any discrepancies between materials listed on the manifest and those received, the volume of any pallets, bracing, or other shipping or onsite generated materials that are contaminated, and are disposed of as contaminated or suspect materials, and any evidence of leaking or damaged disposal containers or radiation or contamination levels in excess of limits specified in Department of Transportation and Commission regulations. The licensee shall briefly describe any repackaging operations of any of the disposal containers included in the shipment, plus any other information required by the Commission as a license condition. The licensee shall retain these records until the Commission transfers or terminates the license that authorizes the activities described in this section.

(g) Each licensee shall comply with the safeguards reporting requirements of §§ 30.55, 40.04, 70.53 and 70.54 of this chapter if the quantities or activities of materials received or transferred exceed the limits of these sections. Inventory reports required by these sections are not required for materials after disposal.

(h) Each licensee authorized to dispose of radioactive waste received from other persons shall file a copy of its financial report or a certified financial statement annually with the Commission in order to update the information base for determining financial qualifications.

(i)(1) Each licensee authorized to dispose of waste materials received from other persons, pursuant to this part, shall submit annual reports to the appropriate Commission regional office shown in Appendix D to 10 CFR part 20, with copies to the Director, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Reports must be submitted by the end of the first calendar quarter of each year for the preceding year.

(2) The reports shall include (i) specification of the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in airborne effluents during the preceding year, (ii) the results of the environmental monitoring program, (iii) a summary of licensee disposal unit survey and maintenance activities, (iv) a summary, by waste class, of activities and quantities of radionuclides disposed of, (v) any instances in which observed site characteristics were significantly different from those described in the application for a license; and (vi) any other information the Commission may require. If the quantities of radioactive materials released during the reporting period, monitoring results, or maintenance performed are significantly different from those expected in the materials previously reviewed as part of the licensing action, the report must cover this specifically.

(j) Each licensee shall report in accordance with the requirements of § 70.52 of this chapter.

(k) Any transfer of byproduct, source, and special nuclear materials by the licensee is subject to the requirements in §§ 30.41, 40.51, and 70.42 of this chapter. Byproduct, source and special nuclear material means materials as defined in these parts, respectively.

(l) In addition to the other requirements of this section, the licensee shall store, or have stored, manifest and other information pertaining to receipt and disposal of radioactive waste in an electronic recordkeeping system.

(1) The manifest information that must be electronically stored is—

(i) That required in 10 CFR part 20, appendix G, with the exception of shipper and carrier telephone numbers and shipper and consignee certifications; and

(ii) That information required in paragraph (f) of this section.

(2) As specified in facility license conditions, the licensee shall report the stored information, or subsets of this information, on a computer-readable medium.

#### § 61.81 Tests at land disposal facilities.

(a) Each licensee shall perform, or permit the Commission to perform, any tests as the Commission deems appropriate or necessary for the administration of the regulations in this part, including tests of:

(1) Radioactive wastes and facilities used for the receipt, storage, treatment, handling and disposal of radioactive wastes.

(2) Radiation detection and monitoring instruments; and

(3) Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage, or disposal of radioactive waste.

(b) [Reserved]

#### § 61.82 Commission inspections of land disposal facilities.

(a) Each licensee shall afford to the Commission at all reasonable times opportunity to inspect radioactive waste not yet disposed of, and the premises, equipment, operations, and facilities in which radioactive wastes are received, possessed, handled, treated, stored, or disposed of.

(b) Each licensee shall make available to the Commission for inspection, upon reasonable notice, records kept by it pursuant to the regulations in this chapter. Authorized representatives of the Commission may copy and take away copies of, for the Commission's use, any record required to be kept pursuant to this part.

#### § 61.83 Violations.

(a) The Commission may obtain an injunction or other court order to prevent a violation of the provisions of—

(1) The Atomic Energy Act of 1954, as amended;

(2) Title II of the Energy Reorganization Act of 1974, as amended; or

(3) A regulation or order issued pursuant to those Acts.

(b) The Commission may obtain a court order for the payment of a civil penalty imposed under section 234 of the Atomic Energy Act:

(1) For violations of—

(i) Sections 53, 57, 62, 63, 61, 62, 101, 103, 104, 107, or 109 of the Atomic Energy Act of 1954, as amended;

(ii) Section 206 of the Energy Reorganization Act;

(iii) Any rule, regulation, or order issued pursuant to the sections specified in paragraph (b)(1)(i) of this section;

(iv) Any term, condition, or limitation of any license issued under the sections specified in paragraph (b)(1)(i) of this section.

(2) For any violation for which a license may be revoked under section 186 of the Atomic Energy Act of 1954, as amended.

#### § 61.84 Criminal penalties.

(a) Section 223 of the Atomic Energy Act of 1954, as amended, provides for criminal sanctions for willful violation of, attempted violation of, or conspiracy to violate, any regulation issued under sections 161b, 161i, or 161o of the Act. For purposes of section 223, all the regulations in part 61 are issued under one or more of sections 161b, 161i, or 161o, except for the sections listed in paragraph (b) of this section.

(b) The regulations in Part 61 that are not issued under sections 161b, 161i, or 161o for the purposes of Section 223 are as follows: §§ 61.1, 61.2, 61.4, 61.5, 61.6, 61.7, 61.8, 61.10, 61.11, 61.12, 61.13, 61.14, 61.15, 61.16, 61.20, 61.21, 61.22, 61.23, 61.26, 61.30, 61.31, 61.50, 61.51, 61.54, 61.55, 61.58, 61.59, 61.61, 61.63, 61.70, 61.71, 61.72, 61.73, 61.83, and 61.84.





B.2.

EXECUTIVE TASK MANAGEMENT SYSTEM

<<< PRINT SCREEN UPDATE FORM >>>

TASK # - 7S-86

DATE - 04/07/97

MAIL CTRL. - 1997

TASK STARTED - 04/07/97

TASK DUE - 04/21/97

TASK COMPLETED - / /

TASK DESCRIPTION - COLORADO DECOMMISSIONING RECORDKEEPING: DOCUMENTATION  
ADDITIONS PART 30, 40 & '70

REQUESTING OFF. - COL

REQUESTER - QUILLIN

WITS -

0

FYP - N

PROG. - RLB

PERSON -

STAFF LEAD - RLB

PROG. AREA -

PROJECT STATUS -

OSP DUE DATE: 4/22/97

PLANNED ACC. - N

LEVEL CODE - 1

D R A F T

February 4, 1997

1     3.15.4     NOTICE AND DISPOSITION OF RECORDS PRIOR TO LICENSE TERMINATION.

2  
3     Each licensee shall notify the Department in writing when the  
4     licensee decides to permanently discontinue all activities  
5     involving materials authorized under the license.  
6

7     3.15.4.1     PRIOR TO LICENSE TERMINATION, EACH LICENSEE AUTHORIZED TO  
8     POSSESS RADIOACTIVE MATERIAL WITH A HALF-LIFE GREATER THAN  
9     120 DAYS, IN AN UNSEALED FORM, SHALL FORWARD THE FOLLOWING  
10     RECORDS TO THE DEPARTMENT.  
11

12     3.15.4.1.1     RECORDS OF DISPOSAL OF LICENSED MATERIAL MADE UNDER RH 4.34,  
13     4.35, 4.36, 4.37; AND  
14

15     3.15.4.1.2     RECORDS REQUIRED BY RH 4.42.  
16

17     3.15.4.2     IF LICENSED ACTIVITIES ARE TRANSFERRED OR ASSIGNED IN  
18     ACCORDANCE WITH RH 3.15.2, EACH LICENSEE AUTHORIZED TO  
19     POSSESS RADIOACTIVE MATERIAL, WITH A HALF-LIFE GREATER THAN  
20     120 DAYS, IN AN UNSEALED FORM, SHALL TRANSFER THE RECORDS  
21  
22     REQUIRED IN RH 3.15.4.1 TO THE NEW LICENSEE AND THE NEW  
23     LICENSEE WILL BE RESPONSIBLE FOR MAINTAINING THESE RECORDS  
24     UNTIL THE LICENSE IS TERMINATED.  
25

26     3.15.4.3     PRIOR TO LICENSE TERMINATION, EACH LICENSEE SHALL FORWARD  
27     THE RECORDS REQUIRED BY RH 3.16.6.8 TO THE DEPARTMENT.  
28  
29  
30

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## 3.16.6.8

DECOMMISSIONING RECORDKEEPING

THE LICENSEE SHALL KEEP RECORDS OF INFORMATION IMPORTANT TO THE DECOMMISSIONING OF A FACILITY IN AN IDENTIFIED LOCATION UNTIL AUTHORIZED BY THE DEPARTMENT. BEFORE LICENSED ACTIVITIES ARE TRANSFERRED OR ASSIGNED IN ACCORDANCE WITH RH 3.15.2, LICENSEES SHALL TRANSFER ALL RECORDS DESCRIBED IN THIS PARAGRAPH TO THE NEW LICENSEE. IN THIS CASE, THE NEW LICENSEE WILL BE RESPONSIBLE FOR MAINTAINING THESE RECORDS UNTIL THE LICENSE IS TERMINATED. IF RECORDS IMPORTANT TO THE DECOMMISSIONING OF A FACILITY ARE KEPT FOR OTHER PURPOSES, REFERENCE TO THESE RECORDS AND THEIR LOCATIONS MAY BE USED. INFORMATION CONSIDERED IMPORTANT TO DECOMMISSIONING CONSISTS OF:

## 3.16.6.8.1

RECORDS OF SPILLS OR OTHER UNUSUAL OCCURRENCES INVOLVING THE SPREAD OF CONTAMINATION IN AND AROUND THE FACILITY, EQUIPMENT, OR SITE. THESE RECORDS MAY BE LIMITED TO INSTANCES WHEN CONTAMINATION REMAINS AFTER ANY CLEANUP PROCEDURES OR WHEN THERE IS REASONABLE LIKELIHOOD THAT CONTAMINANTS MAY HAVE SPREAD TO INACCESSIBLE AREAS AS IN THE CASE OF POSSIBLE SEEPAGE INTO POROUS MATERIALS SUCH AS CONCRETE. THESE RECORDS MUST INCLUDE ANY KNOWN INFORMATION ON IDENTIFICATION OF INVOLVED NUCLIDES, QUANTITIES, FORMS AND CONCENTRATIONS.

## 3.16.6.8.2

AS-BUILT DRAWINGS AND MODIFICATIONS OF STRUCTURES AND EQUIPMENT IN RESTRICTED AREAS WHERE RADIOACTIVE MATERIALS ARE USED AND/OR STORED, AND OF LOCATIONS OF POSSIBLE

D R A F T

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1 INACCESSIBLE CONTAMINATION SUCH AS BURIED PIPES WHICH MAY BE  
2 SUBJECT TO CONTAMINATION. IF REQUIRED DRAWINGS ARE  
3 REFERENCED, EACH RELEVANT DOCUMENT NEEDS TO BE INDEXED  
4 INDIVIDUALLY. IF DRAWINGS ARE NOT AVAILABLE, THE LICENSEE  
5 SHALL SUBSTITUTE APPROPRIATE RECORDS OF AVAILABLE  
6 INFORMATION CONCERNING THESE AREAS AND LOCATIONS.  
7

8 3.16.6.8.3 EXCEPT FOR AREAS CONTAINING ONLY SEALED SOURCES (PROVIDED  
9 THE SOURCES HAVE NOT LEAKED OR NO CONTAMINATION REMAINS  
10 AFTER ANY LEAK), BYPRODUCT MATERIALS HAVING ONLY HALF-LIVES  
11 OF LESS THAN 65 DAYS, OR AREAS CONTAINING DEPLETED URANIUM  
12 CASED ONLY FOR SHIELDING OR AS PENETRATORS IN UNUSED  
13 MUNITIONS, A LIST CONTAINED IN A SINGLE DOCUMENT AND UPDATED  
14 EVERY 2 YEARS, OF THE FOLLOWING:  
15

16 3.16.6.8.3.1 ALL AREAS DESIGNATED AND FORMERLY DESIGNATED  
17 RESTRICTED AREAS AS DEFINED IN RH 1.4;  
18

19 3.16.6.8.3.2 ALL AREAS OUTSIDE OF RESTRICTED AREAS THAT  
20 REQUIRE DOCUMENTATION UNDER RH 3.16.6.8.1;  
21

22 3.16.6.8.3.3 ALL AREAS OUTSIDE OF RESTRICTED AREAS WHERE CURRENT  
23 AND PREVIOUS WASTES HAVE BEEN BURIED AS DOCUMENTED  
24 UNDER RH 4.48; AND  
25

26 3.16.6.8.3.4 ALL AREAS OUTSIDE OF RESTRICTED AREAS WHICH CONTAIN  
27 MATERIAL SUCH THAT, IF THE LICENSE EXPIRED, THE  
28 LICENSEE WOULD BE REQUIRED TO EITHER DECONTAMINATE THE  
29 AREA TO UNRESTRICTED RELEASE LEVELS OR APPLY FOR  
30 APPROVAL FOR DISPOSAL UNDER RH 4.34.  
31



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3.16.6.8.3.5

A LIST CONTAINING THE LOCATION AND DESCRIPTION OF ALL  
EQUIPMENT TO REMAIN ONSITE AFTER LICENSE TERMINATION  
THAT WAS CONTAMINATED WHEN FINAL DECOMMISSIONING WAS  
INITIATED; AND

3.16.6.8.3.6

ANY OTHER INFORMATION NOT REQUIRED BY NH 3.16.6.8.3  
THAT IS CONSIDERED NECESSARY TO SUPPORT THE ADEQUACY  
OF THE DECOMMISSIONING PLAN FOR APPROVAL.

3.16.6.8.4 RECORDS OF THE COST ESTIMATE PERFORMED FOR THE DECOMMISSIONING  
FUNDING PLAN OR OF THE AMOUNT CERTIFIED FOR DECOMMISSIONING, AND  
RECORDS OF THE FUNDING METHOD USED FOR ASSURING FUNDS IF EITHER A  
FUNDING PLAN OR CERTIFICATION IS USED.



B.3.

EXECUTIVE TASK MANAGEMENT SYSTEM

<<< PRINT SCREEN UPDATE FORM >>>

TASK # - 7S-87

DATE- 04/07/97

MAIL CTRL. - 1997

TASK STARTED - 04/07/97

TASK DUE - 04/21/97

TASK COMPLETED - / /

TASK DESCRIPTION - COLORADO SELF-GUARANTTEE AS AN ADDITIONAL FINANCIAL  
MECHANISM; PARTS 30, 40, 70

REQUESTING OFF. - COL

REQUESTER - QUILLIN

WITS - 0 FYP - N

PROG.- RLB

PERSON -

STAFF LEAD - RLB

PROG. AREA -

PROJECT STATUS -

OSP DUE DATE: 4/22/97

PLANNED ACC. - N

LEVEL CODE - 1

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## PART 3

## LICENSING OF RADIOACTIVE MATERIAL

3.1.2

In addition to the requirements of this part, all licensees are subject to the requirements of Parts 1, 4, 10, 12 and 17 of these regulations. Furthermore, licensees engaged in industrial radiographic operations are subject to the requirements of Part 5 of these regulations, licensees using radionuclides in the healing arts are subject to the requirements of Part 7 of these regulations, licensees engaged in land disposal of radioactive material are subject to the requirements of EITHER Part 14 OR PART 18 of these regulations, licensees engaged in source material milling are subject to the requirements of Part 18 of these regulations, and licensees engaged in wireline and subsurface tracer studies are subject to the requirements of Part 16 of these regulations.

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3.9.5 Financial assurance requirements, as described below, have been met:

3.9.5.1 Financial Requirements.

The Department will require financial assurance arrangements as follows:

3.9.5.1.1 A license applicant may be required to furnish financial assurance arrangements to ensure decontamination and decommissioning of the facility for the protection of the public health and safety and the environment in the event of abandonment, default or inability of the licensee to meet the requirements of the Act, these regulations, and the license.

3.9.5.1.2 The following specific licensees are required to furnish financial assurance arrangements:

3.9.5.1.2.1 Reserved.

3.9.5.1.2.2 Commercial waste handling licensees;

3.9.5.1.2.3 Reserved.



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3.9.5.1.2.4

Source material mills; and

3.9.5.1.2.5

Each applicant for a specific license authorizing the possession and use of SOURCE MATERIAL, IN A READILY DISPERSIBLE FORM, GREATER THAN 10 mCi, OR OTHER licensed radioactive material with a half life greater than 120 days, in quantities:

3.9.5.1.2.5.1

greater than  $10^5$  times the applicable quantity of Schedule B of Part 3 unsealed form. For a combination of isotopes 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 in the applicable value in Schedule B.

3.9.5.1.2.5.2

greater than  $10^{10}$  times the applicable quantity of Schedule B of Part 3 in sealed sources or plated foils. For a combination of isotopes if R divided by  $10^{10}$  is greater than 1 (unity rule), where R is defined in RH 3.9.5.1.2.5.1.

3.9.5.1.3

Reserved.

~~3.9.5.1.3.1~~~~Reserved.~~~~3.9.5.1.3.2~~~~Reserved.~~

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~~3.9.5.1.3.3~~ ~~Reserved~~~~3.9.5.1.3.4~~ ~~Reserved~~~~3.9.5.1.3.5~~ ~~Reserved~~

3.9.5.2

The financial assurance arrangements required by RH 3.9.5.1.1 shall be furnished to, and in a form approved by, the Department prior to the issuance of a license, or any amendment or renewal of an existing license, as required by the Department. The applicant shall furnish evidence of initial and continued financial responsibility sufficient to maintain the financial assurance arrangement in force, as required by and acceptable to the Department. The amount of funds to be provided by such financial assurance arrangements shall be based on Department-approved cost estimates.

~~Self-insurance, or any arrangement which essentially constitutes self-insurance (e.g., a contract with a State or Federal agency), will not satisfy the financial assurance requirement since this provides no additional assurance other than that which already exists through license requirements.~~

Acceptable financial assurance arrangements include:

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3.9.5.2.1

A bond issued by a fidelity or surety company with provisions and for a term and amount acceptable to the Department.

3.9.5.2.2

An irrevocable "letter of credit" or "line of credit" issued by a recognized financial institution whose financial condition and commitment are established to the satisfaction of the Department.

3.9.5.2.3

A cash deposit, certificate of deposit, or deposit of government securities posted by the licensee with provisions and for a term and amount acceptable to the Department; or

3.9.5.2.4

SELF ASSURANCE TEST

3.9.5.2.4.1

FOR ALL LICENSEES, EXCEPT URANIUM OR THORIUM MILL FACILITIES, ACCEPTABLE FINANCIAL ASSURANCE ARRANGEMENTS ALSO INCLUDE THE FOLLOWING: PARENT COMPANY GUARANTEE OF FUNDS FOR DECOMMISSIONING COSTS BASED ON A FINANCIAL TEST MAY BE USED IF THE GUARANTEE AND TEST ARE AS CONTAINED IN APPENDIX A OF THIS PART. A PARENT COMPANY GUARANTEE MAY NOT BE USED IN COMBINATION WITH OTHER FINANCIAL METHODS TO SATISFY THE REQUIREMENTS OF THIS SECTION.

3.9.5.2.4.2

A GUARANTEE OF FUNDS BY THE APPLICANT OR LICENSEE FOR DECOMMISSIONING COSTS BASED ON A FINANCIAL TEST MAY BE USED IF THE GUARANTEE AND TEST ARE AS CONTAINED IN APPENDIX B OF THIS PART. A GUARANTEE BY THE APPLICANT OR LICENSEE MAY NOT BE USED IN COMBINATION WITH ANY OTHER FINANCIAL METHODS TO SATISFY THE REQUIREMENTS OF THIS SECTION OR IN ANY SITUATION WHERE THE APPLICANT OR LICENSEE HAS A PARENT COMPANY HOLDING MAJORITY CONTROL OF THE VOTING STOCK OF THE COMPANY.

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3.9.5.2.4.3

SELF INSURANCE, OR ANY OTHER ARRANGEMENT WHICH ESSENTIALLY CONSTITUTES SELF INSURANCE (e.g. A CONTRACT WITH A STATE OR FEDERAL AGENCY).

3.9.5.2.4.5

EXCEPT FOR THE FINANCIAL ASSURANCE TESTS NOTED IN RH 3.9.5.2.4, ~~no~~ combinations of the above or such other evidence of initial and continued financial responsibility as may be required by the Department, including financial assurance arrangements previously provided to any State, Federal and/or local governing bodies concerning activities subject to license under these regulations, where the amount, terms, and conditions of such financial assurance arrangements have been established to the satisfaction of the Department, provided such arrangements are considered by the Department to be adequate to satisfy the requirements of RH 3.9.5 and provided that the portion of the financial assurance arrangement which covers the decommissioning and reclamation of the facility and associated areas, and the long-term site surveillance and control funding charge, are clearly identified and committed for use in accomplishing these activities.

3.9.5.3

The amount of funds to be provided by such financial assurance arrangements shall be based on Department-approved cost estimates in an approved DECOMMISSIONING plan for (1) decontamination and decommissioning of buildings, facilities and the site to levels which would allow unrestricted use of these areas upon decommissioning, and (2) for the reclamation of tailings and/or waste disposal areas in accordance with technical criteria delineated in Part 14 and/or Part 18 as appropriate. The licensee shall submit this plan and complete proposed financial assurance arrangements in conjunction with the environmental report

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1 required by RH 3.8.8 that addresses the expected  
2 environmental impacts of the operation, decommissioning and  
3 reclamation, and evaluates alternatives for mitigating these  
4 impacts. In establishing specific financial assurance  
5 arrangements, the cost estimates shall take into account  
6 total costs that would be incurred if an independent  
7 contractor were hired to perform the decommissioning and  
8 reclamation work, and long-term care if included.

## 3.9.5.3.1

10 EACH DECOMMISSIONING FUNDING PLAN MUST CONTAIN A COST  
11 ESTIMATE FOR DECOMMISSIONING, REQUIRED IN THIS  
12 SECTION, INCLUDING MEANS FOR ADJUSTING COST ESTIMATES  
13 AND ASSOCIATED FUNDING LEVELS PERIODICALLY OVER THE  
14 LIFE OF THE FACILITY. THE DECOMMISSIONING FUNDING  
15 PLAN MUST ALSO INCLUDE A CERTIFICATION BY THE LICENSEE  
16 THAT FINANCIAL ASSURANCE DECOMMISSIONING HAS BEEN  
17 PROVIDED FOR IN THE AMOUNT OF THE COST ESTIMATE FOR  
18 DECOMMISSIONING OR A SIGNED ORIGINAL OF THE FINANCIAL  
19 INSTRUMENT OBTAINED TO SATISFY THE REQUIREMENTS OF  
20 THIS SECTION.

## 3.9.5.3.2

22 A SIGNED EXECUTED ORIGINAL COPY OF THE FINANCIAL  
23 INSTRUMENT OBTAINED TO SATISFY THE REQUIREMENTS OF  
24 THIS SECTION SHALL BE SUBMITTED TO THE DEPARTMENT  
25 PRIOR TO RECEIPT, USE, POSSESSION, STORAGE OR DISPOSAL  
26 OF LICENSED MATERIAL.



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3.9.5.4

The licensee shall provide in writing to the Department, no later than June 30th of each calendar year, any licensee proposed changes, including updated plans, costs or surety mechanisms, for consideration by the Department.

3.9.5.5

The licensee's financial assurance arrangements will be reviewed annually by the Department to assure that sufficient funds would be available for completion of the plans if the work had to be performed by an independent contractor and shall be adjusted to recognize any increases or decreases resulting from inflation or deflation, changes in engineering plans, activities performed, and any other conditions affecting costs. Regardless of whether the work is phased through the life of the operation or takes place at the end of the operation, an appropriate portion of financial assurance liability shall be ~~re~~MAINTAINED by the licensee until final compliance with the ~~reclamation~~ DECOMMISSIONING plan is determined by the Department.

This will yield a financial assurance ARRANGEMENTS that are at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal. The term of the surety mechanism shall be open ended, unless it can be demonstrated that another arrangement would provide an equivalent level of assurance. This assurance would be provided with a surety instrument which is written for a specified period of time (e.g. 5 years) yet which must be automatically renewed unless the surety notifies the

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1 Department and the principal (the licensee) some reasonable  
2 time (e.g. 90 days) prior to the renewal date of their  
3 intention not to renew. In such a situation  
4 the surety requirement still exists and the licensee would  
5 be required to submit an acceptable replacement surety  
6 within a brief period of time to allow at least 60 days for  
7 the regulatory agency to collect.

8  
9 Proof of forfeiture shall not be necessary to collect the  
10 surety so that in the event that the licensee could not  
11 provide an acceptable replacement surety within the required  
12 time, the surety shall be automatically collected prior to  
13 its expiration. The conditions described above would have  
14 to be clearly stated on any surety instrument which is not  
15 open-ended and must be agreed to by all parties.

16  
17 3.9.5.6 The term of the financial assurance arrangement shall be for  
18 the period from issuance of the license until termination of  
19 the license by the Department, unless it can be demonstrated  
20 that another arrangement would provide an equivalent level  
21 of assurance. THE LICENSEE SHALL MAINTAIN IN EFFECT ALL  
22 DECOMMISSIONING FINANCIAL ASSURANCES ESTABLISHED BY THE  
23 LICENSEE, PURSUANT TO SECTION 3.9.5 OF THIS PART, IN  
24 CONJUNCTION WITH ANY LICENSE ISSUANCE, AMENDMENT OR RENEWAL.  
25 THE AMOUNT OF FINANCIAL ASSURANCE MUST BE INCREASED OR  
26 DECREASED, AS APPROPRIATE, TO COVER THE DETAILED COST  
27 ESTIMATE FOR DECOMMISSIONING ESTABLISHED PURSUANT TO SECTION  
28 3.9.5.3 OF THIS PART. ANY LICENSEE WHO  
29  
30

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1 HAS NOT PROVIDED FINANCIAL ASSURANCE TO COVER THE DETAILED  
2 COST ESTIMATE SUBMITTED WITH THE DECOMMISSIONING PLAN SHALL  
3 DO SO WHEN THIS RULE BECOMES EFFECTIVE JANUARY 1, 1997.  
4 FOLLOWING APPROVAL OF THE DECOMMISSIONING PLAN, A LICENSEE  
5 MAY REDUCE THE AMOUNT OF FINANCIAL ASSURANCE AS  
6 DECOMMISSIONING PROCEEDS AND WITH THE APPROVAL OF THE  
7 DEPARTMENT.  
8  
9  
10  
11  
12  
13

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## PART 3

## APPENDIX A

CRITERIA RELATING TO USE OF FINANCIAL  
TESTS AND PARENT COMPANY GUARANTEES FOR  
PROVIDING REASONABLE ASSURANCE  
OF FUNDS FOR DECOMMISSIONING

I. INTRODUCTION

AN APPLICANT OR LICENSEE MAY PROVIDE REASONABLE ASSURANCE OF THE  
AVAILABILITY OF FUNDS FOR DECOMMISSIONING BASED ON OBTAINING A PARENT  
COMPANY GUARANTEE THAT FUNDS WILL BE AVAILABLE FOR DECOMMISSIONING COSTS  
AND ON A DEMONSTRATION THAT THE PARENT COMPANY PASSES A FINANCIAL TEST.  
THIS APPENDIX ESTABLISHES CRITERIA FOR PASSING THE FINANCIAL TEST AND  
FOR OBTAINING THE PARENT COMPANY GUARANTEE.

II. FINANCIAL TEST

A. TO PASS THE FINANCIAL TEST, THE PARENT COMPANY MUST MEET THE  
CRITERIA OF EITHER PARAGRAPH A.1. OR A.2. OF THIS SECTION:

1. THE PARENT COMPANY MUST HAVE:

- (1) TWO OF THE FOLLOWING THREE RATIOS: A RATIO OF TOTAL  
LIABILITIES TO NET WORTH LESS THAN 2.0; A RATIO OF THE  
SUM OF NET INCOME PLUS DEPRECIATION, DEPLETION, AND

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1 AMORTIZATION TO TOTAL LIABILITIES GREATER THAN 0.1;  
2 AND RATIO OF CURRENT ASSETS TO CURRENT LIABILITIES  
3 GREATER THAN 1.5; AND  
4

5 (II) NET WORKING CAPITAL AND TANGIBLE NET WORTH EACH AT  
6 LEAST TEN TIMES THE CURRENT DECOMMISSIONING COST  
7 ESTIMATES (OR PRESCRIBED AMOUNT IF A CERTIFICATION IS  
8 USED); AND  
9

10 (III) TANGIBLE NET WORTH OF AT LEAST \$10 MILLION; AND  
11

12 (IV) ASSETS LOCATED IN THE UNITED STATES AMOUNTING TO AT  
13 LEAST 90 PERCENT OF TOTAL ASSETS OR AT LEAST TEN TIMES  
14 THE CURRENT DECOMMISSIONING COST ESTIMATES (OR  
15 PRESCRIBED AMOUNT IF A CERTIFICATION IS USED).  
16

17 2. THE PARENT COMPANY MUST HAVE:  
18

19 (I) A CURRENT RATING FOR ITS MOST RECENT BOND ISSUANCE OF  
20 AAA, AA, A, OR BBB AS ISSUED BY STANDARD AND POOR'S OR  
21 AAA, AA, A, OR BAA AS ISSUED BY MOODY'S; AND  
22

23 (II) TANGIBLE NET WORTH AT LEAST TEN TIMES THE CURRENT  
24 DECOMMISSIONING COST ESTIMATE (OR PRESCRIBED AMOUNT IF  
25 A CERTIFICATION IS USED); AND  
26

27 (III) TANGIBLE NET WORTH OF AT LEAST \$10 MILLION; AND  
28

29 (IV) ASSETS LOCATED IN THE UNITED STATES AMOUNTING TO AT  
30 LEAST 90 PERCENT OF TOTAL ASSETS OR AT LEAST TEN TIMES



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1 THE CURRENT DECOMMISSIONING COST ESTIMATES (OR  
2 PRESCRIBED AMOUNT IF CERTIFICATION IS USED).

3  
4 B. THE PARENT COMPANY'S INDEPENDENT CERTIFIED PUBLIC ACCOUNTANT MUST  
5 HAVE COMPARED THE DATA USED BY THE PARENT COMPANY IN THE FINANCIAL  
6 TEST, WHICH IS DERIVED FROM INDEPENDENTLY AUDITED, YEAR END  
7 FINANCIAL STATEMENTS FOR THE LATEST FISCAL YEAR, WITH THE AMOUNTS  
8 IN SUCH FINANCIAL STATEMENT. IN CONNECTION WITH THAT PROCEDURE  
9 THE LICENSEE SHALL INFORM THE DEPARTMENT WITHIN 90 DAYS OF ANY  
10 MATTERS COMING TO THE AUDITOR'S ATTENTION WHICH CAUSE THE AUDITOR  
11 TO BELIEVE THAT THE DATA SPECIFIED IN THE FINANCIAL TEST SHOULD BE  
12 ADJUSTED AND THAT THE COMPANY NO LONGER PASSES THE TEST.

- 13  
14 C. 1. AFTER THE INITIAL FINANCIAL TEST, THE PARENT COMPANY MUST  
15 REPEAT THE PASSAGE OF THE TEST WITHIN 90 DAYS AFTER THE  
16 CLOSE OF EACH SUCCEEDING FISCAL YEAR.
- 17  
18 2. IF THE PARENT COMPANY NO LONGER MEETS THE REQUIREMENTS OF  
19 PARAGRAPH A OF THIS SECTION, THE LICENSEE MUST SEND NOTICE  
20 TO THE DEPARTMENT OF INTENT TO ESTABLISH ALTERNATE FINANCIAL  
21 ASSURANCE AS SPECIFIED IN THE DEPARTMENT'S REGULATIONS. THE  
22 NOTICE MUST BE SENT BY CERTIFIED MAIL WITHIN 90 DAYS AFTER  
23 THE END OF THE FISCAL YEAR FOR WHICH THE YEAR END FINANCIAL  
24 DATA SHOW THAT THE PARENT COMPANY NO LONGER MEETS THE  
25 FINANCIAL TEST REQUIREMENTS. THE LICENSEE MUST PROVIDE  
26 ALTERNATE FINANCIAL ASSURANCE WITHIN 120 DAYS AFTER THE END  
27 OF SUCH FISCAL YEAR.
- 28  
29

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1 III. PARENT COMPANY GUARANTEE

2  
3 THE TERMS OF A PARENT COMPANY GUARANTEE WHICH AN APPLICANT OR LICENSEE  
4 OBTAINS MUST PROVIDE THAT:

5  
6 A. THE PARENT COMPANY GUARANTEE WILL REMAIN IN FORCE UNLESS THE  
7 GUARANTOR SENDS NOTICE OF CANCELLATION BY CERTIFIED MAIL TO THE  
8 LICENSEE AND THE DEPARTMENT. CANCELLATION MAY NOT OCCUR, HOWEVER,  
9 DURING THE 120 DAYS BEGINNING ON THE DATE OF RECEIPT OF THE NOTICE  
10 OF CANCELLATION BY BOTH THE LICENSEE AND THE DEPARTMENT, AS  
11 EVIDENCED BY THE RETURN RECEIPTS.

12  
13 B. IF THE LICENSEE FAILS TO PROVIDE ALTERNATE FINANCIAL ASSURANCE AS  
14 SPECIFIED IN THE DEPARTMENT'S REGULATIONS WITHIN 90 DAYS AFTER  
15 RECEIPT BY THE LICENSEE AND DEPARTMENT OF A NOTICE OF CANCELLATION  
16 OF THE PARENT COMPANY GUARANTEE FROM THE GUARANTOR, THE GUARANTOR  
17 WILL PROVIDE SUCH ALTERNATIVE FINANCIAL ASSURANCE IN THE NAME OF  
18 THE LICENSEE.

19  
20 C. THE PARENT COMPANY GUARANTEE AND FINANCIAL TEST PROVISIONS MUST  
21 REMAIN IN EFFECT UNTIL THE DEPARTMENT HAS TERMINATED THE LICENSE  
22 OR UNTIL ANOTHER FINANCIAL ASSURANCE METHOD ACCEPTABLE TO THE  
23 DEPARTMENT HAS BEEN PUT IN EFFECT BY THE LICENSEE.

24  
25 D. IF A TRUST IS ESTABLISHED FOR DECOMMISSIONING COSTS, THE TRUSTEE  
26 AND TRUST MUST BE ACCEPTABLE TO THE DEPARTMENT. AN ACCEPTABLE  
27 TRUSTEE INCLUDES THE FOLLOWING: AN APPROPRIATE STATE OR FEDERAL  
28 GOVERNMENT AGENCY OR AN ENTITY WHICH HAS THE AUTHORITY TO ACT AS A  
29 TRUSTEE AND WHOSE TRUST OPERATIONS ARE REGULATED AND EXAMINED BY A  
30 STATE OR FEDERAL AGENCY.

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## PART 3

## APPENDIX B

CRITERIA RELATING TO USE OF  
FINANCIAL TESTS AND SELF GUARANTEES FOR  
PROVIDING REASONABLE ASSURANCE OF FUNDS FOR DECOMMISSIONING

I. INTRODUCTION

AN APPLICANT OR LICENSEE MAY PROVIDE REASONABLE ASSURANCE OF THE  
AVAILABILITY OF FUNDS FOR DECOMMISSIONING, BASED ON FURNISHING ITS OWN  
GUARANTEE THAT FUNDS WILL BE AVAILABLE FOR DECOMMISSIONING COSTS, AND ON  
A DEMONSTRATION THAT THE COMPANY PASSES THE FINANCIAL TEST SECTION II OF  
THIS APPENDIX. THE TERMS OF THIS SELF-GUARANTEE ARE IN SECTION III OF  
THIS APPENDIX. THIS APPENDIX ESTABLISHES CRITERIA FOR PASSING THE  
FINANCIAL TEST FOR THE SELF-GUARANTEE AND ESTABLISHES THE TERMS FOR A  
SELF-GUARANTEE.

II. FINANCIAL TEST

A. TO PASS THE FINANCIAL TEST, A COMPANY MUST MEET THE ALL OF THE  
FOLLOWING CRITERIA:

1. A TANGIBLE NET WORTH OF AT LEAST TEN TIMES THE TOTAL CURRENT  
DECOMMISSIONING COST ESTIMATE (OR THE CURRENT AMOUNT  
REQUIRED IF CERTIFICATION IS USED) FOR ALL DECOMMISSIONING  
ACTIVITIES FOR WHICH THE COMPANY IS RESPONSIBLE AS SELF-  
GUARANTEEING LICENSEE AND AS PARENT-GUARANTOR.

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1  
2 2. ASSETS LOCATED IN THE UNITED STATES AMOUNTING TO AT LEAST 90  
3 PERCENT OF TOTAL ASSETS OR AT LEAST TEN TIMES THE CURRENT  
4 DECOMMISSIONING COST ESTIMATES (OR THE CURRENT AMOUNT  
5 REQUIRED IF CERTIFICATION IS USED) FOR ALL DECOMMISSIONING  
6 ACTIVITIES FOR WHICH THE COMPANY IS RESPONSIBLE AS SELF-  
7 GUARANTEEING LICENSEE AND AS PARENT-GUARANTOR.

8  
9 3. A CURRENT RATING FOR ITS MOST RECENT BOND ISSUANCE OF AAA,  
10 AA, OR A AS ISSUED BY STANDARD AND POOR'S OR AAA, AA, OR A  
11 AS ISSUED BY MOODY'S; AND

12  
13 B. TO PASS THE FINANCIAL TEST, A COMPANY MUST MEET ALL OF  
14 THE FOLLOWING ADDITIONAL REQUIREMENTS:

15  
16 (1) THE COMPANY MUST HAVE AT LEAST ONE CLASS OF  
17 EQUITY SECURITIES REGISTERED UNDER THE  
18 SECURITIES EXCHANGE ACT OF 1934.

19  
20 (2) THE COMPANY'S INDEPENDENT CERTIFIED PUBLIC  
21 ACCOUNTANT MUST HAVE COMPARED THE DATA USED BY  
22 THE COMPANY IN THE FINANCIAL TEST WHICH IS  
23 DERIVED FROM THE INDEPENDENTLY AUDITED, YEAR END  
24 FINANCIAL STATEMENTS FOR THE LATEST FISCAL YEAR,  
25 WITH THE AMOUNTS IN SUCH FINANCIAL STATEMENT.  
26 IN CONNECTION WITH THAT PROCEDURE, THE LICENSEE  
27 SHALL INFORM THE DEPARTMENT WITHIN 90 DAYS OF  
28 ANY MATTERS COMING TO THE ATTENTION OF THE  
29 AUDITOR THAT CAUSE THE AUDITOR TO BELIEVE THAT  
30 THE DATA SPECIFIED IN THE FINANCIAL TEST SHOULD

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1 BE ADJUSTED AND THAT THE COMPANY NO LONGER  
2 PASSES THE TEST.

- 3  
4 (3) AFTER THE INITIAL FINANCIAL TEST, THE COMPANY  
5 MUST REPEAT PASSAGE OF THE TEST WITHIN 90 DAYS  
6 AFTER THE CLOSE OF EACH SUCCEEDING FISCAL YEAR.

7  
8 C. IF THE LICENSEE NO LONGER MEETS THE REQUIREMENTS OF SECTION  
9 II.A. OF THIS APPENDIX, THE LICENSEE MUST SEND IMMEDIATE  
10 NOTICE TO THE DEPARTMENT OF ITS INTENT TO ESTABLISH  
11 ALTERNATE FINANCIAL ASSURANCE AS SPECIFIED IN THE  
12 DEPARTMENT'S REGULATIONS WITHIN 120 DAYS OF SUCH NOTICE.

13  
14 III. COMPANY SELF-GUARANTEE

15  
16 THE TERMS OF A SELF-GUARANTEE WHICH AN APPLICANT OR LICENSEE FURNISHES  
17 MUST PROVIDE THAT:

- 18  
19 A. THE GUARANTEE WILL REMAIN IN FORCE UNLESS THE LICENSEE SENDS  
20 NOTICE OF CANCELLATION BY CERTIFIED MAIL TO THE DEPARTMENT.  
21 CANCELLATION MAY NOT OCCUR, HOWEVER, DURING THE 120 DAYS BEGINNING  
22 ON THE DATE OF RECEIPT OF THE NOTICE OF CANCELLATION BY THE  
23 DEPARTMENT, AS EVIDENCED BY THE RETURN RECEIPT.
- 24  
25 B. THE LICENSEE SHALL PROVIDE ALTERNATIVE FINANCIAL ASSURANCE AS  
26 SPECIFIED IN THE DEPARTMENT'S REGULATIONS WITHIN 90 DAYS FOLLOWING  
27 RECEIPT BY THE DEPARTMENT OF A NOTICE OF CANCELLATION OF THE  
28 GUARANTEE.
- 29  
30



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- 1 C. THE GUARANTEE AND FINANCIAL TEST PROVISIONS MUST REMAIN IN EFFECT  
2 UNTIL THE DEPARTMENT HAS TERMINATED THE LICENSE OR UNTIL ANOTHER  
3 FINANCIAL ASSURANCE METHOD ACCEPTABLE TO THE DEPARTMENT HAS BEEN  
4 PUT IN EFFECT BY THE LICENSEE.  
5
- 6 D. THE LICENSEE WILL PROMPTLY FORWARD TO THE DEPARTMENT AND THE  
7 LICENSEE'S INDEPENDENT AUDITOR ALL REPORTS COVERING THE LATEST  
8 FISCAL YEAR FILED BY THE LICENSEE WITH THE SECURITIES AND EXCHANGE  
9 COMMISSION PURSUANT TO THE REQUIREMENTS OF SECTION 13 OF THE  
10 SECURITIES AND EXCHANGE ACT OF 1934.  
11
- 12 E. IF, AT ANY TIME, THE LICENSEE'S MOST RECENT BOND ISSUANCE CEASES  
13 TO BE RATED IN ANY CATEGORY OF "A" OR ABOVE BY EITHER STANDARD AND  
14 POORS AND MOODYS, THE LICENSEE WILL PROVIDE NOTICE IN WRITING OF  
15 SUCH FACT TO THE DEPARTMENT WITHIN 20 DAYS AFTER PUBLICATION OF  
16 THE CHANGE BY THE RATING SERVICE. IF THE LICENSEE'S MOST RECENT  
17 BOND ISSUANCE CEASES TO BE RATED IN ANY CATEGORY OF A OR ABOVE BY  
18 BOTH STANDARD AND POORS AND MOODYS, THE LICENSEE NO LONGER MEETS  
19 THE REQUIREMENTS OF SECTION II.A. OF THIS APPENDIX.  
20
- 21 F. THE APPLICANT OR LICENSEE MUST PROVIDE TO THE DEPARTMENT A WRITTEN  
22 GUARANTEE (A WRITTEN COMMITMENT BY A CORPORATE OFFICER) WHICH  
23 STATES THAT THE LICENSEE WILL FUND AND CARRY OUT THE REQUIRED  
24 DECOMMISSIONING ACTIVITIES OR, UPON ISSUANCE OF AN ORDER BY THE  
25 DEPARTMENT, THE LICENSEE WILL SET UP AND FUND A TRUST IN THE  
26 AMOUNT OF THE CURRENT COST ESTIMATES FOR DECOMMISSIONING.

## EXECUTIVE TASK MANAGEMENT SYSTEM

&lt;&lt;&lt; PRINT SCREEN UPDATE FORM &gt;&gt;&gt;

TASK # - 7S-83

DATE- 04/07/97

MAIL CTRL. - 1997

TASK STARTED - 04/07/97

TASK DUE - 04/21/97

TASK COMPLETED - / /

TASK DESCRIPTION - COLORADO NOTIFICATION OF INCIDENTS, PARTS 20, 30, 31  
34, 39, 40, 70

REQUESTING OFF. - COL.

REQUESTER - QUILLIN

WITS - 0 FYP - N

PROG. - PML

PERSON -

STAFF LEAD - PML

PROG. AREA -

PROJECT STATUS -

OSP DUE DATE: 4/22/97

PLANNED ACC. - N

LEVEL CODE - 1

Marked up incoming w/ notation of equivalent  
NRC 10 CFR cite / PML

3.6.4.3.3.2

by a person holding an applicable specific license from the Department, the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State to perform such activities;

3.6.4.3.4

shall maintain records showing compliance with the requirements of RH 3.6.4.3.2 and RH 3.6.4.3.3. The records shall show the results of tests. The records also shall show the dates of performance of, and the names of persons performing, testing, installation, servicing, and removal from installation concerning the radioactive material, its shielding or containment. Records of tests for leakage of radioactive material required by RH 3.6.4.3.2 shall be maintained for 1 year after the next required leak test is performed or until the sealed source is transferred or disposed of. Records of tests of the "on-off" mechanism and indicator required by RH 3.6.4.3.2 shall be maintained for 1 year after the next required test of the "on-off" mechanism and indicator is performed or until the sealed source is transferred or disposed of. Records which are required by RH 3.6.4.3.3 shall be maintained for a period of 2 years from the date of the recorded event or until the device is transferred or disposed of;

3.6.4.3.5

NRC  
21.5(c)(5)

upon the occurrence of a failure of or damage to, or any indication of a possible failure of or damage to, the shielding of the radioactive material or the "on-off" mechanism or indicator, or upon the detection of 0.005 microcurie (185 Bq) or more removable radioactive material, shall immediately suspend operation of the device until it has been repaired by the manufacturer or other person holding an applicable specific license from the Department, the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State to repair such devices, or disposed of by transfer to a person authorized by an applicable specific license to receive the radioactive material contained in the device and, within 30 days, furnish to the Department a report containing a brief description of the event and the remedial action taken;

3.6.4.3.6

shall not abandon the device containing radioactive material;

3.6.4.3.7

except as provided in RH 3.6.4.3.8, shall transfer or dispose of the device containing radioactive material only by transfer to a specific licensee of the Department, the U.S. Nuclear Regulatory Commission, an Agreement State or a Licensing State whose specific license authorizes him to receive the device and within 30 days after transfer of a device to a specific licensee shall furnish to the Department a report containing identification of the device by manufacturer's name and model number and the name and address of the person receiving the device. No report is required if the device is transferred to the specific licensee in order to obtain a replacement device;

3.6.4.3.8

shall transfer the device to another general licensee only:

3.6.4.3.8.1

where the device remains in use at a particular location. In such case the transferor shall give the transferee a copy of this regulation and any safety documents identified in the label on the device and within 30 days of the transfer, report to the Department the manufacturer's name and model number of device transferred, the name and address of the transferee, and the name and/or position of an individual who may constitute a point of contact between the Department and the transferee; or

3.6.4.3.8.2

where the device is held in storage in the original shipping container at its intended location of use prior to initial use by a general licensee; and

3.6.4.3.9

shall comply with the provisions of RH 4.51 and 4.52 of these regulations for reporting radiation incidents, theft, or loss of licensed material, but shall be exempt from the other requirements of Parts 4 and 10 of these regulations.

3.6.4.4

The general license in RH 3.6.4.1 does not authorize the manufacture of devices containing radioactive material.

3.6.4.5

The general license provided in RH 3.6.4.1 is subject to the provisions of RH 1.4 through 1.9, 3.15, 3.22, 3.23 and Part 17 of these regulations.

3.6.5

Luminous Safety Devices for Aircraft.

3.6.5.1

A general license is hereby issued to receive, acquire, possess, and use tritium or promethium-147 contained in luminous safety devices for use in aircraft, provided:

- 4.46.3 Recordkeeping Format. The licensee or registrant shall maintain the records specified in RH 4.46.1 on Department Form OR-RH-17, Occupational Exposure Record for a Monitoring Period, in accordance with the instructions for Department Form OR-RH-17, or in clear and legible records containing all the information required by Department Form OR-RH-17.
- 4.46.4 The licensee or registrant shall maintain the records of dose to an embryo/fetus with the records of dose to the declared pregnant woman. The declaration of pregnancy, including the estimated date of conception, shall also be kept on file, but may be maintained separately from the dose records.
- 4.46.5 The licensee or registrant shall retain each required form or record until the Department terminates each pertinent license or registration requiring the record.
- 4.46.6 Upon termination of the license or registration, the licensee or registrant shall permanently store records on Department Form OR-RH-16 or equivalent, or shall make provision with the Department for transfer to the Department.
- RH 4.47 Records of Dose to Individual Members of the Public.
- 4.47.1 Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public. See RH 4.14.
- 4.47.2 The licensee or registrant shall retain the records required by RH 4.47.1 until the Department terminates each pertinent license or registration requiring the record.
- RH 4.48 Records of Waste Disposal.
- 4.48.1 Each licensee or registrant shall maintain records of the disposal of licensed or registered materials made pursuant to RH 4.34, 4.35, 4.36, 4.37, Part 14 of these regulations, and disposal by burial in soil, including burials authorized before December 30, 1985.
- 4.48.2 The licensee or registrant shall retain the records required by RH 4.48.1 in accordance with RH 3.15.4 until the Department terminates each pertinent license or registration requiring the record.
- RH 4.49 Records of Testing Entry Control Devices for Very High Radiation Areas.
- 4.49.1 Each licensee or registrant shall maintain records of tests made pursuant to RH 4.21.2.9 on entry control devices for very high radiation areas. These records must include the date, time, and results of each such test of function.



- 4.49.2 The licensee or registrant shall retain the records required by RH 4.49.1 for 3 years after the record is made.

RH 4.50 Form of Records. Each record required by Part 4 shall be legible throughout the specified retention period. The record shall be the original or a reproduced copy or a microform, provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy throughout the required retention period or the record may also be stored in Department-approved electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records, such as letters, drawings, and specifications, shall include all pertinent information, such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and loss of records.

#### REPORTS

NRC  
20.2201  
RH 4.51 Reports of Stolen, Lost, or Missing Licensed or Registered Sources of Radiation.

4.51.1 Telephone Reports. Each licensee or registrant shall report to the Department by telephone as follows:

4.51.1.1 Immediately after its occurrence becomes known to the licensee or registrant, stolen, lost, or missing licensed or registered radioactive material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in Appendix C under such circumstances that it appears to the licensee or registrant that an exposure could result to individuals in unrestricted areas; or

4.51.1.2 Within 30 days after its occurrence becomes known to the licensee or registrant, lost, stolen, or missing licensed or registered radioactive material in an aggregate quantity greater than 10 times the quantity specified in Appendix C that is still missing.

4.51.1.3 Immediately after its occurrence becomes known to the registrant, a stolen, lost, or missing radiation machine.

4.51.2 Written Reports. Each licensee or registrant required to make a report pursuant to RH 4.51.1 shall, within 30 days after making the telephone report, make a written report to the Department setting forth the following information:

4.51.2.1 A description of the licensed or registered source of radiation involved, including, for radioactive material, the kind, quantity, and chemical and physical form; and, for radiation machines, the manufacturer, model and serial number, type and maximum energy of radiation emitted;

4.51.2.2 A description of the circumstances under which the loss or theft occurred; and

- 4.51.2.3 A statement of disposition, or probable disposition, of the licensed or registered source of radiation involved; and
- 4.51.2.4 Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas; and
- 4.51.2.5 Actions that have been taken, or will be taken, to recover the source of radiation; and
- 4.51.2.6 Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed or registered sources of radiation.

4.51.3 Subsequent to filing the written report, the licensee or registrant shall also report additional substantive information on the loss or theft within 30 days after the licensee or registrant learns of such information.

4.51.4 The licensee or registrant shall prepare any report filed with the Department pursuant to RH 4.51 so that names of individuals who may have received exposure to radiation are stated in a separate and detachable portion of the report.

*NRC*  
30,50 (a)  
RH 4.52 Notification of Incidents.

4.52.1 Immediate Notification. Notwithstanding other requirements for notification, each licensee or registrant shall notify the Department as soon as possible but not later than 4 hours after the discovery of an event:

4.52.1.1 *(A)* Involving a source of radiation possessed by the licensee or registrant that may have caused or threatens to cause any of the following conditions:

4.52.1.1.1 (i) An individual to receive:

4.52.1.1.1.1 (i) A total effective dose equivalent of 0.25 Sv (25 rem) or more; or

4.52.1.1.1.2 (ii) An eye dose equivalent of 0.75 Sv (75 rem) or more; or

4.52.1.1.1.3 (iii) A shallow dose equivalent to the skin or extremities or a total organ dose equivalent of 2.5 Gy (250 rad) or more; or

4.52.1.1.2 (iv) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake five times the occupational ALI. This provision does not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures.

*NRC*  
30,50 (a)  
4.52.1.2 That prevents immediate protective actions necessary to avoid exposures to radiation and/or radioactive materials that could exceed regulatory limits, or releases of licensed material that could exceed regulatory limits (events may include fires, explosions, toxic gas releases, etc.).

4.52.2 Twenty-Four Hour Notification. Each licensee or registrant shall, within 24 hours of discovery of the event, report to the Department:

4.52.2.1 Each event involving loss of control of a licensed or registered source of radiation possessed by the licensee or registrant that may have caused, or threatens to cause, any of the following conditions:

- 4.52.2.1.1 (1) An individual to receive, in a period of 24 hours:
- 4.52.2.1.1.1 (i) A total effective dose equivalent exceeding 0.05 Sv (5 rem); or
- 4.52.2.1.1.2 (ii) An eye dose equivalent exceeding 0.15 Sv (15 rem); or
- 4.52.2.1.1.3 (iii) A shallow dose equivalent to the skin or extremities or a total organ dose equivalent exceeding 0.5 Sv (50 rem); or
- 4.52.2.1.2 (1) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours, the individual could have received an intake in excess of one occupational ALI. This provision does not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures.
- 4.52.2.2 30.50 <sup>24 hr</sup> (b) (1) An unplanned contamination event that:
- 4.52.2.2.1 (i) Requires access to the contaminated area, by workers or the public, to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area;
- 4.52.2.2.2 (ii) Involves a quantity of material greater than five times the lowest annual limit on intake specified in Appendix B of Part 4 for the material; and
- 4.52.2.2.3 (iii) Has access to the area restricted for a reason other than to allow isotopes with a half-life of less than 24 hours to decay prior to decontamination.
- 4.52.2.3 (2) An event in which equipment is disabled or fails to function as designed when:
- 4.52.2.3.1 (i) The equipment is required by regulation or license condition to prevent releases exceeding regulatory limits, to prevent exposures to radiation and/or radioactive materials exceeding regulatory limits, or to mitigate the consequences of an accident; and
- 4.52.2.3.2 (ii) The equipment is required to be available and operable when it is disabled or fails to function during the event; and
- 4.52.2.3.3 (iii) No redundant equipment is available and operable to perform the required safety function.
- 4.52.2.4 (3) An event that requires unplanned medical treatment at a medical facility of an individual who's body or clothing is contaminated with spreadable radioactive material.
- 4.52.2.5 (4) An unplanned fire or explosion damaging any licensed material or any device, container, or equipment containing licensed material when:
- 4.52.2.5.1 (i) The quantity of material involved is greater than five times the lowest annual limit on intake specified in Appendix B of Part 4 for the material; and
- 4.52.2.5.2 (ii) The damage affects the integrity of the licensed material or its container.

RH 4.53 (1) Preparation and Submission of Reports.

- 4.53.1 Reports made by licensees or registrants in response to the requirements of RH 4.52, must be made as follows:

4.53.1.1

30 Tele

(1) Licensees or registrants shall make the reports required by RH 4.52.1 and 4.52.2 to the Department by telephone, and by telegram, mailgram, or facsimile. To the extent that the information is available at the time of notification, the information provided in these reports must include:

4.53.1.1.1

(i) The caller's name and call back telephone number;

4.53.1.1.2

(ii) A description of the event including date and time;

4.53.1.1.3

(iii) The exact location of the event;

4.53.1.1.4

(iv) The isotopes, quantities, and chemical and physical form of the licensed material involved; and

4.53.1.1.5

(v) Any personnel radiation exposure data available.

4.53.1.2

(2) Each licensee or registrant who makes a report required by RH 4.52.1 or 4.52.2 shall submit a written follow-up report to the Department pursuant to RH 4.53.3 within 30 days of the initial report. Written reports prepared pursuant to other regulations may be submitted to fulfill this requirement if the reports contain all of the necessary information and the appropriate distribution is made.

4.53.1.3

The provisions of RH 4.52 do not apply to doses that result from planned special exposures, provided such doses are within the limits for planned special exposures and are reported pursuant to RH 4.54.

4.53.2

20 2203 (a)

Reports of Exposures, Radiation Levels, and Concentrations of Radioactive Material Exceeding the Limits. In addition to the notification required by RH 4.52, each licensee or registrant shall submit a written report to the Department within 30 days after learning of any of the following occurrences:

4.53.2.1

(1) Incidents for which notification is required by RH 4.52; or

4.53.2.2

(2) Doses in excess of any of the following:

4.53.2.2.1

(i) The occupational dose limits for adults in RH 4.6; or

4.53.2.2.2

(ii) The occupational dose limits for a minor in RH 4.12; or

4.53.2.2.3

(iii) The limits for an embryo/fetus of a declared pregnant woman in RH 4.13; or

4.53.2.2.4

(iv) The limits for an individual member of the public in RH 4.14; or

4.53.2.2.5

(v) Any applicable limit in the license or registration; or

4.53.2.3

(3) Levels of radiation or concentrations of radioactive material in:

4.53.2.3.1

A restricted area in excess of applicable limits in the license or registration; or

4.53.2.3.2

(4) An unrestricted area in excess of 10 times the applicable limit set forth in Part 4 or in the license or registration, whether or not involving exposure of any individual in excess of the limits in RH 4.14; or



- 4.53.2.4 (4) For licensees subject to the provisions of U.S. Environmental Protection Agency's generally applicable environmental radiation standards in 40 CFR 190<sup>6</sup>, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.
- 4.53.3 (6) Contents of Written Reports.
- 4.53.3.1 Each report required by RH 4.53.1.2 or 4.53.2 shall include the following, as appropriate:
- 4.53.3.1.1 A description of the event, including the possible cause and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned.
- 4.53.3.1.2 The exact location of the event;
- 4.53.3.1.3 The isotopes, quantities, and chemical and physical form of the licensed material involved;
- 4.53.3.1.4 Date and time of the event;
- 4.53.3.1.5 The results of any evaluations or assessments, including:
- 4.53.3.1.5.1 (1) Estimates of each individual's dose;
- 4.53.3.1.5.2 (1) The levels of radiation and concentrations of radioactive material involved;
- 4.53.3.1.5.3 (1) The cause of the elevated exposures, dose rates, or concentrations; and
- 4.53.3.1.5.4 (1) Corrective steps taken or planned to ensure against a recurrence, including the schedule for achieving conformance with applicable limits, generally applicable environmental standards, and associated license or registration conditions.
- 4.53.3.2 (2) Each report filed pursuant to RH 4.53 shall include for each individual exposed: the name, Social Security account number, and date of birth. With respect to the limit for the embryo/fetus in RH 4.13, the identifiers should be those of the declared pregnant woman. The report shall be prepared so that this information is stated in a separate and detachable portion of the report.

NRC 20.2204  
RH 4.54 Reports of Planned Special Exposures. The licensee or registrant shall submit a written report to the Department within 30 days following any planned special exposure conducted in accordance with RH 4.11, informing the Department that a planned special exposure was conducted and indicating the date the planned special exposure occurred and the information required by RH 4.45.

A certified copy of the referenced material is available for public inspection during normal business hours at the Radiation Control Division, 4300 Cherry Creek Drive South, B-1, Denver, Colorado. These rules do not include later amendments of the referenced material. Certified copies of the referenced material will be provided at cost upon request from the Radiation Control Division at the following mailing address: Director, Radiation Control Division, RCD-DO-B1, Colorado Department of Health, 4300 Cherry Creek Drive South, Denver, Colorado, 80220-1530.



RH 4.55 Reserved.

RH 4.56 Reports of Individual Monitoring.

4.56.1 This section applies to each person licensed or registered by the Department to:

4.56.1.1 Possess or use sources of radiation for purposes of industrial radiography pursuant to Parts 3 and 5 of these regulations; or

4.56.1.2 Receive radioactive waste from other persons for disposal pursuant to Part 14 of these regulations; or

4.56.1.3 Possess or use at any time, for processing or manufacturing or distribution pursuant to Part 3 or 7 of these regulations, radioactive material in quantities exceeding any one of the following quantities:

Radionuclide	Activity <sup>a</sup>	
	Ci	GBq
Cesium-137	1	37
Cobalt-60	1	37
Gold-198	100	3,700
Iodine-131	1	37
Iridium-192	10	370
Krypton-85	1,000	37,000
Promethium-147	10	370
Technetium- 99m	1,000	37,000

<sup>a</sup> The Department may require as a license condition, or by rule, regulation, or order pursuant to RH 1.9, reports from licensees or registrants who are licensed or registered to use radionuclides not on this list, in quantities sufficient to cause comparable radiation levels.

4.56.2 Each licensee or registrant in a category listed in RH 4.56.1 shall submit an annual report to the Department of the results of individual monitoring carried out by the licensee or registrant for each individual for whom monitoring was required by RH 4.18 during that year. The licensee or registrant may include additional data for individuals for whom monitoring was provided but not required. The licensee or registrant shall use Department Form OR-RH-17 or equivalent or Department-approved electronic media containing all the information required by Department Form OR-RH-17.

4.56.3 The licensee or registrant shall file the report required by RH 4.56.2, covering the preceding year, on or before April 30 of each year.

RH 4.57 Notifications and Reports to Individuals.

4.57.1 Requirements for notification and reports to individuals of exposure to radiation or radioactive material are specified in RH 10.4 of these regulations.

4.57.2 When a licensee or registrant is required pursuant to RH 4.53 to report to the Department any exposure of an individual to radiation or radioactive material, the licensee or registrant shall also notify the individual. Such notice shall be transmitted at a time not later than the transmittal to the Department, and shall comply with the provisions of RH 10.4.3 of these regulations.

RH 4.58 Reports of Leaking or Contaminated Sealed Sources. The licensee or registrant shall file a report within 5 days with the Department if the test for leakage or contamination indicates a sealed source is leaking or contaminated. The report shall include the equipment involved, the test results and the corrective action taken.

NRC 3425

## ADDITIONAL REQUIREMENTS

- RH 4.59 Vacating Premises. Each specific licensee or registrant shall, no less than 30 days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of the licensee's or registrant's activities, notify the Department in writing of intent to vacate. When deemed necessary by the Department, the licensee shall decontaminate the premises in such a manner as the Department may specify.
- RH 4.60 Permissible Levels of Radioactive Material in Uncontrolled Areas.
- 4.60.1 Plutonium. Contamination of the soil in excess of 2.0 disintegrations per minute (0.03 Bq) of plutonium per gram of dry soil or square centimeter of surface area (0.01 microcurie [370 Bq] per square meter) presents a sufficient hazard to the public health to require the utilization of special techniques of construction upon property so contaminated. Evaluation of proposed control techniques shall be available from the Department of Health upon request.

7.12.2 Mobile nuclear medicine service licensees shall retain for the duration of service a letter signed by the management of each location where services are rendered that authorizes use of radioactive material.

7.12.3 A mobile nuclear medicine service shall not have radioactive material delivered directly from the manufacturer or the distributor to the client's address of use.

*NRC*  
§35.33 RH 7.13 Records and Reports of Misadministrations.

7.13.1 When a misadministration involves any therapy procedure, the licensee shall notify the Department. The licensee shall also notify the referring physician of the affected patient and the patient, or a responsible relative or guardian, unless the referring physician agrees to inform the patient or believes, based on medical judgment, that telling the patient or the patient's responsible relative or guardian would be harmful to one or the other, respectively. These notifications must be made within 24 hours after the licensee discovers the misadministration. If the referring physician, patient or the patient's responsible relative or guardian cannot be reached within 24 hours, the licensee shall notify them as soon as practicable. The licensee is not required to notify the patient or the patient's responsible relative or guardian without first consulting the referring physician; however, the licensee shall not delay medical care for the patient because of this.

7.13.2 Within 15 days after an initial therapy misadministration report to the Department, the licensee shall report, in writing, to the Department and to the referring physician, and furnish a copy of the report to the patient or the patient's responsible relative or guardian if either was previously notified by the licensee as required by RH 7.13.1. *plus do,*  
*why the event occurred* The written report shall include the licensee's name; the referring physician's name; a brief description of the event; the effect on the patient; the action taken to prevent recurrence; whether the licensee informed the patient or the patient's responsible relative or guardian, and if not, why not. The report shall not include the patient's name or other information that could lead to identification of the patient.

*Does State provide this ques. to licensee?*

- 7.13.3 When a misadministration involves a diagnostic procedure, the Radiation Safety Officer shall promptly investigate its cause, make a record for Department review, and retain the record as directed in RH 7.13.4. The licensee shall also notify the referring physician and the Department in writing on Department Form RCD 56 - Report of Misadministration within 15 days if the misadministration involved the use of radioactive material not intended for medical use, administration of dosage five-fold different from the intended dosage, or administration of radioactive material such that the patient is likely to receive an organ dose greater than 2 rems (0.02 Sv) or whole body dose greater than 500 millirems (5 mSv). Licensees shall use dosimetry tables in package inserts, corrected only for amount of radioactivity administered, to determine whether a report is required.
- 7.13.4 Each licensee shall retain a record of each misadministration for 10 years. The record shall contain the names of all individuals involved in the event, including the physician, allied health personnel, the patient, and the patient's referring physician, the patient's social security number or identification number if one has been assigned, a brief description of the event, the effect on the patient, and the action taken, if any, to prevent recurrence.
- 7.13.5 Aside from the notification requirements, nothing in RH 7.13.1 through RH 7.13.4 shall affect any rights or duties of licensees, and physicians in relation to each other, patients, or responsible relative or guardians.
- RH 7.14 Suppliers. A licensee shall use for medical use only:
- 7.14.1 Radioactive material manufactured, labeled, packaged, and distributed in accordance with a license issued pursuant to these regulation or the equivalent regulations of another Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission; and
- 7.14.2 Reagent kits that have been manufactured, labeled, packaged, and distributed in accordance with an approval issued by the U.S. Department of Health and Human Services, Food and Drug Administration.
- 7.14.3 Teletherapy sources manufactured and distributed in accordance with a license issued pursuant to these regulations, or the equivalent regulations of another Agreement State, a Licensing state, or the U.S. Nuclear Regulatory Commission.

Belo

EXECUTIVE TASK MANAGEMENT SYSTEM

<<< PRINT SCREEN UPDATE FORM >>>

TASK # - 7S110

DATE - 04/22/97

MAIL CTRL. - 1997

TASK STARTED - 04/22/97

TASK DUE - 05/02/97

TASK COMPLETED - / /

TASK DESCRIPTION - REVIEW COLORADO REGULATIONS PART 3 AND 4.

REQUESTING OFF. - CO

REQUESTER -

WITS -

0

FYP - N

PROG. - RLB

PERSON -

STAFF LEAD - RLB

PROG. AREA -

PROJECT STATUS -

PLANNED ACC. - N

LEVEL CODE - 1

Low action. Brenda assign to previous  
Blanton performed previous review  
Cardelia discuss w/ Brenda  
& see if this was part of the  
CO Regs previously reviewed.  
If not action w/ a new number  
for review.  
(Instructions per RLBs) *ll*

4/11  
Richard,  
These were lost  
in the mail and  
just returned.  
Michelle