

ORAL ARGUMENT SCHEDULED FOR SEPTEMBER 19, 2003

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Nos. 02-1116 and 03-1058 (Consolidated)

STATE OF NEVADA, et al.,

Petitioners,

v.

U.S. NUCLEAR REGULATORY COMMISSION
and the UNITED STATES OF AMERICA,

Respondents,

ON PETITION TO REVIEW TWO ORDERS OF THE
U.S. NUCLEAR REGULATORY COMMISSION

ADDENDUM TO BRIEF FOR THE FEDERAL RESPONDENTS

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STATUTORY AND REGULATORY ADDENDUM

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UNITED STATES CODE ANNOTATED
TITLE 28. JUDICIARY AND JUDICIAL PROCEDURE
PART VI--PARTICULAR PROCEEDINGS
CHAPTER 158--ORDERS OF FEDERAL AGENCIES: REVIEW

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Current through P.L. 108-10, approved 03-11-03

§ 2342. Jurisdiction of court of appeals

The court of appeals (other than the United States Court of Appeals for the Federal Circuit) has exclusive jurisdiction to enjoin, set aside, suspend (in whole or in part), or to determine the validity of--

- (1) all final orders of the Federal Communications Commission made reviewable by section 402(a) of title 47;
- (2) all final orders of the Secretary of Agriculture made under chapters 9 and 20A of title 7, except orders issued under sections 210(e), 217a, and 499g(a) of title 7;
- (3) all rules, regulations, or final orders of--
 - (A) the Secretary of Transportation issued pursuant to section 2, 9, 37, or 41 of the Shipping Act, 1916 (46 U.S.C. App. 802, 803, 808, 835, 839, and 841a [FN1]) or pursuant to part B or C of subtitle IV of title 49; and
 - (B) the Federal Maritime Commission issued pursuant to--
 - (i) section 19 of the Merchant Marine Act, 1920 (46 U.S.C. App. 876);
 - (ii) section 14 or 17 of the Shipping Act of 1984 (46 U.S.C. App. 1713 or 1716); or
 - (iii) section 2(d) or 3(d) of the Act of November 6, 1966 (46 U.S.C. App. 817d(d) or 817e(d) [FN2]);
 - [(iv) and (v) Redesignated (ii) and (iii)]
- (4) all final orders of the Atomic Energy Commission made reviewable by section 2239 of title 42;
- (5) all rules, regulations, or final orders of the Surface Transportation Board made reviewable by section 2321 of this title;
- (6) all final orders under section 812 of the Fair Housing Act; and
- (7) all final agency actions described in section 20114(c) of title 49.

Jurisdiction is invoked by filing a petition as provided by section 2344 of this title.

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UNITED STATES CODE ANNOTATED
TITLE 28. JUDICIARY AND JUDICIAL PROCEDURE
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CHAPTER 158--ORDERS OF FEDERAL AGENCIES; REVIEW

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Current through P.L. 108-10, approved 03-11-03

§ 2344. Review of orders; time; notice; contents of petition; service

On the entry of a final order reviewable under this chapter, the agency shall promptly give notice thereof by service or publication in accordance with its rules. Any party aggrieved by the final order may, within 60 days after its entry, file a petition to review the order in the court of appeals wherein venue lies. The action shall be against the United States. The petition shall contain a concise statement of--

- (1) the nature of the proceedings as to which review is sought;
- (2) the facts on which venue is based;
- (3) the grounds on which relief is sought; and
- (4) the relief prayed.

The petitioner shall attach to the petition, as exhibits, copies of the order, report, or decision of the agency. The clerk shall serve a true copy of the petition on the agency and on the Attorney General by registered mail, with request for a return receipt.

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UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 23--DEVELOPMENT AND CONTROL OF ATOMIC ENERGY
DIVISION A--ATOMIC ENERGY
SUBCHAPTER V--SPECIAL NUCLEAR MATERIAL

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Current through P.L. 108-10, approved 03-11-03

§ 2073. Domestic distribution of special nuclear material

(a) Licenses

The Commission is authorized (i) to issue licenses to transfer or receive in interstate commerce, transfer, deliver, acquire, possess, own, receive possession of or title to, import, or export under the terms of an agreement for cooperation arranged pursuant to section 2153 of this title, special nuclear material, (ii) to make special nuclear material available for the period of the license, and, (iii) to distribute special nuclear material within the United States to qualified applicants requesting such material--

(1) for the conduct of research and development activities of the types specified in section 2051 of this title;

(2) for use in the conduct of research and development activities or in medical therapy under a license issued pursuant to section 2134 of this title;

(3) for use under a license issued pursuant to section 2133 of this title;

(4) for such other uses as the Commission determines to be appropriate to carry out the purposes of this chapter.

(b) Minimum criteria for licenses

The Commission shall establish, by rule, minimum criteria for the issuance of specific or general licenses for the distribution of special nuclear material depending upon the degree of importance to the common defense and security or to the health and safety of the public of--

(1) the physical characteristics of the special nuclear material to be distributed;

(2) the quantities of special nuclear material to be distributed; and

(3) the intended use of the special nuclear material to be distributed.

(c) Manner of distribution; charges for material sold; agreements; charges for material leased

(1) The Commission may distribute special nuclear material licensed under this section by sale, lease, lease with option to buy, or grant: *Provided, however,* That unless otherwise authorized by law, the Commission shall not after December 31, 1970, distribute special nuclear material except by sale to any person who possesses or operates a utilization facility under a license issued pursuant to section 2133 or 2134(b) of this title for use in the course of

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activities under such license; nor shall the Commission permit any such person after June 30, 1973, to continue leasing for use in the course of such activities special nuclear material previously leased to such person by the Commission.

(2) The Commission shall establish reasonable sales prices for the special nuclear material licensed and distributed by sale under this section. Such sales prices shall be established on a nondiscriminatory basis which, in the opinion of the Commission, will provide reasonable compensation to the Government for such special nuclear material.

(3) The Commission is authorized to enter into agreements with licensees for such period of time as the Commission may deem necessary or desirable to distribute to such licensees such quantities of special nuclear material as may be necessary for the conduct of the licensed activity. In such agreements, the Commission may agree to repurchase any special nuclear material licensed and distributed by sale which is not consumed in the course of the licensed activity, or any uranium remaining after irradiation of such special nuclear material, at a repurchase price not to exceed the Commission's sale price for comparable special nuclear material or uranium in effect at the time of delivery of such material to the Commission.

(4) The Commission may make a reasonable charge, determined pursuant to this section, for the use of special nuclear material licensed and distributed by lease under subsection (a)(1), (2) or (4) of this section and shall make a reasonable charge determined pursuant to this section for the use of special nuclear material licensed and distributed by lease under subsection (a)(3) of this section. The Commission shall establish criteria in writing for the determination of whether special nuclear material will be distributed by grant and for the determination of whether a charge will be made for the use of special nuclear material licensed and distributed by lease under subsection (a)(1), (2) or (4) of this section, considering, among other things, whether the licensee is a nonprofit or eleemosynary institution and the purposes for which the special nuclear material will be used.

(d) Determination of charges

In determining the reasonable charge to be made by the Commission for the use of special nuclear material distributed by lease to licensees of utilization or production facilities licensed pursuant to section 2133 or 2134 of this title, in addition to consideration of the cost thereof, the Commission shall take into consideration--

(1) the use to be made of the special nuclear material;

(2) the extent to which the use of the special nuclear material will advance the development of the peaceful uses of atomic energy;

(3) the energy value of the special nuclear material in the particular use for which the license is issued;

(4) whether the special nuclear material is to be used in facilities licensed pursuant to section 2133 or 2134 of this title. In this respect, the Commission shall, insofar as practicable, make uniform, nondiscriminatory charges for the use of special nuclear material distributed to facilities licensed pursuant to section 2133 of this title; and

(5) with respect to special nuclear material consumed in a facility licensed pursuant to section 2133 of this title, the Commission shall make a further charge equivalent to the sale price for similar special nuclear material established by the Commission in accordance with subsection (c)(2) of this section, and the Commission may make such a charge with respect to such material consumed in a facility licensed pursuant to section 2134 of this title.

(e) License conditions

Each license issued pursuant to this section shall contain and be subject to the following conditions--

(1) Repealed. Pub.L. 88-489, § 8, Aug. 26, 1964, 78 Stat. 604

(2) no right to the special nuclear material shall be conferred by the license except as defined by the license;

(3) neither the license nor any right under the license shall be assigned or otherwise transferred in violation of the provisions of this chapter;

(4) all special nuclear material shall be subject to the right of recapture or control reserved by section 2138 of this title and to all other provisions of this chapter;

(5) no special nuclear material may be used in any utilization or production facility except in accordance with the provisions of this chapter;

(6) special nuclear material shall be distributed only on terms, as may be established by rule of the Commission, such that no user will be permitted to construct an atomic weapon;

(7) special nuclear material shall be distributed only pursuant to such safety standards as may be established by rule of the Commission to protect health and to minimize danger to life or property; and

(8) except to the extent that the indemnification and limitation of liability provisions of section 2210 of this title apply, the licensee will hold the United States and the Commission harmless from any damages resulting from the use or possession of special nuclear material by the licensee.

(f) Distribution for independent research and development activities

The Commission is directed to distribute within the United States sufficient special nuclear material to permit the conduct of widespread independent research and development activities to the maximum extent practicable. In the event that applications for special nuclear material exceed the amount available for distribution, preference shall be given to those activities which are most likely, in the opinion of the Commission, to contribute to basic research, to the development of peacetime uses of atomic energy, or to the economic and military strength of the Nation.

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UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 23--DEVELOPMENT AND CONTROL OF ATOMIC ENERGY
DIVISION A--ATOMIC ENERGY
SUBCHAPTER VI--SOURCE MATERIAL

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Current through P.L. 108-10, approved 03-11-03

§ 2092. License requirements for transfers

Unless authorized by a general or specific license issued by the Commission, which the Commission is authorized to issue, no person may transfer or receive in interstate commerce, transfer, deliver, receive possession of or title to, or import into or export from the United States any source material after removal from its place of deposit in nature, except that licenses shall not be required for quantities of source material which, in the opinion of the Commission, are unimportant.

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UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 23--DEVELOPMENT AND CONTROL OF ATOMIC ENERGY
DIVISION A--ATOMIC ENERGY
SUBCHAPTER VI--SOURCE MATERIAL

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Current through P.L. 108-10, approved 03-11-03

§ 2093. Domestic distribution of source material

(a) License

The Commission is authorized to issue licenses for and to distribute source material within the United States to qualified applicants requesting such material--

(1) for the conduct of research and development activities of the types specified in section 2051 of this title;

(2) for use in the conduct of research and development activities or in medical therapy under a license issued pursuant to section 2134 of this title;

(3) for use under a license issued pursuant to section 2133 of this title; or

(4) for any other use approved by the Commission as an aid to science or industry.

(b) Minimum criteria for licenses

The Commission shall establish, by rule, minimum criteria for the issuance of specific or general licenses for the distribution of source material depending upon the degree of importance to the common defense and security or to the health and safety of the public of--

(1) the physical characteristics of the source material to be distributed;

(2) the quantities of source material to be distributed; and

(3) the intended use of the source material to be distributed.

(c) Determination of charges

The Commission may make a reasonable charge determined pursuant to section 2201(m) of this title for the source material licensed and distributed under subsection (a)(1), (a)(2), or (a)(4) of this section and shall make a reasonable charge determined pursuant to section 2201(m) of this title, for the source material licensed and distributed under subsection (a)(3) of this section. The Commission shall establish criteria in writing for the determination of whether a charge will be made for the source material licensed and distributed under subsection (a)(1), (a)(2), or (a)(4) of this section, considering, among other things, whether the licensee is a nonprofit or eleemosynary institution and the purposes for which the source material will be used.

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UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 23--DEVELOPMENT AND CONTROL OF ATOMIC ENERGY
DIVISION A--ATOMIC ENERGY
SUBCHAPTER VII--BYPRODUCT MATERIALS

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Current through P.L. 108-10, approved 03-11-03

§ 2111. Domestic distribution; license; price limitations

No person may transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, own, possess, import, or export any byproduct material, except to the extent authorized by this section, section 2112 or section 2114 of this title. The Commission is authorized to issue general or specific licenses to applicants seeking to use byproduct material for research or development purposes, for medical therapy, industrial uses, agricultural uses, or such other useful applications as may be developed. The Commission may distribute, sell, loan, or lease such byproduct material as it owns to qualified applicants with or without charge: *Provided, however,* That, for byproduct material to be distributed by the Commission for a charge, the Commission shall establish prices on such equitable basis as, in the opinion of the Commission, (a) will provide reasonable compensation to the Government for such material, (b) will not discourage the use of such material or the development of sources of supply of such material independent of the Commission, and (c) will encourage research and development. In distributing such material, the Commission shall give preference to applicants proposing to use such material either in the conduct of research and development or in medical therapy. The Commission shall not permit the distribution of any byproduct material to any licensee, and shall recall or order the recall of any distributed material from any licensee, who is not equipped to observe or who fails to observe such safety standards to protect health as may be established by the Commission or who uses such material in violation of law or regulation of the Commission or in a manner other than as disclosed in the application therefor or approved by the Commission. The Commission is authorized to establish classes of byproduct material and to exempt certain classes or quantities of material or kinds of uses or users from the requirements for a license set forth in this section when it makes a finding that the exemption of such classes or quantities of such material or such kinds of uses or users will not constitute an unreasonable risk to the common defense and security and to the health and safety of the public.

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UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 23--DEVELOPMENT AND CONTROL OF ATOMIC ENERGY
DIVISION A--ATOMIC ENERGY
SUBCHAPTER XIII--GENERAL AUTHORITY OF COMMISSION

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Current through P.L. 108-10, approved 03-11-03

§ 2201. General duties of Commission

In the performance of its functions the Commission is authorized to--

(a) Establishment of advisory boards

establish advisory boards to advise with and make recommendations to the Commission on legislation, policies, administration, research, and other matters, provided that the Commission issues regulations setting forth the scope, procedure, and limitations of the authority of each such board;

(b) Standards governing use and possession of material

establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property; in addition, the Commission shall prescribe such regulations or orders as may be necessary or desirable to promote the Nation's common defense and security with regard to control, ownership, or possession of any equipment or device, or important component part especially designed for such equipment or device, capable of separating the isotopes of uranium or enriching uranium in the isotope 235;

(c) Studies and investigations

make such studies and investigations, obtain such information, and hold such meetings or hearings as the Commission may deem necessary or proper to assist it in exercising any authority provided in this chapter, or in the administration or enforcement of this chapter, or any regulations or orders issued thereunder. For such purposes the Commission is authorized to administer oaths and affirmations, and by subpoena to require any person to appear and testify, or to appear and produce documents, or both, at any designated place. Witnesses subpoenaed under this subsection shall be paid the same fees and mileage as are paid witnesses in the district courts of the United States;

(d) Employment of personnel

appoint and fix the compensation of such officers and employees as may be necessary to carry out the functions of the Commission. Such officers and employees shall be appointed in accordance with the civil-service laws and their compensation fixed in accordance with chapter 51 and subchapter III of chapter 53 of Title 5, except that, to

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the extent the Commission deems such action necessary to the discharge of its responsibilities, personnel may be employed and their compensation fixed without regard to such laws: *Provided, however,* That no officer or employee (except such officers and employees whose compensation is fixed by law, and scientific and technical personnel up to a limit of the highest rate of grade 18 of the General Schedule) whose position would be subject to chapter 51 and subchapter III of chapter 53 of Title 5, if such provisions were applicable to such position, shall be paid a salary at a rate in excess of the rate payable under such provisions for positions of equivalent difficulty or responsibility. Such rates of compensation may be adopted by the Commission as may be authorized by chapter 51 and subchapter III of chapter 53 of Title 5, as of the same date such rates are authorized for positions subject to such provisions. The Commission shall make adequate provision for administrative review of any determination to dismiss any employee;

(e) Acquisition of material, property, etc.; negotiation of commercial leases

acquire such material, property, equipment, and facilities, establish or construct such buildings and facilities, and modify such buildings and facilities from time to time, as it may deem necessary, and construct, acquire, provide, or arrange for such facilities and services (at project sites where such facilities and services are not available) for the housing, health, safety, welfare, and recreation of personnel employed by the Commission as it may deem necessary, subject to the provisions of section 2224 of this title: *Provided, however,* That in the communities owned by the Commission, the Commission is authorized to grant privileges, leases and permits upon adjusted terms which (at the time of the initial grant of any privilege grant, lease, or permit, or renewal thereof, or in order to avoid inequities or undue hardship prior to the sale by the United States of property affected by such grant) are fair and reasonable to responsible persons to operate commercial businesses without advertising and without advertising [FN1] and without securing competitive bids, but taking into consideration, in addition to the price, and among other things (1) the quality and type of services required by the residents of the community, (2) the experience of each concession applicant in the community and its surrounding area, (3) the ability of the concession applicant to meet the needs of the community, and (4) the contribution the concession applicant has made or will make to the other activities and general welfare of the community;

(f) Utilization of other Federal agencies

with the consent of the agency concerned, utilize or employ the services or personnel of any Government agency or any State or local government, or voluntary or uncompensated personnel, to perform such functions on its behalf as may appear desirable;

(g) Acquisition of real and personal property

acquire, purchase, lease, and hold real and personal property, including patents, as agent of and on behalf of the United States, subject to the provisions of section 2224 of this title, and to sell, lease, grant, and dispose of such real and personal property as provided in this chapter;

(h) Consideration of license applications

consider in a single application one or more of the activities for which a license is required by this chapter, combine in a single license one or more of such activities, and permit the applicant or licensee to incorporate by reference pertinent information already filed with the Commission;

(i) Regulations governing Restricted Data

prescribe such regulations or orders as it may deem necessary (1) to protect Restricted Data received by any person in connection with any activity authorized pursuant to this chapter, (2) to guard against the loss or diversion of any special nuclear material acquired by any person pursuant to section 2073 of this title or produced by any person in connection with any activity authorized pursuant to this chapter, to prevent any use or disposition thereof which the Commission may determine to be inimical to the common defense and security, including regulations or orders designating activities, involving quantities of special nuclear material which in the opinion of the Commission are important to the common defense and security, that may be conducted only by persons whose character, associations, and loyalty shall have been investigated under standards and specifications established by the Commission and as to whom the Commission shall have determined that permitting each such person to conduct the activity will not be inimical to the common defense and security, and (3) to govern any activity authorized pursuant to this chapter, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property;

(j) Disposition of surplus materials

without regard to the provisions of the Federal Property and Administrative Services Act of 1949, as amended [40 U.S.C.A. § 471 et seq.], except section 207 of that Act [40 U.S.C.A. § 488], or any other law, make such disposition as it may deem desirable of (1) radioactive materials, and (2) any other property, the special disposition of which is, in the opinion of the Commission, in the interest of the national security: *Provided, however,* That the property furnished to licensees in accordance with the provisions of subsection (m) of this section shall not be deemed to be property disposed of by the Commission pursuant to this subsection;

(k) Carrying of firearms; authority to make arrests without warrant

authorize such of its members, officers, and employees as it deems necessary in the interest of the common defense and security to carry firearms while in the discharge of their official duties. The Commission may also authorize such of those employees of its contractors and subcontractors (at any tier) engaged in the protection of property under the jurisdiction of the United States located at facilities owned by or contracted to the United States or being transported to or from such facilities as it deems necessary in the interests of the common defense and security to carry firearms while in the discharge of their official duties. A person authorized to carry firearms under this subsection may, while in the performance of, and in connection with, official duties, make arrests without warrant for any offense against the United States committed in that person's presence or for any felony cognizable under the laws of the United States if that person has reasonable grounds to believe that the individual to be arrested has committed or is committing such felony. An employee of a contractor or subcontractor authorized to carry firearms under this subsection may make such arrests only when the individual to be arrested is within, or in direct flight from, the area of such offense. A person granted authority to make arrests by this subsection may exercise that authority only in the enforcement of (1) laws regarding the property of the United States in the custody of the Department of Energy, the Nuclear Regulatory Commission, or a contractor of the Department of Energy or Nuclear Regulatory Commission, or (2) any provision of this chapter that may subject an offender to a fine, imprisonment, or both. The arrest authority conferred by this subsection is in addition to any arrest authority under other laws. The Secretary, with the approval of the Attorney General, shall issue guidelines to implement this subsection;

(l) Repealed. Pub.L. 87-456, Title III, § 303(c), May 24, 1962, 76 Stat. 78

(m) Agreements regarding production

enter into agreements with persons licensed under section 2133, 2134, 2073(a)(4), or 2093(a)(4) of this title for such periods of time as the Commission may deem necessary or desirable (1) to provide for the processing, fabricating, separating, or refining in facilities owned by the Commission of source, byproduct, or other material or special nuclear material owned by or made available to such licensees and which is utilized or produced in the conduct of the licensed activity, and (2) to sell, lease, or otherwise make available to such licensees such quantities of source or byproduct material, and other material not defined as special nuclear material pursuant to this chapter, as may be necessary for the conduct of the licensed activity: *Provided, however,* That any such agreement may be canceled by the licensee at any time upon payment of such reasonable cancellation charges as may be agreed upon by the licensee and the Commission: *And provided further,* That the Commission shall establish prices to be paid by licensees for material or services to be furnished by the Commission pursuant to this subsection, which prices shall be established on such a nondiscriminatory basis as, in the opinion of the Commission, will provide reasonable compensation to the Government for such material or services and will not discourage the development of sources of supply independent of the Commission;

(n) Delegation of functions

delegate to the General Manager or other officers of the Commission any of those functions assigned to it under this chapter except those specified in sections 2071, 2077(b), 2091, 2138, 2153, 2165(b) of this title (with respect to the determination of those persons to whom the Commission may reveal Restricted Data in the national interest), 2165(f) of this title and subsection (a) of this section;

(o) Reports

require by rule, regulation, or order, such reports, and the keeping of such records with respect to, and to provide for such inspections of, activities and studies of types specified in section 2051 of this title and of activities under licenses issued pursuant to sections 2073, 2093, 2111, 2133, and 2134 of this title, as may be necessary to effectuate the purposes of this chapter, including section 2135 of this title; and

(p) Rules and regulations

make, promulgate, issue, rescind, and amend such rules and regulations as may be necessary to carry out the purposes of this chapter.

(q) Easements for rights-of-way

The Commission is authorized and empowered, under such terms and conditions as are deemed advisable by it, to grant easements for rights-of-way over, across, in, and upon acquired lands under its jurisdiction and control, and public lands permanently withdrawn or reserved for the use of the Commission, to any State, political subdivision thereof, or municipality, or to any individual, partnership, or corporation of any State, Territory, or possession of the United States, for (a) railroad tracks; (b) oil pipe lines; (c) substations for electric power transmission lines, telephone lines, and telegraph lines, and pumping stations for gas, water, sewer, and oil pipe lines; (d) canals; (e) ditches; (f) flumes; (g) tunnels; (h) dams and reservoirs in connection with fish and wildlife programs, fish hatcheries, and other fish-cultural improvements; (i) roads and streets; and (j) for any other purpose or purposes deemed advisable by the Commission: *Provided,* That such rights-of-way shall be granted only upon a finding by the Commission that the same will not be incompatible with the public interest: *Provided further,* That such rights-of-way shall not include any more land than is reasonably necessary for the purpose for

which granted: *And provided further*, That all or any part of such rights-of-way may be annulled and forfeited by the Commission for failure to comply with the terms and conditions of any grant hereunder or for nonuse for a period of two consecutive years or abandonment of rights granted under authority hereof. Copies of all instruments granting easements over public lands pursuant to this section shall be furnished to the Secretary of the Interior.

(r) Sale of utilities and related services

Under such regulations and for such periods and at such prices the Commission may prescribe, the Commission may sell or contract to sell to purchasers within Commission-owned communities or in the immediate vicinity of the Commission community, as the case may be, any of the following utilities and related services, if it is determined that they are not available from another local source and that the sale is in the interest of the national defense or in the public interest:

- (1) Electric power.
- (2) Steam.
- (3) Compressed air.
- (4) Water.
- (5) Sewage and garbage disposal.
- (6) Natural, manufactured, or mixed gas.
- (7) Ice.
- (8) Mechanical refrigeration.
- (9) Telephone service.

Proceeds of sales under this subsection shall be credited to the appropriation currently available for the supply of that utility or service. To meet local needs the Commission may make minor expansions and extensions of any distributing system or facility within or in the immediate vicinity of a Commission-owned community through which a utility or service is furnished under this subsection.

(s) Succession of authority

establish a plan for a succession of authority which will assure the continuity of direction of the Commission's operations in the event of a national disaster due to enemy activity. Notwithstanding any other provision of this chapter, the person or persons succeeding to command in the event of disaster in accordance with the plan established pursuant to this subsection shall be vested with all of the authority of the Commission: *Provided*, That any such succession to authority, and vesting of authority shall be effective only in the event and as long as a quorum of three or more members of the Commission is unable to convene and exercise direction during the disaster period: *Provided further*, That the disaster period includes the period when attack on the United States is imminent and the post-attack period necessary to reestablish normal lines of command;

(t) Contracts

enter into contracts for the processing, fabricating, separating, or refining in facilities owned by the Commission of source, byproduct or other material, or special nuclear material, in accordance with and within the period of an agreement for cooperation while comparable services are available to persons licensed under section 2133 or 2134 of this title: *Provided*, That the prices for services under such contracts shall be no less than the prices currently charged by the Commission pursuant to subsection (m) of this section;

(u) Additional contracts; guiding principles; appropriations

(1) enter into contracts for such periods of time as the Commission may deem necessary or desirable, but not to exceed five years from the date of execution of the contract, for the purchase or acquisition of reactor services or services related to or required by the operation of reactors;

(2)(A) enter into contracts for such periods of time as the Commission may deem necessary or desirable for the purchase or acquisition of any supplies, equipment, materials, or services required by the Commission whenever the Commission determines that: (i) it is advantageous to the Government to make such purchase or acquisition from commercial sources; (ii) the furnishing of such supplies, equipment, materials, or services will require the construction or acquisition of special facilities by the vendors or suppliers thereof; (iii) the amortization chargeable to the Commission constitutes an appreciable portion of the cost of contract performance, excluding cost of materials; and (iv) the contract for such period is more advantageous to the Government than a similar contract not executed under the authority of this subsection. Such contracts shall be entered into for periods not to exceed five years each from the date of initial delivery of such supplies, equipment, materials, or services or ten years from the date of execution of the contracts excluding periods of renewal under option.

(B) In entering into such contracts the Commission shall be guided by the following principles: (i) the percentage of the total cost of special facilities devoted to contract performance and chargeable to the Commission should not exceed the ratio between the period of contract deliveries and the anticipated useful life of such special facilities; (ii) the desirability of obtaining options to renew the contract for reasonable periods at prices not to include charges for special facilities already amortized; and (iii) the desirability of reserving in the Commission the right to take title to the special facilities under appropriate circumstances; and

(3) include in contracts made under this subsection provisions which limit the obligation of funds to estimated annual deliveries and services and the unamortized balance of such amounts due for special facilities as the parties shall agree is chargeable to the performance of the contract. Any appropriation available at the time of termination or thereafter made available to the Commission for operating expenses shall be available for payment of such costs which may arise from termination as the contract may provide. The term "special facilities" as used in this subsection means any land and any depreciable buildings, structures, utilities, machinery, equipment, and fixtures necessary for the production or furnishing of such supplies, equipment, materials, or services and not available to the vendors or suppliers for the performance of the contract.

(v) Support of United States Enrichment Corporation

provide services in support of the United States Enrichment Corporation, except that the Secretary of Energy shall annually collect payments and other charges from the Corporation sufficient to ensure recovery of the costs (excluding depreciation and imputed interest on original plant investments in the Department's gaseous diffusion plants and costs under section 2297c-2(d) of this title) incurred by the Department of Energy after October 24, 1992, in performing such services;

(w) License fees for nuclear power reactors

prescribe and collect from any other Government agency, which applies for or is issued a license for a

utilization facility designed to produce electrical or heat energy pursuant to section 2133 or 2134(b) of this title, or which operates any facility regulated or certified under section 2297f or 2297f-1 of this title, any fee, charge, or price which it may require, in accordance with the provisions of section 9701 of Title 31 or any other law, of applicants for, or holders of, such licenses or certificates.

(x) Standards and instructions for bonding, surety, or other financial arrangements, including performance bonds

Establish by rule, regulation, or order, after public notice, and in accordance with the requirements of section 2231 of this title, such standards and instructions as the Commission may deem necessary or desirable to ensure--

(1) that an adequate bond, surety, or other financial arrangement (as determined by the Commission) will be provided, before termination of any license for byproduct material as defined in section 2014(e)(2) of this title, by a licensee to permit the completion of all requirements established by the Commission for the decontamination, decommissioning, and reclamation of sites, structures, and equipment used in conjunction with byproduct material as so defined, and

(2) that--

(A) in the case of any such license issued or renewed after November 8, 1978, the need for long-term maintenance and monitoring of such sites, structures and equipment after termination of such license will be minimized and, to the maximum extent practicable, eliminated; and

(B) in the case of each license for such material (whether in effect on November 8, 1978, or issued or renewed thereafter), if the Commission determines that any such long-term maintenance and monitoring is necessary, the licensee, before termination of any license for byproduct material as defined in section 2014(e)(2) of this title, will make available such bonding, surety, or other financial arrangements as may be necessary to assure such long-term maintenance and monitoring.

Such standards and instructions promulgated by the Commission pursuant to this subsection shall take into account, as determined by the Commission, so as to avoid unnecessary duplication and expense, performance bonds or other financial arrangements which are required by other Federal agencies or State agencies and/or other local governing bodies for such decommissioning, decontamination, and reclamation and long-term maintenance and monitoring except that nothing in this paragraph shall be construed to require that the Commission accept such bonds or arrangements if the Commission determines that such bonds or arrangements are not adequate to carry out subparagraphs (1) and (2) of this subsection.

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DIVISION A--ATOMIC ENERGY
SUBCHAPTER XV--JUDICIAL REVIEW AND ADMINISTRATIVE PROCEDURE

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Current through P.L. 108-10, approved 03-11-03

§ 2232. License applications

(a) Contents and form

Each application for a license hereunder shall be in writing and shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant, the character of the applicant, the citizenship of the applicant, or any other qualifications of the applicant as the Commission may deem appropriate for the license. In connection with applications for licenses to operate production or utilization facilities, the applicant shall state such technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any license issued. The Commission may at any time after the filing of the original application, and before the expiration of the license, require further written statements in order to enable the Commission to determine whether the application should be granted or denied or whether a license should be modified or revoked. All applications and statements shall be signed by the applicant or licensee. Applications for, and statements made in connection with, licenses under sections 2133 and 2134 of this title shall be made under oath or affirmation. The Commission may require any other applications or statements to be made under oath or affirmation.

(b) Review of applications by Advisory Committee on Reactor Safeguards; report

The Advisory Committee on Reactor Safeguards shall review each application under section 2133 or section 2134(b) of this title for a construction permit or an operating license for a facility, any application under section 2134(c) of this title for a construction permit or an operating license for a testing facility, any application under subsection (a) or (c) of section 2134 of this title specifically referred to it by the Commission, and any application for an amendment to a construction permit or an amendment to an operating license under section 2133 or 2134(a), (b), or (c) of this title specifically referred to it by the Commission, and shall submit a report thereon which shall be made part of the record of the application and available to the public except to the extent that security classification prevents disclosure.

(c) Commercial power; publication

The Commission shall not issue any license under section 2133 of this title for a utilization or production facility for the generation of commercial power until it has given notice in writing to such regulatory agency as may have jurisdiction over the rates and services incident to the proposed activity; until it has published notice of the

application in such trade or news publications as the Commission deems appropriate to give reasonable notice to municipalities, private utilities, public bodies, and cooperatives which might have a potential interest in such utilization or production facility; and until it has published notice of such application once each week for four consecutive weeks in the Federal Register, and until four weeks after the last notice.

(d) Preferred consideration

The Commission, in issuing any license for a utilization or production facility for the generation of commercial power under section 2133 of this title, shall give preferred consideration to applications for such facilities which will be located in high cost power areas in the United States if there are conflicting applications for a limited opportunity for such license. Where such conflicting applications resulting from limited opportunity for such license include those submitted by public or cooperative bodies such applications shall be given preferred consideration.

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Current through P.L. 108-10, approved 03-11-03

§ 2239. Hearings and judicial review

(a)(1)(A) In any proceeding under this chapter, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees, and in any proceeding for the payment of compensation, an award or royalties under sections [FN1] 2183, 2187, 2236(c) or 2238 of this title, the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding. The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register, on each application under section 2133 or 2134(b) of this title for a construction permit for a facility, and on any application under section 2134(c) of this title for a construction permit for a testing facility. In cases where such a construction permit has been issued following the holding of such a hearing, the Commission may, in the absence of a request therefor by any person whose interest may be affected, issue an operating license or an amendment to a construction permit or an amendment to an operating license without a hearing, but upon thirty days' notice and publication once in the Federal Register of its intent to do so. The Commission may dispense with such thirty days' notice and publication with respect to any application for an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration.

(B)(i) Not less than 180 days before the date scheduled for initial loading of fuel into a plant by a licensee that has been issued a combined construction permit and operating license under section 2235(b) of this title, the Commission shall publish in the Federal Register notice of intended operation. That notice shall provide that any person whose interest may be affected by operation of the plant, may within 60 days request the Commission to hold a hearing on whether the facility as constructed complies, or on completion will comply, with the acceptance criteria of the license.

(ii) A request for hearing under clause (i) shall show, prima facie, that one or more of the acceptance criteria in the combined license have not been, or will not be met, and the specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety.

(iii) After receiving a request for a hearing under clause (i), the Commission expeditiously shall either deny or grant the request. If the request is granted, the Commission shall determine, after considering petitioners' prima facie showing and any answers thereto, whether during a period of interim operation, there will be reasonable assurance of adequate protection of the public health and safety. If the Commission determines that there is such reasonable assurance, it shall allow operation during an interim period under the combined license.

(iv) The Commission, in its discretion, shall determine appropriate hearing procedures, whether informal or formal adjudicatory, for any hearing under clause (i), and shall state its reasons therefor.

(v) The Commission shall, to the maximum possible extent, render a decision on issues raised by the hearing request within 180 days of the publication of the notice provided by clause (i) or the anticipated date for initial loading of fuel into the reactor, whichever is later. Commencement of operation under a combined license is not subject to subparagraph (A).

(2)(A) The Commission may issue and make immediately effective any amendment to an operating license or any amendment to a combined construction and operating license, upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately effective in advance of the holding and completion of any required hearing. In determining under this section whether such amendment involves no significant hazards consideration, the Commission shall consult with the State in which the facility involved is located. In all other respects such amendment shall meet the requirements of this chapter.

(B) The Commission shall periodically (but not less frequently than once every thirty days) publish notice of any amendments issued, or proposed to be issued, as provided in subparagraph (A). Each such notice shall include all amendments issued, or proposed to be issued, since the date of publication of the last such periodic notice. Such notice shall, with respect to each amendment or proposed amendment (i) identify the facility involved; and (ii) provide a brief description of such amendment. Nothing in this subsection shall be construed to delay the effective date of any amendment.

(C) The Commission shall, during the ninety-day period following the effective date of this paragraph, promulgate regulations establishing (i) standards for determining whether any amendment to an operating license or any amendment to a combined construction and operating license involves no significant hazards consideration; (ii) criteria for providing or, in emergency situations, dispensing with prior notice and reasonable opportunity for public comment on any such determination, which criteria shall take into account the exigency of the need for the amendment involved; and (iii) procedures for consultation on any such determination with the State in which the facility involved is located.

(b) The following Commission actions shall be subject to judicial review in the manner prescribed in chapter 158 of Title 28, and chapter 7 of Title 5:

(1) Any final order entered in any proceeding of the kind specified in subsection (a) of this section.

(2) Any final order allowing or prohibiting a facility to begin operating under a combined construction and operating license.

(3) Any final order establishing by regulation standards to govern the Department of Energy's gaseous diffusion uranium enrichment plants, including any such facilities leased to a corporation established under the USEC Privatization Act [42 U.S.C.A. § 2297h et seq.].

(4) Any final determination under section 2297f(c) of this title relating to whether the gaseous diffusion plants, including any such facilities leased to a corporation established under the USEC Privatization Act [42 U.S.C.A. § 2297 et seq.], are in compliance with the Commission's standards governing the gaseous diffusion plants and all applicable laws.

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SUBCHAPTER II--NUCLEAR REGULATORY COMMISSION; NUCLEAR WHISTLEBLOWER
PROTECTION

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Current through P.L. 108-10, approved 03-11-03

§ 5842. Licensing and related regulatory functions respecting selected Administration facilities

Notwithstanding the exclusions provided for in section 110a. [42 U.S.C.A. § 2140(a)] or any other provisions of the Atomic Energy Act of 1954, as amended [42 U.S.C.A. § 2011 et seq.], the Nuclear Regulatory Commission shall, except as otherwise specifically provided by section 110b. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2140(b)), or other law, have licensing and related regulatory authority pursuant to chapters 6, 7, 8, and 10 of the Atomic Energy Act of 1954, as amended [42 U.S.C.A. § § 2071 et seq., 2091 et seq., 2111 et seq., 2131 et seq.], as to the following facilities of the Administration:

(1) Demonstration Liquid Metal Fast Breeder reactors when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(2) Other demonstration nuclear reactors--except those in existence on the effective date of this chapter--when operated as part of the power generation facilities of an electric utility system, or when operated in any other manner for the purpose of demonstrating the suitability for commercial application of such a reactor.

(3) Facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under such Act.

(4) Retrievable Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the Administration, which are not used for, or are part of, research and development activities.

(5) Any facility under a contract with and for the account of the Department of Energy that is utilized for the express purpose of fabricating mixed plutonium- uranium oxide nuclear reactor fuel for use in a commercial nuclear reactor licensed under such Act [42 U.S.C.A. § 2011 et seq.], other than any such facility that is utilized for research, development, demonstration, testing, or analysis purposes.

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Current through P.L. 108-10, approved 03-11-03

§ 10107. Applicability to atomic energy defense activities

(a) Atomic energy defense activities

Subject to the provisions of subsection (c) of this section, the provisions of this chapter shall not apply with respect to any atomic energy defense activity or to any facility used in connection with any such activity.

(b) Evaluation by President

(1) Not later than 2 years after January 7, 1983, the President shall evaluate the use of disposal capacity at one or more repositories to be developed under part A of subchapter I of this chapter for the disposal of high-level radioactive waste resulting from atomic energy defense activities. Such evaluation shall take into consideration factors relating to cost efficiency, health and safety, regulation, transportation, public acceptability, and national security.

(2) Unless the President finds, after conducting the evaluation required in paragraph (1), that the development of a repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only is required, taking into account all of the factors described in such subsection, the Secretary shall proceed promptly with arrangement for the use of one or more of the repositories to be developed under part A of subchapter I of this chapter for the disposal of such waste. Such arrangements shall include the allocation of costs of developing, constructing, and operating this repository or repositories. The costs resulting from permanent disposal of high-level radioactive waste from atomic energy defense activities shall be paid by the Federal Government, into the special account established under section 10222 of this title.

(3) Any repository for the disposal of high-level radioactive waste resulting from atomic energy defense activities only shall (A) be subject to licensing under section 5842 of this title; and (B) comply with all requirements of the Commission for the siting, development, construction, and operation of a repository.

(c) Applicability to certain repositories

The provisions of this chapter shall apply with respect to any repository not used exclusively for the disposal of high-level radioactive waste or spent nuclear fuel resulting from atomic energy defense activities, research and development activities of the Secretary, or both.

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Current through P.L. 108-10, approved 03-11-03

§ 10131. Findings and purposes

(a) Findings

The Congress finds that--

(1) radioactive waste creates potential risks and requires safe and environmentally acceptable methods of disposal;

(2) a national problem has been created by the accumulation of (A) spent nuclear fuel from nuclear reactors; and (B) radioactive waste from (i) reprocessing of spent nuclear fuel; (ii) activities related to medical research, diagnosis, and treatment; and (iii) other sources;

(3) Federal efforts during the past 30 years to devise a permanent solution to the problems of civilian radioactive waste disposal have not been adequate;

(4) while the Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and such spent nuclear fuel as may be disposed of in order to protect the public health and safety and the environment, the costs of such disposal should be the responsibility of the generators and owners of such waste and spent fuel;

(5) the generators and owners of high-level radioactive waste and spent nuclear fuel have the primary responsibility to provide for, and the responsibility to pay the costs of, the interim storage of such waste and spent fuel until such waste and spent fuel is accepted by the Secretary of Energy in accordance with the provisions of this chapter;

(6) State and public participation in the planning and development of repositories is essential in order to promote public confidence in the safety of disposal of such waste and spent fuel; and

(7) high-level radioactive waste and spent nuclear fuel have become major subjects of public concern, and appropriate precautions must be taken to ensure that such waste and spent fuel do not adversely affect the public health and safety and the environment for this or future generations.

(b) Purposes

The purposes of this part are--

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(1) to establish a schedule for the siting, construction, and operation of repositories that will provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository;

(2) to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel;

(3) to define the relationship between the Federal Government and the State governments with respect to the disposal of such waste and spent fuel; and

(4) to establish a Nuclear Waste Fund, composed of payments made by the generators and owners of such waste and spent fuel, that will ensure that the costs of carrying out activities relating to the disposal of such waste and spent fuel will be borne by the persons responsible for generating such waste and spent fuel.

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§ 10132. Recommendation of candidate sites for site characterization

(a) Guidelines

Not later than 180 days after January 7, 1983, the Secretary, following consultation with the Council on Environmental Quality, the Administrator of the Environmental Protection Agency, the Director of the United States Geological Survey, and interested Governors, and the concurrence of the Commission shall issue general guidelines for the recommendation of sites for repositories. Such guidelines shall specify detailed geologic considerations that shall be primary criteria for the selection of sites in various geologic media. Such guidelines shall specify factors that qualify or disqualify any site from development as a repository, including factors pertaining to the location of valuable natural resources, hydrology, geophysics, seismic activity, and atomic energy defense activities, proximity to water supplies, proximity to populations, the effect upon the rights of users of water, and proximity to components of the National Park System, the National Wildlife Refuge System, the National Wild and Scenic Rivers System, the National Wilderness Preservation System, or National Forest Lands. Such guidelines shall take into consideration the proximity to sites where high-level radioactive waste and spent nuclear fuel is generated or temporarily stored and the transportation and safety factors involved in moving such waste to a repository. Such guidelines shall specify population factors that will disqualify any site from development as a repository if any surface facility of such repository would be located (1) in a highly populated area; or (2) adjacent to an area 1 mile by 1 mile having a population of not less than 1,000 individuals. Such guidelines also shall require the Secretary to consider the cost and impact of transporting to the repository site the solidified high-level radioactive waste and spent fuel to be disposed of in the repository and the advantages of regional distribution in the siting of repositories. Such guidelines shall require the Secretary to consider the various geologic media in which sites for repositories may be located and, to the extent practicable, to recommend sites in different geologic media. The Secretary shall use guidelines established under this subsection in considering candidate sites for recommendation under subsection (b) of this section. The Secretary may revise such guidelines from time to time, consistent with the provisions of this subsection.

(b) Recommendation by Secretary to President

(1)(A) Following the issuance of guidelines under subsection (a) of this section and consultation with the Governors of affected States, the Secretary shall nominate at least 5 sites that he determines suitable for site characterization for selection of the first repository site.

(B) Subsequent to such nomination, the Secretary shall recommend to the President 3 of the nominated sites not later than January 1, 1985 for characterization as candidate sites.

(C) Such recommendations under subparagraph (B) shall be consistent with the provisions of section 10225 of

this title.

(D) Each nomination of a site under this subsection shall be accompanied by an environmental assessment, which shall include a detailed statement of the basis for such recommendation and of the probable impacts of the site characterization activities planned for such site, and a discussion of alternative activities relating to site characterization that may be undertaken to avoid such impacts. Such environmental assessment shall include--

(i) an evaluation by the Secretary as to whether such site is suitable for site characterization under the guidelines established under subsection (a) of this section;

(ii) an evaluation by the Secretary as to whether such site is suitable for development as a repository under each such guideline that does not require site characterization as a prerequisite for application of such guideline;

(iii) an evaluation by the Secretary of the effects of the site characterization activities at such site on the public health and safety and the environment;

(iv) a reasonable comparative evaluation by the Secretary of such site with other sites and locations that have been considered;

(v) a description of the decision process by which such site was recommended; and

(vi) an assessment of the regional and local impacts of locating the proposed repository at such site.

(E) (i) [FN1] The issuance of any environmental assessment under this paragraph shall be considered to be a final agency action subject to judicial review in accordance with the provisions of chapter 7 of Title 5 and section 10139 of this title. Such judicial review shall be limited to the sufficiency of such environmental assessment with respect to the items described in clauses (i) through (vi) of subparagraph (E).

(F) Each environmental assessment prepared under this paragraph shall be made available to the public.

(G) Before nominating a site, the Secretary shall notify the Governor and legislature of the State in which such site is located, or the governing body of the affected Indian tribe where such site is located, as the case may be, of such nomination and the basis for such nomination.

(2) Before nominating any site the Secretary shall hold public hearings in the vicinity of such site to inform the residents of the area in which such site is located of the proposed nomination of such site and to receive their comments. At such hearings, the Secretary shall also solicit and receive any recommendations of such residents with respect to issues that should be addressed in the environmental assessment described in paragraph (1) and the site characterization plan described in section 10133(b)(1) of this title.

(3) In evaluating the sites nominated under this section prior to any decision to recommend a site as a candidate site, the Secretary shall use available geophysical, geologic, geochemical and hydrologic, and other information and shall not conduct any preliminary borings or excavations at a site unless (i) such preliminary boring or excavation activities were in progress on January 7, 1983, or (ii) the Secretary certifies that such available information from other sources, in the absence of preliminary borings or excavations, will not be adequate to satisfy applicable requirements of this chapter or any other law: *Provided*, That preliminary borings or excavations under this section shall not exceed a diameter of 6 inches.

(c) Presidential review of recommended candidate sites

(1) The President shall review each candidate site recommendation made by the Secretary under subsection (b) of this section. Not later than 60 days after the submission by the Secretary of a recommendation of a candidate site, the President, in his discretion, may either approve or disapprove such candidate site, and shall transmit any such decision to the Secretary and to either the Governor and legislature of the State in which such candidate site is

located, or the governing body of the affected Indian tribe where such candidate site is located, as the case may be. If, during such 60-day period, the President fails to approve or disapprove such candidate site, or fails to invoke his authority under paragraph (2) to delay his decision, such candidate site shall be considered to be approved, and the Secretary shall notify such Governor and legislature, or governing body of the affected Indian tribe, of the approval of such candidate site by reason of the inaction of the President.

(2) The President may delay for not more than 6 months his decision under paragraph (1) to approve or disapprove a candidate site, upon determining that the information provided with the recommendation of the Secretary is insufficient to permit a decision within the 60-day period referred to in paragraph (1). The President may invoke his authority under this paragraph by submitting written notice to the Congress, within such 60-day period, of his intent to invoke such authority. If the President invokes such authority, but fails to approve or disapprove the candidate site involved by the end of such 6-month period, such candidate site shall be considered to be approved, and the Secretary shall notify such Governor and legislature, or governing body of the affected Indian tribe, of the approval of such candidate site by reason of the inaction of the President.

(d) Preliminary activities

Except as otherwise provided in this section, each activity of the President or the Secretary under this section shall be considered to be a preliminary decisionmaking activity. No such activity shall require the preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), or to require any environmental review under subparagraph (E) or (F) of section 102(2) of such Act [42 U.S.C.A. § 4332(2)(E) or (F)].

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Current through P.L. 108-10, approved 03-11-03

§ 10133. Site characterization

(a) In general

The Secretary shall carry out, in accordance with the provisions of this section, appropriate site characterization activities at the Yucca Mountain site. The Secretary shall consider fully the comments received under subsection (b)(2) of this section and section 10132(b)(2) of this title and shall, to the maximum extent practicable and in consultation with the Governor of the State of Nevada, conduct site characterization activities in a manner that minimizes any significant adverse environmental impacts identified in such comments or in the environmental assessment submitted under subsection (b)(1) of this section.

(b) Commission and States

(1) Before proceeding to sink shafts at the Yucca Mountain site, the Secretary shall submit for such candidate site to the Commission and to the Governor or legislature of the State of Nevada, for their review and comment--

(A) a general plan for site characterization activities to be conducted at such candidate site, which plan shall include--

(i) a description of such candidate site;

(ii) a description of such site characterization activities, including the following: the extent of planned excavations, plans for any onsite testing with radioactive or nonradioactive material, plans for any investigation activities that may affect the capability of such candidate site to isolate high-level radioactive waste and spent nuclear fuel, and plans to control any adverse, safety-related impacts from such site characterization activities;

(iii) plans for the decontamination and decommissioning of such candidate site, and for the mitigation of any significant adverse environmental impacts caused by site characterization activities if it is determined unsuitable for application for a construction authorization for a repository;

(iv) criteria to be used to determine the suitability of such candidate site for the location of a repository, developed pursuant to section 10132(a) of this title; and

(v) any other information required by the Commission;

(B) a description of the possible form or packaging for the high-level radioactive waste and spent nuclear fuel to be emplaced in such repository, a description, to the extent practicable, of the relationship between such waste

form or packaging and the geologic medium of such site, and a description of the activities being conducted by the Secretary with respect to such possible waste form or packaging or such relationship; and

(C) a conceptual repository design that takes into account likely site-specific requirements.

(2) Before proceeding to sink shafts at the Yucca Mountain site, the Secretary shall (A) make available to the public the site characterization plan described in paragraph (1); and (B) hold public hearings in the vicinity of such candidate site to inform the residents of the area in which such candidate site is located of such plan, and to receive their comments.

(3) During the conduct of site characterization activities at the Yucca Mountain site, the Secretary shall report not less than once every 6 months to the Commission and to the Governor and legislature of the State of Nevada, on the nature and extent of such activities and the information developed from such activities.

(c) Restrictions

(1) The Secretary may conduct at the Yucca Mountain site only such site characterization activities as the Secretary considers necessary to provide the data required for evaluation of the suitability of such site for an application to be submitted to the Commission for a construction authorization for a repository at such site, and for compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(2) In conducting site characterization activities--

(A) the Secretary may not use any radioactive material at a site unless the Commission concurs that such use is necessary to provide data for the preparation of the required environmental reports and an application for a construction authorization for a repository at such site; and

(B) if any radioactive material is used at a site--

(i) the Secretary shall use the minimum quantity necessary to determine the suitability of such site for a repository, but in no event more than the curie equivalent of 10 metric tons of spent nuclear fuel; and

(ii) such radioactive material shall be fully retrievable.

(3) If the Secretary at any time determines the Yucca Mountain site to be unsuitable for development as a repository, the Secretary shall--

(A) terminate all site characterization activities at such site;

(B) notify the Congress, the Governor and legislature of Nevada of such termination and the reasons for such termination;

(C) remove any high-level radioactive waste, spent nuclear fuel, or other radioactive materials at or in such site as promptly as practicable;

(D) take reasonable and necessary steps to reclaim the site and to mitigate any significant adverse environmental impacts caused by site characterization activities at such site;

(E) suspend all future benefits payments under part F of this subchapter with respect to such site; and

(F) report to Congress not later than 6 months after such determination the Secretary's recommendations for further action to assure the safe, permanent disposal of spent nuclear fuel and high-level radioactive waste, including the need for new legislative authority.

(d) Preliminary activities

Each activity of the Secretary under this section that is in compliance with the provisions of subsection (c) of this section shall be considered a preliminary decisionmaking activity. No such activity shall require the preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), or to [FN1] require any environmental review under subparagraph (E) or (F) of section 102(2) of such Act.

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Current through P.L. 108-10, approved 03-11-03

§ 10134. Site approval and construction authorization

(a) Hearings and Presidential recommendation

(1) The Secretary shall hold public hearings in the vicinity of the Yucca Mountain site, for the purposes of informing the residents of the area of such consideration and receiving their comments regarding the possible recommendation of such site. If, upon completion of such hearings and completion of site characterization activities at the Yucca Mountain site, under section 10133 of this title, the Secretary decides to recommend approval of such site to the President, the Secretary shall notify the Governor and legislature of the State of Nevada, of such decision. No sooner than the expiration of the 30-day period following such notification, the Secretary shall submit to the President a recommendation that the President approve such site for the development of a repository. Any such recommendation by the Secretary shall be based on the record of information developed by the Secretary under section 10133 of this title and this section, including the information described in subparagraph (A) through subparagraph (G). Together with any recommendation of a site under this paragraph, the Secretary shall make available to the public, and submit to the President, a comprehensive statement of the basis of such recommendation, including the following:

(A) a description of the proposed repository, including preliminary engineering specifications for the facility;

(B) a description of the waste form or packaging proposed for use at such repository, and an explanation of the relationship between such waste form or packaging and the geologic medium of such site;

(C) a discussion of data, obtained in site characterization activities, relating to the safety of such site;

(D) a final environmental impact statement prepared for the Yucca Mountain site pursuant to subsection (f) of this section and the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), together with comments made concerning such environmental impact statement by the Secretary of the Interior, the Council on Environmental Quality, the Administrator, and the Commission, except that the Secretary shall not be required in any such environmental impact statement to consider the need for a repository, the alternatives to geological disposal, or alternative sites to the Yucca Mountain site;

(E) preliminary comments of the Commission concerning the extent to which the at-depth site characterization analysis and the waste form proposal for such site seem to be sufficient for inclusion in any application to be submitted by the Secretary for licensing of such site as a repository;

(F) the views and comments of the Governor and legislature of any State, or the governing body of any affected Indian tribe, as determined by the Secretary, together with the response of the Secretary to such views;

(G) such other information as the Secretary considers appropriate; and

(H) any impact report submitted under section 10136(c)(2)(B) of this title by the State of Nevada.

(2)(A) If, after recommendation by the Secretary, the President considers the Yucca Mountain site qualified for application for a construction authorization for a repository, the President shall submit a recommendation of such site to Congress.

(B) The President shall submit with such recommendation a copy of the statement for such site prepared by the Secretary under paragraph (1).

(3)(A) The President may not recommend the approval of the Yucca Mountain site unless the Secretary has recommended to the President under paragraph (1) approval of such site and has submitted to the President a statement for such site as required under such paragraph.

(B) No recommendation of a site by the President under this subsection shall require the preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), or to [FN1] require any environmental review under subparagraph (E) or (F) of section 102(2) of such Act [42 U.S.C.A. § 4332(2)(E) or (F)].

(b) Submission of application

If the President recommends to the Congress the Yucca Mountain site under subsection (a) of this section and the site designation is permitted to take effect under section 10135 of this title, the Secretary shall submit to the Commission an application for a construction authorization for a repository at such site not later than 90 days after the date on which the recommendation of the site designation is effective under such section and shall provide to the Governor and legislature of the State of Nevada a copy of such application.

(c) Status report on application

Not later than 1 year after the date on which an application for a construction authorization is submitted under subsection (b) of this section, and annually thereafter until the date on which such authorization is granted, the Commission shall submit a report to the Congress describing the proceedings undertaken through the date of such report with regard to such application, including a description of--

(1) any major unresolved safety issues, and the explanation of the Secretary with respect to design and operation plans for resolving such issues;

(2) any matters of contention regarding such application; and

(3) any Commission actions regarding the granting or denial of such authorization.

(d) Commission action

The Commission shall consider an application for a construction authorization for all or part of a repository in accordance with the laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of the submission of such application, except that the Commission may extend such deadline by not more than 12 months if, not less than 30 days before such deadline, the Commission complies with the reporting requirements established in subsection (e)(2) of this section. The Commission decision approving the first such application shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of

70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation. In the event that a monitored retrievable storage facility, approved pursuant to part C of this subchapter, shall be located, or is planned to be located, within 50 miles of the first repository, then the Commission decision approving the first such application shall prohibit the emplacement of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of spent fuel in both the repository and monitored retrievable storage facility until such time as a second repository is in operation.

(e) Project decision schedule

(1) The Secretary shall prepare and update, as appropriate, in cooperation with all affected Federal agencies, a project decision schedule that portrays the optimum way to attain the operation of the repository, within the time periods specified in this part. Such schedule shall include a description of objectives and a sequence of deadlines for all Federal agencies required to take action, including an identification of the activities in which a delay in the start, or completion, of such activities will cause a delay in beginning repository operation.

(2) Any Federal agency that determines that it cannot comply with any deadline in the project decision schedule, or fails to so comply, shall submit to the Secretary and to the Congress a written report explaining the reason for its failure or expected failure to meet such deadline, the reason why such agency could not reach an agreement with the Secretary, the estimated time for completion of the activity or activities involved, the associated effect on its other deadlines in the project decision schedule, and any recommendations it may have or actions it intends to take regarding any improvements in its operation or organization, or changes to its statutory directives or authority, so that it will be able to mitigate the delay involved. The Secretary, within 30 days after receiving any such report, shall file with the Congress his response to such report, including the reasons why the Secretary could not amend the project decision schedule to accommodate the Federal agency involved.

(f) Environmental impact statement

(1) Any recommendation made by the Secretary under this section shall be considered a major Federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). A final environmental impact statement prepared by the Secretary under such Act shall accompany any recommendation to the President to approve a site for a repository.

(2) With respect to the requirements imposed by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), compliance with the procedures and requirements of this chapter shall be deemed adequate consideration of the need for a repository, the time of the initial availability of a repository, and all alternatives to the isolation of high-level radioactive waste and spent nuclear fuel in a repository.

(3) For purposes of complying with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and this section, the Secretary need not consider alternate sites to the Yucca Mountain site for the repository to be developed under this part.

(4) Any environmental impact statement prepared in connection with a repository proposed to be constructed by the Secretary under this part shall, to the extent practicable, be adopted by the Commission in connection with the issuance by the Commission of a construction authorization and license for such repository. To the extent such statement is adopted by the Commission, such adoption shall be deemed to also satisfy the responsibilities of the Commission under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and no further consideration shall be required, except that nothing in this subsection shall affect any independent responsibilities of the Commission to protect the public health and safety under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.).

(5) Nothing in this chapter shall be construed to amend or otherwise detract from the licensing requirements of the

Nuclear Regulatory Commission established in title II of the Energy Reorganization Act of 1974 (42 U.S.C. 5841 et seq.).

(6) In any such statement prepared with respect to the repository to be constructed under this part, the Nuclear Regulatory Commission need not consider the need for a repository, the time of initial availability of a repository, alternate sites to the Yucca Mountain site, or nongeologic alternatives to such site.

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Current through P.L. 108-10, approved 03-11-03

§ 10135. Review of repository site selection

(a) "Resolution of repository siting approval" defined

For purposes of this section, the term "resolution of repository siting approval" means a joint resolution of the Congress, the matter after the resolving clause of which is as follows: "That there hereby is approved the site at for a repository, with respect to which a notice of disapproval was submitted by on". The first blank space in such resolution shall be filled with the name of the geographic location of the proposed site of the repository to which such resolution pertains; the second blank space in such resolution shall be filled with the designation of the State Governor and legislature or Indian tribe governing body submitting the notice of disapproval to which such resolution pertains; and the last blank space in such resolution shall be filled with the date of such submission.

(b) State or Indian tribe petitions

The designation of a site as suitable for application for a construction authorization for a repository shall be effective at the end of the 60-day period beginning on the date that the President recommends such site to the Congress under section 10134 of this title, unless the Governor and legislature of the State in which such site is located, or the governing body of an Indian tribe on whose reservation such site is located, as the case may be, has submitted to the Congress a notice of disapproval under section 10136 or 10138 of this title. If any such notice of disapproval has been submitted, the designation of such site shall not be effective except as provided under subsection (c) of this section.

(c) Congressional review of petitions

If any notice of disapproval of a repository site designation has been submitted to the Congress under section 10136 or 10138 of this title after a recommendation for approval of such site is made by the President under section 10134 of this title, such site shall be disapproved unless, during the first period of 90 calendar days of continuous session of the Congress after the date of the receipt by the Congress of such notice of disapproval, the Congress passes a resolution of repository siting approval in accordance with this subsection approving such site, and such resolution thereafter becomes law.

(d) Procedures applicable to the Senate

(1) The provisions of this subsection are enacted by the Congress--

(A) as an exercise of the rulemaking power of the Senate, and as such they are deemed a part of the rules of the Senate, but applicable only with respect to the procedure to be followed in the Senate in the case of resolutions of repository siting approval, and such provisions supersede other rules of the Senate only to the extent that they are inconsistent with such other rules; and

(B) with full recognition of the constitutional right of the Senate to change the rules (so far as relating to the procedure of the Senate) at any time, in the same manner and to the same extent as in the case of any other rule of the Senate.

(2)(A) Not later than the first day of session following the day on which any notice of disapproval of a repository site selection is submitted to the Congress under section 10136 or 10138 of this title, a resolution of repository siting approval shall be introduced (by request) in the Senate by the chairman of the committee to which such notice of disapproval is referred, or by a Member or Members of the Senate designated by such chairman.

(B) Upon introduction, a resolution of repository siting approval shall be referred to the appropriate committee or committees of the Senate by the President of the Senate, and all such resolutions with respect to the same repository site shall be referred to the same committee or committees. Upon the expiration of 60 calendar days of continuous session after the introduction of the first resolution of repository siting approval with respect to any site, each committee to which such resolution was referred shall make its recommendations to the Senate.

(3) If any committee to which is referred a resolution of siting approval introduced under paragraph (2)(A), or, in the absence of such a resolution, any other resolution of siting approval introduced with respect to the site involved, has not reported such resolution at the end of 60 days of continuous session of Congress after introduction of such resolution, such committee shall be deemed to be discharged from further consideration of such resolution, and such resolution shall be placed on the appropriate calendar of the Senate.

(4)(A) When each committee to which a resolution of siting approval has been referred has reported, or has been deemed to be discharged from further consideration of, a resolution described in paragraph (3), it shall at any time thereafter be in order (even though a previous motion to the same effect has been disagreed to) for any Member of the Senate to move to proceed to the consideration of such resolution. Such motion shall be highly privileged and shall not be debatable. Such motion shall not be subject to amendment, to a motion to postpone, or to a motion to proceed to the consideration of other business. A motion to reconsider the vote by which such motion is agreed to or disagreed to shall not be in order. If a motion to proceed to the consideration of such resolution is agreed to, such resolution shall remain the unfinished business of the Senate until disposed of.

(B) Debate on a resolution of siting approval, and on all debatable motions and appeals in connection with such resolution, shall be limited to not more than 10 hours, which shall be divided equally between Members favoring and Members opposing such resolution. A motion further to limit debate shall be in order and shall not be debatable. Such motion shall not be subject to amendment, to a motion to postpone, or to a motion to proceed to the consideration of other business, and a motion to recommit such resolution shall not be in order. A motion to reconsider the vote by which such resolution is agreed to or disagreed to shall not be in order.

(C) Immediately following the conclusion of the debate on a resolution of siting approval, and a single quorum call at the conclusion of such debate if requested in accordance with the rules of the Senate, the vote on final approval of such resolution shall occur.

(D) Appeals from the decisions of the Chair relating to the application of the rules of the Senate to the procedure relating to a resolution of siting approval shall be decided without debate.

(5) If the Senate receives from the House a resolution of repository siting approval with respect to any site, then the following procedure shall apply:

(A) The resolution of the House with respect to such site shall not be referred to a committee.

(B) With respect to the resolution of the Senate with respect to such site--

(i) the procedure with respect to that or other resolutions of the Senate with respect to such site shall be the same as if no resolution from the House with respect to such site had been received; but

(ii) on any vote on final passage of a resolution of the Senate with respect to such site, a resolution from the House with respect to such site where the text is identical shall be automatically substituted for the resolution of the Senate.

(e) Procedures applicable to the House of Representatives

(1) The provisions of this section are enacted by the Congress--

(A) as an exercise of the rulemaking power of the House of Representatives, and as such they are deemed a part of the rules of the House, but applicable only with respect to the procedure to be followed in the House in the case of resolutions of repository siting approval, and such provisions supersede other rules of the House only to the extent that they are inconsistent with such other rules; and

(B) with full recognition of the constitutional right of the House to change the rules (so far as relating to the procedure of the House) at any time, in the same manner and to the same extent as in the case of any other rule of the House.

(2) Resolutions of repository siting approval shall upon introduction, be immediately referred by the Speaker of the House to the appropriate committee or committees of the House. Any such resolution received from the Senate shall be held at the Speaker's table.

(3) Upon the expiration of 60 days of continuous session after the introduction of the first resolution of repository siting approval with respect to any site, each committee to which such resolution was referred shall be discharged from further consideration of such resolution, and such resolution shall be referred to the appropriate calendar, unless such resolution or an identical resolution was previously reported by each committee to which it was referred.

(4) It shall be in order for the Speaker to recognize a Member favoring a resolution to call up a resolution of repository siting approval after it has been on the appropriate calendar for 5 legislative days. When any such resolution is called up, the House shall proceed to its immediate consideration and the Speaker shall recognize the Member calling up such resolution and a Member opposed to such resolution for 2 hours of debate in the House, to be equally divided and controlled by such Members. When such time has expired, the previous question shall be considered as ordered on the resolution to adoption without intervening motion. No amendment to any such resolution shall be in order, nor shall it be in order to move to reconsider the vote by which such resolution is agreed to or disagreed to.

(5) If the House receives from the Senate a resolution of repository siting approval with respect to any site, then the following procedure shall apply:

(A) The resolution of the Senate with respect to such site shall not be referred to a committee.

(B) With respect to the resolution of the House with respect to such site--

(i) the procedure with respect to that or other resolutions of the House with respect to such site shall be the same as if no resolution from the Senate with respect to such site had been received; but

(ii) on any vote on final passage of a resolution of the House with respect to such site, a resolution from the Senate with respect to such site where the text is identical shall be automatically substituted for the resolution of the House.

(f) Computation of days

For purposes of this section--

(1) continuity of session of Congress is broken only by an adjournment sine die; and

(2) the days on which either House is not in session because of an adjournment of more than 3 days to a day certain are excluded in the computation of the 90- day period referred to in subsection (c) of this section and the 60-day period referred to in subsections (d) and (e) of this section.

(g) Information provided to Congress

In considering any notice of disapproval submitted to the Congress under section 10136 or 10138 of this title, the Congress may obtain any comments of the Commission with respect to such notice of disapproval. The provision of such comments by the Commission shall not be construed as binding the Commission with respect to any licensing or authorization action concerning the repository involved.

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§ 10136. Participation of States

(a) Notification of States and affected tribes

The Secretary shall identify the States with one or more potentially acceptable sites for a repository within 90 days after January 7, 1983. Within 90 days of such identification, the Secretary shall notify the Governor, the State legislature, and the tribal council of any affected Indian tribe in any State of the potentially acceptable sites within such State. For the purposes of this subchapter, the term "potentially acceptable site" means any site at which, after geologic studies and field mapping but before detailed geologic data gathering, the Department undertakes preliminary drilling and geophysical testing for the definition of site location.

(b) State participation in repository siting decisions

(1) Unless otherwise provided by State law, the Governor or legislature of each State shall have authority to submit a notice of disapproval to the Congress under paragraph (2). In any case in which State law provides for submission of any such notice of disapproval by any other person or entity, any reference in this part to the Governor or legislature of such State shall be considered to refer instead to such other person or entity.

(2) Upon the submission by the President to the Congress of a recommendation of a site for a repository, the Governor or legislature of the State in which such site is located may disapprove the site designation and submit to the Congress a notice of disapproval. Such Governor or legislature may submit such a notice of disapproval to the Congress not later than the 60 days after the date that the President recommends such site to the Congress under section 10134 of this title. A notice of disapproval shall be considered to be submitted to the Congress on the date of the transmittal of such notice of disapproval to the Speaker of the House and the President pro tempore of the Senate. Such notice of disapproval shall be accompanied by a statement of reasons explaining why such Governor or legislature disapproved the recommended repository site involved.

(3) The authority of the Governor or legislature of each State under this subsection shall not be applicable with respect to any site located on a reservation.

(c) Financial assistance

(1)(A) The Secretary shall make grants to the State of Nevada and any affected unit of local government for the purpose of participating in activities required by this section and section 10137 of this title or authorized by written agreement entered into pursuant to section 10137(c) of this title. Any salary or travel expense that would ordinarily

be incurred by such State or affected unit of local government, may not be considered eligible for funding under this paragraph.

(B) The Secretary shall make grants to the State of Nevada and any affected unit of local government for purposes of enabling such State or affected unit of local government--

(i) to review activities taken under this part with respect to the Yucca Mountain site for purposes of determining any potential economic, social, public health and safety, and environmental impacts of a repository on such State, or affected unit of local government and its residents;

(ii) to develop a request for impact assistance under paragraph (2);

(iii) to engage in any monitoring, testing, or evaluation activities with respect to site characterization programs with regard to such site;

(iv) to provide information to Nevada residents regarding any activities of such State, the Secretary, or the Commission with respect to such site; and

(v) to request information from, and make comments and recommendations to, the Secretary regarding any activities taken under this part with respect to such site.

(C) Any salary or travel expense that would ordinarily be incurred by the State of Nevada or any affected unit of local government may not be considered eligible for funding under this paragraph.

(2)(A)(i) The Secretary shall provide financial and technical assistance to the State of Nevada, and any affected unit of local government requesting such assistance.

(ii) Such assistance shall be designed to mitigate the impact on such State or affected unit of local government of the development of such repository and the characterization of such site.

(iii) Such assistance to such State or affected unit of local government of such State shall commence upon the initiation of site characterization activities.

(B) The State of Nevada and any affected unit of local government may request assistance under this subsection by preparing and submitting to the Secretary a report on the economic, social, public health and safety, and environmental impacts that are likely to result from site characterization activities at the Yucca Mountain site. Such report shall be submitted to the Secretary after the Secretary has submitted to the State a general plan for site characterization activities under section 10133(b) of this title.

(C) As soon as practicable after the Secretary has submitted such site characterization plan, the Secretary shall seek to enter into a binding agreement with the State of Nevada setting forth--

(i) the amount of assistance to be provided under this subsection to such State or affected unit of local government; and

(ii) the procedures to be followed in providing such assistance.

(3)(A) In addition to financial assistance provided under paragraphs (1) and (2), the Secretary shall grant to the State of Nevada and any affected unit of local government an amount each fiscal year equal to the amount such State or affected unit of local government, respectively, would receive if authorized to tax site characterization activities at such site, and the development and operation of such repository, as such State or affected unit of local government taxes the non-Federal real property and industrial activities occurring within such State or affected unit of local government.

(B) Such grants shall continue until such time as all such activities, development, and operation are terminated at such site.

(4)(A) The State of Nevada or any affected unit of local government may not receive any grant under paragraph (1) after the expiration of the 1-year period following--

(i) the date on which the Secretary notifies the Governor and legislature of the State of Nevada of the termination of site characterization activities at the site in such State;

(ii) the date on which the Yucca Mountain site is disapproved under section 10135 of this title; or

(iii) the date on which the Commission disapproves an application for a construction authorization for a repository at such site;

whichever occurs first.

(B) The State of Nevada or any affected unit of local government may not receive any further assistance under paragraph (2) with respect to a site if repository construction activities or site characterization activities at such site are terminated by the Secretary or if such activities are permanently enjoined by any court.

(C) At the end of the 2-year period beginning on the effective date of any license to receive and possess for a repository in a State, no Federal funds, shall be made available to such State or affected unit of local government under paragraph (1) or (2), except for--

(i) such funds as may be necessary to support activities related to any other repository located in, or proposed to be located in, such State, and for which a license to receive and possess has not been in effect for more than 1 year;

(ii) such funds as may be necessary to support State activities pursuant to agreements or contracts for impact assistance entered into, under paragraph (2), by such State with the Secretary during such 2-year period; and

(iii) such funds as may be provided under an agreement entered into under subchapter IV of this chapter.

(5) Financial assistance authorized in this subsection shall be made out of amounts held in the Waste Fund.

(6) No State, other than the State of Nevada, may receive financial assistance under this subsection after December 22, 1987.

(d) Additional notification and consultation

Whenever the Secretary is required under any provision of this chapter to notify or consult with the governing body of an affected Indian tribe where a site is located, the Secretary shall also notify or consult with, as the case may be, the Governor of the State in which such reservation is located.

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§ 10139. Judicial review of agency actions

(a) Jurisdiction of United States courts of appeals

(1) Except for review in the Supreme Court of the United States, the United States courts of appeals shall have original and exclusive jurisdiction over any civil action--

(A) for review of any final decision or action of the Secretary, the President, or the Commission under this part;

(B) alleging the failure of the Secretary, the President, or the Commission to make any decision, or take any action, required under this part;

(C) challenging the constitutionality of any decision made, or action taken, under any provision of this part;

(D) for review of any environmental impact statement prepared pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) with respect to any action under this subtitle, or as required under section 10155(c)(1) of this title, or alleging a failure to prepare such statement with respect to any such action;

(E) for review of any environmental assessment prepared under section 10132(b)(1) or 10155(c)(2) of this title;
or

(F) for review of any research and development activity under subchapter II of this chapter.

(2) The venue of any proceeding under this section shall be in the judicial circuit in which the petitioner involved resides or has its principal office, or in the United States Court of Appeals for the District of Columbia.

(c) [FN1] Deadline for commencing action

A civil action for judicial review described under subsection (a)(1) of this section may be brought not later than the 180th day after the date of the decision or action or failure to act involved, as the case may be, except that if a party shows that he did not know of the decision or action complained of (or of the failure to act), and that a reasonable person acting under the circumstances would not have known, such party may bring a civil action not later than the 180th day after the date such party acquired actual or constructive knowledge of such decision, action, or failure to act.

C

UNITED STATES CODE ANNOTATED
TITLE 42. THE PUBLIC HEALTH AND WELFARE
CHAPTER 108--NUCLEAR WASTE POLICY
SUBCHAPTER I--DISPOSAL AND STORAGE OF HIGH-LEVEL RADIOACTIVE WASTE, SPENT
NUCLEAR FUEL, AND LOW-LEVEL RADIOACTIVE WASTE
PART A--REPOSITORIES FOR DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE AND SPENT
NUCLEAR FUEL

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Current through P.L. 108-10, approved 03-11-03

§ 10141. Certain standards and criteria

(a) Environmental Protection Agency standards

Not later than 1 year after January 7, 1983, the Administrator, pursuant to authority under other provisions of law, shall, by rule, promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories.

(b) Commission requirements and criteria

(1)(A) Not later than January 1, 1984, the Commission, pursuant to authority under other provisions of law, shall, by rule, promulgate technical requirements and criteria that it will apply, under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) and the Energy Reorganization Act of 1974 (42 U.S.C. 5801 et seq.), in approving or disapproving--

(i) applications for authorization to construct repositories;

(ii) applications for licenses to receive and possess spent nuclear fuel and high-level radioactive waste in such repositories; and

(iii) applications for authorization for closure and decommissioning of such repositories.

(B) Such criteria shall provide for the use of a system of multiple barriers in the design of the repository and shall include such restrictions on the retrievability of the solidified high-level radioactive waste and spent fuel emplaced in the repository as the Commission deems appropriate.

(C) Such requirements and criteria shall not be inconsistent with any comparable standards promulgated by the Administrator under subsection (a) of this section.

(2) For purposes of this chapter, nothing in this section shall be construed to prohibit the Commission from promulgating requirements and criteria under paragraph (1) before the Administrator promulgates standards under subsection (a) of this section. If the Administrator promulgates standards under subsection (a) of this section after requirements and criteria are promulgated by the Commission under paragraph (1), such requirements and criteria shall be revised by the Commission if necessary to comply with paragraph (1)(C).

(c) Environmental impact statement

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The promulgation of standards or criteria in accordance with the provisions of this section shall not require the preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), or to require any environmental review under subparagraph (E) or (F) of section 102(2) of such Act.

CREDIT(S)

1995 Main Volume

(Pub.L. 97-425, Title I, § 121, Jan. 7, 1983, 96 Stat. 2228.)

<General Materials (GM) - References, Annotations, or Tables>

HISTORICAL AND STATUTORY NOTES

Revision Notes and Legislative Reports

1983 Acts. House Report No. 97-491, see 1982 U.S. Code Cong. and Adm. News, p. 3792.

References in Text

The Atomic Energy Act of 1954, referred to in subsec. (b)(1)(A), is Act Aug. 30, 1954, c. 1073, 68 Stat. 919, as amended, which is classified generally to chapter 23 (section 2011 et seq.) of this title. For complete classification of this Act to the Code, see Short Title of 1954 Acts note set out under section 2011 of this title and Tables.

The Energy Reorganization Act of 1974, referred to in subsec. (b)(1)(A), is Pub.L. 93-438, Oct. 11, 1974, 88 Stat. 1233, as amended, which is classified principally to chapter 73 (section 5801 et seq.) of this title. For complete classification of this Act to the Code, see Short Title of 1974 Acts note set out under section 5801 of this title and Tables.

The National Environmental Policy Act of 1969, referred to in subsec. (c), is Pub.L. 91-190, Jan. 1, 1970, 83 Stat. 852, as amended, which is classified generally to chapter 55 (section 4321 et seq.) of this title. Section 102 of such Act is classified to section 4332 of this title. For complete classification of this Act to the Code, see Short Title of 1970 Acts note set out under section 4321 of this title and Tables.

Nuclear Waste Storage and Disposal at Yucca Mountain Site

Pub.L. 102-486, Title VIII, § 801, Oct. 24, 1992, 106 Stat. 2921, provided that:

"(a) Environmental Protection Agency standards.--

"(1) Promulgation.--Notwithstanding the provisions of section 121(a) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10141(a) [subsec. (a) of this section]), section 161 b. of the Atomic Energy Act of 1954 (42 U.S.C. 2201(b) [section 2201(b) of this title]), and any other authority of the Administrator of the Environmental Protection Agency to set generally applicable standards for the Yucca Mountain site, the Administrator shall, based upon and consistent with the findings and recommendations of the National Academy of Sciences, promulgate, by rule, public health and safety standards for protection of the public from releases from radioactive materials stored or disposed of in the repository at the Yucca Mountain site. Such standards shall prescribe the maximum annual effective dose equivalent to individual members of the public from releases to the accessible environment from radioactive materials stored or disposed of in the repository. The standards shall be promulgated not later than 1 year after the Administrator receives the findings and recommendations of the National Academy of Sciences under paragraph (2) and shall be the only such standards applicable to the Yucca Mountain site.

"(2) Study by National Academy of Sciences.--Within 90 days after the date of the enactment of this Act [Oct. 24, 1992], the Administrator shall contract with the National Academy of Sciences to conduct a study to provide, by not later than December 31, 1993, findings and recommendations on reasonable standards for protection of the public health and safety, including--

"(A) whether a health-based standard based upon doses to individual members of the public from releases to the accessible environment (as that term is defined in the regulations contained in subpart B of part 191 of title 40, Code of Federal Regulations, as in effect on November 18, 1985) will provide a reasonable standard for protection of the health and safety of the general public;

"(B) whether it is reasonable to assume that a system for post-closure oversight of the repository can be developed, based upon active institutional controls, that will prevent an unreasonable risk of breaching the repository's engineered or geologic barriers or increasing the exposure of individual members of the public to radiation beyond allowable limits; and

"(C) whether it is possible to make scientifically supportable predictions of the probability that the repository's engineered or geologic barriers will be breached as a result of human intrusion over a period of 10,000 years.

"(3) Applicability.--The provisions of this section [this note] shall apply to the Yucca Mountain site, rather than any other authority of the Administrator to set generally applicable standards for radiation protection.

"(b) Nuclear Regulatory Commission requirements and criteria.--

"(1) Modifications.--Not later than 1 year after the Administrator promulgates standards under subsection (a), the Nuclear Regulatory Commission shall, by rule, modify its technical requirements and criteria under section 121(b) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10141(b) [subsec. (b) of this section]), as necessary, to be consistent with the Administrator's standards promulgated under subsection (a).

"(2) Required assumptions.--The Commission's requirements and criteria shall assume, to the extent consistent with the findings and recommendations of the National Academy of Sciences, that, following repository closure, the inclusion of engineered barriers and the Secretary's post-closure oversight of the Yucca Mountain site, in accordance with subsection (c), shall be sufficient to--

"(A) prevent any activity at the site that poses an unreasonable risk of breaching the repository's engineered or geologic barriers; and

"(B) prevent any increase in the exposure of individual members of the public to radiation beyond allowable limits.

"(c) Post-closure oversight.--Following repository closure, the Secretary of Energy shall continue to oversee the Yucca Mountain site to prevent any activity at the site that poses an unreasonable risk of--

"(1) breaching the repository's engineered or geologic barriers; or

"(2) increasing the exposure of individual members of the public to radiation beyond allowable limits."

NUCLEAR WASTE DISPOSAL

JOINT HEARINGS
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
AND THE
SUBCOMMITTEE ON NUCLEAR REGULATION
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
NINETY-SEVENTH CONGRESS

FIRST SESSION

ON

S. 637

A BILL TO ESTABLISH A PROGRAM FOR FEDERAL STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS, TO SET FORTH A FEDERAL POLICY AND INITIATE A PROGRAM FOR THE DISPOSAL OF NUCLEAR WASTE FROM CIVILIAN ACTIVITIES, AND FOR OTHER PURPOSES

S. 1662

A BILL TO ESTABLISH A LIMITED PROGRAM FOR FEDERAL STORAGE OF SPENT FUEL FROM CIVILIAN NUCLEAR POWERPLANTS, TO SET FORTH A FEDERAL POLICY, INITIATE A PROGRAM, AND ESTABLISH A NATIONAL SCHEDULE FOR THE DISPOSAL OF NUCLEAR WASTE FROM CIVILIAN ACTIVITIES, AND FOR OTHER PURPOSES

OCTOBER 5 AND 6, 1981

Energy Committee Publication No. 97-62

Environment Committee Publication No. 97-H40

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and Environment and Public Works

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actions taken under authority vested by law in the Executive, the remedy lies in new legislation which, under the Constitution, must be presented to the President before it may be come effective. A joint resolution, which would be presented to the President for signature or veto, is a proper mechanism for Congress to use to revoke authority or alter Executive decisions—such as the site selection involved here—otherwise provided by law to the Executive Branch of government.

Senator SIMPSON. That concludes my questions. The other committee members will be submitting written questions. We would appreciate having your response.

The hearing will reconvene at 1:30 p.m. Thank you very much. [Whereupon, at 12:10 p.m. the hearing was recessed, to reconvene at 1:30 p.m.]

AFTERNOON SESSION

The CHAIRMAN. The committee will come to order.

I am happy to welcome this afternoon the Nuclear Regulatory Commission. I am pleased to have all you gentlemen here. I appreciate your appearance and I appreciate your willingness to accommodate your schedule to ours.

STATEMENT OF HON. NUNZIO J. PALLADINO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY COMMISSIONER JOHN F. AHEARNE; COMMISSIONER VICTOR GILINSKY; COMMISSIONER THOMAS M. ROBERTS; AND WILLIAM DIRCKS, EXECUTIVE DIRECTOR FOR OPERATIONS

Mr. PALLADINO. Thank you, Mr. Chairman.

We have submitted prepared testimony on S. 1662. With your permission and in the interest of time I would like to summarize and highlight some of the major features.

Mr. Chairman, I welcome this opportunity to appear before you and testify on the view of the Nuclear Regulatory Commission concerning nuclear waste storage and disposal as related in S. 1662.

With me today are three of my fellow Commissioners, Mr. Ahearne, Mr. Roberts, Mr. Gilinsky. Commissioner Bradford was here earlier but could not be here at this time. Also with us is William Dircks, the Executive Director for Operations for the NRC.

With regard to the bill itself, while we have some differences in detail, the overall thrust of the legislation appears to be very good to solve a high level waste problem.

S. 1662 has a number of important provisions with which we agree. It recognizes the need for additional storage facilities for spent fuel both onsite at reactors and at separate sites away from reactors; and the need to expedite the licensing activities related to expanding spent fuel capacity onsite at a reactor. The bill provides for a hybrid licensing process in which the Commission may grant an interim license prior to conducting or completing any required hearings on such application.

I strongly feel this provision is very desirable and the majority of the Commission supports the provision believing it will not lower the protection to public health and safety or the environment.

I would also like to inform your committee that in anticipation of requests to license away from reactor facilities, the NRC last fall promulgated 10 CFR part 72 licensing regulation for the storage of spent fuel in an independent spent fuel storage installation.

As a result the NRC is ready and able to take prompt action for licensing actions related to interim spent fuel storage.

Like the sponsors of S. 1662, the Commission believes it is desirable that the national program be tied to a realistic time schedule. We believe confidence in the Federal Government's ability to provide for safe and permanent disposal of nuclear waste will increase if congressionally mandated milestone schedules are established and met.

The Commission will do everything in its power to avoid delaying the national program. This goal will be a very difficult one to achieve in the time allowed for construction authorization proceedings under this bill.

Under this tight time frame, it becomes extremely important that we receive a complete license application from DOE containing all the information we will need to resolve the issues in dispute.

S. 1662 would require NRC to promulgate technical criteria for a high-level waste repository by January 1, 1983. As you know we have already finalized the procedural part of our 10 CFR 60 repository licensing rule for the geologic disposal of high-level waste.

We issued the technical criteria for public comment in July of 1981 and we expect to be able to finalize them this year.

We are concerned about the absence of the generally applicable environmental standards from EPA, which EPA has been developing for a number of years. They have not been issued even in draft form for public comment. In their absence we have been using internal EPA working drafts which have been essentially the same for the past 2 or 3 years.

If the EPA standard is not issued soon or changes significantly from the current drafts, we may not be able to meet the January 1, 1983, deadline as specified in the bill.

We have several other points in our testimony about which we ask for clarification, but there are two other points in the bill that are worth highlighting in my comments.

One relates to section 402 which requires that we include criteria for a license amendment to decommission the repository. In our proposed regulation we have dealt with decommissioning only in a general way, with the intent of augmenting the criteria in several years when we have more experience.

We believe it is premature to define detailed decommissioning criteria at this time and that the general requirements are sufficient for the next several years.

I would also speak to the State participation issue. The Commission supports provisions for DOE to inform and consult with States throughout the site screening and characterization stages which hopefully will serve to resolve State concerns.

If a significantly affected State's concerns are not resolved, we believe the State should have an opportunity to object formally to the construction and operation of a high level waste repository.

The Commission agrees that a procedure should be defined whereby the President and the Congress could review and resolve such formal State objections.

Mr. Chairman, this concludes my statement. I would ask we have the opportunity to submit further comments on S. 1662 after we have prepared a more detailed analysis of S. 637.

We appreciate the opportunity to testify on such an important piece of legislation. My colleagues and I stand ready to respond to any questions.

[The prepared statement of Mr. Palladino follows:]

(1) Disposal of high-level waste as provided for in part 60 or 63 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 5 millicuries of radium-226; or

(3) Disposal of licensed material as provided for in part 20 of this chapter.

* * * * *
40. In § 61.2, the definition of Land disposal facility is revised to read as follows:

§ 61.2 Definitions.

* * * * *

Land disposal facility means the land, building, 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 or 63 is not considered a land disposal facility.

* * * * *

41. Section 61.55 is amended by revising paragraph (a)(2)(iv) to read as follows:

§ 61.55 Waste classification.

(a) * * *

(2) * * *

(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 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.

* * * * *

42. Part 63 is added to read as follows:

PART 63—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN A GEOLOGIC REPOSITORY AT YUCCA MOUNTAIN, NEVADA

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Sec.

- 63.1 Purpose and scope.
- 63.2 Definitions.
- 63.3 License required.
- 63.4 Communications and records.
- 63.5 Interpretations.
- 63.6 Exemptions.
- 63.7 License not required for certain preliminary activities.
- 63.8 Information collection requirements: OMB Approval.
- 63.9 Employee protection.

63.10 Completeness and accuracy of information.

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Subpart B—Licenses

Preapplication Review

63.15 Site characterization.

63.1 Review of site characterization activities.

License Application

- 63.21 Content of application.
- 63.22 Filing and distribution of application.
- 63.23 Elimination of repetition.
- 63.24 Updating of application and environmental impact statement.

Construction Authorization

- 63.31 Construction authorization.
- 63.32 Conditions of construction authorization.
- 63.33 Amendment of construction authorization.

License Issuance and Amendment

- 63.41 Standards for issuance of a license.
- 63.42 Conditions of license.
- 63.43 License specification.
- 63.44 Changes, tests, and experiments.
- 63.45 Amendment of license.
- 63.46 Particular activities requiring license amendment.

Permanent Closure

- 63.51 License amendment for permanent closure.
- 63.52 Termination of license.

Subpart C—Participation by State Government, Affected Units of Local Government, and Affected Indian Tribes

- 63.61 Provision of information.
- 63.62 Site review.
- 63.63 Participation in license reviews.
- 63.64 Notice to State.
- 63.65 Representation.

Subpart D—Records, Reports, Tests, and Inspections

- 63.71 Records and reports.
- 63.72 Construction records.
- 63.73 Reports of deficiencies.
- 63.74 Tests.
- 63.75 Inspections.
- 63.78 Material control and accounting records and reports.

Subpart E—Technical Criteria

- 63.101 Purpose and nature of findings.
- 63.102 Concepts.

Preclosure Performance Objectives

63.111 Performance objectives for the geologic repository operations area through permanent closure.

Preclosure Safety Analysis

63.112 Requirements for preclosure safety analysis of the geologic repository operations area.

Postclosure Performance Objectives

63.113 Performance objectives for the geologic repository after permanent closure.

Postclosure Performance Assessment

- 63.114 Requirements for performance assessment.
- 63.115 Requirements for multiple barriers.

Land Ownership and Control

63.121 Requirements for ownership and control of interests in land.

Subpart F—Performance Confirmation Program

- 63.131 General requirements.
- 63.132 Confirmation of geotechnical and design parameters.
- 63.133 Design testing.
- 63.134 Monitoring and testing waste packages.

Subpart G—Quality Assurance

- 63.141 Scope.
- 63.142 Quality assurance criteria.
- 63.143 Implementation.
- 63.144 Quality assurance program change.

Subpart H—Training and Certification of Personnel

- 63.151 General requirements.
- 63.152 Training and certification program.
- 63.153 Physical requirements.

Subpart I—Emergency Planning Criteria

63.161 Emergency plan for the geologic repository operations area through permanent closure.

Subpart J—Violations

- 63.171 Violations.
- 63.172 Criminal penalties.

Subpart K—Preclosure Public Health and Environmental Standards

- 63.201 Purpose and scope.
- 63.202 Definitions for Subpart K.
- 63.203 Implementation of Subpart K.
- 63.204 Preclosure standard. ;

Subpart L—Postclosure Public Health and Environmental Standards

- 63.301 Purpose and scope.
- 63.302 Definitions for Subpart L.
- 63.303 Implementation of Subpart L.
- 63.304 Reasonable expectation.
- 63.305 Required characteristics of the reference biosphere.

Postclosure Individual Protection Standard

- 63.311 Individual protection standard after permanent closure.
- 63.312 Required characteristics of the reasonably maximally exposed individual.

Human-Intrusion Standard

- 63.321 Individual protection standard for human intrusion.
- 63.322 Human intrusion scenario.

Ground-Water Protection Standards

- 63.331 Separate standards for protection of ground water.
- 63.332 Representative volume.

ADDITIONAL PROVISIONS

- 63.341 Projections of peak dose.
- 63.342 Limits on performance assessments.
- 63.343 Severability of individual protection and ground-water protection standards.

Authority: Secs. 51, 53, 62, 63, 65, 81, 161, 182, 183, 68 Stat. 929, 930, 932, 933, 935, 948, 953, 954, as amended (42 U.S.C. 2071, 2073, 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); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 114, 121, Pub. L. 97-425, 96 Stat. 2213g, 2238, as amended (42 U.S.C. 10134, 10141), and Pub. L. 102-486, sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851).

Subpart A—General Provisions

§ 63.1 Purpose and scope.

This part prescribes rules governing the licensing of the U.S. Department of Energy to receive and possess source, special nuclear, and byproduct material at a geologic repository operations area sited, constructed, or operated at Yucca Mountain, Nevada, in accordance with the Nuclear Waste Policy Act of 1982, as amended, and the Energy Policy Act of 1992. As provided in 10 CFR 60.1, the regulations in part 60 of this chapter do not apply to any activity that is subject to licensing under this part. This part does not apply to any activity licensed under another part of this chapter. This part also gives notice to all persons who knowingly provide, to any licensee, applicant, contractor, or subcontractor, components, equipment, materials, or other goods or services, that relate to a licensee's or applicant's activities subject to this part, that they may be individually subject to NRC enforcement action for violation of § 63.11.

§ 63.2 Definitions.

As used in this part:

Affected Indian Tribe means any Indian Tribe within whose reservation boundaries a repository for high-level radioactive waste or spent fuel is proposed to be located; or whose Federally-defined possessory or usage rights to other lands outside of the reservation's boundaries arising out of Congressionally-ratified treaties or other Federal law may be substantially and adversely affected by the location of the facility if the Secretary of the Interior finds, on the petition of the appropriate governmental officials of the Tribe, that the effects are both substantial and adverse to the Tribe.

Barrier means any material, structure, or feature that, for a period to be determined by NRC, prevents or substantially reduces the rate of movement of water or radionuclides from the Yucca Mountain repository to the accessible environment, or prevents the release or substantially reduces the release rate of radionuclides from the waste. For example, a barrier may be a

geologic feature, an engineered structure, a canister, a waste form with physical and chemical characteristics that significantly decrease the mobility of radionuclides, or a material placed over and around the waste, provided that the material substantially delays movement of water or radionuclides.

Commencement of construction means clearing of land, surface or subsurface excavation, or other substantial action that would adversely affect the environment of a site. It does not include changes desirable for the temporary use of the land for public recreational uses, site characterization activities, other preconstruction monitoring and investigation necessary to establish background information related to the suitability of the Yucca Mountain site or to the protection of environmental values, or procurement or manufacture of components of the geologic repository operations area.

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

Containment means the confinement of radioactive waste within a designated boundary.

Design bases means that information that identifies the specific functions to be performed by a structure, system, or component of a facility and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be constraints derived from generally accepted "state-of-the-art" practices for achieving functional goals or requirements derived from analysis (based on calculation or experiments) of the effects of a postulated event under which a structure, system, or component must meet its functional goals. The values for controlling parameters for external events include:

(1) Estimates of severe natural events to be used for deriving design bases that will be based on consideration of historical data on the associated parameters, physical data, or analysis of upper limits of the physical processes involved; and

(2) Estimates of severe external human-induced events to be used for deriving design bases, that will be based on analysis of human activity in the region, taking into account the site characteristics and the risks associated with the event.

Director means the Director of the Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards.

Disposal means the emplacement of radioactive waste in a geologic repository with the intent of leaving it there permanently.

DOE means the U.S. Department of Energy or its duly authorized representatives.

Engineered barrier system means the waste packages, including engineered components and systems other than the waste package (e.g., drip shields), and the underground facility.

Event sequence means a series of actions and/or occurrences within the natural and engineered components of a geologic repository operations area that could potentially lead to exposure of individuals to radiation. An event sequence includes one or more initiating events and associated combinations of repository system component failures, including those produced by the action or inaction of operating personnel. Those event sequences that are expected to occur one or more times before permanent closure of the geologic repository operations area are referred to as Category 1 event sequences. Other event sequences that have at least one chance in 10,000 of occurring before permanent closure are referred to as Category 2 event sequences.

Geologic repository means a system that is intended to be used for, or may be used for, the disposal of radioactive wastes in excavated geologic media. A geologic repository includes the engineered barrier system and the portion of the geologic setting that provides isolation of the radioactive waste.

Geologic repository operations area means a high-level radioactive waste facility that is part of a geologic repository, including both surface and subsurface areas, where waste handling activities are conducted.

Geologic setting means the geologic, hydrologic, and geochemical systems of the region in which a geologic repository is or may be located.

High-level radioactive waste or HLW means:

(1) The highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations;

(2) Irradiated reactor fuel; and

(3) Other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation.

HLW facility means a facility subject to the licensing and related regulatory authority of the Commission pursuant to sections 202(3) and 202(4) of the Energy

Reorganization Act of 1974 (88 Stat. 1244).¹

Host rock means the geologic medium in which the waste is emplaced.

Important to safety, with reference to structures, systems, and components, means those engineered features of the geologic repository operations area whose function is:

(1) To provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the requirements of § 63.111(b)(1) for Category 1 event sequences; or

(2) To prevent or mitigate Category 2 event sequences that could result in radiological exposures exceeding the values specified at § 63.111(b)(2) to any individual located on or beyond any point on the boundary of the site.

Important to waste isolation, with reference to design of the engineered barrier system and characterization of natural barriers, means those engineered and natural barriers whose function is to provide a reasonable expectation that high-level waste can be disposed of without exceeding the requirements of § 63.113(b) and (c).

Initiating event means a natural or human induced event that causes an event sequence.

Isolation means inhibiting the transport of radioactive material to:

(1) The location of the reasonably maximally exposed individual so that radiological exposures will not exceed the requirements of § 63.113(b); and

(2) The accessible environment so that releases of radionuclides into the accessible environment will not exceed the requirements of § 63.113(c).

Performance assessment means an analysis that:

(1) Identifies the features, events, processes (except human intrusion), and sequences of events and processes (except human intrusion) that might affect the Yucca Mountain disposal system and their probabilities of occurring during 10,000 years after disposal;

(2) Examines the effects of those features, events, processes, and sequences of events and processes upon the performance of the Yucca Mountain disposal system; and

(3) Estimates the dose incurred by the reasonably maximally exposed

individual, including the associated uncertainties, as a result of releases caused by all significant features, events, processes, and sequences of events and processes, weighted by their probability of occurrence.

Performance confirmation means the program of tests, experiments, and analyses that is conducted to evaluate the adequacy of the information used to demonstrate compliance with the performance objectives in subpart E of this part.

Permanent closure means final backfilling of the underground facility, if appropriate, and the sealing of shafts, ramps, and boreholes.

Preclosure safety analysis means a systematic examination of the site; the design; and the potential hazards, initiating events and event sequences and their consequences (e.g., radiological exposures to workers and the public). The analysis identifies structures, systems, and components important to safety.

Public Document Room means the place at One White Flint North, 11555 Rockville Pike, Room O-1F13, Rockville, MD, at which records of the Commission will ordinarily be made available for public inspection and any other place, the location of which has been published in the Federal Register, at which public records of the Commission pertaining to a geologic repository at the Yucca Mountain site are made available for public inspection.

Radioactive waste or waste means HLW and radioactive materials other than HLW that are received for emplacement in a geologic repository.

Reasonably maximally exposed individual means the hypothetical person meeting the criteria specified at § 63.312.

Reference biosphere means the description of the environment inhabited by the reasonably maximally exposed individual. The reference biosphere comprises the set of specific biotic and abiotic characteristics of the environment, including, but not necessarily limited to, climate, topography, soils, flora, fauna, and human activities.

Restricted area means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set aside as a restricted area.

Retrieval means the act of permanently removing radioactive waste from the underground location at

which the waste had been previously emplaced for disposal.

Saturated zone means that part of the earth's crust beneath the regional water table in which statistically all voids, large and small, are filled with water under pressure greater than atmospheric.

Site means that area surrounding the geologic repository operations area for which DOE exercises authority over its use in accordance with the provisions of this part.

Site characterization means the program of exploration and research, both in the laboratory and in the field, undertaken to establish the geologic conditions and the ranges of those parameters of the Yucca Mountain site, and the surrounding region to the extent necessary, relevant to the procedures under this part. Site characterization includes borings, surface excavations, excavation of exploratory shafts and/or ramps, limited subsurface lateral excavations and borings, and in situ testing at depth needed to determine the suitability of the site for a geologic repository.

Total effective dose equivalent (TEDE) means, for purposes of assessing doses to workers, the sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). For purposes of assessing doses to members of the public (including the RMEI), TEDE means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

Underground facility means the underground structure, backfill materials, if any, and openings that penetrate the underground structure (e.g., ramps, shafts, and boreholes, including their seals).

Unrestricted area means an area, access to which is neither limited nor controlled by the licensee.

Unsaturated zone means the zone between the land surface and the regional water table. Generally, fluid pressure in this zone is less than atmospheric pressure, and some of the voids may contain air or other gases at atmospheric pressure. Beneath flooded areas or in perched water bodies, the fluid pressure locally may be greater than atmospheric.

Waste form means the radioactive waste materials and any encapsulating or stabilizing matrix.

Waste package means the waste form and any containers, shielding, packing, and other absorbent materials immediately surrounding an individual waste container.

¹ These are DOE "facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under such Act (the Atomic Energy Act)" and "Retrievable Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive wastes generated by (DOE), which are not used for, or are part of, research and development activities."

Water table means that surface in a ground-water body, separating the unsaturated zone from the saturated zone, at which the water pressure is atmospheric.

§ 63.3 License required.

(a) DOE may not receive nor possess source, special nuclear, or byproduct material at a geologic repository operations area at the Yucca Mountain site except as authorized by a license issued by the Commission under this part.

(b) DOE may not begin construction of a geologic repository operations area at the Yucca Mountain site unless it has filed an application with the Commission and has obtained construction authorization as provided in this part. Failure to comply with this requirement is grounds for denial of a license.

§ 63.4 Communications and records.

(a) 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 of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Communications, reports, and applications may be delivered in person at the Commission's offices at 11555 Rockville Pike, Rockville, MD.

(b) Each record required by this part must be legible throughout the retention period specified by each Commission regulation. The record may be the original or a reproduced copy or a microform if the copy or microform is authenticated by authorized personnel and the microform is capable of producing a clear copy throughout 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, and 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.

§ 63.5 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 is binding on the Commission.

§ 63.6 Exemptions.

The Commission may, upon application by DOE, any interested

person, or upon its own initiative, grant an exemption from the requirements of this part if it determines that the exemption is authorized by law, does not endanger life nor property nor the common defense and security, and is otherwise in the public interest.

§ 63.7 License not required for certain preliminary activities.

The requirement for a license set forth in § 63.3(a) is not applicable to the extent that DOE receives and possesses source, special nuclear, and byproduct material at a geologic repository at the Yucca Mountain site:

(a) For purposes of site characterization; or

(b) For use, during site characterization or construction, as components of radiographic, radiation monitoring, or similar equipment or instrumentation.

§ 63.8 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 (44 U.S.C. 3501, *et seq.*). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. OMB has approved the information collection requirements contained in this part under control number 3150-0199.

(b) The approved information collection requirements contained in this part appear in §§ 63.62, 63.63, and 63.65.

§ 63.9 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) of this section or possible violations of requirements imposed under either of those aforementioned statutes;

(ii) Refusing to engage in any practice made unlawful under either of the statutes named in paragraph (a) of this section, 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) of this section;

(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 does not apply 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;

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

(3) Other enforcement action.

(d) Actions taken by an employer, or others, that adversely affect an

employee, may be predicated on 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 § 19.11(c) of this chapter. 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 accessing the NRC Web site www.nrc.gov/NRC/FORMS/forms3.html.

(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 that would prohibit, restrict, or otherwise discourage an employee from participating in a protected activity as defined in paragraph (a)(1) of this section, including, but not limited to, providing information to NRC or to his or her employer on potential violations or other matters within NRC's regulatory responsibilities.

§ 63.10 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 required by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee must be complete and accurate in all material respects.

(b) The 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 must be provided to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, within 2 working days of identifying the information. This requirement is not applicable to information that is already required to be provided to the Commission by other reporting or updating requirements.

§ 63.11 Deliberate misconduct.

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

(1) Engage in deliberate misconduct that causes or would have caused, if not detected, a licensee or applicant 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 NRC, a licensee, an applicant, or a licensee's or applicant's contractor or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to 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 or applicant 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, applicant, contractor, or subcontractor.

Subpart B—Licenses

Preapplication Review

§ 63.15 Site characterization.

(a) DOE shall conduct a program of site characterization with respect to the Yucca Mountain site before it submits an application for a license to be issued under this part.

(b) DOE shall conduct the investigations to obtain the required information in a manner that limits adverse effects on the long-term performance of the geologic repository at Yucca Mountain to the extent practical.

§ 63.16 Review of site characterization activities.²

(a) If DOE's planned site characterization activities include onsite testing with radioactive material, including radioactive tracers, the Commission shall determine whether the proposed use of such radioactive material is necessary to provide data for the preparation of the environmental reports required by law and for an application to be submitted under § 63.22.

(b) During the conduct of site characterization activities at the Yucca Mountain site, DOE shall report the nature and extent of the activities, the information that has been developed, and the progress of waste form and waste package research and development to the Commission not less than once every 6 months. The semiannual reports must include the results of site characterization studies, the identification of new issues, plans for additional studies to resolve new issues, elimination of planned studies no longer necessary, identification of decision points reached, and modifications to schedules, where appropriate. DOE shall also report its progress in developing the design of a geologic repository operations area appropriate for the area being characterized, noting when key design parameters or features that depend on the results of site characterization will be established. Other topics related to site characterization must also be covered if requested by the Director.

(c) During the conduct of site characterization activities at the Yucca Mountain site, NRC staff shall be permitted to visit and inspect the locations at which such activities are

²In addition to the review of site characterization activities specified in this section, the Commission contemplates an ongoing review of other information on site investigation and site characterization, to allow early identification of potential licensing issues for timely resolution at the staff level.

carried out and to observe excavations, borings, and in situ tests, as they are done.

(d) The Director may comment at any time in writing to DOE, expressing current views on any aspect of site characterization or performance assessment at the Yucca Mountain site. In particular, the Director shall comment whenever he or she determines that there are substantial grounds for making recommendations or stating objections to DOE's site characterization program. The Director shall invite public comment on any comments that the Director makes to DOE on review of the DOE semiannual reports or on any other comments that the Director makes to DOE on site characterization and performance assessment by placing the comments in a public forum to allow the public to comment on them after the Director's comments are sent to DOE.

(e) The Director shall transmit copies of all comments to DOE made by the Director under this section to the Governor and legislature of the State of Nevada and to the governing body of any affected Indian Tribe.

(f) All correspondence between DOE and NRC resulting from the requirements of this section, including the reports described in paragraph (b) of this section, must be placed in the Public Document Room.

(g) The activities described in paragraphs (a) through (f) of this section constitute informal conference between a prospective applicant and the NRC staff, as described in § 2.101(a)(1) of this chapter, and are not part of a proceeding under the Atomic Energy Act of 1954, as amended. Accordingly, the issuance of the Director's comments made under this section does not constitute a commitment to issue any authorization or license, or in any way affect the authority of the Commission, Atomic Safety and Licensing Board, other presiding officers, or the Director, in any such proceeding.

License Application

§ 63.21 Content of application.

(a) An application consists of general information and a Safety Analysis Report. An environmental impact statement must be prepared in accordance with the Nuclear Waste Policy Act of 1982, as amended, and must accompany the application. Any Restricted Data or National Security Information must be separated from unclassified information. The application must be as complete as possible in the light of information that

is reasonably available at the time of docketing.

(b) The general information must include:

(1) A general description of the proposed geologic repository at the Yucca Mountain site, identifying the location of the geologic repository operations area, the general character of the proposed activities, and the basis for the exercise of the Commission's licensing authority.

(2) Proposed schedules for construction, receipt of waste, and emplacement of wastes at the proposed geologic repository operations area.

(3) A description of the detailed security measures for physical protection of high-level radioactive waste in accordance with § 73.51 of this chapter. This plan must include the design for physical protection, the licensee's safeguards contingency plan, and security organization personnel training and qualification plan. The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with such requirements.

(4) A description of the material control and accounting program to meet the requirements of § 63.78.

(5) A description of work conducted to characterize the Yucca Mountain site.

(c) The Safety Analysis Report must include:

(1) A description of the Yucca Mountain site, with appropriate attention to those features, events, and processes of the site that might affect design of the geologic repository operations area and performance of the geologic repository. The description of the site must include information regarding features, events, and processes outside of the site to the extent the information is relevant and material to safety or performance of the geologic repository. The information referred to in this paragraph must include:

(i) The location of the geologic repository operations area with respect to the boundary of the site;

(ii) Information regarding the geology, hydrology, and geochemistry of the site, including geomechanical properties and conditions of the host rock;

(iii) Information regarding surface water hydrology, climatology, and meteorology of the site; and

(iv) Information regarding the location of the reasonably maximally exposed individual, and regarding local human behaviors and characteristics, as needed to support selection of conceptual models and parameters used for the reference biosphere and reasonably maximally exposed individual.

(2) Information relative to materials of construction of the geologic repository operations area (including geologic media, general arrangement, and approximate dimensions), and codes and standards that DOE proposes to apply to the design and construction of the geologic repository operations area.

(3) A description and discussion of the design of the various components of the geologic repository operations area and the engineered barrier system including:

(i) Dimensions, material properties, specifications, analytical and design methods used along with any applicable codes and standards;

(ii) The design criteria used and their relationships to the preclosure and postclosure performance objectives specified at § 63.111(b), § 63.113(b), and § 63.113(c); and

(iii) The design bases and their relation to the design criteria.

(4) A description of the kind, amount, and specifications of the radioactive material proposed to be received and possessed at the geologic repository operations area at the Yucca Mountain site.

(5) A preclosure safety analysis of the geologic repository operations area, for the period before permanent closure, to ensure compliance with § 63.111(a), as required by § 63.111(c). For the purposes of this analysis, it is assumed that operations at the geologic repository operations area will be carried out at the maximum capacity and rate of receipt of radioactive waste stated in the application.

(6) A description of the program for control and monitoring of radioactive effluents and occupational radiological exposures to maintain such effluents and exposures in accordance with the requirements of § 63.111.

(7) A description of plans for retrieval and alternate storage of the radioactive wastes, should retrieval be necessary.

(8) A description of design considerations that are intended to facilitate permanent closure and decontamination or decontamination and dismantlement of surface facilities.

(9) An assessment to determine the degree to which those features, events, and processes of the site that are expected to materially affect compliance with § 63.113—whether beneficial or potentially adverse to performance of the geologic repository—have been characterized, and the extent to which they affect waste isolation.

Investigations must extend from the surface to a depth sufficient to determine principal pathways for radionuclide migration from the underground facility. Specific features,

events, and processes of the geologic setting must be investigated outside of the site if they affect performance of the geologic repository.

(10) An assessment of the anticipated response of the geomechanical, hydrogeologic, and geochemical systems to the range of design thermal loadings under consideration, given the pattern of fractures and other discontinuities and the heat transfer properties of the rock mass and water.

(11) An assessment of the ability of the proposed geologic repository to limit radiological exposures to the reasonably maximally exposed individual for the period after permanent closure, as required by § 63.113(b).

(12) An assessment of the ability of the proposed geologic repository to limit releases of radionuclides into the accessible environment as required by § 63.113(c).

(13) An assessment of the ability of the proposed geologic repository to limit radiological exposures to the reasonably maximally exposed individual for the period after permanent closure in the event of human intrusion into the engineered barrier system as required by § 63.113(d).

(14) An evaluation of the natural features of the geologic setting and design features of the engineered barrier system that are considered barriers important to waste isolation as required by § 63.115.

(15) An explanation of measures used to support the models used to provide the information required in paragraphs (c)(9) through (c)(14) of this section. Analyses and models that will be used to assess performance of the geologic repository must be supported by using an appropriate combination of such methods as field tests, in situ tests, laboratory tests that are representative of field conditions, monitoring data, and natural analog studies.

(16) An identification of those structures, systems, and components of the geologic repository, both surface and subsurface, that require research and development to confirm the adequacy of design. For structures, systems, and components important to safety and for the engineered and natural barriers important to waste isolation, DOE shall provide a detailed description of the programs designed to resolve safety questions, including a schedule indicating when these questions would be resolved.

(17) A description of the performance confirmation program that meets the requirements of subpart F of this part.

(18) An identification and justification for the selection of those variables, conditions, or other items that

are determined to be probable subjects of license specifications. Special attention must be given to those items that may significantly influence the final design.

(19) An explanation of how expert elicitation was used.

(20) A description of the quality assurance program to be applied to the structures, systems, and components important to safety and to the engineered and natural barriers important to waste isolation. The description of the quality assurance program must include a discussion of how the applicable requirements of § 63.142 will be satisfied.

(21) A description of the plan for responding to, and recovering from, radiological emergencies that may occur at any time before permanent closure and decontamination or decontamination and dismantlement of surface facilities, as required by § 63.161.

(22) The following information concerning activities at the geologic repository operations area:

(i) The organizational structure of DOE as it pertains to construction and operation of the geologic repository operations area, including a description of any delegations of authority and assignments of responsibilities, whether in the form of regulations, administrative directives, contract provisions, or otherwise.

(ii) Identification of key positions that are assigned responsibility for safety at and operation of the geologic repository operations area.

(iii) Personnel qualifications and training requirements.

(iv) Plans for startup activities and startup testing.

(v) Plans for conduct of normal activities, including maintenance, surveillance, and periodic testing of structures, systems, and components of the geologic repository operations area.

(vi) Plans for permanent closure and plans for the decontamination or decontamination and dismantlement of surface facilities.

(vii) Plans for any uses of the geologic repository operations area at the Yucca Mountain site for purposes other than disposal of radioactive wastes, with an analysis of the effects, if any, that such uses may have on the operation of the structures, systems, and components important to safety and the engineered and natural barriers important to waste isolation.

(23) A description of the program to be used to maintain the records described in §§ 63.71 and 63.72.

(24) A description of the controls that DOE will apply to restrict access and to

regulate land use at the Yucca Mountain site and adjacent areas, including a conceptual design of monuments that would be used to identify the site after permanent closure.

§ 63.22 Filing and distribution of application.

(a) An application for a license to receive and possess source, special nuclear, or byproduct material at a geologic repository operations area at the Yucca Mountain site that has been characterized, any amendments to the application, and an accompanying environmental impact statement and any supplements, must be signed by the Secretary of Energy or the Secretary's authorized representative and must be filed in triplicate with the Director.

(b) DOE shall submit 30 additional copies of each portion of the application and any amendments, and each environmental impact statement and any supplements. DOE shall retain another 120 copies for distribution in accordance with written instructions from the Director or the Director's designee.

(c) On notification of the appointment of an Atomic Safety and Licensing Board, DOE shall update the application, eliminating all superseded information, and supplement the environmental impact statement if necessary, and serve the updated application and environmental impact statement (as it may have been supplemented) as directed by the Board. Any subsequent amendments to the application or supplements to the environmental impact statement must be served in the same manner.

(d) When an application, and any amendment to it is filed, copies must be made available in appropriate locations near the proposed geologic repository operations area at the Yucca Mountain site for inspection by the public. These copies must be updated as amendments to the application are made. The environmental impact statement and any supplements to it must be made available in the same manner. An updated copy of the application, and the environmental impact statement and supplements, must be produced at any public hearing held by the Commission on the application for use by any party to the proceeding.

(e) DOE shall certify that the updated copies of the application, and the environmental impact statement as it may have been supplemented, as referred to in paragraphs (c) and (d) of this section, contain the current contents of these documents submitted as required by this part.

§ 63.23 Elimination of repetition.

In its application or environmental impact statement, DOE may incorporate, by reference, information contained in previous applications, statements, or reports filed with the Commission, if the references are clear and specific and copies of the information incorporated are made available to the public locations near the site of the proposed geologic repository, as specified in § 63.22(d).

§ 63.24 Updating of application and environmental impact statement.

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

(b) DOE shall update its application in a timely manner so as to permit the Commission to review, before issuance of a license—

(1) Additional geologic, geophysical, geochemical, hydrologic, meteorologic, materials, design, and other data obtained during construction;

(2) Conformance of construction of structures, systems, and components with the design;

(3) Results of research programs carried out to confirm the adequacy of designs, conceptual models, parameter values, and estimates of performance of the geologic repository.

(4) Other information bearing on the Commission's issuance of a license that was not available at the time a construction authorization was issued.

(c) DOE shall supplement its environmental impact statement in a timely manner so as to take into account the environmental impacts of any substantial changes in its proposed actions or any significant new circumstances or information relevant to environmental concerns bearing on the proposed action or its impacts.

Construction Authorization**§ 63.31 Construction authorization.**

On review and consideration of an application and environmental impact statement submitted under this part, the Commission may authorize construction of a geologic repository operations area at the Yucca Mountain site if it determines:

(a) Safety.

(1) That there is reasonable assurance that the types and amounts of radioactive materials described in the application can be received and possessed in a geologic repository operations area of the design proposed without unreasonable risk to the health and safety of the public; and

(2) That there is reasonable expectation that the materials can be

disposed of without unreasonable risk to the health and safety of the public.

(3) In arriving at these determinations, the Commission shall consider whether—

(i) DOE has described the proposed geologic repository as specified at § 63.21;

(ii) The site and design comply with the performance objectives and requirements contained in subpart E of this part;

(iii) DOE's quality assurance program complies with the requirements of subpart G of this part;

(iv) DOE's personnel training program complies with the criteria contained in subpart H of this part;

(v) DOE's emergency plan complies with the criteria contained in subpart I of this part; and

(vi) DOE's proposed operating procedures to protect health and to minimize danger to life or property are adequate.

(b) Common defense and security. That there is reasonable assurance that the activities proposed in the application will not be inimical to the common defense and security.

(c) Environmental. That, after weighing the environmental, economic, technical, and other benefits against environmental costs, and considering available alternatives, the action called for is the issuance of the construction authorization, with any appropriate conditions to protect environmental values.

§ 63.32 Conditions of construction authorization.

(a) In a construction authorization for a geologic repository operations area at the Yucca Mountain site, the Commission shall include any conditions it considers necessary to protect the health and safety of the public, the common defense and security, or environmental values.

(b) The Commission shall incorporate provisions in the construction authorization requiring DOE to furnish periodic or special reports regarding:

(1) Progress of construction;

(2) Any data about the site, obtained during construction, that are not within the predicted limits on which the facility design was based;

(3) Any deficiencies, in design and construction, that, if uncorrected, could adversely affect safety at any future time; and

(4) Results of research and development programs being conducted to resolve safety questions.

(c) The construction authorization for a geologic repository operations area at the Yucca Mountain site will include

restrictions on subsequent changes to the features of the geologic repository and the procedures authorized. The restrictions that may be imposed under this paragraph can include measures to prevent adverse effects on the geologic setting as well as measures related to the design and construction of the geologic repository operations area. These restrictions will fall into three categories of descending importance to public health and safety, as follows:

(1) Those features and procedures that 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 that may not be changed without—

(i) 60 days prior notice to the Commission; and

(ii) Prior Commission approval; and

(3) Those features and procedures that may not be changed without 60 days notice to the Commission. Features and procedures falling in this paragraph section may not be changed without prior Commission approval if the Commission, after having received the required notice, so orders.

(d) A construction authorization must be subject to the limitation that a license to receive and possess source, special nuclear, or byproduct material at the Yucca Mountain site geologic repository operations area may not be issued by the Commission until;

(1) DOE has updated its application, as specified at § 63.24; and

(2) The Commission has made the findings stated in § 63.41.

§ 63.33 Amendment of construction authorization.

(a) An application for amendment of a construction authorization must be filed with the Commission that fully describes any desired changes and follows, as far as applicable, the content requirements prescribed in § 63.21.

(b) In determining whether an amendment of a construction authorization will be approved, the Commission will be guided by the considerations that govern the issuance of the initial construction authorization, to the extent applicable.

License Issuance and Amendment**§ 63.41 Standards for issuance of a license.**

A license to receive and possess source, special nuclear, or byproduct material at a geologic repository operations area at the Yucca Mountain site may be issued by the Commission on finding that—

(a) Construction of the geologic repository operations area has been substantially completed in conformity with the application as amended, the provisions of the Atomic Energy Act, and the rules and regulations of the Commission. Construction may be considered substantially complete for the purposes of this paragraph if the construction of—

(1) Surface and interconnecting structures, systems, and components; and

(2) Any underground storage space required for initial operation, are substantially complete.

(b) The activities to be conducted at the geologic repository operations area will be in conformity with the application as amended, the provisions of the Atomic Energy Act and the Energy Reorganization Act, and the rules and regulations of the Commission.

(c) 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.

(d) Adequate protective measures can and will be taken in the event of a radiological emergency at any time before permanent closure and decontamination or decontamination and dismantlement of surface facilities.

(e) All applicable requirements of part 51 of this chapter have been satisfied.

§ 63.42 Conditions of license.

(a) The Commission shall include any conditions, including license specifications, it considers necessary to protect the health and safety of the public, the common defense and security, and environmental values in a license issued under this part.

(b) Whether stated in the license or not, the following are considered to be conditions in every license issued:

(1) The license is subject to revocation, suspension, modification, or amendment for cause, as provided by the Atomic Energy Act and the Commission's regulations.

(2) DOE shall, at any time while the license is in effect, on written request of the Commission, submit written statements to enable the Commission to determine whether or not the license should be modified, suspended, or revoked.

(3) The license is 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, 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.

(c) Each license includes the provisions set forth in section 183 b–d, inclusive, of the Atomic Energy Act, whether or not these provisions are expressly set forth in the license.

(d) A license issued under this part includes the provisions set forth in section 114(d) of the Nuclear Waste Policy Act, as amended, defining the quantity of solidified high-level radioactive waste and spent nuclear fuel, until such time as a second repository is in operation, whether or not these provisions are expressly set forth in the license.

§ 63.43 License specification.

(a) A license issued under this part includes license conditions derived from the analyses and evaluations included in the application, including amendments made before a license is issued, together with any additional conditions the Commission finds appropriate.

(b) License conditions include items in the following categories:

(1) Restrictions as to the physical and chemical form and radioisotopic content of radioactive waste.

(2) Restrictions as to size, shape, and materials and methods of construction of radioactive waste packaging.

(3) Restrictions as to the amount of waste permitted per unit volume of storage space, considering the physical characteristics of both the waste and the host rock.

(4) Requirements relating to test, calibration, or inspection, to assure that the foregoing restrictions are observed.

(5) Controls to be applied to restrict access and to avoid disturbance to the site and to areas outside the site where conditions may affect compliance with §§ 63.111 and 63.113.

(6) Administrative controls, which are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure that activities at the facility are conducted in a safe manner and in conformity with the other license specifications.

§ 63.44 Changes, tests, and experiments.

(a) Definitions for the purposes of this section:

(1) *Change* means a modification or addition to, or removal from, the geologic repository operations area design or procedures that affects a design function, event sequence, method of performing or controlling the function, or an evaluation that demonstrates that intended functions will be accomplished.

(2) *Departure from a method of evaluation described in the Safety Analysis Report (SAR) (as updated) used in establishing the preclosure safety analyses or performance assessment* means:

(i) Changing any of the elements of the method described in the SAR (as updated) unless the results of the analysis are conservative or essentially the same; or

(ii) Changing from a method described in the SAR to another method unless that method has been approved by NRC for the intended application, addition or removal.

(3) *Safety Analysis Report (SAR) (as updated)* means the Safety Analysis Report for the geologic repository, submitted in accordance with § 63.21, as updated in accordance with § 63.24.

(4) *Geologic repository operations area as described in the SAR (as updated)* means:

(i) The structures, systems, and components important to safety or barriers important to waste isolation that are described in the SAR (as updated); and

(ii) The design and performance requirements for such structures, systems, and components described in the SAR (as updated).

(5) *Procedures as described in the SAR (as updated)* means those procedures that contain information described in the SAR (as updated) such as how structures, systems, and components important to safety, or important to waste isolation, are operated or controlled.

(6) *Tests or experiments not described in the SAR (as updated)* means any condition where the geologic repository operations area or any of its structures, systems, and components important to safety, or important to waste isolation, are utilized, controlled, or altered in a manner which is either:

(i) Outside the reference bounds of the design bases as described in the SAR (as updated); or

(ii) Inconsistent with the analyses or descriptions in the SAR (as updated).

(b)(1) DOE may make changes in the geologic repository operations area as described in the SAR (as updated), make changes in the procedures as described in the SAR (as updated), and conduct tests or experiments not described in the SAR (as updated), without obtaining either an amendment of construction authorization under § 63.33 or a license amendment under § 63.45, if:

(i) A change in the conditions incorporated in the construction authorization or license is not required; and

(ii) The change, test, or experiment does not meet any of the criteria in paragraph (b)(2) of this section.

(2) DOE shall obtain an amendment of construction authorization under § 63.33 or a license amendment under § 63.45, before implementing a change, test, or experiment if it would:

(i) Result in more than a minimal increase in the frequency of occurrence of an event sequence previously evaluated in the SAR (as updated);

(ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of structures, systems, components important to safety, or important to waste isolation, which were previously evaluated in the SAR (as updated);

(iii) Result in more than a minimal increase in the consequences of an event sequence previously evaluated in the SAR (as updated);

(iv) Result in more than a minimal increase in the consequences of malfunction of structures, systems, components important to safety, or important to waste isolation, which were previously evaluated in the SAR (as updated);

(v) Create the possibility for an event sequence, or of a pathway for release of radionuclides, of a different type than any evaluated previously in the SAR (as updated);

(vi) Create the possibility for a malfunction of structures, systems, and components important to safety, or important to waste isolation, with a different result than any evaluated previously in the SAR (as updated);

(vii) Result in a departure from a method of evaluation described in the SAR (as updated) used in establishing the preclosure safety analysis or the performance assessment.

(3) In implementing this paragraph, the SAR (as updated) is considered to include SAR changes resulting from evaluations performed pursuant to this section and from safety analyses performed under § 63.33 or § 63.45, as applicable, after the last Safety Analysis Report was updated under § 63.24.

(4) The provisions in this section do not apply to changes to the geologic repository operations area or procedures when the applicable regulations establish more specific criteria for accomplishing such changes.

(c)(1) DOE shall maintain records of changes in the geologic repository operations area at the Yucca Mountain site, of changes in procedures, and of tests and experiments made under paragraph (b) of this section. These records must include a written evaluation that provides the bases for the determination that the change, test,

or experiment does not require an amendment of construction authorization or license amendment under paragraph (b) of this section.

(2) No less frequently than every 24 months, DOE shall prepare a report containing a brief description of such changes, tests, and experiments, including a summary of the evaluation of each. DOE shall furnish the report to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter, with a copy to the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Any report submitted under this paragraph must be made a part of the public record of the licensing proceedings.

(d) Changes to the quality assurance program description required by § 63.21(c)(20) must be processed in accordance with § 63.144.

§ 63.45 Amendment of license.

(a) An application for amendment of a license may be filed with the Commission fully describing the changes desired and following as far as applicable the format prescribed for license applications.

(b) In determining whether an amendment of a license will be approved, the Commission will be guided by the considerations that govern the issuance of the initial license, to the extent applicable.

§ 63.46 Particular activities requiring license amendment.

(a) Unless expressly authorized in the license, a license amendment is required for any of the following activities:

(1) Any action that would make emplaced high-level radioactive waste irretrievable or that would substantially increase the difficulty of retrieving the emplaced waste;

(2) Dismantling of structures;

(3) Removal or reduction of controls applied to restrict access to or avoid disturbance of the site and to areas outside the site where conditions may affect compliance with §§ 63.111 and 63.113;

(4) Destruction or disposal of records required to be maintained under the provisions of this part;

(5) Any substantial change to the design or operating procedures from that specified in the license, except as authorized in § 63.44; and

(6) Permanent closure.

(b) An application for an amendment must be filed, and will be reviewed, as specified in § 63.45.

Permanent Closure

§ 63.51 License amendment for permanent closure.

(a) DOE shall submit an application to amend the license before permanent closure of a geologic repository at the Yucca Mountain site. The submission must consist of an update of the license application submitted under §§ 63.21 and 63.22, including:

(1) An update of the assessment of the performance of the geologic repository for the period after permanent closure. The updated assessment must include any performance confirmation data collected under the program required by subpart F, and pertinent to compliance with § 63.113.

(2) A description of the program for post-permanent closure monitoring of the geologic repository.

(3) A detailed description of the measures to be employed—such as land use controls, construction of monuments, and preservation of records—to regulate or prevent activities that could impair the long-term isolation of emplaced waste within the geologic repository and to assure that relevant information will be preserved for the use of future generations. As a minimum, these measures must include:

(i) Identification of the site and geologic repository operations area by monuments that have been designed, fabricated, and emplaced to be as permanent as is practicable;

(ii) Placement of records in the archives and land record systems of local, State, and Federal government agencies, and archives elsewhere in the world, that would be likely to be consulted by potential human intruders—such records to identify the location of the geologic repository operations area, including the underground facility, boreholes, shafts and ramps, and the boundaries of the site, and the nature and hazard of the waste; and

(iii) A program for continued oversight, to prevent any activity at the site that poses an unreasonable risk of breaching the geologic repository's engineered barriers; or increasing the exposure of individual members of the public to radiation beyond allowable limits.

(4) Geologic, geophysical, geochemical, hydrologic, and other site data that are obtained during the operational period, pertinent to compliance with § 63.113.

(5) The results of tests, experiments, and any other analyses relating to backfill of excavated areas, shaft, borehole, or ramp sealing, drip shields, waste packages, interactions between

natural and engineered systems, and any other tests, experiments, or analyses pertinent to compliance with § 63.113.

(6) Any substantial revision of plans for permanent closure.

(7) Other information bearing on permanent closure that was not available at the time a license was issued.

(b) If necessary, to take into account the environmental impact of any substantial changes in the permanent closure activities proposed to be carried out or any significant new information regarding the environmental impacts of permanent closure, DOE shall also supplement its environmental impact statement and submit this statement, as supplemented, with the application for license amendment.

§ 63.52 Termination of license.

(a) Following permanent closure and the decontamination or decontamination and dismantlement of surface facilities at the Yucca Mountain site, DOE may apply for an amendment to terminate the license.

(b) The application must be filed and will be reviewed in accordance with the provisions of § 63.45 and this section.

(c) A license may be terminated only when the Commission finds with respect to the geologic repository:

(1) That the final disposition of radioactive wastes has been made in conformance with DOE's plan, as amended and approved as part of the license.

(2) That the final state of the geologic repository operations area conforms to DOE's plans for permanent closure and DOE's plans for the decontamination or decontamination and dismantlement of surface facilities, as amended and approved as part of the license.

(3) That the termination of the license is authorized by law, including sections 57, 62, and 81 of the Atomic Energy Act, as amended.

Subpart C—Participation by State Government, Affected Units of Local Government, and Affected Indian Tribes

§ 63.61 Provision of information.

(a) The Director shall provide the Governor and the Nevada State legislature, affected units of local government, and the governing body of any affected Indian Tribe, with timely and complete information regarding determinations or plans made by the Commission with respect to the Yucca Mountain site. Information must be provided concerning the site characterization, siting, development, design, licensing, construction,

operation, regulation, permanent closure, or decontamination and dismantlement of surface facilities of the geologic repository operations area at the site.

(b) Notwithstanding paragraph (a) of this section, the Director is not required to distribute any document to any entity if, with respect to the document, that entity or its counsel is included on a service list prepared under part 2 of this chapter.

(c) Copies of all communications by the Director under this section must be placed in the Public Document Room and furnished to DOE.

§ 63.62 Site review.

(a) The Director shall make the NRC staff available to consult with representatives of the State of Nevada, affected units of local government, and affected Indian Tribes regarding the status of site characterization at the Yucca Mountain site.

(b) Requests for consultation must be made in writing to the Director.

(c) Consultation under this section may include:

(1) Keeping the parties informed of the Director's views on the progress of site characterization.

(2) Review of applicable NRC regulations, licensing procedures, schedules, and opportunities for State, affected units of local government, and Tribe participation in the Commission's regulatory activities.

(3) Cooperation in development of proposals for State, affected units of local government, and Tribal participation in license reviews.

§ 63.63 Participation in license reviews.

(a) The State, affected units of local government, and affected Indian Tribes may participate in license reviews as provided in subpart J of part 2 of this chapter.

(b) In addition, a State, or an affected unit of local government, or an affected Indian Tribe may submit a proposal to the Director to facilitate its participation in the review of the license application. The proposal may be submitted at any time and must contain a description and schedule of how the State, or affected unit of local government, or affected Indian Tribe wishes to participate in the review, or what services or activities the State, or affected unit of local government, or affected Indian Tribe wishes the NRC to carry out, and how the services or activities proposed to be carried out by the NRC would contribute to this participation. The proposal may include educational or information services (seminars, public meetings) or other actions on the part of

NRC, such as establishing additional public document rooms or employment or exchange of State personnel under the Intergovernmental Personnel Act.

(c) The Director shall arrange for a meeting between the representatives of the State, or affected unit of local government, or affected Indian Tribe and the NRC staff, to discuss any proposal submitted under paragraph (b) of this section, with a view to identifying any modifications that may contribute to the effective participation by such State, or affected unit of local government, or Tribe.

(d) Subject to the availability of funds, the Director shall approve all or any part of a proposal, as it may be modified through the meeting described in paragraph (c) of this section, if it is determined that:

(1) The proposed activities are suitable in light of the type and magnitude of impacts that the State, or affected unit of local government, or affected Indian Tribe may bear;

(2) The proposed activities—

(i) Will enhance communications between NRC and the State, or affected unit of local government, or affected Indian Tribe;

(ii) Will make a productive and timely contribution to the review; and

(iii) Are authorized by law.

(e) The Director shall advise the State, or affected unit of local government, or affected Indian Tribe whether its proposal has been accepted or denied. If all or any part of a proposal is denied, the Director shall state the reason for the denial.

(f) Proposals submitted under this section, and responses to them, must be made available at the Public Document Room.

§ 63.64 Notice to State.

If the Governor and legislature of the State of Nevada have jointly designated, on their behalf, a single person or entity to receive notice and information from the Commission under this part, the Commission will provide the notice and information to the jointly designated person or entity instead of the Governor and legislature separately.

§ 63.65 Representation.

Any person who acts under this subpart as a representative for the State of Nevada (or for the Governor or legislature of Nevada), for an affected unit of local government, or for an affected Indian Tribe shall include in the request or other submission, or at the request of the Commission, a statement of the basis of his or her authority to act in this capacity.

Subpart D—Records, Reports, Tests, and Inspections**§ 63.71 Records and reports.**

(a) DOE shall maintain records and make reports in connection with the licensed activity that are required by the conditions of the license or by rules, regulations, and orders of the Commission, as authorized by the Atomic Energy Act and the Energy Reorganization Act.

(b) Records of the receipt, handling, and disposition of radioactive waste at a geologic repository operations area at the Yucca Mountain site must contain sufficient information to provide a complete history of the movement of the waste from the shipper through all phases of storage and disposal. DOE shall retain these records in a manner that ensures their usability for future generations in accordance with § 63.51(a)(3).

§ 63.72 Construction records.

(a) DOE shall maintain records of construction of the geologic repository operations area at the Yucca Mountain site in a manner that ensures their usability for future generations in accordance with § 63.51(a)(3).

(b) The records required under paragraph (a) of this section must include at least the following—

- (1) Surveys of the underground facility excavations, shafts, ramps, and boreholes referenced to readily identifiable surface features or monuments;
- (2) A description of the materials encountered;
- (3) Geologic maps and geologic cross-sections;
- (4) Locations and amount of seepage;
- (5) Details of equipment, methods, progress, and sequence of work;
- (6) Construction problems;
- (7) Anomalous conditions encountered;
- (8) Instrument locations, readings, and analysis;
- (9) Location and description of structural support systems;
- (10) Location and description of dewatering systems;
- (11) Details, methods of emplacement, and location of seals used; and
- (12) Facility design records (e.g., design specifications and “as built” drawings).

§ 63.73 Reports of deficiencies.

(a) DOE shall promptly notify the Commission of each deficiency found in the characteristics of the Yucca Mountain site, and design, and construction of the geologic repository operations area that, were it to remain uncorrected, could—

(1) Adversely affect safety at any future time;

(2) Represent a significant deviation from the design criteria and design basis stated in the design application; or

(3) Represent a deviation from the conditions stated in the terms of a construction authorization or the license, including license specifications.

(b) DOE shall implement a program for evaluating and reporting deviations and failures to comply, to identify defects and failures to comply associated with substantial safety hazards, based on the applicable requirements in 10 CFR 50.55(e) as it applies to the construction authorization and design of the geologic repository operations area at the Yucca Mountain site.

(c) DOE shall implement a program of reporting specific events and conditions that is the same as that specified in 10 CFR 72.75.

(d) The requisite notification must be as specified in the applicable regulation. Copies of the written report must be sent to the NRC Operations Center, Document Control Desk, U.S. NRC, to the Director of NMSS, U.S. NRC, and to the NRC onsite representative.

§ 63.74 Tests.

(a) DOE shall perform, or permit the Commission to perform, those tests the Commission considers appropriate or necessary for the administration of the regulations in this part. This may include tests of—

- (1) Radioactive waste,
- (2) The geologic repository, including portions of the geologic setting and the structures, systems, and components constructed or placed therein,
- (3) Radiation detection and monitoring instruments, and
- (4) Other equipment and devices used in connection with the receipt, handling, or storage of radioactive waste.

(b) The tests required under this section must include a performance confirmation program carried out in accordance with subpart F of this part.

§ 63.75 Inspections.

(a) DOE shall allow the Commission to inspect the premises of the geologic repository operations area at the Yucca Mountain site and adjacent areas to which DOE has rights of access.

(b) DOE shall make available to the Commission for inspection, on reasonable notice, records kept by DOE pertaining to activities under this part.

(c)(1) DOE shall, on requests by the Director, Office of Nuclear Material Safety and Safeguards, provide rent-free office space for the exclusive use of the

Commission inspection personnel. Heat, air-conditioning, light, electrical outlets, and janitorial services must be furnished by DOE. The office must be convenient to and have full access to the facility and must provide the inspector both visual and acoustic privacy.

(2) The space provided must be adequate to accommodate two full-time inspectors, and other transient NRC personnel and will be generally commensurate with other office facilities at the Yucca Mountain site geologic repository operations area. A space of 250 square feet either within the geologic repository operations area's office complex or in an office trailer or other onsite space at the geologic repository operations area is suggested as a guide. For locations at which activities are carried out under licenses issued under other parts of this chapter, additional space may be requested to accommodate additional full-time inspectors. The office space provided is subject to the approval of the Director, Office of Nuclear Material Safety and Safeguards. All furniture, supplies, and communication equipment will be furnished by the Commission.

(3) DOE shall afford any NRC resident inspector assigned to the Yucca Mountain site or other NRC inspectors identified by the Regional Administrator as likely to inspect the Yucca Mountain facility, immediate unfettered access, equivalent to access provided regular employees, after proper identification and compliance with applicable access control measures for security, radiological protection, and personal safety.

§ 63.78 Material control and accounting records and reports.

DOE shall implement a program of material control and accounting (and accidental criticality reporting) that is the same as that specified in §§ 72.72, 72.74, 72.76, and 72.78 of this chapter.

Subpart E—Technical Criteria**§ 63.101 Purpose and nature of findings.**

(a)(1) Subpart B prescribes the standards for issuance of a license to receive and possess source, special nuclear, or byproduct material at a geologic repository operations area at the Yucca Mountain site. In particular, § 63.41(c) requires a finding that the issuance of a license will not constitute an unreasonable risk to the health and safety of the public. The purpose of this subpart is to set out the performance objectives for postclosure performance of the geologic repository and other criteria that, if satisfied, support a finding of no unreasonable risk.

Postclosure performance objectives for the geologic repository include a requirement to limit radiological exposures to the reasonably maximally exposed individual, a requirement to limit releases of radionuclides to the accessible environment to protect ground water, and a requirement to limit radiological exposures to the reasonably maximally exposed individual in the event of human intrusion (see § 63.113(b), (c), and (d), respectively).

(2) Although the postclosure performance objectives specified at § 63.113 are generally stated in unqualified terms, it is not expected that complete assurance that the requirements will be met can be presented. A reasonable expectation, on the basis of the record before the Commission, that the postclosure performance objectives will be met, is the general standard required. Proof that the geologic repository will conform with the objectives for postclosure performance is not to be had in the ordinary sense of the word because of the uncertainties inherent in the understanding of the evolution of the geologic setting, biosphere, and engineered barrier system. For such long-term performance, what is required is reasonable expectation, making allowance for the time period, hazards, and uncertainties involved, that the outcome will conform with the objectives for postclosure performance for the geologic repository. Demonstrating compliance will involve the use of complex predictive models that are supported by limited data from field and laboratory tests, site-specific monitoring, and natural analog studies that may be supplemented with prevalent expert judgment. Compliance demonstrations should not exclude important parameters from assessments and analyses simply because they are difficult to precisely quantify to a high degree of confidence. The performance assessments and analyses should focus upon the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values. Further, in reaching a determination of reasonable expectation, the Commission may supplement numerical analyses with qualitative judgments including, for example, consideration of the degree of diversity among the multiple barriers as a measure of the resiliency of the geologic repository.

(b) Subpart B lists findings that must be made in support of an authorization to construct a geologic repository operations area at the Yucca Mountain site. Prior to closure, § 63.31(a)(1)

requires a finding that there is reasonable assurance that the types and amounts of radioactive materials described in the application can be received, possessed, and stored in a geologic repository operations area of the design proposed without unreasonable risk to the health and safety of the public. After permanent closure, § 63.31(a)(2) requires the Commission to consider whether there is a reasonable expectation the site and design comply with the postclosure performance objectives. Once again, although the criteria may be written in unqualified terms, the demonstration of compliance must take uncertainties and gaps in knowledge into account so that the Commission can make the specified finding with respect to paragraph (a)(2) of § 63.31.

§ 63.102 Concepts.

This section provides a functional overview of this Subpart E. In the event of any inconsistency, the definitions in § 63.2 prevail.

(a) *The HLW facility at the Yucca Mountain site.* NRC exercises licensing and related regulatory authority over those facilities described in section 202 (3) and (4) of the Energy Reorganization Act of 1974, including the site at Yucca Mountain, as designated by the Energy Policy Act of 1992.

(b) *The geologic repository operations area.*

(1) These regulations deal with the exercise of authority with respect to a particular class of HLW facility—namely, a geologic repository operations area at Yucca Mountain.

(2) *A geologic repository operations area* consists of those surface and subsurface areas of the site that are part of a geologic repository where radioactive waste handling activities are conducted. The underground structure, backfill materials, if any, and openings that penetrate the underground structure (e.g., ramps, shafts and boreholes, including their seals), are designated the *underground facility*.

(3) The exercise of Commission authority requires that the geologic repository operations area be used for storage (which includes disposal) of *high-level radioactive wastes (HLW)*.

(4) HLW includes irradiated reactor fuel as well as reprocessing wastes. However, if DOE proposes to use the geologic repository operations area for storage of radioactive waste other than HLW, the storage of this radioactive waste is subject to the requirements of this part.

(c) *Stages in the licensing process.* There are several stages in the licensing process. The *site characterization* stage,

when the performance confirmation program is started, begins before submission of a license application, and may result in consequences requiring evaluation in the license review. The construction stage would follow after the issuance of a construction authorization. A period of operations follows the Commission's issuance of a license. The period of operations includes the time during which *emplacement* of wastes occurs; any subsequent period before permanent closure during which the emplaced wastes are *retrievable*; and *permanent closure*, which includes sealing openings to the repository. Permanent closure represents the end of the performance confirmation program; final backfilling of the underground facility, if appropriate; and the sealing of shafts, ramps, and boreholes.

(d) *Areas related to isolation.* Although the activities subject to regulation under this part are those to be carried out at the geologic repository operations area, the licensing process also considers characteristics of adjacent areas that are defined in other ways.

There must be an area surrounding the geologic repository operations area, that could include either a portion or all of the site, within which DOE shall exercise specified controls to prevent adverse human actions after permanent closure. There is an area, designated the geologic setting, which includes the geologic, hydrologic, and geochemical systems of the region in which the site and geologic repository operations area are located. The geologic repository operations area, plus the portion of the geologic setting that provides isolation of the radioactive waste, make up the geologic repository.

(e) *Performance objectives through permanent closure.* Before permanent closure, the geologic repository operations area is required to limit radiation levels and radiological exposures, in both restricted and unrestricted areas, and releases of radioactive materials to unrestricted areas, as specified at § 63.111(a).

(f) *Preclosure safety analysis.* Section 63.111 includes performance objectives for the geologic repository operations area for the period before permanent closure and decontamination or permanent closure, decontamination, and dismantlement of surface facilities. The preclosure safety analysis is a systematic examination of the site; the design; and the potential hazards, initiating events and their resulting event sequences and potential radiological exposures to workers and the public. Initiating events are to be considered for inclusion in the

preclosure safety analysis for determining event sequences only if they are reasonable (i.e., based on the characteristics of the geologic setting and the human environment, and consistent with precedents adopted for nuclear facilities with comparable or higher risks to workers and the public). The analysis identifies structures, systems, and components important to safety.

(g) *Performance objectives after permanent closure.* After permanent closure, the geologic repository is required to:

(1) Limit radiological exposures to the reasonably maximally exposed individual, as specified at § 63.113(b);

(2) Limit releases of radionuclides to the accessible environment to protect ground water, as specified at § 63.113(c); and

(3) Limit radiological exposures to the reasonably maximally exposed individual in the event of human intrusion, as specified at § 63.113(d).

(h) *Multiple barriers.* Section 63.113(a) requires that the geologic repository include multiple barriers, both natural and engineered. Geologic disposal of HLW is predicated on the expectation that one or more aspects of the geologic setting will be capable of contributing to the isolation of radioactive waste and thus be a barrier important to waste isolation. Although there is an extensive geologic record ranging from thousands to millions of years, this record is subject to interpretation and includes many uncertainties. In addition, there are uncertainties in the isolation capability and performance of engineered barriers. Although the composition and configuration of engineered structures (barriers) can be defined with a degree of precision not possible for natural barriers, it is recognized that except for a few archaeological and natural analogs, there is a limited experience base for the performance of complex, engineered structures over periods longer than a few hundred years, considering the uncertainty in characterizing and modeling individual barriers. These uncertainties are addressed by requiring the use of a multiple barrier approach; specifically, an engineered barrier system is required in addition to the natural barriers provided by the geologic setting. The performance assessment provides an evaluation of the repository performance based on credible models and parameters including the consideration of uncertainty in the behavior of the repository system. Thus the performance assessment results reflect the capability of each of the barriers to cope with a variety of

challenges (e.g., combinations of parameters leading to less favorable performance for individual barriers and combinations of barriers). A description of each barrier's capability (e.g., retardation of radionuclides in the saturated zone, waste package lifetime, matrix diffusion in the unsaturated zone), as reflected in the performance assessment, provides an understanding of how the natural barriers and the engineered barrier system work in combination to enhance the resiliency of the geologic repository. The Commission believes that this understanding can increase confidence that the postclosure performance objectives specified at § 63.113(b) and (c) will be achieved and that DOE's design includes a system of multiple barriers.

(i) *Reference biosphere and reasonably maximally exposed individual.* The performance assessment will estimate the amount of radioactive material released to water or air at various locations and times in the future. To estimate the potential for future human exposures resulting from release of radioactive material from a geologic repository at Yucca Mountain, it is necessary to make certain assumptions about the location and characteristics of the reasonably maximally exposed individual. The environment inhabited by the reasonably maximally exposed individual, along with associated human exposure pathways and parameters, make up the reference biosphere, as described in § 63.305. The reasonably maximally exposed individual, as a hypothetical person living in a community with characteristics of the Town of Amargosa Valley, is a representative person using water with average concentrations of radionuclides as described at § 63.312. The reasonably maximally exposed individual is selected to represent those persons in the vicinity of Yucca Mountain who are reasonably expected to receive the greatest exposure to radioactive material released from a geologic repository at Yucca Mountain. Characteristics of the reference biosphere and the reasonably maximally exposed individual are to be based on current human behavior and biospheric conditions in the region, as described in § 63.305 and § 63.312.

(j) *Performance assessment.* Demonstrating compliance with the postclosure performance objective specified at § 63.113(b) requires a performance assessment to quantitatively estimate radiological exposures to the reasonably maximally exposed individual at any time during

the compliance period. The performance assessment is a systematic analysis that identifies the features, events, and processes (i.e., specific conditions or attributes of the geologic setting, degradation, deterioration, or alteration processes of engineered barriers, and interactions between the natural and engineered barriers) that might affect performance of the geologic repository; examines their effects on performance; and estimates the radiological exposures to the reasonably maximally exposed individual. The features, events, and processes considered in the performance assessment should represent a wide range of both beneficial and potentially adverse effects on performance (e.g., beneficial effects of radionuclide sorption; potentially adverse effects of fracture flow or a criticality event). Those features, events, and processes expected to materially affect compliance with § 63.113(b) or be potentially adverse to performance are included, while events (event classes or scenario classes) that are very unlikely (less than one chance in 10,000 over 10,000 years) can be excluded from the analysis. An event class consists of all possible specific initiating events that are caused by a common natural process (e.g., the event class for seismicity includes the range of credible earthquakes for the Yucca Mountain site). Radiological exposures to the reasonably maximally exposed individual are estimated using the selected features, events, and processes, and incorporating the probability that the estimated exposures will occur. Additionally, performance assessment methods are appropriate for use in demonstrating compliance with the postclosure performance objectives for ground-water protection and human intrusion, and are subject to the requirements for performance assessments specified at § 63.114 and applicable criteria in Subpart L (e.g., criteria for evaluating compliance with ground-water protection and individual protection standards).

(k) *Institutional controls.* Active and passive institutional controls will be maintained over the Yucca Mountain site, and are expected to reduce significantly, but not eliminate, the potential for human activity that could inadvertently cause or accelerate the release of radioactive material. However, because it is not possible to make scientifically sound forecasts of the long-term reliability of institutional controls, it is not appropriate to include consideration of human intrusion into a fully risk-based performance assessment for purposes of evaluating the ability of

the geologic repository to achieve the performance objective at § 63.113(b). Hence, human intrusion is addressed in a stylized manner as described in paragraph (l) of this section.

(l) *Human intrusion.* In contrast to events unrelated to human activity, the probability and characteristics of human intrusion occurring many hundreds or thousands of years into the future cannot be estimated by examining either the historic or geologic record. Rather than speculating on the nature and probability of future intrusion, it is more useful to assess how resilient the geologic repository would be against a human intrusion event. Although the consequences of an assumed intrusion event would be a separate analysis, the analysis is similar to the performance assessment required by § 63.113(b) but subject to specific requirements for evaluation of human intrusion specified at §§ 63.321, 63.322 and 63.342 of subpart L of this part.

(m) *Performance confirmation.* A performance confirmation program will be conducted to evaluate the adequacy of assumptions, data, and analyses that led to the findings that permitted construction of the repository and subsequent emplacement of the wastes. Key geotechnical and design parameters, including any interactions between natural and engineered systems and components, will be monitored throughout site characterization, construction, emplacement, and operation to identify any significant changes in the conditions assumed in the license application that may affect compliance with the performance objectives specified at § 63.113(b) and (c).

(n) *Ground-Water Protection.* Separate ground-water protection standards are designed to protect the ground water resources in the vicinity of Yucca Mountain. These standards, specified at § 63.331, require the estimation of ground water concentrations in the representative volume of water. Depending on the radionuclide, the estimated concentrations must either be below a specified concentration or result in an annual, drinking water dose to the whole body or any organ of no greater than 0.04 mSv (4 mrem). Although the estimation of radionuclide concentrations in the representative volume would be a separate analysis, the analysis is similar to the performance assessment required by § 63.113(b) but subject to specific requirements for evaluation of ground-water protection specified at §§ 63.331, 63.332 and 63.342 of subpart L of this part.

Preclosure Performance Objectives

§ 63.111 Performance objectives for the geologic repository operations area through permanent closure.

(a) *Protection against radiation exposures and releases of radioactive material.*

(1) The geologic repository operations area must meet the requirements of part 20 of this chapter.

(2) During normal operations, and for Category 1 event sequences, the annual TEDE (hereafter referred to as "dose") to any real member of the public located beyond the boundary of the site may not exceed the preclosure standard specified at § 63.204.

(b) *Numerical guides for design objectives.*

(1) The geologic repository operations area must be designed so that, taking into consideration Category 1 event sequences and until permanent closure has been completed, the aggregate radiation exposures and the aggregate radiation levels in both restricted and unrestricted areas, and the aggregate releases of radioactive materials to unrestricted areas, will be maintained within the limits specified in paragraph (a) of this section.

(2) The geologic repository operations area must be designed so that, taking into consideration any single Category 2 event sequence and until permanent closure has been completed, no individual located on, or beyond, any point on the boundary of the site will receive, as a result of the single Category 2 event sequence, the more limiting of a TEDE of 0.05 Sv (5 rem), or the sum of the deep dose equivalent and the committed dose equivalent to any individual organ or tissue (other than the lens of the eye) of 0.5 Sv (50 rem). The lens dose equivalent may not exceed 0.15 Sv (15 rem), and the shallow dose equivalent to skin may not exceed 0.5 Sv (50 rem).

(c) *Preclosure safety analysis.* A preclosure safety analysis of the geologic repository operations area that meets the requirements specified at § 63.112 must be performed. This analysis must demonstrate that:

(1) The requirements of § 63.111(a) will be met; and

(2) The design meets the requirements of § 63.111(b).

(d) *Performance confirmation.* The geologic repository operations area must be designed so as to permit implementation of a performance confirmation program that meets the requirements of subpart F of this part.

(e) *Retrievability of waste.*

(1) The geologic repository operations area must be designed to preserve the

option of waste retrieval throughout the period during which wastes are being emplaced and thereafter, until the completion of a performance confirmation program and Commission review of the information obtained from such a program. To satisfy this objective, the geologic repository operations area must be designed so that any or all of the emplaced waste could be retrieved on a reasonable schedule starting at any time up to 50 years after waste emplacement operations are initiated, unless a different time period is approved or specified by the Commission. This different time period may be established on a case-by-case basis consistent with the emplacement schedule and the planned performance confirmation program.

(2) This requirement may not preclude decisions by the Commission to allow backfilling part, or all of, or permanent closure of the geologic repository operations area, before the end of the period of design for retrievability.

(3) For purposes of paragraph (e) of this section, a reasonable schedule for retrieval is one that would permit retrieval in about the same time as that required to construct the geologic repository operations area and emplace waste.

Preclosure Safety Analysis

§ 63.112 Requirements for preclosure safety analysis of the geologic repository operations area.

The preclosure safety analysis of the geologic repository operations area must include:

(a) A general description of the structures, systems, components, equipment, and process activities at the geologic repository operations area;

(b) An identification and systematic analysis of naturally occurring and human-induced hazards at the geologic repository operations area, including a comprehensive identification of potential event sequences;

(c) Data pertaining to the Yucca Mountain site, and the surrounding region to the extent necessary, used to identify naturally occurring and human-induced hazards at the geologic repository operations area;

(d) The technical basis for either inclusion or exclusion of specific, naturally occurring and human-induced hazards in the safety analysis;

(e) An analysis of the performance of the structures, systems, and components to identify those that are important to safety. This analysis identifies and describes the controls that are relied on to limit or prevent potential event sequences or mitigate their

consequences. This analysis also identifies measures taken to ensure the availability of safety systems. The analysis required in this paragraph must include, but not necessarily be limited to, consideration of—

- (1) Means to limit concentration of radioactive material in air;
- (2) Means to limit the time required to perform work in the vicinity of radioactive materials;
- (3) Suitable shielding;
- (4) Means to monitor and control the dispersal of radioactive contamination;
- (5) Means to control access to high radiation areas or airborne radioactivity areas;
- (6) Means to prevent and control criticality;
- (7) Radiation alarm system to warn of significant increases of radiation levels, concentrations of radioactive material in air, and increased radioactivity in effluents;
- (8) Ability of structures, systems, and components to perform their intended safety functions, assuming the occurrence of event sequences;
- (9) Explosion and fire detection systems and appropriate suppression systems;
- (10) Means to control radioactive waste and radioactive effluents, and permit prompt termination of operations and evacuation of personnel during an emergency;
- (11) Means to provide reliable and timely emergency power to instruments, utility service systems, and operating systems important to safety if there is a loss of primary electric power;
- (12) Means to provide redundant systems necessary to maintain, with adequate capacity, the ability of utility services important to safety; and
- (13) Means to inspect, test, and maintain structures, systems, and components important to safety, as necessary, to ensure their continued functioning and readiness.

(f) A description and discussion of the design, both surface and subsurface, of the geologic repository operations area, including—

- (1) The relationship between design criteria and the requirements specified at § 63.111(a) and (b); and
- (2) The design bases and their relation to the design criteria.

Postclosure Performance Objectives

§ 63.113 Performance objectives for the geologic repository after permanent closure.

(a) The geologic repository must include multiple barriers, consisting of both natural barriers and an engineered barrier system.

(b) The engineered barrier system must be designed so that, working in

combination with natural barriers, radiological exposures to the reasonably maximally exposed individual are within the limits specified at § 63.311 of subpart L of this part. Compliance with this paragraph must be demonstrated through a performance assessment that meets the requirements specified at § 63.114 of this subpart, and §§ 63.303, 63.305, 63.312 and 63.342 of Subpart L of this part.

(c) The engineered barrier system must be designed so that, working in combination with natural barriers, releases of radionuclides into the accessible environment are within the limits specified at § 63.331 of subpart L of this part. Compliance with this paragraph must be demonstrated through a performance assessment that meets the requirements specified at § 63.114 of this subpart and §§ 63.303, 63.332 and 63.342 of subpart L of this part.

(d) The ability of the geologic repository to limit radiological exposures to the reasonably maximally exposed individual, in the event of human intrusion into the engineered barrier system, must be demonstrated through an analysis that meets the requirements at §§ 63.321 and 63.322 of subpart L of this part. Estimating radiological exposures to the reasonably maximally exposed individual requires a performance assessment that meets the requirements specified at § 63.114 of this subpart, and §§ 63.303, 63.305, 63.312 and 63.342 of subpart L of this part.

Postclosure Performance Assessment

§ 63.114 Requirements for performance assessment.

Any performance assessment used to demonstrate compliance with § 63.113 must:

(a) Include data related to the geology, hydrology, and geochemistry (including disruptive processes and events) of the Yucca Mountain site, and the surrounding region to the extent necessary, and information on the design of the engineered barrier system used to define parameters and conceptual models used in the assessment.

(b) Account for uncertainties and variabilities in parameter values and provide for the technical basis for parameter ranges, probability distributions, or bounding values used in the performance assessment.

(c) Consider alternative conceptual models of features and processes that are consistent with available data and current scientific understanding and evaluate the effects that alternative

conceptual models have on the performance of the geologic repository.

(d) Consider only events that have at least one chance in 10,000 of occurring over 10,000 years.

(e) Provide the technical basis for either inclusion or exclusion of specific features, events, and processes in the performance assessment. Specific features, events, and processes must be evaluated in detail if the magnitude and time of the resulting radiological exposures to the reasonably maximally exposed individual, or radionuclide releases to the accessible environment, would be significantly changed by their omission.

(f) Provide the technical basis for either inclusion or exclusion of degradation, deterioration, or alteration processes of engineered barriers in the performance assessment, including those processes that would adversely affect the performance of natural barriers. Degradation, deterioration, or alteration processes of engineered barriers must be evaluated in detail if the magnitude and time of the resulting radiological exposures to the reasonably maximally exposed individual, or radionuclide releases to the accessible environment, would be significantly changed by their omission.

(g) Provide the technical basis for models used in the performance assessment such as comparisons made with outputs of detailed process-level models and/or empirical observations (e.g., laboratory testing, field investigations, and natural analogs).

§ 63.115 Requirements for multiple barriers.

Demonstration of compliance with § 63.113(a) must:

(a) Identify those design features of the engineered barrier system, and natural features of the geologic setting, that are considered barriers important to waste isolation.

(b) Describe the capability of barriers, identified as important to waste isolation, to isolate waste, taking into account uncertainties in characterizing and modeling the behavior of the barriers.

(c) Provide the technical basis for the description of the capability of barriers, identified as important to waste isolation, to isolate waste. The technical basis for each barrier's capability shall be based on and consistent with the technical basis for the performance assessments used to demonstrate compliance with § 63.113(b) and (c).

Land Ownership and Control

§ 63.121 Requirements for ownership and control of interests in land.

(a) *Ownership of land.*

(1) The geologic repository operations area must be located in and on lands that are either acquired lands under the jurisdiction and control of DOE, or lands permanently withdrawn and reserved for its use.

(2) These lands must be held free and clear of all encumbrances, if significant, such as:

(i) Rights arising under the general mining laws;

(ii) Easements for right-of-way; and

(iii) All other rights arising under lease, rights of entry, deed, patent, mortgage, appropriation, prescription, or otherwise.

(b) *Additional controls for permanent closure.* Appropriate controls must be established outside of the geologic repository operations area. DOE shall exercise any jurisdiction and control over surface and subsurface estates necessary to prevent adverse human actions that could significantly reduce the geologic repository's ability to achieve isolation. The rights of DOE may take the form of appropriate possessory interests, servitudes, or withdrawals from location or patent under the general mining laws.

(c) *Additional controls through permanent closure.* Appropriate controls must be established outside the geologic repository operations area. DOE shall exercise any jurisdiction or control of activities necessary to ensure the requirements at § 63.111(a) and (b) are met. Control includes the authority to exclude members of the public, if necessary.

(d) *Water rights.*

(1) DOE shall also have obtained such water rights as may be needed to accomplish the purpose of the geologic repository operations area.

(2) Water rights are included in the additional controls to be established under paragraph (b) of this section.

Subpart F—Performance Confirmation Program

§ 63.131 General requirements.

(a) The performance confirmation program must provide data that indicate, where practicable, whether:

(1) Actual subsurface conditions encountered and changes in those conditions during construction and waste emplacement operations are within the limits assumed in the licensing review; and

(2) Natural and engineered systems and components required for repository

operation, and that are designed or assumed to operate as barriers after permanent closure, are functioning as intended and anticipated.

(b) The program must have been started during site characterization, and it will continue until permanent closure.

(c) The program must include in situ monitoring, laboratory and field testing, and in situ experiments, as may be appropriate to provide the data required by paragraph (a) of this section.

(d) The program must be implemented so that:

(1) It does not adversely affect the ability of the geologic and engineered elements of the geologic repository to meet the performance objectives.

(2) It provides baseline information and analysis of that information on those parameters and natural processes pertaining to the geologic setting that may be changed by site characterization, construction, and operational activities.

(3) It monitors and analyzes changes from the baseline condition of parameters that could affect the performance of a geologic repository.

§ 63.132 Confirmation of geotechnical and design parameters.

(a) During repository construction and operation, a continuing program of surveillance, measurement, testing, and geologic mapping must be conducted to ensure that geotechnical and design parameters are confirmed and to ensure that appropriate action is taken to inform the Commission of design changes needed to accommodate actual field conditions encountered.

(b) Subsurface conditions must be monitored and evaluated against design assumptions.

(c) Specific geotechnical and design parameters to be measured or observed, including any interactions between natural and engineered systems and components, must be identified in the performance confirmation plan.

(d) These measurements and observations must be compared with the original design bases and assumptions. If significant differences exist between the measurements and observations and the original design bases and assumptions, the need for modifications to the design or in construction methods must be determined and these differences, their significance to repository performance, and the recommended changes reported to the Commission.

(e) In situ monitoring of the thermomechanical response of the underground facility must be conducted until permanent closure, to ensure that the performance of the geologic and

engineering features is within design limits.

§ 63.133 Design testing.

(a) During the early or developmental stages of construction, a program for testing of engineered systems and components used in the design, such as, for example, borehole and shaft seals, backfill, and drip shields, as well as the thermal interaction effects of the waste packages, backfill, drip shields, rock, and unsaturated zone and saturated zone water, must be conducted.

(b) The testing must be initiated as early as practicable.

(c) If backfill is included in the repository design, a test must be conducted to evaluate the effectiveness of backfill placement and compaction procedures against design requirements before permanent backfill placement is begun.

(d) Tests must be conducted to evaluate the effectiveness of borehole, shaft, and ramp seals before full-scale operation proceeds to seal boreholes, shafts, and ramps.

§ 63.134 Monitoring and testing waste packages.

(a) A program must be established at the geologic repository operations area for monitoring the condition of the waste packages. Waste packages chosen for the program must be representative of those to be emplaced in the underground facility.

(b) Consistent with safe operation at the geologic repository operations area, the environment of the waste packages selected for the waste package monitoring program must be representative of the environment in which the wastes are to be emplaced.

(c) The waste package monitoring program must include laboratory experiments that focus on the internal condition of the waste packages. To the extent practical, the environment experienced by the emplaced waste packages within the underground facility during the waste package monitoring program must be duplicated in the laboratory experiments.

(d) The waste package monitoring program must continue as long as practical up to the time of permanent closure.

Subpart G—Quality Assurance

§ 63.141 Scope.

As used in this part, *quality assurance* comprises all those planned and systematic actions necessary to provide adequate confidence that the geologic repository and its structures, systems, or components will perform satisfactorily in service. Quality assurance includes

quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system that provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

§ 63.142 Quality assurance criteria.

(a) *Introduction and Applicability.* DOE is required by § 63.21(c)(20) to include in its safety analysis report a description of the quality assurance program to be applied to all structures, systems, and components important to safety, to design and characterization of barriers important to waste isolation, and to related activities. These activities include: site characterization; acquisition, control, and analyses of samples and data; tests and experiments; scientific studies; facility and equipment design and construction; facility operation; performance confirmation; permanent closure; and decontamination and dismantling of surface facilities. The description must indicate how the applicable quality assurance requirements will be satisfied. DOE shall include information pertaining to the managerial and administrative controls to be used to ensure safe operation in its safety analysis report. High-level waste repositories include structures, systems, and components that prevent or mitigate the consequences of postulated event sequences or that are important to waste isolation capabilities that could cause undue risk to the health and safety of the public. The pertinent requirements of this subpart apply to all activities that are important to waste isolation and important to safety functions of those structures, systems, and components. These activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, modifying, site characterization, performance confirmation, permanent closure, decontamination, and dismantling of surface facilities.

(b) *Organization.* DOE shall establish and execute a quality assurance program. DOE may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part of it, but DOE retains responsibility for it.

(1) The authority and duties of persons and organizations performing activities affecting the functions of structures, systems, and components that are important to waste isolation and important to safety must be clearly established and delineated in writing.

These activities include both the performing functions of attaining quality objectives and the quality assurance functions. The quality assurance functions are those of:

(i) Assuring that an appropriate quality assurance program is established and effectively executed; and

(ii) Verifying that activities important to waste isolation and important to safety functions have been correctly performed by checking, auditing, and inspection of structures, systems, and components.

(2) The persons and organizations performing quality assurance functions shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. The persons and organizations performing quality assurance functions shall report to a management level so that the required authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations, are provided.

(3) Because of the many variables involved, such as the number of personnel, the type of activity being performed, and the location or locations where activities are performed, the organizational structure for executing the quality assurance program may take various forms provided that the persons and organizations assigned the quality assurance functions have this required authority and organizational freedom. Irrespective of the organizational structure, the individual(s) assigned the responsibility for assuring effective execution of any portion of the quality assurance program at any location where activities subject to 10 CFR part 63 are being performed must have direct access to the levels of management as may be necessary to perform this function.

(c) *Quality assurance program.* DOE shall establish a quality assurance program that complies with the requirements of this subpart at the earliest practicable time, consistent with the schedule for accomplishing the activities. This program must be documented by written policies, procedures, or instructions and must be carried out throughout facility life in accordance with those policies, procedures, or instructions.

(1) DOE shall identify the structures, systems, and components to be covered by the quality assurance program and the major organizations participating in the program, together with the designated functions of these organizations. The quality assurance

program must control activities affecting the quality of the identified structures, systems, and components, to an extent consistent with their importance to safety.

(2) Activities affecting quality must be accomplished under suitably controlled conditions. Controlled conditions include the use of appropriate equipment; suitable environmental conditions for accomplishing the activity, such as adequate cleanliness; and assurance that all prerequisites for the given activity have been satisfied.

(3) The program must take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality, and the need for verification of quality by inspection and test. The program must provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

(4) DOE shall regularly review the status and adequacy of the quality assurance program. Management of other organizations participating in the quality assurance program shall regularly review the status and adequacy of that part of the quality assurance program which they are executing.

(d) *Design control.* (1) DOE shall establish measures to assure that applicable regulatory requirements and the design basis, as defined in § 63.2 and as specified in the license application, for those structures, systems, and components to which this subpart applies, are correctly translated into specifications, drawings, procedures, and instructions. These measures must assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Measures must also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are important to waste isolation and important to safety functions of the structures, systems and components.

(2) DOE shall establish measures to identify and control design interfaces and for coordination among participating design organizations. These measures must include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces.

(i) The design control measures must provide for verifying or checking the adequacy of design, such as by the

performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. The verifying or checking process must be performed by individuals or groups other than those who performed the original design. These individuals may be from the same organization. If a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking processes, it must include suitable qualifications testing of a prototype unit under the most adverse design conditions. Design control measures must be applied to items such as: criticality physics, stress, thermal, hydraulic, and preclosure and postclosure analyses; compatibility of materials; accessibility for inservice inspection, maintenance and repair; and delineation of acceptance criteria for inspections and tests.

(ii) Design changes, including field changes, must be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization.

(e) *Procurement document control.* DOE shall establish measures to assure that applicable regulatory requirements, design bases, and other requirements necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the licensee or applicant or by its contractors or subcontractors. To the extent necessary, procurement documents must require contractors or subcontractors to provide a quality assurance program consistent with the pertinent provisions of this section.

(f) *Instructions, procedures, and drawings.* Activities affecting quality must be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and must be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings must include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

(g) *Document control.* DOE shall establish measures to control the issuance of documents, such as instructions, procedures, and drawings, including changes to them that prescribe all activities affecting quality. These measures must assure that documents, including changes, are reviewed for adequacy and approved for

release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents must be reviewed and approved by the same organizations that performed the original review and approval unless the applicant designates another responsible organization.

(h) *Control of purchased material, equipment, and services.* DOE shall establish measures to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents.

(1) These measures must include appropriate provisions for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery.

(2) Documentary evidence that material and equipment conform to the procurement requirements must be available at the high-level waste repository site before the material and equipment are installed or used. This documentary evidence must be retained at the high-level waste repository site and be sufficient to identify the specific requirements, such as codes, standards, or specifications, met by the purchased material and equipment.

(3) The effectiveness of the control of quality by contractors and subcontractors must be assessed by the licensee or applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services.

(i) *Identification and control of materials, parts, and components.* Measures must be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These measures must assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item. These identification and control measures must be designed to prevent the use of incorrect or defective material, parts, and components.

(j) *Control of special processes.* DOE shall establish measures to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards,

specifications, criteria, and other special requirements.

(k) *Inspection.* DOE shall establish and execute a program for inspection of activities affecting quality to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. The inspection must be performed by individuals other than those who performed the activity being inspected.

(1) Examinations, measurements, or tests of material or products processed must be performed for each work operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel must be provided. Both inspection and process monitoring must be provided when control is inadequate without both.

(2) If mandatory inspection hold points that require witnessing or inspecting by the applicant's designated representative and beyond which work may not proceed without the consent of its designated representative are required, the specific hold points must be indicated in appropriate documents.

(l) *Test control.* DOE shall establish a test program to assure that all testing required to demonstrate that structures, systems, and components important to safety will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

(1) The test program must include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests during repository operation, of structures, systems, and components.

(2) Test procedures must include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions.

(3) Test results must be documented and evaluated to assure that test requirements have been satisfied.

(m) *Control of measuring and test equipment.* DOE shall establish measures to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.

(n) *Handling, storage, and shipping.* DOE shall establish measures to control the handling, storage, shipping, cleaning

and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration. When necessary for particular products, special protective environments, such as inert gas atmosphere, specific moisture content levels, and temperature levels, must be specified and provided.

(o) *Inspection, test, and operating status.* DOE shall establish measures to indicate the status of inspections and tests performed on individual items of the high-level waste repository by markings such as stamps, tags, labels, routing cards, or other suitable means. These measures must provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary to preclude inadvertent bypassing of such inspections and tests. Measures must also be established for indicating the operating status of structures, systems, and components of the high-level waste repository, such as by tagging valves and switches, to prevent inadvertent operation.

(p) *Nonconforming materials, parts, or components.* DOE shall establish measures to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures must include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items must be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures.

(q) *Corrective action.* DOE shall establish measures to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. If significant conditions are adverse to quality, the measures must assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken must be documented and reported to appropriate levels of management.

(r) *Quality assurance records.* DOE shall maintain sufficient records to furnish evidence of activities affecting quality.

(1) The records must include at least the following: Operating logs and the results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses.

(2) The records must also include closely-related data such as qualifications of personnel, procedures, and equipment.

(3) Inspection and test records must, at a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted.

(4) Records must be identifiable and retrievable. Consistent with applicable regulatory requirements, the applicant shall establish requirements concerning record retention, such as duration, location, and assigned responsibility.

(s) *Audits.* DOE shall carry out a comprehensive system of planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits must be performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results must be documented and reviewed by management having responsibility in the area audited. Followup action, including reaudit of deficient areas, must be taken where indicated.

§ 63.143 Implementation.

DOE shall implement a quality assurance program based on the criteria required by § 63.142.

§ 63.144 Quality assurance program change.

Changes to DOE's NRC-approved Safety Analysis Report quality assurance program description are processed as follows:

(a) DOE may change a previously accepted quality assurance program description included or referenced in the Safety Analysis Report without prior NRC approval, if the change does not reduce the commitments in the program description previously accepted by the NRC. Changes to the quality assurance program description that do not reduce the commitments must be submitted every 24 months, in accordance with paragraph (b)(1) of this section. In addition to quality assurance program changes involving administrative improvements and clarifications, spelling corrections, punctuation, or editorial items, the following changes are not considered reductions in commitment:

(1) The use of a quality assurance standard approved by the NRC which is more recent than the quality assurance standard in DOE's current quality assurance program at the time of the change;

(2) The use of generic organizational position titles that clearly denote the position function, supplemented as necessary by descriptive text, rather than specific titles;

(3) The use of generic organizational charts to indicate functional relationships, authorities, and responsibilities, or alternatively, the use of descriptive text;

(4) The elimination of quality assurance program information that duplicates language in quality assurance regulatory guides and quality assurance standards to which the licensee is committed; and

(5) Organizational revisions that ensure that persons and organizations performing quality assurance functions continue to have the requisite authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations.

(b) DOE shall submit changes made to the NRC-accepted Safety Analysis Report quality assurance program description that do reduce the commitments to the NRC and receive NRC approval prior to implementation, as follows:

(1) The signed original must be submitted to the Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, one copy to the Director, Office of Nuclear Material and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and one copy to the appropriate NRC Resident Inspector if one has been assigned to the site or facility.

(2) The submittal of a change to the Safety Analysis Report quality assurance program description must include all pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the revised program incorporating the change continues to describe how the requirements of § 63.142 will be satisfied and continues to satisfy the criteria of § 63.142 and the Safety Analysis Report quality assurance program description previously accepted by the NRC (the letter need not provide the basis for changes that correct spelling, punctuation, or editorial items).

(3) DOE shall maintain records of quality assurance program changes that do reduce commitments.

Subpart H—Training and Certification of Personnel

§ 63.151 General requirements.

Operations of systems and components that have been identified as

important to safety in the Safety Analysis Report and in the license must be performed only by trained and certified personnel or by personnel under the direct visual supervision of an individual with training and certification in such operation. Supervisory personnel who direct operations that are important to safety must also be certified in such operations.

§ 63.152 Training and certification program.

DOE shall establish a program for training, proficiency testing, certification, and requalification of operating and supervisory personnel.

§ 63.153 Physical requirements.

The physical condition and the general health of personnel certified for operations that are important to safety may not be such as might cause operational errors that could endanger the public health and safety. Any condition that might cause impaired judgment or motor coordination must be considered in the selection of personnel for activities that are important to safety. These conditions need not categorically disqualify a person, so long as appropriate provisions are made to accommodate the conditions.

Subpart I—Emergency Planning Criteria

§ 63.161 Emergency plan for the geologic repository operations area through permanent closure.

DOE shall develop and be prepared to implement a plan to cope with radiological accidents that may occur at the geologic repository operations area, at any time before permanent closure and decontamination or decontamination and dismantlement of surface facilities. The emergency plan must be based on the criteria of § 72.32(b) of this chapter.

Subpart J—Violations

§ 63.171 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 under 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, 81, 82, 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 under 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.

§ 63.172 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 this part 63 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 this part 63 that are not issued under sections 161b, 161i, or 161o for the purposes of Section 223 are as follows: §§ 63.1, 63.2, 63.5, 63.6, 63.7, 63.8, 63.15, 63.16, 63.21, 63.22, 63.23, 63.24, 63.31, 63.32, 63.33, 63.41, 63.42, 63.43, 63.45, 63.46, 63.51, 63.52, 63.61, 63.62, 63.63, 63.64, 63.65, 63.101, 63.102, 63.111, 63.112, 63.113, 63.114, 63.115, 63.121, 63.131, 63.132, 63.133, 63.134, 63.141, 63.142, 63.143, 63.153, 63.161, 63.171, 63.172, 63.201, 63.202, 63.203, 63.204, 63.301, 63.302, 63.303, 63.304, 63.305, 63.311, 63.312, 63.321, 63.322, 63.331, 63.332, 63.341, and 63.342.

Subpart K—Preclosure Public Health and Environmental Standards

§ 63.201 Purpose and scope.

This subpart covers the storage of radioactive material by DOE in the Yucca Mountain repository and on the Yucca Mountain site. For the purposes of demonstrating compliance with this subpart, to the extent there may be any conflict with the requirements specified in this subpart and the requirements contained in Subparts A–J of this regulation, including definitions, the requirements in this subpart shall take precedence.

§ 63.202 Definitions for Subpart K.

General environment means everywhere outside the Yucca Mountain site, the Nellis Air Force Range, and the Nevada Test Site.

Member of the public means anyone who is not a radiation worker for purposes of worker protection.

Radioactive material means matter composed of or containing radionuclides subject to the Atomic Energy Act of 1954, as amended (42 U.S.C. sec. 2014 et seq.). Radioactive material includes, but is not limited to, high-level radioactive waste and spent nuclear fuel.

Spent nuclear fuel means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

Storage means retention (and any associated activity, operation, or process necessary to carry out successful retention) of radioactive material with the intent or capability to readily access or retrieve such material.

Yucca Mountain repository means the excavated portion of the facility constructed underground within the Yucca Mountain site.

Yucca Mountain site means:

(1) The site recommended by the Secretary of DOE to the President under section 112(b)(1)(B) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10132(b)(1)(B)) on May 27, 1986; or

(2) The area under the control of DOE for the use of Yucca Mountain activities at the time of licensing, if the site designated under the Nuclear Waste Policy Act is amended by Congress prior to the time of licensing.

§ 63.203 Implementation of Subpart K.

DOE must demonstrate that normal operations at the Yucca Mountain site will and do occur in compliance with this subpart before the Commission grants or continues a license for DOE to receive and possess radioactive material within the Yucca Mountain site.

§ 63.204 Preclosure standard.

DOE must ensure that no member of the public in the general environment receives more than an annual dose of 0.15 mSv (15 mrem) from the combination of:

(a) Management and storage (as defined in 40 CFR 191.2) of radioactive material that:

(1) Is subject to 40 CFR 191.3(a); and

(2) Occurs outside of the Yucca Mountain repository but within the Yucca Mountain site; and

(b) Storage (as defined in § 63.202) of radioactive material inside the Yucca Mountain repository.

Subpart L—Postclosure Public Health and Environmental Standards**§ 63.301 Purpose and scope.**

This subpart covers the disposal of radioactive material in the Yucca Mountain repository by DOE. For the purposes of demonstrating compliance with this subpart, to the extent that there may be any conflict with the requirements specified in this subpart and the requirements contained in Subparts A–J of this part, including definitions, the requirements in this subpart shall take precedence.

§ 63.302 Definitions for Subpart L.

All definitions in subpart K of this part, and the following:

Accessible environment means any point outside of the controlled area, including:

- (1) The atmosphere (including the atmosphere above the surface area of the controlled area);
- (2) Land surfaces;
- (3) Surface waters;
- (4) Oceans; and
- (5) The lithosphere.

Aquifer means a water-bearing underground geological formation, group of formations, or part of a formation (excluding perched water bodies) that can yield a significant amount of ground water to a well or spring.

Controlled area means:

- (1) The surface area, identified by passive institutional controls, that encompasses no more than 300 square kilometers. It must not extend farther:
 - (i) South than 36°40'13.6661" North latitude, in the predominant direction of ground-water flow; and
 - (ii) Than five kilometers from the repository footprint in any other direction; and
- (2) The subsurface underlying the surface area.

Disposal means the emplacement of radioactive material into the Yucca Mountain disposal system with the intent of isolating it for as long as reasonably possible and with no intent of recovery, whether or not the design of the disposal system permits the ready recovery of the material. Disposal of radioactive material in the Yucca Mountain disposal system begins when all of the ramps and other openings into the Yucca Mountain repository are sealed.

Ground water means water that is below the land surface and in a saturated zone.

Human intrusion means breaching of any portion of the Yucca Mountain disposal system, within the repository footprint, by any human activity.

Passive institutional controls means:

- (1) Markers, as permanent as practicable, placed on the Earth's surface;
- (2) Public records and archives;
- (3) Government ownership and regulations regarding land or resource use; and
- (4) Other reasonable methods of preserving knowledge about the location, design, and contents of the Yucca Mountain disposal system.

Peak dose means the highest annual dose projected to be received by the reasonably maximally exposed individual.

Period of geologic stability means the time during which the variability of geologic characteristics and their future behavior in and around the Yucca Mountain site can be bounded, that is, they can be projected within a reasonable range of possibilities.

Plume of contamination means that volume of ground water in the predominant direction of ground-water flow that contains radioactive contamination from releases from the Yucca Mountain repository. It does not include releases from any other potential sources on or near the Nevada Test Site.

Repository footprint means the outline of the outermost locations of where the waste is emplaced in the Yucca Mountain repository.

Slice of the plume means a cross-section of the plume of contamination with sufficient thickness parallel to the prevalent direction of flow of the plume that it contains the representative volume.

Total dissolved solids means the total dissolved (filterable) solids in water as determined by use of the method specified in 40 CFR part 136.

Undisturbed performance means that human intrusion or the occurrence of unlikely natural features, events, and processes do not disturb the disposal system.

Undisturbed Yucca Mountain disposal system means that the Yucca Mountain disposal system is not affected by human intrusion.

Waste means any radioactive material emplaced for disposal into the Yucca Mountain repository.

Well-capture zone means the volume from which a well pumping at a defined rate is withdrawing water from an aquifer. The dimensions of the well-capture zone are determined by the pumping rate in combination with aquifer characteristics assumed for calculations, such as hydraulic conductivity, gradient, and the screened interval.

Yucca Mountain disposal system means the combination of underground engineered and natural barriers within the controlled area that prevents or substantially reduces releases from the waste.

§ 63.303 Implementation of Subpart L.

DOE must demonstrate that there is a reasonable expectation of compliance with this subpart before a license may be issued. In the case of the specific numerical requirements in § 63.311 of this subpart, and if performance assessment is used to demonstrate compliance with the specific numerical requirements in §§ 63.321 and 63.331 of this subpart, compliance is based upon the mean of the distribution of projected doses of DOE's performance assessments which project the performance of the Yucca Mountain disposal system for 10,000 years after disposal.

§ 63.304 Reasonable expectation.

Reasonable expectation means that the Commission is satisfied that compliance will be achieved based upon the full record before it. Characteristics of reasonable expectation include that it:

- (1) Requires less than absolute proof because absolute proof is impossible to attain for disposal due to the uncertainty of projecting long-term performance;

- (2) Accounts for the inherently greater uncertainties in making long-term projections of the performance of the Yucca Mountain disposal system;

- (3) Does not exclude important parameters from assessments and analyses simply because they are difficult to precisely quantify to a high degree of confidence; and

- (4) Focuses performance assessments and analyses on the full range of defensible and reasonable parameter distributions rather than only upon extreme physical situations and parameter values.

§ 63.305 Required characteristics of the reference biosphere.

(a) Features, events, and processes that describe the reference biosphere must be consistent with present knowledge of the conditions in the region surrounding the Yucca Mountain site.

(b) DOE should not project changes in society, the biosphere (other than climate), human biology, or increases or decreases of human knowledge or technology. In all analyses done to demonstrate compliance with this part, DOE must assume that all of those factors remain constant as they are at

the time of submission of the license application.

(c) DOE must vary factors related to the geology, hydrology, and climate based upon cautious, but reasonable assumptions consistent with present knowledge of factors that could affect the Yucca Mountain disposal system over the next 10,000 years.

(d) Biosphere pathways must be consistent with arid or semi-arid conditions.

Postclosure Individual Protection Standard

§ 63.311 Individual protection standard after permanent closure.

DOE must demonstrate, using performance assessment, that there is a reasonable expectation that, for 10,000 years following disposal, the reasonably maximally exposed individual receives no more than an annual dose of 0.15 mSv (15 mrem) from releases from the undisturbed Yucca Mountain disposal system. DOE's analysis must include all potential pathways of radionuclide transport and exposure.

§ 63.312 Required characteristics of the reasonably maximally exposed individual.

The reasonably maximally exposed individual is a hypothetical person who meets the following criteria:

(a) Lives in the accessible environment above the highest concentration of radionuclides in the plume of contamination;

(b) Has a diet and living style representative of the people who now reside in the Town of Amargosa Valley, Nevada. DOE must use projections based upon surveys of the people residing in the Town of Amargosa Valley, Nevada, to determine their current diets and living styles and use the mean values of these factors in the assessments conducted for §§ 63.311 and 63.321;

(c) Uses well water with average concentrations of radionuclides based

on an annual water demand of 3000 acre-feet;

(d) Drinks 2 liters of water per day from wells drilled into the ground water at the location specified in paragraph (a) of this section; and

(e) Is an adult with metabolic and physiological considerations consistent with present knowledge of adults.

Human Intrusion Standard

§ 63.321 Individual protection standard for human intrusion.

DOE must determine the earliest time after disposal that the waste package would degrade sufficiently that a human intrusion could occur without recognition by the drillers. DOE must:

(a) Provide the analyses and its technical bases used to determine the time of occurrence of human intrusion (see § 63.322) without recognition by the drillers.

(b) If complete waste package penetration is projected to occur at or before 10,000 years after disposal:

(1) Demonstrate that there is a reasonable expectation that the reasonably maximally exposed individual receives no more than an annual dose of 0.15 mSv (15 mrem) as a result of a human intrusion, at or before 10,000 years after disposal. The analysis must include all potential environmental pathways of radionuclide transport and exposure subject to the requirements at § 63.322; and

(2) If exposures to the reasonably maximally exposed individual occur more than 10,000 years after disposal, include the results of the analysis and its bases in the environmental impact statement for Yucca Mountain as an indicator of long-term disposal system performance.

(c) Include the results of the analysis and its bases in the environmental impact statement for Yucca Mountain as an indicator of long-term disposal system performance, if the intrusion is

not projected to occur before 10,000 years after disposal.

§ 63.322 Human intrusion scenario.

For the purposes of the analysis of human intrusion, DOE must make the following assumptions:

(a) There is a single human intrusion as a result of exploratory drilling for ground water;

(b) The intruders drill a borehole directly through a degraded waste package into the uppermost aquifer underlying the Yucca Mountain repository;

(c) The drillers use the common techniques and practices that are currently employed in exploratory drilling for ground water in the region surrounding Yucca Mountain;

(d) Careful sealing of the borehole does not occur, instead natural degradation processes gradually modify the borehole;

(e) No particulate waste material falls into the borehole;

(f) The exposure scenario includes only those radionuclides transported to the saturated zone by water (e.g., water enters the waste package, releases radionuclides, and transports radionuclides by way of the borehole to the saturated zone); and

(g) No releases are included which are caused by unlikely natural processes and events.

Ground-Water Protection Standards

§ 63.331 Separate standards for protection of ground water.

DOE must demonstrate that there is a reasonable expectation that, for 10,000 years of undisturbed performance after disposal, releases of radionuclides from waste in the Yucca Mountain disposal system into the accessible environment will not cause the level of radioactivity in the representative volume of ground water to exceed the limits in the following Table 1:

TABLE 1.—LIMITS ON RADIONUCLIDES IN THE REPRESENTATIVE VOLUME

Radionuclide or type of radiation emitted	Limit	Is natural background included?
Combined radium-226 and radium-228	5 picocuries per liter	Yes.
Gross alpha activity (including radium-226 but excluding radon and uranium).	15 picocuries per liter	Yes.
Combined beta and photon emitting radionuclides	0.04 mSv (4 mrem) per year to the whole body or any organ, based on drinking 2 liters of water per day from the representative volume.	No.

§ 63.332 Representative volume.

(a) The representative volume is the volume of ground water that would be withdrawn annually from an aquifer

containing less than 10,000 milligrams of total dissolved solids per liter of water to supply a given water demand. DOE must project the concentration of

radionuclides released from the Yucca Mountain disposal system that will be in the representative volume. DOE must use the projected concentrations to

demonstrate a reasonable expectation that the Yucca Mountain disposal system complies with § 63.331. The DOE must make the following assumptions concerning the representative volume:

(1) It includes the highest concentration level in the plume of contamination in the accessible environment;

(2) Its position and dimensions in the aquifer are determined using average hydrologic characteristics which have cautious, but reasonable, values representative of the aquifers along the radionuclide migration path from the Yucca Mountain repository to the accessible environment as determined by site characterization; and

(3) It contains 3,000 acre-feet of water (about 3,714,450,000 liters or 977,486,000 gallons).

(b) DOE must use one of two alternative methods for determining the dimensions of the representative volume. The DOE must propose its chosen method, and any underlying assumptions, to NRC for approval.

(1) DOE may calculate the dimensions as a well-capture zone. If DOE uses this approach, it must assume that the:

(i) Water supply well(s) has (have) characteristics consistent with public water supply wells in the Town of Amargosa Valley, Nevada, for example, well-bore size and length of the screened intervals;

(ii) Screened interval(s) include(s) the highest concentration in the plume of contamination in the accessible environment; and

(iii) Pumping rates and the placement of the well(s) must be set to produce an annual withdrawal equal to the representative volume and to tap the highest concentration within the plume of contamination.

(2) DOE may calculate the dimensions as a slice of the plume. If DOE uses this approach, it must:

(i) Propose, for approval, where the location of the edge of the plume of contamination occurs. For example, the place where the concentration of radionuclides reaches 0.1% of the level of the highest concentration in the accessible environment;

(ii) Assume that the slice of the plume is perpendicular to the prevalent direction of flow of the aquifer; and

(iii) Assume that the volume of ground water contained within the slice of the plume equals the representative volume.

Additional Provisions

§ 63.341 Projections of peak dose.

To complement the results of § 63.311, DOE must calculate the peak

dose of the reasonably maximally exposed individual that would occur after 10,000 years following disposal but within the period of geologic stability. No regulatory standard applies to the results of this analysis; however, DOE must include the results and their bases in the environmental impact statement for Yucca Mountain as an indicator of long-term disposal system performance.

§ 63.342 Limits on performance assessments.

DOE's performance assessments should not include consideration of very unlikely features, events, or processes, i.e., those that are estimated to have less than one chance in 10,000 of occurring within 10,000 years of disposal. Unlikely features, events, and processes, or sequences of events and processes shall be excluded from the assessments for the human intrusion and ground water protection standards upon prior Commission approval for the probability limit used for unlikely features, events, and processes. In addition, DOE's performance assessments need not evaluate the impacts resulting from any features, events, and processes or sequences of events and processes with a higher chance of occurrence if the results of the performance assessments would not be changed significantly.

§ 63.343 Severability of individual protection and ground-water protection standards.

The individual protection and ground-water protection standards are severable.

PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

43. The authority citation for part 70 continues to read:

Authority: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282, 2297f); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246, (42 U.S.C. 5841, 5842, 5845, 5846). Sec. 193, 104 Stat. 2835, as amended by Pub. L. 104-134, 110 Stat. 1321, 1321-349 (42 U.S.C. 2243).

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 70.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 70.21(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d, Pub. L. 93-377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 70.81 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.82 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

44. Section 70.17 is amended by revising paragraph (c) to read as follows:

§ 70.17 Specific exemptions.

(c) The DOE is exempt from the requirements of the regulations in this part to the extent that its activities are subject to the requirements of part 60 or part 63 of this chapter.

PART 72—LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

45. The authority citation for part 72 continues to read as follows:

Authority: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 7902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148(c), (d), Pub. L. 100-203, 101 Stat. 1330-232, 1330-236 (42 U.S.C. 10162(b), 10168(c), (d)). Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C. 10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97-425, 96 Stat. 2202, 2203, 2204, 2222, 2224, (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 98 Stat. 2230 (42 U.S.C. 10153) and sec. 218(a), 96 Stat. 2252 (42 U.S.C. 10198).

46. Section 72.44 is amended by revising paragraphs (g)(1) and (g)(3) to read as follows:

§ 72.44 License conditions.

(g) * * *
(1) Construction of the MRS may not begin until the Commission has authorized the construction of a repository under section 114(d) of NWPA (96 Stat. 2215, as amended by 101 Stat. 1330-230, 42 U.S.C. 10134 (d)) and part 60 or 63 of this chapter;

(3) The quantity of spent nuclear fuel or high-level radioactive waste at the site of the MRS at any one time may not

UNITED STATES NUCLEAR REGULATORY COMMISSION

RULES and REGULATIONS

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

**PART
60**

**DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES
IN GEOLOGIC REPOSITORIES;
LICENSING PROCEDURES**

STATEMENTS OF CONSIDERATION

46 FR 13971
Published 2/25/81
Effective 3/27/81

10 CFR Parts 2, 19, 20, 21, 30, 40, 51,
60, and 70

**Disposal of High-Level Radioactive
Wastes in Geologic Repositories:
Licensing Procedures**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (Commission or NRC) is publishing a final rule on the disposal of high-level radioactive wastes at geologic repositories. The rule sets forth requirements applicable to the Department of Energy for submitting an application for a license and specifies the procedures which the Commission will follow in considering such an application. The rule also sets forth provisions for consultation and participation in the license review by State, local, and Indian tribal governments.

EFFECTIVE DATE: March 27, 1981.

FOR FURTHER INFORMATION CONTACT:
I. C. Roberts, Assistant Director for
Siting Standards, Office of Standards
Development, U.S. Nuclear Regulatory
Commission, Washington, D.C. 20555,
Telephone (301) 443-5985.

SUPPLEMENTARY INFORMATION:

Background

On December 6, 1979, the Nuclear Regulatory Commission published for comment a proposed rule setting forth procedures for licensing geologic high-level radioactive waste (HLW) repositories to be constructed and operated by the Department of Energy (DOE) (44 FR 70408). The proposed rule superseded the proposed General Statement of Policy published for

comment in November 1978 (43 FR 53869). Public comment on the proposed rule (10 CFR Part 60) was received from thirty-four groups and individuals. A number of changes and clarifications have been made in the rule as a result of comments received. This rule contains only the procedural requirements for licensing. The technical criteria against which the license application will be reviewed are still under development. The current staff thinking on the technical criteria was reflected in an Advance Notice of Proposed Rulemaking and draft technical criteria published for public comment on May 13, 1980 (45 FR 31393).

The Commission has made a formal determination that the final rule 10 CFR Part 60 satisfies the criteria for the approval of significant regulations set out in section 2(d) of Executive Order 12044.

Authority

Sections 202 (3) and (4) of the Energy Reorganization Act of 1974, as amended, provide the NRC with licensing and regulatory authority regarding DOE facilities used primarily for the receipt and storage¹ of the high-level radioactive wastes resulting from activities licensed under the Atomic Energy Act and certain other long-term, high-level waste storage facilities of the DOE. Pursuant to that authority, the Commission is promulgating regulations appropriate for licensing geologic disposal of HLW by the DOE. The requirement in the rule that DOE submit a Site Characterization Report in advance of performing exploration activities also implements Section 14(a) of the NRC Authorization Act of 1979 (Pub. L. 95-601).² DOE is responsible for

¹The Commission interprets "storage" as used in the Energy Reorganization Act to include disposal.

²Section 14(a) reads as follows: Any person, agency, or other entity proposing to develop a storage or disposal facility, including a test disposal facility, for high-level radioactive wastes, non-high-level radioactive wastes including transuranium contaminated wastes, or irradiated nuclear reactor fuel, shall notify the Commission as early as possible after the commencement of planning for a particular proposed facility. The Commission shall in turn notify the Governor and the State legislature of the State of proposed siting whenever the Commission has knowledge of such proposed

developing the methods and technology for the permanent disposal of high-level radioactive waste in a Federal repository, and for submitting a license application for a potential repository. The licensing procedures in this rule will be supplemented by technical criteria which will be developed by the Commission in the light of such generally applicable environmental standards as may have been established by the Environmental Protection Agency under Reorganization Plan No. 3 of 1970.

Questions have been raised in the past about the authority of NRC to regulate the construction of the waste repository. DOE activities that take place before an application is filed and may affect the long-term safety of the repository obviously may preclude receipt of a construction authorization. The Commission has concluded that NRC may use its powers to regulate construction of the repository. Accordingly, the Commission may, if necessary, issue orders to secure compliance with construction authorization conditions and to protect the integrity of the repository. In addition, failure to comply with the conditions of any construction authorization may also be grounds for denial of a license to receive material.

Comments

A total of thirty-four groups and individuals commented on the proposed rule, addressing a variety of issues. Most of the commenters viewed the proposed rule as a significant improvement over the proposed General Statement of Policy, and, generally, the comments were supportive of the principles and procedures outlined in the proposed rule. The principal comments received related to multiple site characterization, in situ testing at depth, cost estimates for site characterization, whether the rule should require that the site selected by DOE be the "best", whether an environmental impact statement (EIS) should be required for site characterization, whether the Commission should prepare an EIS for this rulemaking action, opportunities for

PART 60 • STATEMENTS OF CONSIDERATION

wastes in geologic repositories (Part 60); licensing requirements for the storage of spent fuel in an independent fuel spent storage installation (Part 72); and standard specifications for the granting of patent licenses (Part 81). The information collection requirements contained in each of these parts pertain to nine or fewer persons. Therefore, the NRC is not required to obtain OMB approval for these information collection requirements. This document adds a new section to the General Provisions of each part to indicate that OMB approval is not required.

Because these are nonsubstantive amendments dealing with minor procedural matters, good cause exists for finding that the notice and comment procedures of the Administrative Procedure Act (5 U.S.C. 553) are unnecessary and for making the amendments effective upon publication.

Under the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the following amendments to 10 CFR Parts 60, 72, and 81 are published as a document subject to codification.

47 FR 30452
Published 7/14/82
Effective 10/12/82

*Protection of Employees Who
Provide Information*

See Part 18 Statements of Consideration

48 FR 28194
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10 CFR Part 60

Disposal of High-Level Radioactive Wastes in Geologic Repositories Technical Criteria

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is publishing technical criteria for disposal of high-level radioactive wastes (HLW) in geologic repositories, as required by the Nuclear Waste Policy Act of 1982. The criteria address siting, design, and performance of a geologic repository, and the design and performance of the package which contains the waste within the geologic repository. Also included are criteria for monitoring and testing programs, performance confirmation, quality assurance, and personnel training and certification.

EFFECTIVE DATE: July 21, 1983.

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Background

On February 25, 1981, the Nuclear Regulatory Commission published rules

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which established procedures for the licensing of geologic disposal, by the U.S. Department of Energy (DOE), of high-level radioactive wastes (HLW), 46 FR 13971. On July 8, 1981, NRC proposed technical criteria which would be used in the evaluation of license applications under those procedural rules (46 FR 35280). NRC received 93 comment letters on these proposed technical criteria, 69 of which were received in time for the Commission to consider in preparing the final technical criteria that are published here. No significant new issues were raised in the four letters received too late for consideration. The principal comments, and the Commission's responses, are reviewed in the discussion below. A more detailed analysis of the comments is contained in a NRC staff report (NUREG-0804) which is being distributed to all commenters on the proposed rule and which may be purchased by other interested parties from the NRC's GPO Sales Program, Washington, D.C. 20555. Upon publication, a copy will be placed in the Public Document Room (PDR), 1717 H Street NW., Washington, D.C. 20555. This staff report includes a technical rationale for the performance objectives in 10 CFR Part 60 as well as the comment analysis. The final rules contain a number of changes, explained in this statement, that reflect concerns addressed in the public comments.

The licensing procedures referenced above provide for DOE to submit site characterization reports to NRC prior to characterizing sites that may be suitable for disposal of HLW. NRC would analyze these reports, taking into account public comments, and would make appropriate comments to DOE.

The licensing process will begin with the submission of a license application with respect to a site that has been characterized. Following a hearing, DOE may be issued a construction authorization. Prior to emplacement of HLW, DOE would be required to obtain a license from NRC; an opportunity for hearing is provided prior to issuance of such a license. Permanent closure of the geologic repository and termination of the license would also require licensing action for which there would be opportunity for hearing.

The purpose of the technical criteria is to define more clearly the bases upon which licensing determinations will be made and to provide guidance to DOE and information for the public with respect to the Commission's policies in this regard. The criteria also indicate the approach the Commission is taking with respect to implementation of an Environmental Protection Agency (EPA)

standard, particularly with respect to the classification of processes and events as "anticipated" or "unanticipated" and the definition of the "accessible environment" from which radionuclides must be isolated.¹

The Commission anticipates that licensing decisions will be complicated by the uncertainties that are associated with predicting the behavior of a geologic repository over the thousands of years during which HLW may present hazards to public health and safety. It has chosen to address this difficulty by requiring that a DOE proposal be based upon a multiple barrier approach. An engineered barrier system is required to compensate for uncertainties in predicting the performance of the geologic setting, especially during the period of high radioactivity. Similarly, because the performance of the engineered barrier system is also subject to considerable uncertainty, the geologic setting must be able to contribute significantly to isolation.

The multibarrier approach is implemented in these rules by a number of performance objectives and by more detailed siting and design criteria.² In addition to the objective of assuring that licensed facilities will adequately isolate HLW over the long term, these provisions also address considerations related to health and safety during the operational period to permanent closure of the geologic repository.

In this statement of considerations the Commission will first discuss six issues on which it had specifically requested public comment. It will then review other principal changes to the rule which have been adopted in the light of comments received. The discussion will then take up suggestions of a policy nature which the Commission has declined to adopt. Finally, a section-by-section analysis reviews all changes made other than those of a strictly editorial nature. As appropriate, reference is made to relevant provisions

¹ Reorganization Plan No. 3 of 1970 (35 FR 15021, October 6, 1970) authorizes EPA to establish generally applicable environmental standards for radioactivity. EPA's recently proposed standard would allow higher levels of radioactivity for "unanticipated processes and events" than would be permitted if "anticipated processes and events" were to occur. The proposed standard also relates these levels to places within the "accessible environment." The Commission has assumed that these concepts will be reflected in final standards that may be established by EPA.

² Under the Nuclear Waste Policy Act of 1982, the Commission's technical criteria "shall provide for the use of a system of multiple barriers in the design of the repository . . . as the Commission deems appropriate." Section 121(b)(1)(B). The criteria set forth in this rule represent the criteria which, for purposes of this provision, the Commission deems appropriate.

of the Nuclear Waste Policy Act of 1982, Pub. L. 97-425, approved January 7, 1983, and to the Environmental Protection Agency's proposed Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Radioactive Wastes, 47 FR 58195, December 29, 1982. The Commission regards the publication of these rules as constituting full compliance with Section 121(b)(1)(A) of the Nuclear Waste Policy Act, which requires promulgation of the Commission's technical criteria for geologic repositories not later than January 1, 1984.³ The Commission will review these criteria after EPA's environmental standards are published in final form and will initiate subsequent rulemaking actions, as necessary, to take any such standards into account. The Commission further intends additional rulemaking to deal with any changes in licensing procedures that may be necessary in light of the Nuclear Waste Policy Act.

Issues Raised by the Commission

As noted above, the Commission specifically requested public comment on six issues, each of which will be reviewed here before turning to other considerations. These issues dealt with:

- (1) A single overall performance standard vs. minimum performance

³ The technical criteria are explicitly stated to be applicable to construction authorization, § 60.10(b), and to the issuance of licenses to receive and possess high-level radioactive waste at geologic repositories, § 60.101(e). An application to authorize permanent closure requires a license amendment, § 60.51(a); the relevant technical requirements and criteria are set out in the rules here being adopted, inasmuch as the Commission is to be "guided by the considerations that govern the issuance of the initial license, to the extent applicable," § 60.45(b). The Commission interprets the statutory provision pertaining to applications for "decommissioning" to refer to the procedure described in § 60.52, pertaining to termination of a license; such an application would also require a license amendment, and the Commission here, too, would be guided by the present rules to the extent applicable, together with the additional criteria already set out at § 60.52(c). Thus, at every stage of the licensing process, the central inquiry will be the adequacy of DOE's plans and activities as they relate to the isolation of wastes (as well as to safety during operations); and for each decision point we have provided, as is appropriate, for an evaluation that takes into account both the performance objectives and the more detailed criteria that the Commission here adopts. (If Section 212(b)(1)(A) applies to the decommission of surface facilities, the required criteria have been included in § 60.132(a). That paragraph provides that surface facilities must be designed to facilitate decontamination or dismantling to the same extent as would be required, under other NRC regulations, for equivalent activities. This topic may be treated again, in greater detail, in connection with the development of rules that would be generally applicable to decontamination and dismantlement of facilities at which activities subject to Commission regulatory authority are carried out.)

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standards for each of the major elements of the geologic repository; (2) the need for, and appropriate duration of, a waste retrievability period; (3) the level of detail to be used in the criteria, particularly with respect to design and construction requirements; (4) the desirability of population-related siting criteria; (5) the application of an ALARA (as low as reasonably achievable) principle to the performance requirements dealing with containment and control of releases; and (6) alternative approaches on dealing with possibilities of human intrusion into the geologic repository.

Single vs. Multiple Performance Standards

The Commission identified two potentially viable approaches to assuring achievement of the desired isolation goal of controlling releases so as to assure that radioactivity in the general environment is kept to sufficiently low levels. The Commission suggested that a course that would be "reasonable and practical" would be to adopt a "defense-in-depth" approach that would prescribe minimum performance standards for each of the major elements of the geologic repository, in addition to prescribing the EPA standard as a single overall performance standard. However, as an alternative, the Commission invited comment on an approach that would specify the EPA standard as the sole measure of isolation performance.

There was general acceptance of the Commission's multiple barrier approach, with its identification of two major engineered barriers (waste packages and underground facility), in addition to the natural barrier provided by the geologic setting.

While the usefulness of multiple barriers was recognized, the establishment of fixed numerical values for performance was extensively criticized. The criticism took two forms. First, numerous commenters argued that until such times as an EPA standard is established, no logical connection can be demonstrated between the performance of the particular barriers and the overall system performance objective. The values specified by NRC, it was argued, had not been shown to be either necessary or sufficient to meet any particular standard. The second criticism was that the performance appropriate to a particular barrier is greatly dependent upon design features and site characteristics and that values such as those proposed by the Commission could unduly restrict the applicant's flexibility—possibly imposing great additional expense

without compensating protection of public health and safety.

The Commission recognizes the force of both these arguments. Nevertheless, if the Commission were simply to adopt the EPA standard as the sole measure of performance, it would have failed to convey in any meaningful way the degree of confidence which it expects must be achieved in order for it to be able to make the required licensing decisions. More should be done. To that end, the Commission considers it appropriate to include reasonable generic requirements that, if satisfied, will ordinarily contribute to meeting the standards even though modifications may need to be made for some designs and locations.

The Commission's response, therefore, has been to apply, for illustrative purposes, an assumed EPA standard and to examine the values for particular barriers that would assist in arriving at the conclusion that the EPA standard has been satisfied. For this purpose, a draft EPA standard which was referred to in some of the comments has been used. A copy of this draft standard has been placed in the PDR and will be contained in NUREG-0804. Following publication of EPA's proposed standard in the Federal Register, on December 29, 1982, a supplemental evaluation was made to take into account certain departures from EPA's earlier draft. In this way, the Commission has been able to demonstrate the logical connection which it makes between the overall system performance objective for anticipated processes and events, as set out in EPA's proposed standard, and the performance of specific barriers. One of the considerations that affects its judgment in this regard is the need to take proper account of uncertainties in the performance of any of the barriers. As one commenter noted, "To provide a safety factor to compensate for this uncertainty, a multi-barrier system has many advantages. Since the Commission cannot answer the global problem and predict every possible combination of circumstances that might cause releases of waste, multiple, independent mechanisms of slowing or limiting the discharge of radioactive materials to the environment are desirable." There is nothing inconsistent between the multiple barrier, defense-in-depth approach and a unitary EPA standard; on the contrary, in view of the many possible circumstances that must be taken into account, the Commission firmly believes that the performance of the engineered and natural barriers must each make a definite contribution in order for the Commission to be able to

conclude that the EPA standard will be met. The Commission's task is not only a mathematical one of modeling a system and fitting values for particular barriers into the model in order to arrive at a "bottom line" of overall system performance. The Commission is also concerned that its final judgments be made with a high degree of confidence. Where it is practical to do so, the Commission can and will expect barrier performance to be enhanced so as to provide greater confidence in its licensing judgments. Accordingly, a variance between actual and assumed EPA standards will not necessarily require a change of corresponding magnitude in the individual barrier performance requirements.

While use of an assumed EPA standard provides a basis for specifying anticipated performance requirements for individual barriers, it does not deal with the concern about undue restriction upon the applicant's flexibility. The Commission's response to this has not been to abandon the values altogether, but rather to allow them to be modified as the particular case warrants. Thus, to take one example, the Commission continues to be concerned that thermal disturbances of the area near the emplaced waste add significantly to the uncertainties in the calculation of the transport of radionuclides through the geologic environment. The proposed rule addressed this problem by providing that all radionuclides should be contained within the waste packages for a period of 1,000 years. The Commission continues to consider it important to limit the source term by specifying a containment period (as well as a release rate). But the uncertainties associated with the thermal pulse will be affected by a number of factors, such as the age and nature of the waste and the design of the underground facility. For some repositories, a period substantially shorter than 1,000 years may be sufficient to allow for some of the principal sources of uncertainty to be eliminated from the evaluation of repository performance. For cases analyzed by the Commission on the basis of specified assumptions, a range of 300 years to 1,000 years would be appropriate. (These values appear in § 60.113(a)(ii)(A)). Yet even a shorter designed containment period might be specified, pursuant to § 60.113(b), in the light of conditions that are materially different from those that had been assumed. For example, if the wastes had been processed to remove the principal heat-generating radionuclides (cesium-137 and strontium-90), the 300-years provisions would not be controlling.

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Similarly, the Commission may approve or specify a radionuclide release rate or a pre-waste-emplacment groundwater travel time that differs from the normal values, provided that the EPA standard, as it relates to anticipated processes and events, is satisfied. Appropriate values will be determined in the course of the licensing process, in a manner sensitive to the particular case, using the principals set out in the performance objectives, without having to have recourse to the exemption provisions of the regulations.

The numerical criteria for the individual barriers included in the rule are appropriate, insofar as anticipated processes and events are concerned, in assisting the Commission to determine with reasonable assurance that the proposed EPA standard has been satisfied. It should be noted, however, that in order to meet the EPA standard as it applies to unanticipated processes and events, higher levels of individual barrier performance may be required. DOE would need to provide in its design for such performance as may be necessary to meet the EPA standard with respect to such unanticipated processes and events even though in all other respects the values specified by § 60.113(a) and § 60.113(b) would be sufficient.

Retrievability

The purpose of this requirement was to implement in a practical manner the licensing procedures which provided for temporal separation of the emplacement decision from the permanent closure decision. Since the period of emplacement would be lengthy and since the knowledge of expected repository performance could be substantially increased through a carefully planned program of testing, the Commission wished to base its decision to permanently close on such information. The only way it could envision this was to insist that ability to retrieve—retrievability—be incorporated into the design of the geologic repository.

The proposed rule would have required in effect that the repository design be such as to permit retrieval of waste packages for a period of up to 110 years (30 years for emplacement, 50 years to confirm performance, 30 years to retrieve). The Commission solicited comment, noting that it would not want to approve construction of a design that would unnecessarily foreclose options for future decisionmakers, but that it was concerned that retrievability requirements not unnecessarily complicate or dominate repository design.

While the benefits of retaining the option of retrieval were recognized, the length of the proposed requirement, in the opinion of several commenters, was excessive. In their view, the Commission had given inadequate consideration to the additional costs of design, construction, and operations implied in the original proposal; however, no new cost or design information was presented by the commenters.

The Commission adheres to its original position that retrievability is an important design consideration. However, in response to the concerns expressed, the Commission has decided to rephrase the requirement in functional terms. The final rule thus specifies that the design shall keep open the option of waste retrieval throughout the period during which the wastes are being emplaced and, thereafter, until the completion of a performance confirmation program and Commission review of the information obtained from such a program. By that time, significant uncertainties will have been resolved, thereby providing greater assurance that the performance objective will be met. In particular, the performance confirmation program can provide indications whether engineered barriers are performing as predicted and whether the geologic and hydrologic response to excavation and waste emplacement is consistent with the models and tests used in the Commission's earlier evaluations. While the Commission has provisionally specified that the design should allow retrieval to be undertaken at any time within 50 years after commencement of emplacement operations, this feature is explicitly subject to modification in the light of the planned emplacement schedule and confirmation program for the particular geologic repository.

Some commenters suggested that the technical criteria specify the conditions that would require retrieval operations to be initiated. Such provisions would not belong in Subpart E, which is concerned with siting and design. Nor are they needed elsewhere. In the Commission's view, it is clear that retrieval could be required at any time after emplacement and prior to permanent closure if the Commission no longer had reasonable assurance that the overall system performance objective would be met. This situation could exist for a variety of reasons and the Commission believes that it should retain the flexibility to take into account all relevant factors and that it would be imprudent to limit the Commission's discretion by specifying in advance the particular circumstances that would

make it necessary to retrieve wastes. It should be noted that DOE may elect to maintain a retrievability capability for a longer period than the Commission has specified, so as to facilitate recovery of the economically valuable contents of the emplaced materials (especially spent fuel). So long as the other provisions of the rule are satisfied this would not be prohibited. This consideration, however, plays no role in the Commission's requirement pertaining to retrievability. The Commission's purpose is to protect public health and safety in the event the site or design proves unsuitable. The provision is not intended to facilitate recovery for resource value.⁴

The Commission has also included a specific provision clarifying its prior intention that the retrievability design features do not preclude decisions allowing earlier backfilling or permanent closure. A related clarifying change has been the incorporation of a definition of "retrieval." This definition indicates that the requirement of retrievability does not imply ready or easy access to emplaced wastes at all times prior to permanent closure. Rather, the Commission recognizes that any actual retrieval operation would be an unusual event and may be an involved and expensive operation. The idea is that it should not be made impossible or impractical to retrieve the wastes if such retrieval turns out to be necessary to protect the public health and safety. DOE may elect to backfill parts of the repository with the intent that the wastes emplaced there will never again be disturbed; this is acceptable so long as the waste retrieval option is preserved.

The Commission has thus retained the essential elements of the retrievability design feature, but has provided greater flexibility in its application. The

⁴Under the Nuclear Waste Policy Act of 1982, the Commission's technical criteria "shall include such restrictions on the retrievability of the solidified high-level radioactive waste and spent fuel in the repository as the Commission deems appropriate." Section 121(b)(1)(B). The criteria set forth in this rule represent the criteria which, for purposes of this provision, the Commission deems appropriate.

Section 122 of the Nuclear Waste Policy Act provides that, at the same time a repository is designed, DOE shall specify an appropriate period during which spent fuel could be retrieved for any reason pertaining to the public health and safety, or the environment, or for the purpose of permitting recovery of the economically valuable components of such spent fuel. The period of retrievability is subject to approval or disapproval by the Commission as part of the construction authorization process. Insofar as health and safety considerations are concerned, the Commission intends to grant such approval so long as its technical criteria are satisfied, and the Commission further intends to modify the licensing procedures to so specify.

CERTIFICATE OF SERVICE

I hereby certify that on June 6, 2003, copies of the foregoing addendum to the brief for federal respondents were served by mail, postage prepaid, upon the following counsel:

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