
Plans and Schedules for Implementation of U.S. Nuclear Regulatory Commission Responsibilities Under the Low-Level Radioactive Waste Policy Amendments Act of 1985 (P.L. 99-240)

**U.S. Nuclear Regulatory
Commission**

Office of Nuclear Material Safety and Safeguards

M. M. Dunkelman



NOTICE

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ABSTRACT

The purpose of this document is to make available to the States and other interested parties, the plans and schedules for the U.S. Nuclear Regulatory Commission's (NRC's) implementation of its responsibilities under Public Law 99-240, the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA). This document identifies the provisions of the LLRWPA that affect the programs of the NRC, identifies what the NRC must do to fulfill each of its requirements under the LLRWPA, and establishes schedules for carrying out these requirements. Revision 1 of this document includes the accomplishments and schedule revisions made by NRC since July 1986.

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INTRODUCTION

This revised document makes available to the States and to interested parties, the updated plans and schedules for the U.S. Nuclear Regulatory Commission's (NRC's) implementation of its responsibilities under Public Law 99-240, the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA) (attached as Appendix A). This document identifies the provisions of the LLRWPA that affect the programs of the NRC, identifies what the NRC must do to fulfill each of its requirements under the LLRWPA, and establishes schedules for carrying out these requirements.

Changes from the original document, published in July 1986, are indicated by a vertical line as shown in the left margin.

Signed into law on January 15, 1986, the LLRWPA: (1) ensures that currently operating disposal facilities will remain available until the end of 1992, subject to specified volume limitations and other requirements; (2) establishes a system of incentives and penalties to promote steady progress toward new facility development; and (3) under Title II, grants consent to seven Interstate low-level waste disposal Compacts covering 37 States. Key site development milestones as specified by the LLRWPA are listed in Figure 1.

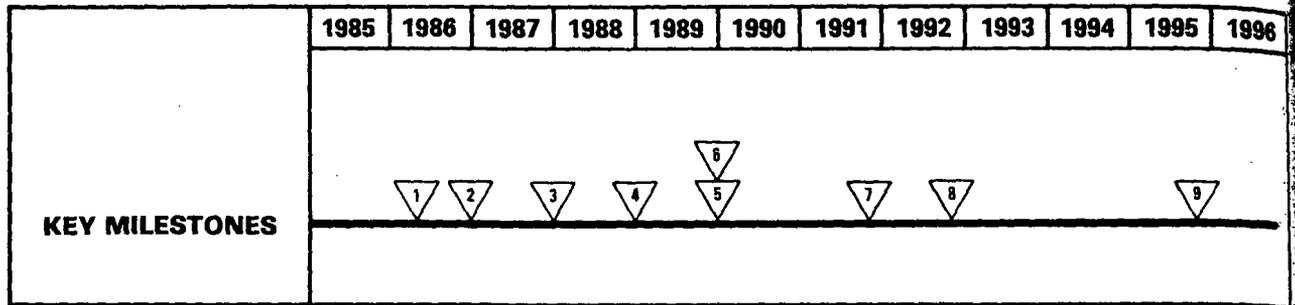
The new law is complex. It presents numerous possibilities for State, Compact Commission, licensee, and Federal agency decision-making, and the final arrangements among all the affected parties cannot now be foreseen. Recognizing that all the impacts of the LLRWPA on the NRC will probably be unclear for some time, this document identifies programmatic impacts that appear to be likely.

NRC'S ROLE AND RESPONSIBILITIES UNDER THE LLRWPA

The LLRWPA requires NRC to take specific actions in a number of areas. These are described in detail in the section-by-section descriptions that follow and are shown in Figure 2. The major required NRC actions are listed below; sections of the LLRWPA that require the action are cited in brackets.

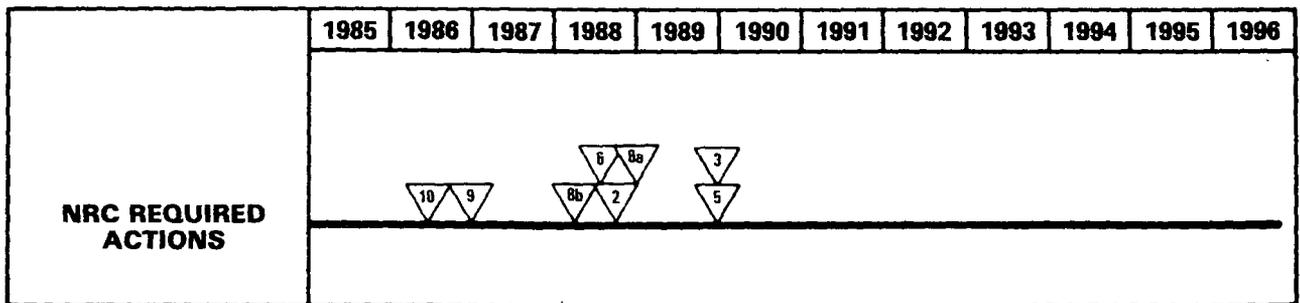
- (1) As required by July 1986, the NRC established standards and procedures and developed the technical capability for acting upon petitions to exempt specific waste streams from NRC regulation. The procedures are to provide for expeditious determinations and actions to exempt waste streams found not to require NRC regulation. [Section 10(a) and (b)]
- (2) As required by January 1987, the NRC established procedures and developed the technical capability for processing licensing applications. These procedures, to the extent practicable, provide for completion of all processing and reviews (except for the licensing hearing) within 15 months after receipt of an application. [Section 9(1)]
- (3) As required by January 1987, in consultation with States and other interested parties, the NRC identified methods, other than shallow land burial for the

Figure 1 Key Site Development Milestones



- 1 States must ratify Compact legislation or certify intent to develop a site [Sec. 5(e)(1)(A)].
- 2 Access to existing sites may be denied [Sec. 5(e)(2)(A)(ii)].
- 3 States/Compacts must develop a siting plan [Sec. 5(e)(1)(B)].
- 4 Access to existing sites may be denied [Sec. 5(e)(2)(B)(ii)].
- 5 A complete license application must be filed or certification provided to the NRC that the State will manage the waste after 12/31/92 [Sec. 5(e)(1)(C)].
- 6 Access to existing sites may be denied [Sec. 5(e)(2)(C)].
- 7 All license applications must be filed and determined to be complete [Sec. 5(e)(1)(D)].
- 8 State/Compact assumes responsibility for low-level waste disposal or must repay a portion of the surcharge to the generators [Sec. 5(d)(2)(C)].
- 9 State/Compact must take title/possession of low-level waste [Sec. 5(d)(2)(C)].

Figure 2 NRC Actions Required by LLRWPA



- 2 Section 2: Classify all wastes as either low-level waste or high-level waste (no date specified, completion likely end of 1988 or beginning of 1989).
- 3 Section 3: License Federal disposal of above-Class-C waste (no date specified).
- 5 Section 5: Transmit State certifications to Congress (no date specified).
- 6 Section 6: Establish emergency access procedures and criteria (completion likely 8/88).
- 8a Section 8a: Identify alternative disposal methods and issue technical guidance (met 12/86).
- 8b Section 8b: Establish technical requirements for alternative disposal methods (1/88 specified).
- 9 Section 9: Establish licensing review procedures and capability (met 1/87).
- 10 Section 10: Establish standards and procedures for wastes below regulatory concern (7/86).

disposal of low-level radioactive waste and issued technical guidance on licensing of these alternative disposal methods. [Section 8(a)]

- (4) By January 15, 1988, the NRC must identify and publish all relevant technical information that must be submitted to NRC to pursue an alternative disposal method, together with the technical requirements for licensing alternative disposal facilities. [Section 8(b)]
- (5) The NRC must, within 45 days after receiving a request for emergency access to a disposal site, complete determinations on whether such access is necessary. In addition, the LLRWPA provides for the NRC to designate an appropriate non-Federal disposal facility or facilities to receive wastes found to require emergency access, and to notify the affected State(s) and Compact Commission(s) with the designated facilities, describing the waste and the minimum volume and duration of disposal required. The requesting State also must be notified if emergency access has been granted. [Section 6(c)]
- (6) The NRC is responsible for licensing facilities for disposal of low-level radioactive waste generated from NRC- or Agreement State-licensed activities and having radionuclides in concentrations which exceed the limits established by the NRC for Class C waste under 10 CFR 61. Management and disposal of waste exceeding Class C concentrations is a Federal responsibility. [Section 3(b)(2)]
- (7) The NRC must transmit to Congress any Governor's certification that his or her State will provide for the management, storage, and disposal of low-level waste after 1992. [Section 5(e)(1)(E)]

In addition to the actions NRC is specifically required to take, a number of LLRWPA's provisions make other NRC measures necessary or prudent, or affect the timing of required actions.

- (1) Access to an operating disposal facility could be denied by the sited States on January 1, 1989 should the January 1, 1988 milestone not be met; NRC is planning to have final regulations on petitions for emergency access by August 1988.
- (2) To ensure that extended storage does not become de facto disposal if a licensee becomes insolvent, NRC staff may find it necessary to reexamine financial assurance requirements for such storage. The problem of such insolvencies could arise during the time between January 1, 1987, when access to a disposal site may first be denied, and January 1, 1996, when States that have not provided for disposal are required to take title to and possession of low-level waste generated within their borders.
- (3) The NRC staff has reviewed the Department of Energy's (DOE's) report to Congress on recommendations for disposal of waste exceeding Class C concentrations ("Recommendations for Management of Greater-Than-Class-C Low-Level Radioactive Waste," DOE/NE-0077) and has suggested to DOE that DOE consider disposal of all greater-than-Class-C (GTCC) waste in a high-level waste (HLW) repository. Based on a decision by DOE to pursue

this, or some other disposal option, NRC staff may need to develop additional GTCC waste packaging or other guidance. NRC staff plan to continue working with DOE on this subject and on the rulemaking for the definition of HLW.

- (4) In DOE's report, DOE assumed responsibility for ensuring safe disposal of GTCC waste and announced a plan for accepting GTCC wastes from commercial sources for storage and eventual disposal. NRC staff will need to interact with DOE and licensees on DOE's development of criteria for acceptance of GTCC waste for storage prior to disposal. (A prompt DOE decision on GTCC waste disposal would appear to be needed to develop such criteria.) Pending acceptance by DOE, licensees may need to store GTCC wastes for a indefinite period. In addition to certain materials licensees, such as sealed source manufacturers with such wastes, this requirement may affect the disposition of any GTCC wastes generated from normal reactor operations or from decommissioning and decommissioning.
- (5) The NRC plans to clarify the existing definition of low-level waste in 10 CFR 61 to identify the upper bound of low-level wastes having radionuclide concentrations exceeding the Class C limits. This clarification is being done as part of the current rulemaking effort on the definition of high-level waste. An Advance Notice of Proposed Rulemaking was published in the Federal Register on February 27, 1987 (52 FR 5992) (Appendix B).
- (6) The several opportunities for sited States to curtail access to their facilities may make it prudent for NRC staff to consider measures to encourage the preparedness of licensees for such losses of access and to ensure the adequacy of alternative means of waste management. This preparedness appears the more advisable in light of the stringent requirements for obtaining emergency access to disposal sites under Section 6.
- (7) Given the added costs, uncertainties, and limits on access to currently operating sites, there may be an increase in the number of licensing actions requested for onsite storage, onsite disposal under 10 CFR 20.302, incineration, and other forms of treatment or volume reduction. NRC staff believes that sufficient licensing guidance is in place for decision-making in these areas.
- (8) Any State agency that takes title to or possession of wastes after 1992 under Section 5(d)(2)(C) will require a license from the NRC or from an Agreement State agency. NRC staff will have to coordinate closely with State agencies expecting to assume these management responsibilities.
- (9) Given NRC's and DOE's mutual interest in cooperation for accurate and up-to-date information, NRC staff will have to exercise care to ensure that this interest does not compromise the arm's-length relationship it will need to maintain with DOE as a prospective licensee for disposal of wastes having radionuclide concentrations exceeding Class C limits.
- (10) Because the LLRWPA does not address the jurisdictional questions of NARM (naturally occurring or accelerator-produced radioactive materials), the NRC staff believes it must proceed on the assumption that it is not required

at this time to consider possible future NRC regulatory requirements for these wastes in providing "all relevant information" on alternative disposal methods.

- (11) The LLRWPA also does not address the jurisdictional question of mixed wastes, i.e., wastes that contain both hazardous and radioactive constituents. Mixed-waste issues are described in Appendix C.
- (12) The NRC staff may want to consider ways to strengthen ongoing agency efforts to identify and assess the disposal requirements of new wastes that may result from future licensed activities. As early as possible, any unique disposal requirements resulting from new waste-producing technology or alternative disposal methods should be brought to the attention of NRC management.

For additional information on specific areas of concern, write to: Regis R. Boyle, Regulatory Section Leader, Regulatory Branch, Division of Low-Level Waste Management and Decommissioning, Nuclear Material Safety and Safeguards, NRC, Washington, DC 20555, or call (301) 427-4706. Appendix D is a functional chart of the Low-Level Waste Management and Decommissioning Division. Appendix E is a list of NRC publications on low-level waste disposal, and Appendix F is a Federal Register Notice describing the availability of technical assistance from the NRC.

SECTION-BY-SECTION DESCRIPTIONS

Implementation of Section 2(9) Concerning Classifying Waste as Low Level (Appendix A, p. A-1, 99 Stat. 1843, and Figure 3)

The LLRWPA defines low-level radioactive waste as radioactive material that:

- (A) is not high-level radioactive waste, spent nuclear fuel, or byproduct material [as defined in Section 11e.(2) of the Atomic Energy Act of 1954 (42 U.S.C. 2014(e)(2))]; and
- (B) the Nuclear Regulatory Commission, consistent with existing law and in accordance with paragraph (A), classifies as low-level radioactive waste.

The NRC action resulting from this provision of the LLRWPA, is to affirmatively classify as such the radioactive materials addressed by this LLRWPA.

Approach Taken

The staff believes that the only remaining action in waste classification that must be taken to fulfill this provision of the LLRWPA is to identify the upper bound of those low-level wastes having radionuclide concentrations exceeding Class C limits, thereby establishing the threshold between low-level and high-level waste. This action is being undertaken as part of the proposed rulemaking to define high-level wastes pursuant to Section 2(12) of the Nuclear Waste Policy Act of 1982. An Advance Notice of Proposed Rulemaking on this regulation was published in the Federal Register on February 27, 1987 (52 FR 5992 (Appendix B)).

Figure 3 Section 2(9): Classifying Waste as Low Level

	1985	1986	1987	1988	1989	
LLRWPA ACTIONS			1			
NRC ACTIONS			A	B	C D	E

LLRWPA MILESTONES

1 DOE report to Congress making recommendations on how to dispose of wastes in concentrations exceeding Class C limits under 10 CFR 61.55.

NRC MILESTONES

Revision of 10 CFR 60 to define high- and low-level waste.

- A Published Advance Notice of Proposed Rulemaking (2/87).
- B End of public comment period (6/87).
- C Publication of Proposed Rule (4/88).
- D End of public comment period on rule (6/88).
- E Publication of Final Rule (12/88).

Implementation of Section 3(b)(1) and (2) Concerning Licensing a Facility Handling Waste Having Radionuclide Concentrations Exceeding Class C Limits (Appendix A, p. A-2, 99 Stat. 1844, and Figure 4)

Section 3(b)(1)(D) of the LLRWPA provides for Federal responsibility of:

any other low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission [NRC] for Class C radioactive waste, as defined by Section 61.55 of Title 10, Code of Federal Regulations, as in effect on January 26, 1983.

Section 3(b)(2) of the LLRWPA further provides that:

All radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D) that results from activities licensed by the Nuclear Regulatory Commission under the Atomic Energy Act of 1954, as amended, shall be disposed of in a facility licensed by the Nuclear Regulatory Commission that the Commission determines is adequate to protect the public health and safety.

The NRC action resulting from this provision of the LLRWPA is to prepare for and license the Federal disposal of the affected waste.

Approach Taken

The NRC staff has reviewed DOE's projections of greater-than-Class-C (GTCC) waste as given in "Recommendations for Management of Greater-Than-Class-C Low-Level Radioactive Waste" (DOE/NE-0077). Based on this review, the NRC staff has suggested to DOE that DOE consider disposal of all GTCC waste in a high-level waste geologic repository. Based on the NRC's conceptual definition of high-level waste, the staff estimates that roughly 85 percent of the 2,000 m³ of GTCC waste projected by DOE to the year 2020 is expected to contain large quantities of transuranic or other long-lived radionuclides of concern. For the most part, NRC and Environmental Protection Agency (EPA) regulatory criteria for disposal of GTCC waste in a high-level waste repository already exist (see Implementation of Section 3(b)(3) Concerning DOE's Report to Congress).

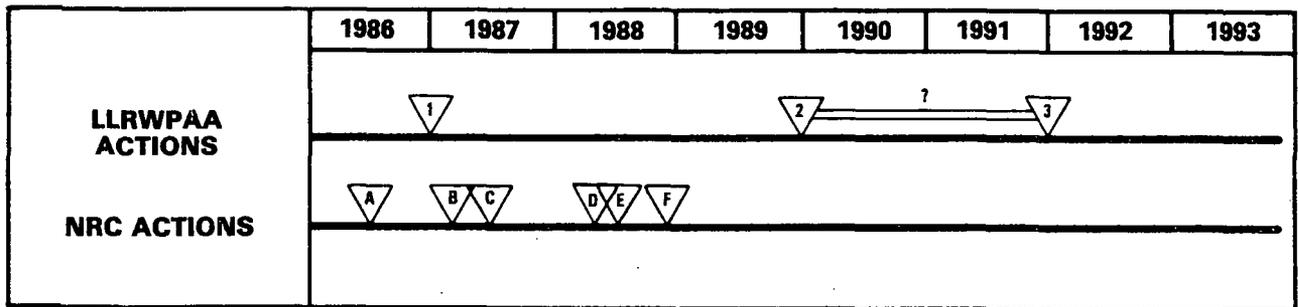
A more detailed plan for implementing this provision of the LLRWPA will be developed following a DOE decision on disposal of GTCC waste. If, as suggested by NRC staff, DOE decides to dispose of all, or most, of the GTCC waste in a high-level waste repository, then NRC staff would develop any additional waste packaging or other guidance on an as-needed basis. A prompt DOE decision on GTCC waste disposal would appear to be needed to enable specification of DOE acceptance criteria for storage of GTCC waste prior to disposal.

In the interim, NRC staff plans to take the following actions:

- (1) As a priority item, continue work on the rulemaking to define high-level waste. This rulemaking also would establish the upper bound for GTCC low-level waste.
- (2) Work with DOE and DOE's Energy Information Administration to acquire additional data as needed on sources of GTCC waste.

- (3) Interact with DOE and licensees on DOE's development of criteria for acceptance of waste for storage prior to disposal.
- (4) Work with DOE to provide guidance needed by DOE to be able to select disposal options.

Figure 4 Section 3(b)(1) and (2): Licensing an Above-Class-C Facility



LLRWPA MILESTONES

- 1 DOE report to Congress making recommendations to ensure safe disposal of wastes in concentrations exceeding Class C limits under 10 CFR 61.55 (submitted 2/87).
- 2 3 Submittal of a license application for disposal of above-Class-C wastes (no date specified in the LLRWPA).

NRC MILESTONES

- A Decided to revise 10 CFR 60 to define high- and low-level waste (6/86).
- B Published Advance Notice of Proposed Rulemaking (2/87).
- C End of public comment period (6/87).
- D Publication of Proposed Rule (4/88).
- E End of public comment period on rule (6/88).
- F Publication of Final Rule to NRC Commission (12/88).

Implementation of Section 3(b)(3) Concerning DOE's Report to Congress on Disposal of Waste Having Radionuclide Concentrations Exceeding Class C Limits (Appendix A, p. A-2, 99 Stat. 1844, and Figure 5)

Pursuant to the LLRWPA, DOE was required to submit to Congress a report setting forth recommendations on ensuring safe disposal of waste generated from commercial sources (NRC and Agreement State licensees) and having radionuclide concentrations exceeding Class C limits (also known as Greater-Than-Class-C, or GTCC waste).

Approach Taken

During DOE's preparation of the report, NRC staff took the following actions:

- (1) Provided DOE staff with information on the sources and characteristics of wastes exceeding Class C concentrations;
- (2) Identified groups of NRC licensees likely to generate waste exceeding Class C concentrations;
- (3) Assisted DOE's Energy Information Administration in preparing a form to survey NRC and Agreement State licensees;
- (4) Briefed DOE staff on NRC's rulemaking on the definition of high-level waste; and
- (5) Briefed DOE staff on the progress of NRC's efforts to resolve inconsistencies between NRC's regulations for disposal of low-level waste and EPA's regulations for disposal of hazardous waste.

DOE submitted its report, entitled "Recommendations for Management of Greater-Than-Class-C Low-Level Radioactive Waste" (DOE/NE-0077) in February 1987. In this report, DOE assumes responsibility for ensuring safe disposal of GTCC waste and announces a plan to accept GTCC wastes from commercial sources for management and eventual disposal. (Management may include storage, treatment, packaging, and transportation within DOE facilities.)

In the report, DOE expresses its belief that it cannot address disposal options until NRC and EPA complete five necessary regulatory actions. NRC staff does not consider this to be the case. NRC staff's analysis of the DOE report and of the five actions identified by DOE were communicated to DOE via an April 30, 1987 letter from Hugh L. Thompson, Jr. (NRC) to A. David Rossin (DOE).

The NRC staff suggests, for reasons of administrative efficiency, that DOE consider disposal of GTCC waste in a high-level waste geologic repository. Roughly 85 percent of the 2,000 m³ of GTCC waste projected by DOE to the year 2020 is expected to contain large quantities of transuranic or other long-lived radionuclides of concern. For the most part, NRC and EPA regulatory criteria for disposal of GTCC waste in a high-level waste repository already exist. Repository disposal also would save DOE and NRC the considerable resources necessary to develop and license separate GTCC waste disposal facilities.

Figure 5 Section 3(b)(3): DOE's Report to Congress on Disposal of Above-Class-Waste

	1985	1986	1987	1988	1989
LLRWPA ACTIONS			I		
NRC ACTIONS		A	B C D	E F	G

LLRWPA MILESTONES

- I DOE must issue a report to Congress containing recommendations for ensuring safe disposal of wastes in concentrations exceeding Class C limits (submitted 2/87).

NRC MILESTONES

- A Decided to revise 10 CFR 60 to define high- and low-level waste (6/86).
- B Published Advance Notice of Proposed Rulemaking (2/87).
- C Reviewed DOE's report to Congress (4/87).
- D End of public comment period (6/87).
- E Publication of Proposed Rule (4/88).
- F End of public comment period on rule (6/88).
- G Publication of Final Rule (12/88).

Implementation of Section 4(b)(3) and (4) Concerning Preserving NRC Authority
With Respect to Low-Level Waste Compacts
(Appendix A, p. A-2, 99 Stat. 1845 and 1846, and Figure 6)

The LLRWPA provides specific language covering the effect of Compacts on Federal law, in particular the preservation of NRC's regulations.

The NRC action resulting from this provision is to review the Compact charter language and make known to the Compact Commissions discrepancies from NRC regulations.

Approach Taken

NRC's Regional State Liaison Officers, in coordination with NRC's State, Local and Indian Tribe Programs (formerly, Office of State Programs), will continue to monitor Compact Commission meetings and actions to the extent practical to keep abreast of State and Compact developments. In particular, all bylaws, rules, and regulations will be obtained from the Compact Commissions to be reviewed by the NRC technical and legal staff for identification of conflicts with NRC's regulations.

Figure 6 Sections 4(b)(3) and (4): Preserving NRC Authority With Respect to Low-Level Waste Compacts

	1985	1986	1987	1988	1989	1990	1991	1992	1993
LLRWPA ACTIONS									
NRC ACTIONS									

LLRWPA MILESTONES

No specific milestones.

NRC MILESTONES

No specific milestones.

Implementation of Section 5(d)(2)(C) Concerning the Potential for States to Take Title to and to Take Possession of Low-Level Waste
(Appendix A, p. A-5, 99 Stat. 1850, and Figure 7)

As relief to generators operating in a State that does not meet certain milestones in the LLRWPA, LLRWPA provides for such States to take title to and possession of the low-level waste. This action would require an NRC or Agreement State license.

Significant State liabilities arise under Section 5(d)(2)(C) if a State or Compact is unable to provide for the disposal of waste by January 1, 1993. Upon the request of the generator or owner of the waste, each State without disposal capacity "shall take title to the waste, shall be obligated to take possession...and shall be liable for all damages directly or indirectly incurred" by the generator or owner as a consequence of the failure of the State to take possession of the waste as soon after January 1, 1993, as the generator or owner notifies the State that the waste is available for shipment.

If the State elects not to take title to and possession of the waste and not to assume liability in 1993, Section 5(d)(2)(C)(ii) provides that 25 percent of the total surcharge paid by the generator or owner between January 1, 1990, and December 31, 1992, is to be repaid with interest by DOE to the generator in monthly installments until the State or Compact region is able to provide for disposal or until January 1, 1996, whichever is earlier. If the State does take title to and possession of the waste and does assume liability, however, Section 5(d)(2)(C) provides that the State is to receive the 25 percent rebate instead of the generator. When the State or the Compact to which it is a party provides for disposal, the State or Compact Commission is to receive the rebate, prorated for that portion of the period between January 1, 1993, and January 1, 1996, during which disposal is provided.

However, if a State or Compact has failed to provide for disposal by January 1, 1996, the State must take title to and possession of the waste and must assume all liabilities from its failure to do so. This occurs as soon after January 1, 1996, as the generator or owner notifies the State that the waste is available for shipment.

The NRC actions resulting from this provision are to keep aware of the development of such situations, ensure that the necessary regulatory guidance is available and known by such States, and to take any required licensing actions.

Approach Taken

NRC staff will continue to assess the need to change regulations or guidance documents. In addition, a summary of regulatory information on waste storage will be issued to potential licensees and Agreement States sufficiently in advance of its required use, to allow for the timely development and licensing of any needed facilities.

Figure 7 Section 5(d)(2)(c): Potential for States to Take Title to and to Take Possession of Low-Level Waste

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
LLRWPA ACTIONS									▽ ₁				▽ ₂

NRC ACTIONS					▽ _A			▽ _A			▽ _A		

LLRWPA MILESTONES

▽₁ A State unable to provide for disposal must take title to and possession of its own waste, or must repay a portion of the surcharge to generators.

▽₂ A State unable to provide for disposal must take title to and possession of its own waste.

NRC MILESTONES

▽_A Issue summary of regulatory information on waste storage (periodically revised).

Implementation of Section 5(e)(1)(C) and (D) Concerning Determining the
Completeness of Disposal Site Applications
(Appendix A, p. A-6, 99 Stat. 1853, and Figure 8)

The LLRWPA establishes specific dates by which a complete license application, as determined by the NRC or Agreement State, shall be filed for a low-level waste disposal facility. If a State or Compact Commission submits a license application to the NRC for a disposal facility, NRC must determine that the application is complete before the State or Compact can be found to be in compliance.

The NRC action resulting from this provision has been to identify, well in advance of the specified dates, what it would consider to be a complete license application.

Approach Taken

The NRC staff published in January 1987, NUREG-1199, "Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal Facility." A notice of availability (Appendix G) was published in the Federal Register on January 30, 1987 (52 FR 3068). The Standard Format and Content guide will be revised to cover alternatives to shallow land burial by January 1988.

Figure 8 Sections 5(e)(1)(C) and (D): Determining the Completeness of Disposal Site Applications

	1986	1987	1988	1989	1990	1991	1992
LLRWPA ACTIONS							
NRC ACTIONS	A	B	C				

LLRWPA MILESTONES

Required dates for submittal of a license application.

NRC MILESTONES

- Issued draft Standard Format and Content of License Applications for Near-Surface Disposal of Radioactive Waste (3/86).
- Issued Standard Format and Content guide, NUREG-1199 (1/87).
- Issue modification of Standard Format and Content guide, NUREG-1199, covering alternative disposal methods (1/88).

Implementation of Section 5(e)(1)(E) Concerning Transmitting and Publishing State Certifications

(Appendix A, p. A-6, 99 Stat. 1853, and Figure 9)

Section 5(e)(1)(C) directs that by January 1, 1990, an application for a license to operate a low-level waste disposal facility be filed, or the Governor of each affected non-sited State must certify that the State will provide disposal capacity after December 31, 1992. Under Section 5(e)(1)(E), NRC must transmit any such certification to Congress and publish it in the Federal Register.

If the non-sited State or Compact Commission has relied on certification to meet the 1990 milestone, it must file a license application by the January 1, 1992, milestone. Under Section 5(e)(1)(D), NRC must determine that any such application filed with the NRC is complete.

If a State or Compact determines that it will not be able to submit a complete application, or if the NRC or cognizant Agreement State agency sees that it will probably be unable to find by January 1, 1990 that a submitted application is complete, the affected State Governors will have to provide a certification to meet the milestone.

Approach Taken

Because a Governor's certification will have to be determined to be sufficient for the purpose of meeting the 1990 milestone and levying penalties or paying rebates, Congress may ask NRC to comment on each such certification to assess whether the planned State actions described are likely to result in the timely licensing and development of adequate storage or disposal facility capacity. The NRC may determine in advance, as a policy matter, specifically what role it intends to take upon receipt of a certification and to prepare a guidance document identifying NRC's role, how certifications will be processed, and the criteria by which NRC will judge the adequacy of the certification.

Figure 9 Sections 5(e)(1)(E): Transmitting and Publishing State Certifications

	1986	1987	1988	1989	1990	1991
LLRWPA ACTIONS					▽ I	
NRC ACTIONS		▽ A	▽ B			

LLRWPA MILESTONES

▽ I Unsited States/Compacts must file license application or written certification must be provided to the NRC that the State will provide for the storage, disposal, or management of its own waste.

NRC MILESTONES

▽ A Identify the extent of NRC actions (10/87).
 ▽ B Identify procedures for submitting certifications.

Implementation of Section 6(a) Through (e) Concerning Granting Emergency Access (Appendix A, p. A-7, 99 Stat. 1855-1857, and Figure 10)

Section 6 authorizes the NRC to grant emergency access to any non-Federal low-level waste disposal facility, if necessary, to eliminate an immediate and serious threat to the public health and safety or to the common defense and security. Under Section 5(e)(2)(A)(ii), if certain prescribed actions have not been taken by a State, generators within that State may be denied access to the existing low-level waste disposal facilities beginning on January 1, 1987. The NRC may be requested to provide emergency access any time after that date.

Upon receipt of a request for emergency access, the NRC must determine within 45 days whether access is necessary and that the threat cannot be mitigated by any alternative consistent with the public health and safety. If NRC grants the request, it must then designate an appropriate disposal facility or facilities to receive the waste. The LLRWPA also provides for temporary access, extensions of access, reciprocal access, and approvals by the Compact Commissions.

Approach Taken

The following NRC actions directly follow from the LLRWPA and will be addressed by NRC in a rule that is under development.

- (1) Identify any required certification or information that must be submitted with a request for emergency access.
- (2) Establish the review procedure and the criteria that will be used to make the required determination within the 45 days provided in the LLRWPA.
- (3) Establish a procedure for designating a non-Federal site to receive the waste.
- (4) Establish criteria for acting on requests for extensions of emergency access.
- (5) Establish criteria for granting temporary emergency access.

To help ensure that generators and States understand at an early stage that the requirements for emergency access will be stiff, the NRC published a Notice of Intent to Promulgate Regulations in the Federal Register on January 15, 1987 (52 FR 1634), to alert the public to these plans (Appendix H). NRC staff plans to promulgate the proposed rule in the fall of 1987 and the final in the fall of 1988.

The legislative history of Section 6 indicates that Congress intended emergency access to be granted only under very rare circumstances. The history indicates that emergency access was not intended to be viewed by States as available as an alternative to meeting the milestones in the Act. It was to be granted only as a last resort and after all available alternatives, including but not limited to those set out in 6(C)(1)(B) of the LLRWPA, had been thoroughly explored and dismissed because they would not adequately protect the public health and safety or the common defense and security.

In drafting the proposed rule, NRC staff is reflecting and emphasizing Congress' concerns. Plans are to require thorough documentation that emergency access is necessary. NRC staff has identified additional alternatives and is planning to require that these alternatives be considered by potential applicants in evaluating their need for emergency access. The proposed rule will not permit the public health and safety or the common defense and security to be compromised, but NRC staff expects that once the rule is implemented, approvals of requests for emergency access will be quite difficult to secure.

There are a number of States and generators that might request emergency access. State, Local and Indian Tribe Programs in coordination with the Regional State Liaison Officers and the Division of Low-Level Waste Management and Decommissioning, Office of Nuclear Material, Safety, and Safeguards, will continuously monitor progress being made by the States to reach the various milestones. Accordingly, NRC staff will try to identify those States and generators that might request emergency access, so as to be better prepared to receive the State's request for emergency access.

Figure 10 Section 6(a) through (e): Granting Emergency Access

	1986	1987	1988	1989	1990	1991
LLRWPA ACTIONS		▽ ₁		▽ ₁	▽ ₁	
NRC ACTIONS		▽ _A	▽ _B	▽ _C		

LLRWPA MILESTONES

▽₁ Trigger dates* for denying access to existing sites:

- 1/1/87 - Sec. 5(e)(2)(A)(ii)
- 1/1/89 - Sec. 5(e)(2)(B)(ii)
- 1/1/90 - Sec. 5(e)(2)(C)

NRC MILESTONES

- ▽_A Issued Notice of Intent to Promulgate Regulations (1/87).
- ▽_B Publication in Federal Register of Proposed Rule establishing criteria and procedures for evaluating requests for emergency access (10/87).
- ▽_C Issue Final Rule (8/88).

*Note: These dates do not correspond in all cases, to the milestone dates most frequently associated with the LLRWPA. The reason for this is that NRC staff are using the dates established by the LLRWPA for denying access to existing disposal sites as the "trigger dates" for possible receipt of requests for emergency access. (The LLRWPA sets out four major milestones that must be met by the States in developing their low-level waste disposal capability. If States fail to meet either of the first two milestones, access to the disposal facilities is not immediately cut-off but continues for the limited period of time specified by the LLRWPA. As provided by the LLRWPA, generators in States which fail to comply with the Act cannot be denied access to existing facilities for 6 months after the first major milestone has passed and for a year after the second.) NRC is using the dates when access can be denied for purposes of planning the development of the emergency access rule.

Implementation of Section 7 Concerning DOE's Annual Report to Congress
(Appendix A, p. A-9, 99 Stat. 1858, and Figure 11)

Section 7(a)(1) requires DOE to provide technical assistance to those States and Compacts requiring assistance to carry out the LLRWPA. This assistance is to include, among other things, technical guidelines for site selection; alternative disposal technologies; volume reduction options; health and safety considerations in the storage, shipment, and disposal of low-level waste; and the establishment of a computerized data base. Financial assistance also is to be provided through fiscal year 1993 under Section 7(a)(2).

Section 7(b) requires the Secretary to prepare and submit to Congress an annual report which, among other things, is to: summarize the progress of siting and licensing activities in each Compact region; review available volume reduction technologies and their applications, effectiveness, and costs; review interim storage requirements, usage, and costs; summarize intra- and interregional transportation requirements; and project interim storage and final disposal volume requirements in each region for each upcoming year.

No NRC actions are specifically required.

Approach Taken

NRC staff has provided and will continue to provide DOE with information. NRC staff is participating in the development of DOE's computerized data base on low-level waste management and will have a continuing interest in the accuracy and currency of the data. Given the two agencies' mutual interest in cooperation for accurate and up-to-date information, NRC staff will have to exercise care to ensure that this interest does not compromise the arm's-length relationship the staff will need to maintain with DOE as a prospective licensee.

Figure 11 Section 7: DOE's Annual Report to Congress

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
LLRWPA ACTIONS			▽	▽	▽	▽	▽	▽	▽	▽	▽	▽
NRC ACTIONS												

LLRWPA MILESTONES

▽ Annual Report to Congress.

NRC MILESTONES

No specific milestones.

Implementation of Section 8 Concerning Alternative Disposal Methods
(Appendix A, p. A-9, 99 Stat. 1858, and Figure 12)

Section 8(a) of the LLRWPA requires that:

Not later than 12 months after the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985, the Nuclear Regulatory Commission shall, in consultation with the States and other interested persons, identify methods for the disposal of low-level radioactive waste other than shallow land burial, and establish and publish technical guidance regarding licensing of facilities that use such methods.

Further, Section 8(b) of the LLRWPA requires that within 24 months of enactment again in consultation with States and other interested persons, the NRC is to identify and publish all relevant technical information that an interested State or Compact must provide to NRC on these alternative methods and the technical requirements they must meet. Any further requirements or guidance in addition to 10 CFR 61 are to be specified and published in a manner deemed appropriate by the NRC.

Approach Taken

In December 1986, the staff published a branch technical position, NUREG-1241, "Licensing of Alternative Methods of Disposal of Low-Level Radioactive Waste," for which a Notice of Availability (see Appendix I) was published in the Federal Register on January 6, 1987 (52 FR 397). This position identifies what the staff considers to be the principal alternative disposal technologies. The position reflects comments made by States, Compacts, and other interested parties who had been asked in the earlier draft position to identify any additional disposal methods. The draft position was published March 6, 1986 in the Federal Register (Appendix I) (51 FR 7806). The NRC staff also consulted with States and Compacts during a workshop on alternatives held June 24-25, 1986, in Bethesda, Maryland. Proceedings for this workshop were published as NUREG/CP-0085, "Meeting With States on the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985."

By January 1988, the Standard Format and Content guide and the Standard Review Plan for a license application will be revised to cover two selected alternatives to shallow land burial. The two alternatives to be covered are disposal options that appear to have the greatest interest for development and which incorporate cement materials with earthen covers. These alternatives include below-ground vaults and earth-mounded concrete bunkers. Additional alternatives (e.g., above-ground vaults, mined cavities, and augured holes) will be addressed by the NRC staff in the future as staff resources permit and in response to the interests expressed by States and Compacts.

Figure 12 Section 8: Alternative Disposal Methods

	1985	1986	1987	1988	1989	1990	1991	1992	1993
LLRWPA ACTIONS			1	2					
NRC ACTIONS		A	B	C	D				

LLRWPA MILESTONES

- 1 NRC must, in consultation with States and other parties, identify and issue technical licensing guidance.
- 2 NRC must, in consultation with States and other parties, issue technical requirements and application content guidance.

NRC MILESTONES

- A Draft Branch Technical Position on Licensing of Alternative Methods issued in Federal Register (3/86).
- B Workshop held (6/86).
- C Published Branch Technical Position NUREG-1241, "Licensing of Alternative Methods of Disposal of Low-Level Radioactive Waste" (12/86).
- D Revise Standard Format and Content guide (NUREG-1199) and Standard Review Plan (NUREG-1200) to cover alternatives to shallow land burial (1/88).

Implementation of Section 9 Concerning Establishment of a License Review Capability

(Appendix A, p. A-9, 99 Stat. 1859, and Figure 13)

Section 9 of the LLRWPA requires that the NRC and Agreement States consider a disposal facility license application in accordance with applicable law, except that they are to:

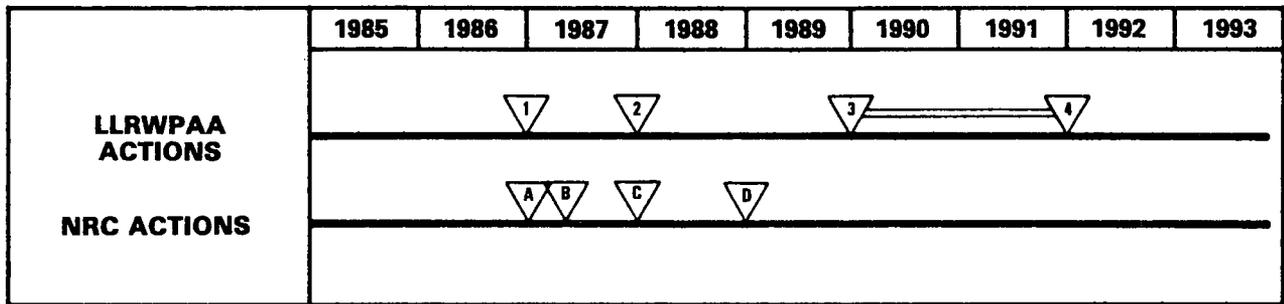
- (1) Establish procedures and develop the technical capability for processing applications by January 1987, and
- (2) To the extent practicable, complete all review and processing activities, except for the public hearing, within 15 months of receipt of the application.

Further, Section 9(3) of the LLRWPA requires that to the extent practicable, NRC and the Agreement States, as appropriate, shall consolidate all required technical and environmental reviews and public hearings associated with the licensing of a low-level waste disposal facility.

Approach Taken

NRC staff responded by developing NUREG-1200, "Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility" (January 1987). This review plan, noticed in the Federal Register on January 30, 1987 (52 FR 3068) (Appendix G), defines the technical reviews required for processing a license application. By January 1988, the Standard Review Plan will be revised to cover alternatives to shallow land burial. The Environmental Standard Review Plan (NUREG-1300) was published in April 1987 (noticed in the Federal Register on May 6, 1987 (52 FR 16968) and attached as Appendix J). With the use of such standard review plans and by maintaining proper staff levels and training of the staff, NRC staff will be able to process a license application within 15 months of receipt, provided that the application is complete and follows the guidance provided in NUREG-1199, "Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal Facility," and Regulatory Guide 4.18, "Standard Format and Content of Environmental Reports for Near-Surface Disposal of Radioactive Waste."

Figure 13 Section 9: Establishment of a License Review Capability



LLRWPAA MILESTONES

- 1 NRC (or Agreement State) must establish procedures and technical capability for processing license applications.
- 2 Develop technical requirements for alternatives to shallow land burial [Section 8(b)].
- 3 → 4 Submit license application to NRC or Agreement State

NRC MILESTONES

- A Standard Review Plan (NUREG-1200) for shallow land burial available to States/Compacts (1/87).
- B Environmental Review Plan (NUREG-1300) published 4/87.
- C Standard Review Plan revised for alternatives to shallow land burial available to States/Compacts (1/88).
- D Procedures and technical capability established for alternatives to shallow land burial.

Implementation of Section 10 Concerning Radioactive Waste Below Regulatory Concern

(Appendix A, p. A-9, 99 Stat. 1859, and Figure 14)

Section 10(a) of the LLRWPA requires that by July 1986,

the Commission shall establish standards and procedures, pursuant to existing authority, and develop the technical capability for considering and acting upon petitions to exempt specific radioactive waste streams from regulation by the Commission due to the presence of radionuclides in such waste streams in sufficiently low concentrations or quantities as to be below regulatory concern.

The LLRWPA further requires [Section 10(b)] that the NRC identifies the information required to be submitted in support of such rulemaking petitions and that the NRC makes its determination in an expeditious manner.

Action Taken

NRC's responsibilities under Section 10 were met with two parallel efforts. One effort established standards and procedures by means of a Commission Policy Statement and an accompanying staff implementation plan which were published in the Federal Register on August 29, 1986 (51 FR 30839) (see Appendix K). Public comment was requested by the end of October 1986 and 13 comment letters were received. A second effort addressed NRC staff's technical capability to act on rulemaking petitions filed in response.

The Policy Statement and implementation plan describe the information petitioners should file, the decision criteria the NRC will use, and the administrative procedures the NRC will follow. As a practical matter, the primary information for justifying and supporting rulemaking petitions on waste streams must be supplied by the petitioner if the NRC staff is to act in an expeditious manner. A computer code, IMPACTS-BRC (NUREG/CR-3585, Volume 2, "De Minimis Waste Impacts Analysis Methodology"), is identified as an acceptable analytical approach. The concept of "below regulatory concern" includes restrictions on the method of disposal (e.g., acceptable if sent to a municipal landfill).

Rulemaking will be limited to wastes common to multiple licensees. Individual licensee proposals will continue to be processed on a case-by-case basis under 10 CFR 20.302. The decision criteria are based in part on international practices. The Policy Statement was followed by an Advance Notice of Proposed Rulemaking published December 2, 1986 (51 FR 43367) (Appendix K). The Notice requested public input on what type of generic rulemaking might provide a more efficient and effective means of accomplishing the provisions of Section 10. The public comment period ended March 2, 1987. Over 90 comment letters were received.

Developing the technical capability involves two staff efforts. The first effort involved adapting the computer code IMPACTS-BRC to the personal computer and publishing a draft users guide for the code. The guide was published in July 1986 as Volume 2 to NUREG/CR-3585. The second effort is the development of a review handbook. This document will cover project management and will identify analytical tools, references, and the type of review needed. It also will describe the type of documentation needed by NRC to process the petitions.

Figure 14 Section 10: Radioactive Waste Below Regulatory Concern

	1985	1986	1987	1988	1989
LLRWPA ACTIONS		▽ I			
NRC ACTIONS		▽ A ▽ B ▽ C	▽ D	▽ E ▽ F	▽ G

LLRWPA MILESTONES

- ▽ I NRC Commission to establish standards and procedures and technical capability for acting in an expedited manner on petitions to exempt specific waste streams from NRC regulation (7/86).

NRC MILESTONES

- ▽ A NRC issues Policy Statement which establishes the required standards and procedures. Technical capability also established.
- ▽ B End of public comment period on Policy Statement.
- ▽ C Advance Notice of Proposed Rulemaking published in Federal Register (12/2/86).
- ▽ D End of public comment period for Advance Notice of Proposed Rulemaking (3/2/87).
- ▽ E Decision on whether to proceed with generic rulemaking.
- ▽ F Begin generic rulemaking (if necessary).
- ▽ G Complete generic rulemaking (if necessary).

APPENDIX A

LLRWPA

Public Law 99-240
99th Congress

An Act

To amend the Low-Level Radioactive Waste Policy Act to improve procedures for the implementation of compacts providing for the establishment and operation of regional disposal facilities for low-level radioactive waste; to grant the consent of the Congress to certain interstate compacts on low-level radioactive waste; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—LOW-LEVEL RADIOACTIVE WASTE POLICY
AMENDMENTS ACT OF 1985

SEC. 101. SHORT TITLE.

This Title may be cited as the "Low-Level Radioactive Waste Policy Amendments Act of 1985".

SEC. 102. AMENDMENT TO THE LOW-LEVEL RADIOACTIVE WASTE POLICY ACT.

The Low-Level Radioactive Waste Policy Act (42 U.S.C. 2021b et seq.) is amended by striking out sections 1, 2, 3, and 4 and inserting in lieu thereof the following:

"SECTION 1. SHORT TITLE.

"This Act may be cited as the 'Low-Level Radioactive Waste Policy Act'.

"SEC. 2. DEFINITIONS.

"For purposes of this Act:

"(1) AGREEMENT STATE.—The term 'agreement State' means a State that—

"(A) has entered into an agreement with the Nuclear Regulatory Commission under section 274 of the Atomic Energy Act of 1954 (42 U.S.C. 2021); and

"(B) has authority to regulate the disposal of low-level radioactive waste under such agreement.

"(2) ALLOCATION.—The term 'allocation' means the assignment of a specific amount of low-level radioactive waste disposal capacity to a commercial nuclear power reactor for which access is required to be provided by sited States subject to the conditions specified under this Act.

"(3) COMMERCIAL NUCLEAR POWER REACTOR.—The term 'commercial nuclear power reactor' means any unit of a civilian light-water moderated utilization facility required to be licensed under section 103 or 104b. of the Atomic Energy Act of 1954 (42 U.S.C. 2133 or 2134(b)).

"(4) COMPACT.—The term 'compact' means a compact entered into by two or more States pursuant to this Act.

"(5) COMPACT COMMISSION.—The term 'compact commission' means the regional commission, committee, or board established in a compact to administer such compact.

"(6) COMPACT REGION.—The term 'compact region' means the area consisting of all States that are members of a compact.

"(7) DISPOSAL.—The term 'disposal' means the permanent isolation of low-level radioactive waste pursuant to the requirements established by the Nuclear Regulatory Commission under applicable laws, or by an agreement State if such isolation occurs in such agreement State.

"(8) GENERATE.—The term 'generate', when used in relation to low-level radioactive waste, means to produce low-level radioactive waste.

"(9) LOW-LEVEL RADIOACTIVE WASTE.—The term 'low-level radioactive waste' means radioactive material that—

"(A) is not high-level radioactive waste, spent nuclear fuel, or byproduct material (as defined in section 11e.(2) of the Atomic Energy Act of 1954 (42 U.S.C. 2014(e)(2))); and

"(B) the Nuclear Regulatory Commission, consistent with existing law and in accordance with paragraph (A), classifies as low-level radioactive waste.

"(10) NON-SITED COMPACT REGION.—The term 'non-sited compact region' means any compact region that is not a sited compact region.

"(11) REGIONAL DISPOSAL FACILITY.—The term 'regional disposal facility' means a non-Federal low-level radioactive waste disposal facility in operation on January 1, 1985, or subsequently established and operated under a compact.

"(12) SECRETARY.—The term 'Secretary' means the Secretary of Energy.

"(13) SITED COMPACT REGION.—The term 'sited compact region' means a compact region in which there is located one of the regional disposal facilities at Barnwell, in the State of South Carolina; Richland, in the State of Washington; or Beatty, in the State of Nevada.

"(14) STATE.—The term 'State' means any State of the United States, the District of Columbia, and the Commonwealth of Puerto Rico.

"SEC. 3. RESPONSIBILITIES FOR DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTE.

"SECTION 3(a)(1) STATE RESPONSIBILITIES.—Each State shall be responsible for providing, either by itself or in cooperation with other States, for the disposal of—

"(A) low-level radioactive waste generated within the State (other than by the Federal Government) that consists of or contains class A, B, or C radioactive waste as defined by section 61.55 of title 10, Code of Federal Regulations, as in effect on January 26, 1983;

"(B) low-level radioactive waste described in subparagraph (A) that is generated by the Federal Government except such waste that is—

- "(i) owned or generated by the Department of Energy;
- "(ii) owned or generated by the United States Navy as a result of the decommissioning of vessels of the United States Navy; or

South Carolina.
Washington.
Nevada.

42 USC 2021c.

Vessels.

Jan. 15, 1986
[H.R. 1083]

State and local governments.

Low-Level Radioactive Waste Policy Amendments Act of 1985.
42 USC 2021b note.

42 USC 2021b-2021d, 2021b note.

42 USC 2021b note.

42 USC 2021b.

A-1

Research and development.

Post, pp. 1846, 1855.

Vessels.

Research and development.

Health Safety.

42 USC 2011 note.

Report.

A-2

"(iii) owned or generated as a result of any research, development, testing, or production of any atomic weapon; and

"(C) low-level radioactive waste described in subparagraphs (A) and (B) that is generated outside of the State and accepted for disposal in accordance with sections 5 or 6.

"(2) No regional disposal facility may be required to accept for disposal any material—

"(A) that is not low-level radioactive waste as defined by section 61.55 of title 10, Code of Federal Regulations, as in effect on January 26, 1983, or

"(B) identified under the Formerly Utilized Sites Remedial Action Program.

Nothing in this paragraph shall be deemed to prohibit a State, subject to the provisions of its compact, or a compact region from accepting for disposal any material identified in subparagraph (A) or (B).

"(b)(1) The Federal Government shall be responsible for the disposal of—

"(A) low-level radioactive waste owned or generated by the Department of Energy;

"(B) low-level radioactive waste owned or generated by the United States Navy as a result of the decommissioning of vessels of the United States Navy;

"(C) low-level radioactive waste owned or generated by the Federal Government as a result of any research, development, testing, or production of any atomic weapon; and

"(D) any other low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission for class C radioactive waste, as defined by section 61.55 of title 10, Code of Federal Regulations, as in effect on January 26, 1983.

"(2) All radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D) that results from activities licensed by the Nuclear Regulatory Commission under the Atomic Energy Act of 1954, as amended, shall be disposed of in a facility licensed by the Nuclear Regulatory Commission that the Commission determines is adequate to protect the public health and safety.

"(3) Not later than 12 months after the date of enactment of this Act, the Secretary shall submit to the Congress a comprehensive report setting forth the recommendations of the Secretary for ensuring the safe disposal of all radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D). Such report shall include—

"(A) an identification of the radioactive waste involved, including the source of such waste, and the volume, concentration, and other relevant characteristics of such waste;

"(B) an identification of the Federal and non-Federal options for disposal of such radioactive waste;

"(C) a description of the actions proposed to ensure the safe disposal of such radioactive waste;

"(D) a description of the projected costs of undertaking such actions;

"(E) an identification of the options for ensuring that the beneficiaries of the activities resulting in the generation of such radioactive wastes bear all reasonable costs of disposing of such wastes; and

"(F) an identification of any statutory authority required for disposal of such waste.

"(4) The Secretary may not dispose of any radioactive waste designated a Federal responsibility pursuant to paragraph (b)(1)(D) that becomes a Federal responsibility for the first time pursuant to such paragraph until ninety days after the report prepared pursuant to paragraph (3) has been submitted to the Congress.

"SEC. 4. REGIONAL COMPACTS FOR DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTE.

"(a) IN GENERAL.—

"(1) FEDERAL POLICY.—It is the policy of the Federal Government that the responsibilities of the States under section 3 for the disposal of low-level radioactive waste can be most safely and effectively managed on a regional basis.

"(2) INTERSTATE COMPACTS.—To carry out the policy set forth in paragraph (1), the States may enter into such compacts as may be necessary to provide for the establishment and operation of regional disposal facilities for low-level radioactive waste.

"(b) APPLICABILITY TO FEDERAL ACTIVITIES.—

"(1) IN GENERAL.—

"(A) ACTIVITIES OF THE SECRETARY.—Except as provided in subparagraph (B), no compact or action taken under a compact shall be applicable to the transportation, management, or disposal of any low-level radioactive waste designated in section 3(a)(1)(B)(i)-(iii).

"(B) FEDERAL LOW-LEVEL RADIOACTIVE WASTE DISPOSED OF AT NON-FEDERAL FACILITIES.—Low-level radioactive waste owned or generated by the Federal Government that is disposed of at a regional disposal facility or non-Federal disposal facility within a State that is not a member of a compact shall be subject to the same conditions, regulations, requirements, fees, taxes, and surcharges imposed by the compact commission, and by the State in which such facility is located, in the same manner and to the same extent as any low-level radioactive waste not generated by the Federal Government.

"(2) FEDERAL LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITIES.—Any low-level radioactive waste disposal facility established or operated exclusively for the disposal of low-level radioactive waste owned or generated by the Federal Government shall not be subject to any compact or any action taken under a compact.

"(3) EFFECT OF COMPACTS ON FEDERAL LAW.—Nothing contained in this Act or any compact may be construed to confer any new authority on any compact commission or State—

"(A) to regulate the packaging, generation, treatment, storage, disposal, or transportation of low-level radioactive waste in a manner incompatible with the regulations of the Nuclear Regulatory Commission or inconsistent with the regulations of the Department of Transportation;

"(B) to regulate health, safety, or environmental hazards from source material, byproduct material, or special nuclear material;

"(C) to inspect the facilities of licensees of the Nuclear Regulatory Commission;

Prohibition. Report.

42 USC 2021d.

Ante, p. 1843.

Prohibition.

Prohibition.

Prohibition.

Transportation. Regulations.

Health. Safety. Pollution.

Government organization and employees.

"(D) to inspect security areas or operations at the site of the generation of any low-level radioactive waste by the Federal Government, or to inspect classified information related to such areas or operations; or

28 USC 2671 *et seq.*

"(E) to require indemnification pursuant to the provisions of chapter 171 of title 28, United States Code (commonly referred to as the Federal Tort Claims Act), or section 170 of the Atomic Energy Act of 1954 (42 U.S.C. 2210) (commonly referred to as the Price-Anderson Act), whichever is applicable.

Prohibition.

"(4) FEDERAL AUTHORITY.—Except as expressly provided in this Act, nothing contained in this Act or any compact may be construed to limit the applicability of any Federal law or to diminish or otherwise impair the jurisdiction of any Federal agency, or to alter, amend, or otherwise affect any Federal law governing the judicial review of any action taken pursuant to any compact.

Prohibition.

"(5) STATE AUTHORITY PRESERVED.—Except as expressly provided in this Act, nothing contained in this Act expands, diminishes, or otherwise affects State law.

Prohibition.

"(C) RESTRICTED USE OF REGIONAL DISPOSAL FACILITIES.—Any authority in a compact to restrict the use of the regional disposal facilities under the compact to the disposal of low-level radioactive waste generated within the compact region shall not take effect before each of the following occurs:

"(1) January 1, 1986; and

"(2) the Congress by law consents to the compact.

"(d) CONGRESSIONAL REVIEW.—Each compact shall provide that every 5 years after the compact has taken effect the Congress may by law withdraw its consent.

A-3

42 USC 2021e.

"SEC. 5. LIMITED AVAILABILITY OF CERTAIN REGIONAL DISPOSAL FACILITIES DURING TRANSITION AND LICENSING PERIODS.

"(a) AVAILABILITY OF DISPOSAL CAPACITY.—

"(1) PRESSURIZED-WATER AND BOILING WATER REACTORS.—During the seven-year period beginning January 1, 1986 and ending December 31, 1992, subject to the provisions of subsections (b) through (g), each State in which there is located a regional disposal facility referred to in paragraphs (1) through (3) of subsection (b) shall make disposal capacity available for low-level radioactive waste generated by pressurized water and boiling water commercial nuclear power reactors in accordance with the allocations established in subsection (c).

"(2) OTHER SOURCES OF LOW-LEVEL RADIOACTIVE WASTE.—During the seven-year period beginning January 1, 1986 and ending December 31, 1992, subject to the provisions of subsections (b) through (g), each State in which there is located a regional disposal facility referred to in paragraphs (1) through (3) of subsection (b) shall make disposal capacity available for low-level radioactive waste generated by any source not referred to in paragraph (1).

"(3) ALLOCATION OF DISPOSAL CAPACITY.—

"(A) During the seven-year period beginning January 1, 1986 and ending December 31, 1992, low-level radioactive waste generated within a sited compact region shall be accorded priority under this section in the allocation of available disposal capacity at a regional disposal facility

referred to in paragraphs (1) through (3) of subsection (b) and located in the sited compact region in which such waste is generated.

"(B) Any State in which a regional disposal facility referred to in paragraphs (1) through (3) of subsection (b) is located may, subject to the provisions of its compact, prohibit the disposal at such facility of low-level radioactive waste generated outside of the compact region if the disposal of such waste in any given calendar year, together with all other low-level radioactive waste disposed of at such facility within that same calendar year, would result in that facility disposing of a total annual volume of low-level radioactive waste in excess of 100 per centum of the average annual volume for such facility designated in subsection (b): *Provided, however*, That in the event that all three States in which regional disposal facilities referred to in paragraphs (1) through (3) of subsection (b) act to prohibit the disposal of low-level radioactive waste pursuant to this subparagraph, each such State shall, in accordance with any applicable procedures of its compact, permit, as necessary, the disposal of additional quantities of such waste in increments of 10 per centum of the average annual volume for each such facility designated in subsection (b).

"(C) Nothing in this paragraph shall require any disposal facility or State referred to in paragraphs (1) through (3) of subsection (b) to accept for disposal low-level radioactive waste in excess of the total amounts designated in subsection (b).

"(4) CESSATION OF OPERATION OF LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITY.—No provision of this section shall be construed to obligate any State referred to in paragraphs (1) through (3) of subsection (b) to accept low-level radioactive waste from any source in the event that the regional disposal facility located in such State ceases operations.

"(b) LIMITATIONS.—The availability of disposal capacity for low-level radioactive waste from any source shall be subject to the following limitations:

"(1) BARNWELL, SOUTH CAROLINA.—The State of South Carolina, in accordance with the provisions of its compact, may limit the volume of low-level radioactive waste accepted for disposal at the regional disposal facility located at Barnwell, South Carolina to a total of 8,400,000 cubic feet of low-level radioactive waste during the 7-year period beginning January 1, 1986, and ending December 31, 1992 (as based on an average annual volume of 1,200,000 cubic feet of low-level radioactive waste).

"(2) RICHLAND, WASHINGTON.—The State of Washington, in accordance with the provisions of its compact, may limit the volume of low-level radioactive waste accepted for disposal at the regional disposal facility located at Richland, Washington to a total of 9,800,000 cubic feet of low-level radioactive waste during the 7-year period beginning January 1, 1986, and ending December 31, 1992 (as based on an average annual volume of 1,400,000 cubic feet of low-level radioactive waste).

"(3) BEATTY, NEVADA.—The State of Nevada, in accordance with the provisions of its compact, may limit the volume of low-level radioactive waste accepted for disposal at the regional disposal facility located at Beatty, Nevada to a total of 1,400,000

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cubic feet of low-level radioactive waste during the 7-year period beginning January 1, 1986, and ending December 31, 1992 (as based on an average annual volume of 200,000 cubic feet of low-level radioactive waste).

“(c) COMMERCIAL NUCLEAR POWER REACTOR ALLOCATIONS.—

“(1) AMOUNT.—Subject to the provisions of subsections (a) through (g) each commercial nuclear power reactor shall upon request receive an allocation of low-level radioactive waste disposal capacity (in cubic feet) at the facilities referred to in subsection (b) during the 4-year transition period beginning January 1, 1986, and ending December 31, 1989, and during the 3-year licensing period beginning January 1, 1990, and ending December 31, 1992, in an amount calculated by multiplying the appropriate number from the following table by the number of months remaining in the applicable period as determined under paragraph (2).

“Reactor Type	4-year Transition Period		3-year Licensing Period	
	In Sited Region	All Other Locations	In Sited Region	All Other Locations
PWR	1027	871	934	685
BWR	2300	1951	2091	1533

“(2) METHOD OF CALCULATION.—For purposes of calculating the aggregate amount of disposal capacity available to a commercial nuclear power reactor under this subsection, the number of months shall be computed beginning with the first month of the applicable period, or the sixteenth month after receipt of a full power operating license, whichever occurs later.

“(3) UNUSED ALLOCATIONS.—Any unused allocation under paragraph (1) received by a reactor during the transition period or the licensing period may be used at any time after such reactor receives its full power license or after the beginning of the pertinent period, whichever is later, but not in any event after December 31, 1992, or after commencement of operation of a regional disposal facility in the compact region or State in which such reactor is located, whichever occurs first.

“(4) TRANSFERABILITY.—Any commercial nuclear power reactor in a State or compact region that is in compliance with the requirements of subsection (e) may assign any disposal capacity allocated to it under this subsection to any other person in each State or compact region. Such assignment may be for valuable consideration and shall be in writing, copies of which shall be filed at the affected compact commissions and States, along with the assignor's unconditional written waiver of the disposal capacity being assigned.

“(5) UNUSUAL VOLUMES.—

“(A) The Secretary may, upon petition by the owner or operator of any commercial nuclear power reactor, allocate to such reactor disposal capacity in excess of the amount calculated under paragraph (1) if the Secretary finds and states in writing his reasons for so finding that making additional capacity available for such reactor through this

paragraph is required to permit unusual or unexpected operating, maintenance, repair or safety activities.

“(B) The Secretary may not make allocations pursuant to subparagraph (A) that would result in the acceptance for disposal of more than 800,000 cubic feet of low-level radioactive waste or would result in the total of the allocations made pursuant to this subsection exceeding 11,900,000 cubic feet over the entire seven-year interim access period.

“(6) LIMITATION.—During the seven-year interim access period referred to in subsection (a), the disposal facilities referred to in subsection (b) shall not be required to accept more than 11,900,000 cubic feet of low-level radioactive waste generated by commercial nuclear power reactors.

“(d)(1) SURCHARGES.—The disposal of any low-level radioactive waste under this section (other than low-level radioactive waste generated in a sited compact region) may be charged a surcharge by the State in which the applicable regional disposal facility is located, in addition to the fees and surcharges generally applicable for disposal of low-level radioactive waste in the regional disposal facility involved. Except as provided in subsection (e)(2), such surcharges shall not exceed—

“(A) in 1986 and 1987, \$10 per cubic foot of low-level radioactive waste;

“(B) in 1988 and 1989, \$20 per cubic foot of low-level radioactive waste; and

“(C) in 1990, 1991, and 1992, \$40 per cubic foot of low-level radioactive waste.

“(2) MILESTONE INCENTIVES.—

“(A) ESCROW ACCOUNT.—Twenty-five per centum of all surcharge fees received by a State pursuant to paragraph (1) during the seven-year period referred to in subsection (a) shall be transferred on a monthly basis to an escrow account held by the Secretary. The Secretary shall deposit all funds received in a special escrow account. The funds so deposited shall not be the property of the United States. The Secretary shall act as trustee for such funds and shall invest them in interest-bearing United States Government Securities with the highest available yield. Such funds shall be held by the Secretary until—

“(i) paid or repaid in accordance with subparagraph (B) or (C); or

“(ii) paid to the State collecting such fees in accordance with subparagraph (F).

“(B) PAYMENTS.—

“(i) JULY 1, 1986.—The twenty-five per centum of any amount collected by a State under paragraph (1) for low-level radioactive waste disposed of under this section during the period beginning on the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985 and ending June 30, 1986, and transferred to the Secretary under subparagraph (A), shall be paid by the Secretary in accordance with subparagraph (D) if the milestone described in subsection (e)(1)(A) is met by the State in which such waste originated.

“(ii) JANUARY 1, 1988.—The twenty-five per centum of any amount collected by a State under paragraph (1) for low-level radioactive waste disposed of under this section during the period beginning July 1, 1986 and ending Decem-

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ber 31, 1987, and transferred to the Secretary under subparagraph (A), shall be paid by the Secretary in accordance with subparagraph (D) if the milestone described in subsection (e)(1)(B) is met by the State in which such waste originated (or its compact region, where applicable).

"(iii) JANUARY 1, 1990.—The twenty-five per centum of any amount collected by a State under paragraph (1) for low-level radioactive waste disposed of under this section during the period beginning January 1, 1988 and ending December 31, 1989, and transferred to the Secretary under subparagraph (A), shall be paid by the Secretary in accordance with subparagraph (D) if the milestone described in subsection (e)(1)(C) is met by the State in which such waste originated (or its compact region, where applicable).

"(iv) The twenty-five per centum of any amount collected by a State under paragraph (1) for low-level radioactive waste disposed of under this section during the period beginning January 1, 1990 and ending December 31, 1992, and transferred to the Secretary under subparagraph (A), shall be paid by the Secretary in accordance with subparagraph (D) if, by January 1, 1993, the State in which such waste originated (or its compact region, where applicable) is able to provide for the disposal of all low-level radioactive waste generated within such State or compact region.

"(C) FAILURE TO MEET JANUARY 1, 1993 DEADLINE.—If, by January 1, 1993, a State (or, where applicable, a compact region) in which low-level radioactive waste is generated is unable to provide for the disposal of all such waste generated within such State or compact region—

"(i) each State in which such waste is generated, upon the request of the generator or owner of the waste, shall take title to the waste, shall be obligated to take possession of the waste, and shall be liable for all damages directly or indirectly incurred by such generator or owner as a consequence of the failure of the State to take possession of the waste as soon after January 1, 1993 as the generator or owner notifies the State that the waste is available for shipment; or

"(ii) if such State elects not to take title to, take possession of, and assume liability for such waste, pursuant to clause (i), twenty-five per centum of any amount collected by a State under paragraph (1) for low-level radioactive waste disposed of under this section during the period beginning January 1, 1990 and ending December 31, 1992 shall be repaid, with interest, to each generator from whom such surcharge was collected. Repayments made pursuant to this clause shall be made on a monthly basis, with the first such repayment beginning on February 1, 1993, in an amount equal to one thirty-sixth of the total amount required to be repaid pursuant to this clause, and shall continue until the State (or, where applicable, compact region) in which such low-level radioactive waste is generated is able to provide for the disposal of all such waste generated within such State or compact region or until January 1, 1996, whichever is earlier.

If a State in which low-level radioactive waste is generated elects to take title to, take possession of, and assume liability for

such waste pursuant to clause (i), such State shall be paid such amounts as are designated in subparagraph (B)(iv). If a State (or, where applicable, a compact region) in which low-level radioactive waste is generated provides for the disposal of such waste at any time after January 1, 1993 and prior to January 1, 1996, such State (or, where applicable, compact region) shall be paid in accordance with subparagraph (D) a lump sum amount equal to twenty-five per centum of any amount collected by a State under paragraph (1): *Provided, however,* That such payment shall be adjusted to reflect the remaining number of months between January 1, 1993 and January 1, 1996 for which such State (or, where applicable, compact region) provides for the disposal of such waste. If a State (or, where applicable, a compact region) in which low-level radioactive waste is generated is unable to provide for the disposal of all such waste generated within such State or compact region by January 1, 1996, each State in which such waste is generated, upon the request of the generator or owner of the waste, shall take title to the waste, be obligated to take possession of the waste, and shall be liable for all damages directly or indirectly incurred by such generator or owner as a consequence of the failure of the State to take possession of the waste as soon after January 1, 1996, as the generator or owner notifies the State that the waste is available for shipment.

"(D) RECIPIENTS OF PAYMENTS.—The payments described in subparagraphs (B) and (C) shall be paid within thirty days after the applicable date—

"(i) if the State in which such waste originated is not a member of a compact region, to such State;

"(ii) if the State in which such waste originated is a member of the compact region, to the compact commission serving such State.

"(E) USES OF PAYMENTS.—

"(i) LIMITATIONS.—Any amount paid under subparagraphs (B) or (C) may only be used to—

"(I) establish low-level radioactive waste disposal facilities;

"(II) mitigate the impact of low-level radioactive waste disposal facilities on the host State;

"(III) regulate low-level radioactive waste disposal facilities; or

"(IV) ensure the decommissioning, closure, and care during the period of institutional control of low-level radioactive waste disposal facilities.

"(ii) REPORTS.—

"(I) RECIPIENT.—Any State or compact commission receiving a payment under subparagraphs (B) or (C) shall, on December 31 of each year in which any such funds are expended, submit a report to the Department of Energy itemizing any such expenditures.

"(II) DEPARTMENT OF ENERGY.—Not later than six months after receiving the reports under subclause (I), the Secretary shall submit to the Congress a summary of all such reports that shall include an assessment of the compliance of each such State or compact commission with the requirements of clause (i).

Reports.

"(F) PAYMENT TO STATES.—Any amount collected by a State under paragraph (1) that is placed in escrow under subparagraph (A) and not paid to a State or compact commission under subparagraphs (B) and (C) or not repaid to a generator under subparagraph (C) shall be paid from such escrow account to such State collecting such payment under paragraph (1). Such payment shall be made not later than 30 days after a determination of ineligibility for a refund is made.

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"(G) PENALTY SURCHARGES.—No rebate shall be made under this subsection of any surcharge or penalty surcharge paid during a period of noncompliance with subsection (e)(1).

"(e) REQUIREMENTS FOR ACCESS TO REGIONAL DISPOSAL FACILITIES.—

"(1) REQUIREMENTS FOR NON-SITED COMPACT REGIONS AND NON-MEMBER STATES.—Each non-sited compact region, or State that is not a member of a compact region that does not have an operating disposal facility, shall comply with the following requirements:

"(A) By July 1, 1986, each such non-member State shall ratify compact legislation or, by the enactment of legislation or the certification of the Governor, indicate its intent to develop a site for the location of a low-level radioactive waste disposal facility within such State.

"(B) BY JANUARY 1, 1988.—

"(i) each non-sited compact region shall identify the State in which its low-level radioactive waste disposal facility is to be located, or shall have selected the developer for such facility and the site to be developed, and each compact region or the State in which its low-level radioactive waste disposal facility is to be located shall develop a siting plan for such facility providing detailed procedures and a schedule for establishing a facility location and preparing a facility license application and shall delegate authority to implement such plan;

"(ii) each non-member State shall develop a siting plan providing detailed procedures and a schedule for establishing a facility location and preparing a facility license application for a low-level radioactive waste disposal facility and shall delegate authority to implement such plan; and

"(iii) The siting plan required pursuant to this paragraph shall include a description of the optimum way to attain operation of the low-level radioactive waste disposal facility involved, within the time period specified in this Act. Such plan shall include a description of the objectives and a sequence of deadlines for all entities required to take action to implement such plan, including, to the extent practicable, an identification of the activities in which a delay in the start, or completion, of such activities will cause a delay in beginning facility operation. Such plan shall also identify, to the extent practicable, the process for (1) screening for broad siting areas; (2) identifying and evaluating specific candidate sites; and (3) characterizing the preferred site(s), completing all necessary environmental assessments, and preparing a license application for

submission to the Nuclear Regulatory Commission or an Agreement State.

"(C) BY JANUARY 1, 1990.—

"(i) a complete application (as determined by the Nuclear Regulatory Commission or the appropriate agency of an agreement State) shall be filed for a license to operate a low-level radioactive waste disposal facility within each non-sited compact region or within each non-member State; or

"(ii) the Governor (or, for any State without a Governor, the chief executive officer) of any State that is not a member of a compact region in compliance with clause (i), or has not complied with such clause by its own actions, shall provide a written certification to the Nuclear Regulatory Commission, that such State will be capable of providing for, and will provide for, the storage, disposal, or management of any low-level radioactive waste generated within such State and requiring disposal after December 31, 1992, and include a description of the actions that will be taken to ensure that such capacity exists.

"(D) By January 1, 1992, a complete application (as determined by the Nuclear Regulatory Commission or the appropriate agency of an agreement State) shall be filed for a license to operate a low-level radioactive waste disposal facility within each non-sited compact region or within each non-member State.

"(E) The Nuclear Regulatory Commission shall transmit any certification received under subparagraph (C) to the Congress and publish any such certification in the Federal Register.

Federal Register, publication.

"(F) Any State may, subject to all applicable provisions, if any, of any applicable compact, enter into an agreement with the compact commission of a region in which a regional disposal facility is located to provide for the disposal of all low-level radioactive waste generated within such State, and, by virtue of such agreement, may, with the approval of the State in which the regional disposal facility is located, be deemed to be in compliance with subparagraphs (A), (B), (C), and (D).

Contracts.

"(2) PENALTIES FOR FAILURE TO COMPLY.—

"(A) BY JULY 1, 1986.—If any State fails to comply with subparagraph (1)(A)—

"(i) any generator of low-level radioactive waste within such region or non-member State shall, for the period beginning July 1, 1986, and ending December 31, 1986, be charged 2 times the surcharge otherwise applicable under subsection (d); and

"(ii) on or after January 1, 1987, any low-level radioactive waste generated within such region or non-member State may be denied access to the regional disposal facilities referred to in paragraphs (1) through (3) of subsection (b).

"(B) BY JANUARY 1, 1988.—If any non-sited compact region or non-member State fails to comply with paragraph (1)(B)—

"(i) any generator of low-level radioactive waste within such region or non-member State shall—

"(I) for the period beginning January 1, 1988, and ending June 30, 1988, be charged 2 times the surcharge otherwise applicable under subsection (d); and

"(II) for the period beginning July 1, 1988, and ending December 31, 1988, be charged 4 times the surcharge otherwise applicable under subsection (d); and

"(ii) on or after January 1, 1989, any low-level radioactive waste generated within such region or non-member State may be denied access to the regional disposal facilities referred to in paragraphs (1) through (3) of subsection (b).

"(C) BY JANUARY 1, 1990.—If any non-sited compact region or non-member State fails to comply with paragraph (1)(C), any low-level radioactive waste generated within such region or non-member State may be denied access to the regional disposal facilities referred to in paragraphs (1) through (3) of subsection (b).

"(D) BY JANUARY 1, 1992.—If any non-sited compact region or non-member State fails to comply with paragraph (1)(D), any generator of low-level radioactive waste within such region or non-member State shall, for the period beginning January 1, 1992 and ending upon the filing of the application described in paragraph (1)(D), be charged 3 times the surcharge otherwise applicable under subsection (d).

"(3) DENIAL OF ACCESS.—No denial or suspension of access to a regional disposal facility under paragraph (2) may be based on the source, class, or type of low-level radioactive waste.

"(4) RESTORATION OF SUSPENDED ACCESS; PENALTIES FOR FAILURE TO COMPLY.—Any access to a regional disposal facility that is suspended under paragraph (2) shall be restored after the non-sited compact region or non-member State involved complies with such requirement. Any payment of surcharge penalties pursuant to paragraph (2) for failure to comply with the requirements of subsection (e) shall be terminated after the non-sited compact region or non-member State involved complies with such requirements.

"(f)(1) ADMINISTRATION.—Each State and compact commission in which a regional disposal facility referred to in paragraphs (1) through (3) of subsection (b) is located shall have authority—

"(A) to monitor compliance with the limitations, allocations, and requirements established in this section; and

"(B) to deny access to any non-Federal low-level radioactive waste disposal facilities within its borders to any low-level radioactive waste that—

"(i) is in excess of the limitations or allocations established in this section; or

"(ii) is not required to be accepted due to the failure of a compact region or State to comply with the requirements of subsection (e)(1).

"(2) AVAILABILITY OF INFORMATION DURING INTERIM ACCESS PERIOD.—

"(A) The States of South Carolina, Washington, and Nevada may require information from disposal facility operators, generators, intermediate handlers, and the Department of Energy that is reasonably necessary to monitor the availability of disposal capacity, the use and assignment of allocations and the applicability of surcharges.

"(B) The States of South Carolina, Washington, and Nevada may, after written notice followed by a period of at least 30 days, deny access to disposal capacity to any generator or intermediate handler who fails to provide information under subparagraph (A).

"(C) PROPRIETARY INFORMATION.—

"(i) Trade secrets, proprietary and other confidential information shall be made available to a State under this subsection upon request only if such State—

"(I) consents in writing to restrict the dissemination of the information to those who are directly involved in monitoring under subparagraph (A) and who have a need to know;

"(II) accepts liability for wrongful disclosure; and

"(III) demonstrates that such information is essential to such monitoring.

"(ii) The United States shall not be liable for the wrongful disclosure by any individual or State of any information provided to such individual or State under this subsection.

"(iii) Whenever any individual or State has obtained possession of information under this subsection, the individual shall be subject to the same provisions of law with respect to the disclosure of such information as would apply to an officer or employee of the United States or of any department or agency thereof and the State shall be subject to the same provisions of law with respect to the disclosure of such information as would apply to the United States or any department or agency thereof. No State or State officer or employee who receives trade secrets, proprietary information, or other confidential information under this Act may be required to disclose such information under State law.

"(g) NONDISCRIMINATION.—Except as provided in subsections (b) through (e), low-level radioactive waste disposed of under this section shall be subject without discrimination to all applicable legal requirements of the compact region and State in which the disposal facility is located as if such low-level radioactive waste were generated within such compact region.

"SEC. 6. EMERGENCY ACCESS.

"(a) IN GENERAL.—The Nuclear Regulatory Commission may grant emergency access to any regional disposal facility or non-Federal disposal facility within a State that is not a member of a compact for specific low-level radioactive waste, if necessary to eliminate an immediate and serious threat to the public health and safety or the common defense and security. The procedure for granting emergency access shall be as provided in this section.

"(b) REQUEST FOR EMERGENCY ACCESS.—Any generator of low-level radioactive waste, or any Governor (or, for any State without a Governor, the chief executive officer of the State) on behalf of any generator or generators located in his or her State, may request that

South Carolina.
Washington.
Nevada.

South Carolina.
Washington.
Nevada.

Prohibition.
Government
organization and
employees.
Commerce and
trade.

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Health.
Safety.
Defense and
national
security.

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Prohibition.

Termination.

the Nuclear Regulatory Commission grant emergency access to a regional disposal facility or a non-Federal disposal facility within a State that is not a member of a compact for specific low-level radioactive waste. Any such request shall contain any information and certifications the Nuclear Regulatory Commission may require.

“(c) DETERMINATION OF NUCLEAR REGULATORY COMMISSION.—

“(1) REQUIRED DETERMINATION.—Not later than 45 days after receiving a request under subsection (b), the Nuclear Regulatory Commission shall determine whether—

“(A) emergency access is necessary because of an immediate and serious threat to the public health and safety or the common defense and security; and

“(B) the threat cannot be mitigated by any alternative consistent with the public health and safety, including storage of low-level radioactive waste at the site of generation or in a storage facility obtaining access to a disposal facility by voluntary agreement, purchasing disposal capacity available for assignment pursuant to section 5(c) or ceasing activities that generate low-level radioactive waste.

“(2) REQUIRED NOTIFICATION.—If the Nuclear Regulatory Commission makes the determinations required in paragraph (1) in the affirmative, it shall designate an appropriate non-Federal disposal facility or facilities, and notify the Governor (or chief executive officer) of the State in which such facility is located and the appropriate compact commission that emergency access is required. Such notification shall specifically describe the low-level radioactive waste as to source, physical and radiological characteristics, and the minimum volume and duration, not exceeding 180 days, necessary to alleviate the immediate threat to public health and safety or the common defense and security. The Nuclear Regulatory Commission shall also notify the Governor (or chief executive officer) of the State in which the low-level radioactive waste requiring emergency access was generated that emergency access has been granted and that, pursuant to subsection (e), no extension of emergency access may be granted absent diligent State action during the period of the initial grant.

“(d) TEMPORARY EMERGENCY ACCESS.—Upon determining that emergency access is necessary because of an immediate and serious threat to the public health and safety or the common defense and security, the Nuclear Regulatory Commission may at its discretion grant temporary emergency access, pending its determination whether the threat could be mitigated by any alternative consistent with the public health and safety. In granting access under this subsection, the Nuclear Regulatory Commission shall provide the same notification and information required under subsection (c). Absent a determination that no alternative consistent with the public health and safety would mitigate the threat, access granted under this subsection shall expire 45 days after the granting of temporary emergency access under this subsection.

“(e) EXTENSION OF EMERGENCY ACCESS.—The Nuclear Regulatory Commission may grant one extension of emergency access beyond the period provided in subsection (c), if it determines that emergency access continues to be necessary because of an immediate and serious threat to the public health and safety or the common defense and security that cannot be mitigated by any alternative consistent with the public health and safety, and that the generator of low-

level radioactive waste granted emergency access and the State in which such low-level radioactive waste was generated have diligently though unsuccessfully acted during the period of the initial grant to eliminate the need for emergency access. Any extension granted under this subsection shall be for the minimum volume and duration the Nuclear Regulatory Commission finds necessary to eliminate the immediate threat to public health and safety or the common defense and security, and shall not in any event exceed 180 days.

“(f) RECIPROCAL ACCESS.—Any compact region or State not a member of a compact that provides emergency access to non-Federal disposal facilities within its borders shall be entitled to reciprocal access to any subsequently operating non-Federal disposal facility that serves the State or compact region in which low-level radioactive waste granted emergency access was generated. The compact commission or State having authority to approve importation of low-level radioactive waste to the disposal facility to which emergency access was granted shall designate for reciprocal access an equal volume of low-level radioactive waste having similar characteristics to that provided emergency access.

“(g) APPROVAL BY COMPACT COMMISSION.—Any grant of access under this section shall be submitted to the compact commission for the region in which the designated disposal facility is located for such approval as may be required under the terms of its compact. Any such compact commission shall act to approve emergency access not later than 15 days after receiving notification from the Nuclear Regulatory Commission, or reciprocal access not later than 15 days after receiving notification from the appropriate authority under subsection (f).

“(h) LIMITATIONS.—No State shall be required to provide emergency or reciprocal access to any regional disposal facility within its borders for low-level radioactive waste not meeting criteria established by the license or license agreement of such facility, or in excess of the approved capacity of such facility, or to delay the closing of any such facility pursuant to plans established before receiving a request for emergency or reciprocal access. No State shall, during any 12-month period, be required to provide emergency or reciprocal access to any regional disposal facility within its borders for more than 20 percent of the total volume of low-level radioactive waste accepted for disposal at such facility during the previous calendar year.

“(i) VOLUME REDUCTION AND SURCHARGES.—Any low-level radioactive waste delivered for disposal under this section shall be reduced in volume to the maximum extent practicable and shall be subject to surcharges established in this Act.

“(j) DEDUCTION FROM ALLOCATION.—Any volume of low-level radioactive waste granted emergency or reciprocal access under this section, if generated by any commercial nuclear power reactor, shall be deducted from the low-level radioactive waste volume allocable under section 5(c).

“(k) AGREEMENT STATES.—Any agreement under section 274 of the Atomic Energy Act of 1954 (42 U.S.C. 2021) shall not be applicable to the determinations of the Nuclear Regulatory Commission under this section.

Health. Safety. Defense and national security.

Ante. p. 1846.

Prohibition.

Health. Safety. Defense and national security.

Health. Safety. Defense and national security.

Prohibitions.

Ante. p. 1846. Prohibition.

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“SEC. 7. RESPONSIBILITIES OF THE DEPARTMENT OF ENERGY.

“(a) FINANCIAL AND TECHNICAL ASSISTANCE.—The Secretary shall, to the extent provided in appropriations Act, provide to those compact regions, host States, and nonmember States determined by the Secretary to require assistance for purposes of carrying out this Act—

Science and technology. Transportation. Health. Safety.

“(1) continuing technical assistance to assist them in fulfilling their responsibilities under this Act. Such technical assistance shall include, but not be limited to, technical guidelines for site selection, alternative technologies for low-level radioactive waste disposal, volume reduction options, management techniques to reduce low-level waste generation, transportation practices for shipment of low-level wastes, health and safety considerations in the storage, shipment and disposal of low-level radioactive wastes, and establishment of a computerized database to monitor the management of low-level radioactive wastes; and

“(2) through the end of fiscal year 1993, financial assistance to assist them in fulfilling their responsibilities under this Act.

Science and technology. Transportation.

“(b) REPORTS.—The Secretary shall prepare and submit to the Congress on an annual basis a report which (1) summarizes the progress of low-level waste disposal siting and licensing activities within each compact region, (2) reviews the available volume reduction technologies, their applications, effectiveness, and costs on a per unit volume basis, (3) reviews interim storage facility requirements, costs, and usage, (4) summarizes transportation requirements for such wastes on an inter- and intra-regional basis, (5) summarizes the data on the total amount of low-level waste shipped for disposal on a yearly basis, the proportion of such wastes subjected to volume reduction, the average volume reduction attained, and the proportion of wastes stored on an interim basis, and (6) projects the interim storage and final disposal volume requirements anticipated for the following year, on a regional basis.

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“SEC. 8. ALTERNATIVE DISPOSAL METHODS.

Ante, p. 1842.

“(a) Not later than 12 months after the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985, the Nuclear Regulatory Commission shall, in consultation with the States and other interested persons, identify methods for the disposal of low-level radioactive waste other than shallow land burial, and establish and publish technical guidance regarding licensing of facilities that use such methods.

“(b) Not later than 24 months after the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985, the Commission shall, in consultation with the States and other interested persons, identify and publish all relevant technical information regarding the methods identified pursuant to subsection (a) that a State or compact must provide to the Commission in order to pursue such methods, together with the technical requirements that such facilities must meet, in the judgment of the Commission, if pursued as an alternative to shallow land burial. Such technical information and requirements shall include, but need not be limited to, site suitability, site design, facility operation, disposal site closure, and environmental monitoring, as necessary to meet the performance objectives established by the Commission for a licensed low-level radioactive waste disposal facility. The Commis-

sion shall specify and publish such requirements in a manner and form deemed appropriate by the Commission.

“SEC. 9. LICENSING REVIEW AND APPROVAL.

42 USC 2021i.

“In order to ensure the timely development of new low-level radioactive waste disposal facilities, the Nuclear Regulatory Commission or, as appropriate, agreement States, shall consider an application for a disposal facility license in accordance with the laws applicable to such application, except that the Commission and the agreement state shall—

“(1) not later than 12 months after the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985, establish procedures and develop the technical capability for processing applications for such licenses;

“(2) to the extent practicable, complete all activities associated with the review and processing of any application for such a license (except for public hearings) no later than 15 months after the date of receipt of such application; and

“(3) to the extent practicable, consolidate all required technical and environmental reviews and public hearings.

Ante, p. 1842.

“SEC. 10. RADIOACTIVE WASTE BELOW REGULATORY CONCERN.

“(a) Not later than 6 months after the date of enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985, the Commission shall establish standards and procedures, pursuant to existing authority, and develop the technical capability for considering and acting upon petitions to exempt specific radioactive waste streams from regulation by the Commission due to the presence of radionuclides in such waste streams in sufficiently low concentrations or quantities as to be below regulatory concern.

“(b) The standards and procedures established by the Commission pursuant to subsection (a) shall set forth all information required to be submitted to the Commission by licensees in support of such petitions, including, but not limited to—

“(1) a detailed description of the waste materials, including their origin, chemical composition, physical state, volume, and mass; and

“(2) the concentration or contamination levels, half-lives, and identities of the radionuclides present.

Such standards and procedures shall provide that, upon receipt of a petition to exempt a specific radioactive waste stream from regulation by the Commission, the Commission shall determine in an expeditious manner whether the concentration or quantity of radionuclides present in such waste stream requires regulation by the Commission in order to protect the public health and safety. Where the Commission determines that regulation of a radioactive waste stream is not necessary to protect the public health and safety, the Commission shall take such steps as may be necessary, in an expeditious manner, to exempt the disposal of such radioactive waste from regulation by the Commission.”

Health. Safety. Regulation.

TITLE II—OMNIBUS LOW-LEVEL RADIOACTIVE WASTE INTERSTATE COMPACT CONSENT ACT

SEC. 201. SHORT TITLE.

This Title may be cited as the “Omnibus Low-Level Radioactive Waste Interstate Compact Consent Act”.

Omnibus Low-Level Radioactive Waste Interstate Compact Consent Act. 42 USC 2021d note.

APPENDIX B

FEDERAL REGISTER NOTICE ON HIGH-LEVEL WASTE DEFINITION

**NUCLEAR REGULATORY
COMMISSION****10 CFR Part 60****Definition of "High-Level Radioactive
Waste"****AGENCY:** Nuclear Regulatory
Commission.**ACTION:** Advance notice of proposed
rulemaking.

SUMMARY: The Commission has previously adopted regulations for disposal of high-level radioactive wastes (HLW) in geologic repositories (10 CFR Part 60). The Commission intends to modify the definition of HLW in those regulations so as to follow more closely the statutory definition in the Nuclear Waste Policy Act of 1982 (NWPA). In this advance notice of proposed rulemaking (notice), the Commission identifies legal and technical considerations that are pertinent to the definition of HLW and solicits public comment on alternative approaches for developing a revised definition.**DATES:** Comment period expires April 29, 1987. Comments received after this date will be considered if it is practical to do so, but assurance of consideration can be given only for comments received on or before this date.**ADDRESSES:** Send comments or suggestions to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Attention: Docketing and Service Branch. Copies of comments received and of documents referenced in this notice may be examined at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Copies of NUREG documents may be purchased through the U.S. Government Printing Office by calling (202) 275-2060 or by writing to the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies of NUREG and DOE documents may also be purchased from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.**FOR FURTHER INFORMATION CONTACT:** W. Clark Prichard, Division of Engineering Safety, Office of Nuclear Regulatory

Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 443-7668.

SUPPLEMENTARY INFORMATION:

I. Introduction and Background

Radioactive wastes contain a wide variety of radionuclides, each with its own half-life and other radiological characteristics. These radionuclides are present in concentrations varying from extremely high to barely detectable. One type of waste, generated by reprocessing spent nuclear fuel, contains both long-lived radionuclides which pose a long-term hazard to human health and other, shorter-lived nuclides which produce intense levels of radiation. This combination of highly-concentrated, short-lived nuclides together with other very long-lived nuclides has historically been described by the term "high-level radioactive wastes" (HLW). There has long been a recognition that such waste materials require long-term isolation from man's biological environment and that, in view of public health and safety considerations, disposal of such wastes should be accomplished by the Federal government on Federally owned land. This policy was codified by the Atomic Energy Commission (AEC) in 1970 in Appendix F to 10 CFR Part 50.

A. *Previous use of the term "HLW."* In Appendix F, HLW was defined in terms of the source of the material rather than its hazardous characteristics. Specifically, HLW was defined as "those aqueous wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels." As used in Appendix F, "high-level waste" thus refers to the highly concentrated (and hazardous) waste containing virtually all the fission product and transuranic elements (except plutonium) present in irradiated reactor fuel. The term does not include incidental wastes resulting from reprocessing plant operations such as ion exchange beds, sludges, and contaminated laboratory items, clothing, tools, and equipment. Neither are radioactive hulls and other irradiated and contaminated fuel structural hardware within the Appendix F definition.¹

¹ See 34 FR 8712, June 3, 1969 (notice of proposed rulemaking), 35 FR 17530 at 17532, November 14, 1970 (final rule). Incidental wastes generated in further treatment of HLW (e.g., decontaminated salt with residual activities on the order of 1,500 nCi/g Ca-137, 30 nCi/g Sr-90, 2 nCi/g Pu, as described in the Department of Energy's FEIS on long-term management of defense HLW at the Savannah River

The first statutory use of the term "high-level radioactive waste" occurs in the Marine Protection, Research, and Sanctuaries Act of 1972 (Marine Sanctuaries Act). Congress adopted the Appendix F definition, but broadened it to include unprocessed spent fuel as well.² Two years later, the AEC was abolished and its functions were divided between the Energy Research and Development Administration (ERDA, now the Department of Energy, DOE) and the Nuclear Regulatory Commission (NRC or Commission) by the Energy Reorganization Act of 1974, Pub. L. 93-438, 42 U.S.C. 5811. Under this legislation, certain activities of ERDA were to be subject to the Commission's licensing and regulatory authority. Specifically, NRC was to exercise licensing authority as to certain nuclear reactors and the following waste facilities:

(1) Facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under the [Atomic Energy] Act.

(2) 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 [now DOE], which are not used for, or are part of, research and development activities.³

Although neither the statute nor the legislative history defines the term "high-level radioactive waste," earlier usage of the term in Appendix F and the Marine Sanctuaries Act is indicative of the meaning. The Commission so construed the statute when it declared spent nuclear fuel to be a form of HLW and, by the same token, when it found transuranic-contaminated wastes not to be HLW.⁴

A different statutory formula appears in the West Valley Demonstration Project Act (West Valley Act), enacted in 1980. This legislation authorizes the Department of Energy (DOE) to carry out a high-level radioactive waste management demonstration project for the purpose of demonstrating solidification techniques which can be

Plant, DOE/EIS-0023, 1979) would also, under the same reasoning, be outside the Appendix F definition.

² Sec. 3, Pub. L. 92-532, as amended by Pub. L. 93-254 (1974), 33 U.S.C. 1402.

³ Sec. 202, Pub. L. 93-438, 42 U.S.C. 5642. Nuclear waste management responsibilities were subsequently transferred to the Department of Energy, Secs. 203(a)(8), 301(a), Pub. L. 95-91, 42 U.S.C. 7133(a)(8), 7151(a).

⁴ Proposed General Statement of Policy, "Licensing Procedures for Geologic Repositories for High-Level Radioactive Wastes," 43 FR 53869, 53870, November 17, 1978; Report to Congress, "Regulation of Federal Radioactive Waste Activities," NUREC-0527 (1979), 2-1, 2-2, Appendix C.

used for preparing HLW for disposal. It includes the following definition:

The term "high level radioactive waste" means the high level radioactive waste which was produced by the reprocessing at the Center of spent nuclear fuel. Such term includes both liquid wastes which are produced directly in reprocessing, dry solid material derived from such liquid waste and such other material as the Commission designates as high level radioactive waste for purposes of protecting the public health and safety.⁵

The Commission has not yet designated any "other material" as HLW under the West Valley Act. Rather, it has construed the term in a manner equivalent to the 10 CFR 50, Appendix F definition. That is, it is the liquid wastes in storage at West Valley and the dry solid material derived from solidification activities that are regarded as HLW, and it is DOE's plans with respect to such wastes that are subject to the Commission's review.

B. *Current NRC regulations.* The Commission has adopted regulations that govern the licensing of DOE activities at geologic repositories for the disposal of HLW. The regulations define HLW in the jurisdictional sense. That is, if the facility is for the "storage" of "HLW" as contemplated by the Energy Reorganization Act, the prescribed procedures and criteria would apply.⁶ The appropriate definition for this purpose draws upon the understanding in 1974, as reflected in Appendix F and the Marine Sanctuaries Act, rather than the words of the West Valley Act of more limited purpose and scope.

It should be emphasized that NRC's existing regulations in Part 60 do not require that any radioactive materials, whether HLW or not, be stored or disposed of in a geologic repository.⁷

⁵ Sec. 6(4), Pub. L. 96-368, 42 U.S.C. 2021a note.

⁶ NRC regulations are codified in 10 CFR Part 60 (Part 60). DOE is required to have a license to receive source, special nuclear or byproduct material at a geologic repository operations area. § 60.3. A geologic repository operations area is defined to refer to a "HLW facility" which in turn is defined as a facility subject to NRC licensing authority under the Energy Reorganization Act of 1974, note 3, *supra*. § 60.2 The Part 60 definition of HLW, *ibid.*, is as follows:

"High-level radioactive waste" or "HLW" means: (1) irradiated reactor fuel, (2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and (3) solids into which such liquid wastes have been converted.

⁷ In the event that commercial reprocessing of irradiated reactor fuel is pursued, Appendix F of 10 CFR Part 50 would require that the resulting reprocessing wastes be transferred to a Federal repository.

Nor do they provide that radioactive materials must be HLW in order to be eligible for disposal in a geologic repository. Part 60 expressly provides for NRC review and licensing with respect to any radioactive materials that may be emplaced in a geologic repository authorized for disposal of HLW. The term "high-level radioactive waste" in Part 60 identifies the class of facilities subject to NRC jurisdiction.

The Commission has also adopted regulations related to land disposal of low-level radioactive wastes (10 CFR Part 61). Based on analyses of potential human health hazards, these regulations identify three classes of low-level radioactive wastes which are routinely acceptable for near-surface disposal, with "Class C" denoting the highest radionuclide concentrations of the three. Class C does not, however, denote a maximum concentration limit for low-level wastes. The low-level waste category includes all wastes not otherwise classified, while HLW is currently defined by source (rather than concentration or hazard) and is limited to reprocessing wastes and spent fuel. Thus, there is no regulatory limit on the concentrations of LLW, and some LLW (exceeding Class C concentrations) may have concentrations approaching those of HLW. These are the wastes which the Commission wishes to evaluate for possible classification as HLW. The Appendix to this notice presents information on the volumes and characteristics of wastes with radionuclide concentrations exceeding the Class C concentration limits. (This Appendix was prepared in 1985. DOE is currently carrying out a study of "above Class C" wastes which will update the information presented here.)

C. Nuclear Waste Policy Act of 1982. The Nuclear Waste Policy Act of 1982 (NWP), Pub. L. 97-425, provides for the development of repositories for the disposal of high-level radioactive waste and establishes a program of research, development, and demonstration regarding the disposal of high-level radioactive waste.⁹ The NWP follows, with some modification, the text of the West Valley Act. For purposes of the NWP, the term "high-level radioactive waste" means:

(A) 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; and

(B) Other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation.⁹

It should be noted that the NWP does not require that materials regarded as HLW pursuant to this definition be disposed of in a geologic repository. Indeed, the NWP directs the Secretary (of DOE) to continue and accelerate a program of research, development and investigation of alternative means and technologies for the permanent disposal of HLW.¹⁰ Part 60 and the changes discussed in this notice would allow for consideration of such alternatives by the Commission. Nevertheless, the NWP does not specifically authorize DOE to construct or operate facilities for disposal by alternative means, and new legislative authorization might be needed in order to dispose of HLW by means other than emplacement in a deep geologic repository.

II. Considerations for Defining "High-Level Radioactive Waste"

Wastes which have historically been referred to as HLW (i.e., reprocessing wastes) are initially both intensely radioactive and long-lived. These wastes contain a wide variety of radionuclides. Some (principally Sr-90 and Cs-137) are relatively short-lived and represent a large fraction of the radioactivity for the first few centuries after the wastes are produced. These nuclides produce significant amounts of heat and radiation, both of which are of concern when disposing of such wastes. Other nuclides, including C-14, Tc-99, I-129 and transuranic nuclides, have very long half-lives and thus constitute the longer-term hazard of the wastes. Some of these nuclides pose a hazard for sufficiently long periods of time that the term "permanent isolation" is used to describe the type of disposal required to isolate them from man's environment. The Commission considers that these two characteristics, intense radioactivity for a few centuries followed by a long-term hazard requiring permanent isolation, are key features which can be used to distinguish high-level wastes from other waste categories.

The NWP identifies two sources of HLW, each of which is discussed separately in the following sections.

A. Clause (A)

Clause (A) of the NWP definition of HLW refers to wastes produced by reprocessing spent nuclear fuel and thus is essentially identical to the Commission's current HLW definition in 10 CFR Part 60. Clause (A) is, however, different in one respect. The NWP wording would classify solidified reprocessing waste as HLW only if such waste "contains fission products in sufficient concentrations"—a phrase that may reflect the possibility that liquid reprocessing wastes may be partitioned or otherwise treated so that some of the solidified products will contain substantially reduced concentrations of radionuclides.

The question, then, is whether Commission should (1) numerically specify the concentrations of fission products which it would consider "sufficient" to distinguish HLW from non-HLW under Clause (A); or (2) define HLW so as to equate the Clause (A) wastes with those which have traditionally been regarded as HLW.

1. Numerically Specifying Concentrations of Fission Products

The first option considered is to numerically define "sufficient concentrations" of fission products. Liquid reprocessing wastes may contain significant amounts of non-radioactive salts, and removal of these salts prior to waste solidification may be desirable for both economic and public health and safety reasons. Removal of salts in this way would result in a smaller volume of highly radioactive wastes, which might reduce the cost and radiological impacts associated with transportation and occupational handling of those wastes. Nevertheless, any salts removed from liquid HLW would retain residual amounts of radioactive contaminants. By establishing numerical limits on the concentrations of fission products, the Commission would be identifying those wastes from reprocessing that require disposal in a deep geologic repository or its equivalent. The proper classification of the salts discussed above would then be made on the basis of the numerical limits on radionuclide concentrations and the salts would be disposed of accordingly. In other cases, certain radionuclides may be removed from the bulk liquid reprocessing waste (as has been done in removing cesium and strontium from wastes at Hanford), raising similar questions about the classification of the remaining waste and acceptable methods of disposal. For these reasons, there would be merit in numerically specifying the

⁹ For purposes of the NWP, "spent nuclear fuel" is distinguished from "high-level radioactive waste," but the provisions of the statute dealing with such spent nuclear fuel are not of present concern.

⁹ Sec. 2(12), Pub. L. 97-425, 42 U.S.C. 10101(12). Sec. 2(16) also authorizes the Commission to classify certain radioactive material as low-level radioactive waste.

¹⁰ Sec. 222, Pub. L. 97-425, 42 U.S.C. 10202.

concentrations of radionuclides in solidified reprocessing wastes which would distinguish HLW from non-HLW.

(Clause (A) refers to solidified waste "that contains fission products in sufficient concentrations." No mention is made of the long-lived transuranic radionuclides which are also present in liquid reprocessing wastes but, since the transuranics constitute the predominant long-term hazard of reprocessing wastes, such nuclides must be considered as well in defining reprocessing wastes that should be regarded as HLW. With this view, a numerical classification of solidified wastes under Clause (A) could be derived in the same manner, and contain the same concentration limits, as the numerical definitions developed under Clause (B). Derivation of concentration limits under Clause (B) is discussed in the following section of this notice.)

2. Traditional Definition

The alternate approach is to define HLW so as to equate the category of Clause (A) wastes with those wastes which have traditionally been regarded as HLW under Appendix F to 10 CFR Part 50 and the Energy Reorganization Act. The advantage of this option is that the term HLW retains its utility in defining the facilities that are subject to NRC licensing. That is, all materials that have traditionally been considered HLW for purposes of the Energy Reorganization Act would also be regarded as HLW under the Nuclear Waste Policy Act. The disadvantage is that some materials might continue to fall within the HLW classification even though they do not require the degree of isolation afforded by a repository. They would be called "HLW" even though the technical community might not so regard them.

3. Other Considerations Regarding Clause (A) Options

The Commission would add two observations regarding the options discussed above.

a. Development of a definition under Clause (A), as suggested by the first option, would not alter the Commission's existing authority to license DOE waste facilities, including defense wastes facilities, under the Energy Reorganization Act of 1974 (ERA). Any classification of wastes as non-HLW on the basis that they do not contain "sufficient concentrations" of fission products would be irrelevant in determining whether such wastes must be disposed of in licensed disposal facilities. For example, if DOE were to pursue its proposal for in-place

stabilization of the Hanford "tank" wastes (see DOE/EIS-0113, March, 1986), most or all of the disposal "facilities" for those wastes would need to be licensed by the NRC.

b. Retaining the traditional definition for purposes of Clause (A) does not limit the Commission's ability to establish at some later date criteria to define wastes that require the isolation afforded by a deep geologic repository or its equivalent. That is, wastes requiring such isolation could be identified by terms other than "high-level".

B. Clause (B)

Clause (B) of the NWPA authorizes the Commission to classify "other highly radioactive material" (other than reprocessing wastes) as HLW if that material "requires permanent isolation." The Commission considers that both characteristics (highly radioactive and requiring permanent isolation) must be present simultaneously in order to classify a material as HLW.¹¹ Each of these characteristics is discussed in turn in the following sections.

1. Highly Radioactive

The Commission proposes¹² to consider a material "highly radioactive" if it contains concentrations of short-lived radionuclides in excess of the Class C limits of Table 2 of 10 CFR Part 61. Such concentrations are sufficient to produce significant radiation levels and to generate substantial amounts of heat. Moreover, the Class C concentration limits for short-lived nuclides approximate the actual concentrations of those nuclides present in some existing reprocessing wastes (see NUREG-0946, Table 4).

2. Permanent Isolation

The phrase "permanent isolation" in NWPA is much less subjective than is "highly radioactive." Within the context of NWPA, "permanent isolation" clearly implies the degree of isolation afforded by a deep geologic repository.¹³ Thus, a

¹¹ The Commission would not find tenable the argument that a material requires permanent isolation because it is highly radioactive. The need for permanent isolation correlates with the length of time a material will remain hazardous. Long half-lives, in turn, correlate with low rather than high levels of radioactivity.

¹² All references to "proposals" by the Commission refer only to its tentative views. No formal proposals will be developed until comments are received in response to this notice.

¹³ The NWPA includes the following definitions: The term "disposal" means the emplacement in a repository of high-level radioactive waste, spent nuclear fuel, or other highly radioactive material with no foreseeable intent of recovery, whether or not such emplacement permits the recovery of such waste.

waste "requires permanent isolation" if it cannot be safely disposed of in a facility less secure than a repository. The Commission will determine which wastes require permanent isolation by evaluating the disposal capabilities of alternative, less secure, disposal facilities.¹⁴ Any wastes which cannot be safely disposed of in such facilities will be deemed to require permanent isolation and, if also highly radioactive, would be classified as high-level wastes.

The approach which the Commission proposes to pursue to determine which wastes require permanent isolation will be an extension of the 10 CFR Part 61 waste classification analyses and will consist of the following steps.

a. *Establish acceptance criteria.* 10 CFR Part 61 currently contains performance objectives for disposal of radioactive wastes in a land disposal facility. These performance objectives will serve as acceptance criteria for waste classification analyses, but might need to be supplemented for specific types of facilities or wastes. The Part 61 performance objectives may also need to be supplemented to accommodate any environmental standards for non-HLW which may be promulgated by the U.S. Environmental Protection Agency pursuant to its authority under the Atomic Energy Act of 1954, as amended.

b. *Define disposal facility.* The hazard which a radioactive waste poses to public health depends, in part, on the nature of the facility used for its disposal. Thus, a reference disposal facility, less secure than a repository, needs to be defined in terms of the characteristics which contribute to isolation of wastes from the environment. For land disposal facilities, such characteristics might include depth of disposal, use of engineered barriers, and the geologic, hydrologic and geochemical features of a disposal site.

c. *Characterize wastes.* Wastes will be characterized in terms of the factors which determine their hazard and behavior after disposal, including

The term "repository" means any system licensed by the Commission that is intended to be used for, or may be used for, the permanent deep geologic disposal of high-level radioactive waste and spent nuclear fuel, whether or not such system is designed to permit the recovery, for a limited period during initial operation, of any materials placed in such system. Such term includes both surface and subsurface areas at which high-level radioactive waste and spent nuclear fuel handling activities are conducted.

¹⁴ These facilities might make use of intermediate depth burial or various engineering measures, such as intruder barriers, to accommodate wastes with radionuclide concentrations unsuitable for disposal by shallow land burial.

physical and chemical forms of the waste, the radionuclide concentrations and associated radiological characteristics, the waste volumes, and the heat generation rates. The wide range of types and characteristics of wastes arising from industrial, biomedical and nuclear fuel cycle sources makes this a particularly critical step in the waste classification process—especially for wastes to be generated in the future (e.g., decommissioning wastes).

d. Develop assessment methodology. Analytical methods (including mathematical models and computer codes) for projecting disposal system performance will be acquired or developed. For land disposal facilities, such methods include models of groundwater flow and contaminant transport. An assessment methodology also includes descriptions of the natural and human-initiated disruptive events or processes which could significantly affect disposal system performance as well as the analytical means for evaluating the impacts of such events or processes.

e. Evaluate disposal system performance. The performance of the alternative disposal facility will be evaluated to estimate the public health hazards from disposal of various types and concentrations of wastes. Hazards below the acceptance criteria of item (a) above indicate an acceptable match of waste type and disposal option. Wastes which cannot be safely disposed of in the alternative facility will be classified as requiring permanent isolation.

A practical difficulty with classifying wastes as described here is that alternative disposal facilities are currently unavailable. Thus, classification of wastes in this manner requires many assumptions about the performance of nonexistent disposal facilities. Such analyses will inevitably involve substantial uncertainties.

It is also possible that no alternative disposal facility will ever be needed for commercially-generated "above Class C" wastes. (Disposal of such wastes is a Federal, rather than State, responsibility.) Because of the overhead costs of developing and licensing new facilities, the relatively small volumes of such wastes, and the low heat generation rates of some of these wastes, it might prove most economical to dispose of all such wastes in a repository. Nevertheless, the Commission recognizes a "chicken-and-egg" problem here. Until wastes are classified as HLW or non-HLW, it may be difficult for the DOE to make decisions regarding appropriate types of disposal facilities. Therefore, despite the

uncertainties involved, the Commission proposes to select a hypothetical alternative disposal facility which will serve as the basis for carrying out waste classification analyses.

Previous analyses by the NRC (NUREG-0782, draft EIS for 10 CFR Part 61) suggest that disposal facilities with characteristics intermediate between shallow land burial and geologic repository disposal may be most effective in protecting against short-term radiological impacts associated with inadvertent intrusion into a disposal facility. These "intermediate" facilities may be much less effective in providing enhanced long-term isolation of very long-lived radionuclides. If this preliminary view is supported by subsequent analyses, wastes with concentrations above the Commission's current Class C limits for long-lived nuclides (Table 1 of 10 CFR Part 61) would require permanent isolation. In the following sections, the Commission will assume, for the sake of illustration, that Table 1 is an appropriate interpretation of the term "requires permanent isolation."

3. Conceptual Definition of "High-Level Waste"

The Commission proposes to Classify wastes as HLW under Clause (B) of the NHPA definition only if they are both highly radioactive and in need of permanent isolation. As discussed above, the Commission considers that wastes should be considered to be highly radioactive if they contain concentrations of short-lived radionuclides which exceed the Class C limits of Table 2 of 10 CFR Part 61. The Commission also assumes, for illustrative purposes, that the radionuclide concentrations of Table 1 of Part 61 are appropriate for identifying the concentrations of long-lived radionuclides requiring permanent isolation. Solidified reprocessing wastes would similarly be classified as HLW only if they contain both short- and long-lived radionuclides in concentrations exceeding Tables 2 and 1, respectively.

It is assumed that a revised definition of HLW would appear in the definitions section of Part 60, and that the materials encompassed by the definition would be subject to the containment requirements of that regulation. It would also serve incidentally to define the materials covered by DOE's waste disposal contracts. This definition would apply only to wastes disposed of in a facility licensed under Part 60. As discussed elsewhere in this notice, there would be no alteration of the Commission's authority to license disposal of HLW

under provisions of the Energy Reorganization Act. Some technical amendments would be needed to preserve the jurisdictional provisions of existing Part 60—i.e., to indicate that Part 60 applies to the DOE facilities described in sections 202(3) and (4) of the Energy Reorganization Act, and for that purpose the proposed definition of HLW would not be controlling.

A conceptual, revised definition of HLW could be stated as follows:

"High-level radioactive waste" or "HLW" means: (1) Irradiated reactor fuel, (2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, (3) solids into which such liquid wastes have been converted, and solid radioactive wastes from other sources, provided such solid materials contain both long-lived radionuclides in concentrations exceeding the values of Table 1 and short-lived radionuclides with concentrations exceeding the values of Table 2.

TABLE 1

Radionuclide	Concentration ¹ (Ci/m ³)
C-14.....	8
C-14 in act. metal.....	80
Ni-59 in act. metal.....	220
Nb-94 in act. metal.....	0.2
Tc-99.....	3
I-129.....	0.08
Alpha emitting TRU, t _{1/2} > 5 yr.....	*100
Pu-241.....	*3,500
Cm-242.....	*20,000

¹ If a mixture of radionuclides is present, a sum of the fractions rule is to be applied for each table. The concentration of each nuclide is to be divided by its limit, and the resulting fractions are to be summed. If the sum exceeds one for both tables, the waste is classified as HLW.

² Units are nanocuries per gram.

TABLE 2

Radionuclide	Concentration ¹ (Ci/m ³)
Ni-63.....	700
Ni-63 in act. metal.....	7,000
Sr-90.....	7,000
Cs-137.....	4,600

¹ If a mixture of radionuclides is present, a sum of the fractions rule is to be applied for each table. The concentration of each nuclide is to be divided by its limit, and the resulting fractions are to be summed. If the sum exceeds one for both tables, the waste is classified as HLW.

4. Status of wastes not classified as HLW

The NWPA, the Low-Level Radioactive Waste Policy Act, and the Commission's regulations in 10 CFR Part 61 currently classify wastes as "low-level" if they are not otherwise classified as high-level wastes or certain other types of materials (e.g., uranium mill tailings). Classification of certain wastes as HLW, under Clause (B) of the NWPA definition, would reduce the amount of waste classified (by default) as LLW and, more importantly, would establish a distinct, concentration-based boundary between the two classes of waste.

If this conceptual definition of Clause (B) were adopted, certain wastes with radionuclide concentrations above the Class C limits of 10 CFR Part 61 would not be classified as HLW because they do not contain the requisite combination of short- and long-lived nuclides. These wastes would continue to be classified as special types of low-level wastes analogous to DOE's "transuranic" waste category. Any such wastes generated by defense programs would continue to fall under DOE's responsibility for disposal, and no NRC licensing of facilities intended solely for their disposal, such as the Waste Isolation Pilot Plant (WIPP), would be authorized.

As provided by the amendments to the Low-Level Radioactive Waste Policy Act,¹⁵ the Federal government is responsible for disposal of all commercially-generated "above Class C" wastes; it is contemplated, under the amendments, that the NRC would be responsible for licensing the facilities for their disposal. The Commission would continue to permit disposal of wastes containing naturally-occurring or accelerator-produced materials in licensed facilities provided there was no unreasonable risk to public health and safety.

III. Legal Considerations Related to the Nuclear Waste Policy Act

The exercise of NWPA Clause (B) authority may give rise to a number of legal questions which are discussed below.

A. Disposal of waste generated by materials licensees. The NWPA established a Nuclear Waste Fund composed of payments made by the generators and owners of "high-level radioactive waste" (including spent fuel) that will ensure that the costs of disposal will be borne by the persons

responsible for generating such waste. The Nuclear Waste Fund is to be funded with moneys obtained pursuant to contracts entered into between the Secretary of Energy and persons who generate or hold title to high-level radioactive waste.

The statute addresses the particulars of contracts with respect to spent nuclear fuel and solidified high-level radioactive waste derived from spent nuclear fuel used to generate electricity in a civilian nuclear power reactor. It further limits the authority of the Commission to issue or renew licenses for utilization and production facilities—i.e., for present purposes, nuclear reactors and reprocessing plants—unless the persons using such facilities have entered into contracts with the Secretary of Energy.

The absence of any reference to materials licensees (e.g., fuel fabricators, some research laboratories) suggests that the Nuclear Waste Fund was not intended to apply to their activities. As a result, there could be a question if the Commission were to define materials licensees' waste as high-level waste, because the waste might thereby become ineligible for disposal in a repository. The reason is that the law prohibits disposal of HLW in a repository unless such waste was covered by a contract entered into by June 30, 1983 (or the date the generator or owner commences generation of or takes title to the waste, if later). Few contracts have been entered into with materials licensees except those who are also facility licensees. Thus, it can be argued that the Commission should refrain from designating as HLW, under Clause (B),¹⁶ materials generated by materials licensees.

The Commission is not persuaded by such an argument. The statutory language dealing with the Commission's classification of materials as HLW refers solely to considerations relating to the nature of the wastes, and the character of the licensee generating or owning the waste is simply not relevant. If there are good reasons to treat that waste from materials licensees as HLW, the Commission regards it as likely that any statutory impediment to the acceptance of such waste at a geologic repository could be modified.

B. Confidence regarding disposal capacity for power reactors. The availability of waste disposal facilities for wastes generated at commercial power reactors has been the subject of

controversy and litigation. The NWPA addresses these concerns by establishing a Federal responsibility to provide for the construction and operation of a geologic repository, leaving undefined (i.e., to the discretion of the Commission) the classes of materials that require permanent isolation in such a facility. Whatever materials they may be, however, they must be transferred to DOE for disposal; and the persons responsible for generating the waste must enter into contracts with DOE which provide for payment of fees sufficient to offset DOE's costs of disposal. Existing facility licensees were required to enter into such contracts by June 30, 1983.

The Commission believes that the purpose of the NWPA can best be accomplished if all the highly radioactive wastes generated by facility licensees (reactors and reprocessing plants) which require permanent isolation are covered by waste disposal contracts with DOE. This would assure that DOE can and will accept possession of such wastes when necessary. Further, in the absence of such assurance, the basis for Commission confidence that these wastes will be safely stored and disposed of would be subject to question even if concerns about the disposal of the licensees' spent nuclear fuel had been laid to rest. Accordingly, if there are any highly radioactive materials (other than those previously regarded as HLW) that are generated by facility licensees and that require permanent isolation, the Commission believes that, for purposes of the NWPA, they should be regarded as "high-level waste." The Commission has reviewed the terms of DOE's standard waste disposal contract and believes that classifying such additional materials as HLW would require no changes to the contract terms.

C. Implications with respect to disposal methods. Under the Atomic Energy Act of 1954, the Commission is authorized to establish such standards to govern the possession of licensed nuclear materials as it may deem necessary or desirable to protect health.¹⁷ Under this authority, the Commission may classify materials according to their hazards and may prescribe requirements for the long-term management or disposal thereof. It is not necessary to label materials as HLW under the NWPA in order to require their disposal in a geologic repository or other suitably permanent facility.

The Commission exercised this authority with respect to concentrated

¹⁵ Low-Level Radioactive Waste Policy Amendments Act of 1985, Pub. L. 96-240, Sec. 3, 42 U.S.C. 2021c.

¹⁶ The Nuclear Waste Fund is governed by Sec. 302, Pub. L. 97-425, 42 U.S.C. 10222. The prohibition of disposal of HLW not covered by timely contracts is set out in sec. 302(b)(2).

¹⁷ Sec. 161b., Pub. L. 83-703, 42 U.S.C. 2201(b).

reprocessing wastes by specifying, in Appendix F to 10 CFR Part 50, that any such wastes generated at licensed facilities are to be transferred to a Federal repository for disposal. More recently, the Commission classified certain low-level wastes as being generally acceptable for near-surface disposal (10 CFR Part 61). On the basis of further consideration, the Commission could specify appropriate disposal means for wastes exhibiting radionuclide concentrations greater than those defined in Part 61. Thus, the Commission need not exercise NAWPA Clause (B) authority in order to assure that radioactive wastes from licensed activities are disposed of properly. Moreover, the identification of material as HLW under Clause (B) would not by itself mandate that such material must be disposed of in a geologic repository. Since the NAWPA authorizes only a single method of permanently isolating HLW—geologic repositories—classification of materials as HLW may effectively preclude disposal of such wastes by other means. Nevertheless, the Commission's regulations will continue to leave open the prospect of disposal by other means if Congress should so authorize.

D. Relationship to State role. Section 3 of the Low-level Radioactive Waste Policy Act (LLRWPA), Pub. L. 96-573, 42 U.S.C. 2021b., enacted in 1980, defines a State responsibility to provide, pursuant to regional compacts, for the disposal of "low-level radioactive waste" (LLW).¹⁸ Such waste is defined to mean "radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material as defined in section 11.e.(2) of the Atomic Energy Act of 1954."

The Low-Level Radioactive Waste Policy Amendments Act of 1985, Pub. L. 99-240, 42 U.S.C. 2021c., limited the range of LLW for which the States must provide disposal capacity. Specifically, the States are not responsible for wastes with radionuclide concentrations in excess of the Class C limits of 10 CFR Part 61. Instead, the Federal government now assumes responsibility for providing disposal capacity for such wastes. Thus, classification of "above Class C" wastes as HLW or non-HLW will have no impact on State government responsibilities.

E. Impact on existing technical criteria. NRC's regulations in Part 60 include technical criteria to be applied in licensing DOE's receipt and

possession of source, special nuclear, and byproduct material at a geological repository. The regulations would accommodate the disposal of any radioactive materials, including spent fuel, reprocessing wastes, or any other materials which could be disposed of in accordance with the specified performance objectives.

Materials categorized as high-level waste are subject to a containment requirement (§ 60.113(a)(1)(i)(A)) and to specified waste package design criteria and waste form criteria (§ 60.135 (a-c)). These criteria apply to wastes characterized by the presence of fission products generating substantial amounts of heat at the time of emplacement, but with much reduced heat generation after decades or a few centuries.¹⁹ The rule also explicitly provides that design criteria for waste types other than HLW will be addressed on an individual basis if and when they are proposed for disposal in a geologic repository (§ 60.135(d)).

If additional materials were to be designated as high-level waste, the Commission would need to consider whether the existing repository design criteria are appropriate with respect to such materials.

F. Applicability of HLW definition to naturally-occurring and accelerator-produced radioactive materials. Clause (B) of the NAWPA provides that the Commission may extend the definition of the term "high-level radioactive waste" to include material requiring permanent isolation only where this is "consistent with existing law." The applicable existing law is the Atomic Energy Act of 1954, under which the Commission has authority to regulate the possession and use of "source material," "special nuclear material," and "byproduct material." There are other radioactive materials, however: naturally-occurring radionuclides, such as radium, and accelerator-produced radionuclides. These are not covered by the Atomic Energy Act and hence there would be no statutory basis, consistent with existing law, for the Commission to require that they be disposed of at facilities licensed by the Commission or otherwise to regulate their possession or use. Accordingly, no legal basis exists for the Commission to classify such materials as HLW or non-HLW.

¹⁸ The Commission's expectation that HLW would generate significant amounts of heat is reflected in the discussion of transuranic waste in the notice of proposed rulemaking on the Part 60 technical criteria. 48 FR 35284, July 8, 1981. Reduction of the heat load, for example by removal of cesium-137 and strontium-90, could result in different containment requirements. 48 FR 28196, June 21, 1983 (final rule).

Nevertheless, as already noted, 10 CFR Part 60 contemplates that "other radioactive materials other than HLW" may be received for emplacement in a geologic repository. This provision of Part 60 would not be altered by expanding the definition of HLW. Part 60 provides that waste package requirements for such wastes will be determined on a case-by-case basis when these wastes are proposed for disposal. Thus, it might be determined, on the basis of technical considerations, that certain naturally-occurring or accelerator-produced radioactive waste materials present hazards similar to licensed materials that are defined as high-level waste and that such material should be disposed of in a geologic repository developed under NAWPA. If so, plans for such disposal can be reviewed under Part 60 and the Commission could impose such packaging or other requirements as appropriate to protect public health and safety.

IV. Issues on Which Public Comments are Particularly Sought.

The Commission invites comments on all the issues identified in this notice and any other issues that might be identified. However, comments (with supportive rationale) in response to the following would be particularly helpful.

1. Two options are presented for defining reprocessing wastes under Clause (A) of NAWPA. The first option proposes to define the "sufficiency" of fission product concentrations in solidified reprocessing wastes in a manner analogous to its treatment of "highly radioactive" and "requires permanent isolation" under Clause (B) (i.e., by examining the hazards posed by wastes if disposed of in facilities other than a repository). The second option interprets Clause (A) as encompassing all those wastes which have heretofore been considered high-level waste under Appendix F to 10 CFR Part 50 and the Energy Reorganization Act. Which of these two approaches is preferable?

2. The Commission proposes that the current Class C concentration limits of 10 CFR Part 61 serve to identify radionuclide concentrations which are "highly radioactive" for purposes of Clause (B) of the NAWPA definition. Would an alternative set of concentration limits be preferable? If so, how should such limits be derived?

3. The Commission proposes to equate the "requires permanent isolation" wording of the NAWPA definition with a level of long-term radiological hazard requiring disposal in a geologic repository. Are the Commission's

¹⁹ States are not responsible for disposal of LLW from atomic energy defense activities or Federal research and development activities.

proposed analyses appropriate for identification of concentrations requiring permanent isolation?

4. Although, under section 121 of NWPA, no environmental review is required with respect to the definition of HLW, the Commission would welcome identification of any environmental consequences associated with the matters discussed in this notice.

5. Some waste materials, such as certain laboratory wastes or some sealed sources, may be highly concentrated, yet contain only relatively small total quantities of radioactive materials. Is there a need for a special provision (e.g., a minimum total quantity of activity) before a waste should be classified as HLW?

6. What difficulties (legal, administrative, financial, or other) would an expanded definition of HLW cause in implementing the provisions of the NWPA?

7. The Commission's regulations do not generally require that any particular type of waste be disposed of in any specified type of facility. Would such a requirement be appropriate?

8. As discussed in this notice, the Commission has no legal authority to classify naturally-occurring or accelerator-produced radioactive materials (NARM) as HLW or non-HLW. Nevertheless, such materials may be presented for disposal at facilities licensed by the Commission. When the Commission carries out its proposed analyses to identify "other highly radioactive material that . . . requires permanent isolation," should NARM be included in the analyses?

9. Are there issues other than those identified in this notice which the Commission should consider in developing approaches to implement its authority?

Separate Views of Commissioner Asselstine

Commissioner Asselstine is concerned about the potential for creating a confusing situation if the Commission were to adopt the first option under Clause (A). The first option is to numerically specify concentrations of fission products in defining high-level wastes. Under this approach, it is conceivable that material considered high-level waste for the purposes of licensing under the Energy Reorganization Act of 1974 will also be considered low-level waste for the purposes of the Nuclear Waste Policy Act (NWPA) of 1982. Wastes presently being stored at the Hanford waste tanks, which have traditionally been classified as high-level wastes, would likely be reclassified as above Class C low-level

waste under the first option. Commissioner Asselstine requests public comment on how this reclassification would affect the NRC's licensing authority over the long-term storage or *in situ* disposal of the Hanford waste tanks. Commissioner Asselstine also requests comments on whether there are alternative approaches to achieving the stated purpose of this advanced notice of proposed rulemaking of identifying wastes subject to the provisions of the NWPA without altering the traditional definition of high-level waste and thus creating this potential for confusion.

List of Subjects in 10 CFR Part 60

High-level waste, Nuclear power plants and reactors, Nuclear materials, Penalty, Reporting requirements, Waste treatment and disposal.

Authority: The authority citation for this document is Sec. 161, Pub. L. 83-703, 68 Stat. 948, as amended (42 U.S.C. 2201).

Dated at Washington, DC, this 20th day of February 1987.

For the Nuclear Regulatory Commission,
Samuel J. Chilk,
Secretary of the Commission.

Appendix—Volumes and Characteristics of Wastes Exceeding Class C Concentration Limits

For a number of years NRC has had an ongoing program to develop regulations and criteria for disposal of low-level radioactive waste. At the time this program was initiated, there was a well-documented need for comprehensive national standards and technical criteria for the disposal of low-level waste. The absence of sufficient technical standards and criteria was seen to be a major deterrent to the siting of new disposal facilities by states and compacts.

A significant milestone in this program was the promulgation of the regulation 10 CFR Part 61 ("Licensing Requirements for Land Disposal of Radioactive Waste") on December 27, 1982 (47 FR 57446). This regulation establishes procedural requirements, institutional and financial requirements, and overall performance objectives for land disposal of radioactive waste, where land disposal may include a number of possible disposal methods such as mined cavities, engineered bunkers, or shallow land burial. This regulation also contains technical criteria (on site suitability, design, operation, closure, and waste form) which are applicable to near-surface disposal, which is a subset of the broader range of land disposal methods. Near-surface disposal is defined as disposal in or within the upper 30 meters of the earth's surface, and may include a range of possible techniques such as concrete bunkers or shallow land burial. The Part 61 regulation is intended to be performance-oriented rather than prescriptive, with the result that the Part 61 technical criteria are written in relatively general terms, allowing applicants to

demonstrate how their proposals meet these criteria for various specific near-surface disposal methods.

A waste classification system was also instituted in the regulation which establishes three classes of waste suitable for near-surface disposal: Class A, Class B, and Class C. Limiting concentrations for particular radionuclides were established for each waste class, with the highest limits being for Class C. The concentration limits were established based on NRC's understanding (at the time of the rulemaking) of the characteristics and volumes of low-level waste that would be reasonably expected to the year 2000, as well as potential disposal methods.

The Class C concentration limits are applicable to all potential near-surface disposal systems; however, the calculations performed to establish the limits are based on postulated use of one near-surface disposal method: shallow land burial. The Class C limits are therefore conservative since there may be other near-surface disposal methods that have greater confinement capability (and higher costs) than shallow land burial.

The regulation states that waste exceeding Class C concentration limits is considered to be "not generally acceptable for near-surface disposal," where this is defined in § 61.55(a) as "waste for which waste form and disposal methods must be different, and in general more stringent, than those specified for Class C waste." Thus, waste exceeding Part 61 concentrations generally has been excluded from near-surface disposal and is being held in storage by licensees. (This amounts to less than 1% of the approximately 3,000,000 ft³ of commercial low-level waste annually being generated.) Given the current absence of prescriptive requirements for disposal of waste exceeding Class C concentration limits, the regulation allows for evaluation of specific proposals for disposal of such waste on a case-by-case basis. The general criteria to be used in evaluating specific proposals are the Part 61 performance objectives contained in Subpart C of the regulation.

Current NRC activities include analyses of low-level waste that exceeds Class C concentration limits to determine the extent to which alternative near-surface disposal systems (e.g. concrete bunkers, augered holes, deeper disposal) may be suitable for safe disposal of such waste. These analyses include a more detailed characterization of physical, chemical, and radiological characteristics of wastes that may be close to or exceed Class C concentration limits as well as development of improved methods for modeling the radiological and economic impact of disposal of these wastes. A related activity is development of more specific guidance for design and operation of alternative near-surface and other land disposal systems. These activities represent a continuation of the Part 61 rulemaking process as discussed in the December 27, 1982 notice of the final Part 61 regulation (47 FR 57446).

Wastes exceeding Class C concentrations are projected to be generated by nuclear power reactors and other supporting nuclear fuel cycle facilities, and also generated by

radioisotope product manufacturers and other facilities and licensees outside of the nuclear fuel cycle. Such wastes can be grouped as follows:

- Plutonium-contaminated nuclear fuel cycle wastes
- Activated metals
- Sealed sources
- Radioisotope product manufacturing wastes
- Other waste

Plutonium-contaminated nuclear fuel cycle wastes. These wastes are being generated from two principal sources. One source of waste arises from operations supporting the nuclear fuel cycle—i.e., post-irradiation radiochemical and other performance analyses of spent fuel rods from nuclear reactors (e.g., "burnup" studies). These operations generate about 200 ft³ of plutonium-contaminated waste per year, much of which is believed to exceed Class C concentration limits. This waste consists of solidified liquids and other solid material such as scrap, trash, and contaminated equipment. Eventual decommissioning of the three facilities currently performing these analyses is expected to generate additional waste volumes, a portion of which is expected to exceed Class C concentration limits.

The second source of waste arises from fuel cycle licensees who have previously been authorized to use plutonium in research and development of advanced reactor fuels. None of these licensees is using plutonium now, and there is no prospect in the foreseeable future for such activities. In fact, each of the licensees in this category has either decommissioned, or is in the process of decommissioning, its facility. Some of the licensees have made contractual arrangements to transfer their decommissioning waste to DOE for retrievable storage. Approximately 5,000 to 10,000 ft³ of waste, however, is projected to be generated on a one-time basis that will not be covered by contract.

Activated metals. Activated metals are typically generated as a result of long-term neutron bombardment of metals forming the structure or internal components of a nuclear reactor used for power production, radioisotope production, or other purpose (e.g., education, testing, research). Activated metal wastes are unlike most other wastes being generated in that the radionuclides form part of the actual metal matrix rather than being mixed with large volumes of other, nonradioactive material such as paper, cloth or resins. Radionuclide release is principally governed by the material corrosion rate, and for most reactor metals of concern (e.g., stainless steel), the corrosion rate is quite low.

To date, only a small fraction (about 200 ft³/yr) of the activated metal waste currently being generated by nuclear power reactors has been identified as exceeding Class C concentration limits. Such waste appears to primarily consist of in-core instrumentation which is no longer serviceable. An example of this waste is a reactor flux wire which is physically small but may be high in activity. (A flux wire is a wire that is inserted into a tube running the length of the reactor core

and used to make neutron flux measurements.)

Large quantities of activated metal wastes are projected to be generated in the future as a part of reactor decommissioning. Studies by NRC (NUREG/CR-0130, addendum 3 and NUREG/CR-0672, addendum 2) indicate that over 99% of the waste volume that is projected to result from nuclear power reactor decommissioning will not exceed class C concentration limits and the 1% that is projected to exceed these limits will be almost all activated metals from core structure. Conservative estimates presented in these studies indicate that packaged quantities of decommissioning wastes exceeding Class C concentration limits will total about 4700 ft³ for a large (1175 MWe) pressurized water reactor (PWR) and about 1660 ft³ for a large (1135 MWe) boiling water reactor (BWR). Much smaller quantities of wastes exceeding Class C concentration limits may also be generated from future decommissioning of test, research, and education reactors.

Another source of activated metal waste is expected to arise as part of consolidation of spent fuel assemblies for storage and/or disposal. Spent fuel assemblies now being periodically discharged from nuclear power reactors are stored in on-site fuel storage pools. Each assembly is composed of a large number of fuel rods arranged in a rectangular array, and held in place by spacer grids, tie rods, metal end fittings, and other miscellaneous hardware. One option under consideration, for long-term waste storage and eventual disposal is to remove this hardware from the fuel rods. This allows the fuel rods, which contain the fission products which are of primary interest in terms of geologic repository disposal, to be consolidated into a smaller volume. This enables more economical storage and easier handling for transport and disposal. The hardware, which is composed of various types of corrosion-resistant metal such as Inconel or zircalloy, becomes a second waste stream which could potentially be safely disposed by a less expensive method than a geologic repository.

Based on information from DOE (DOE/RW-0006, September, 1984) about 12 kg of waste hardware would be generated per BWR fuel assembly, and about 28 kg per PWR fuel assembly. Assuming 200 fuel assemblies are replaced per year per large 1000 MWe BWR, roughly 2400 kg of activated metal hardware would be generated per year per large BWR, and about 1700 kg per PWR. An approximate compacted volume is on the order of 50 ft³/yr per large reactor, or about 4,000 ft³/yr over the entire industry. Depending upon parameters such as the fuel irradiation history and the hardware elemental composition, particular pieces of separated hardware may or may not exceed Class C concentration limits.

Other than perhaps a few isolated cases, all of the spent fuel assemblies are being stored by licensees with the hardware still attached. Under the provisions of the NWPA, operators of nuclear power plants have entered into contracts with DOE for acceptance by DOE of the spent fuel for storage and eventual disposal. (See 48 FR

16590, April 18, 1983 for the terms of the contract.) Acceptance of the spent fuel by DOE implies acceptance of the activated hardware along with the fuel rods, with the result that disposal of the hardware would intrinsically be a Federal rather than a State responsibility. Disposal responsibility becomes less clear if licensees, seeking more efficient onsite storage, consolidated fuel themselves.

Sealed sources. A number of discrete sealed sources have been fabricated for a variety of medical and industrial applications, including irradiation devices, moisture and density gauges, and well-logging gauges. Each source contains only one or a limited number of radioisotopes. Sealed sources can range in activity from a few millionths of a curie for sources used in home smoke detectors to several thousand curies for sources used in radiotherapy irradiators. Sealed sources are produced in several physical forms, including metal foils, metal spheres, and metal cylinders clamped onto cables. The larger activity sealed sources typically consist of granules of radioactive materials encapsulated in a metal such as stainless steel.

Sealed sources are generally quite small physically. Even sources containing several curies of activity have physical dimensions which are normally less than an inch or two in diameter and 8 inches in length. These dimensions are such that, like activated metals, sealed sources may be considered to be a unique form of low-level waste. Characterizing sealed sources in terms of radionuclide concentration certainly appears to be of less utility than characterizing sealed sources in terms of source activity.

Depending upon the application, sealed sources may be manufactured using a variety of different radioisotopes. A review of the NRC sealed source registry was conducted to identify those source designs which may contain radioisotopes in quantities that might exceed Class C concentration limits. The principal possibilities appear to be those containing cesium-137, plutonium-238, plutonium-239, and americium-241. Large cesium-137 sources are generally used in irradiators, and while some large sources can range up to a few thousand curies, most which are sold appear to contain in the neighborhood of 500 curies. Cesium-137 is a beta/gamma emitter having a half-life of 30 years, which suggests that special packaging and disposal techniques can be readily developed for safe near-surface disposal of sources containing this isotope.

The remaining three isotopes are alpha emitters and are longer lived. Sources manufactured using these isotopes can range up to a few tens of curies, although most that have been sold appear to be much less than one curie in strength. Plutonium-239 sources are not commonly manufactured. Plutonium-238 sources have been manufactured for use as nuclear batteries for applications such as heart pacemakers. Plutonium-238 has also been used in neutron sources, although neutron sources currently being manufactured generally contain americium-241. Americium-241 is also used in a wide

variety of other industrial applications such as fill level gauges.

Neutron sources produce neutrons for applications such as reactor startup, well logging, mineral exploration, and clinical calcium measurements. These sources contain alpha-emitting radionuclides such as americium-241 plus a target material (generally beryllium) which generates neutrons when bombarded by alpha particles. Neutron sources can contain up to approximately 20 curies of activity.

It is difficult to project potential waste sealed source quantities and activities, since sealed sources as wastes are not routinely generated as part of licensed operations. In addition, sealed sources only become waste when a decision is made by a licensee to treat them as such. In many instances sources held by licensees may be recycled back to the manufacturer when they are no longer usable, and the radioactive material recovered and fabricated into new sources. Finally, source manufacturers are licensed by the NRC and NRC Agreement States to manufacture a particular source design up to a specified radioisotope curie limit. Most actual sources, however, contain activities considerably less than the design limit.

NRC staff estimates that licensees currently possess approximately 10,000 encapsulated sources having activities above a few thousandths of a curie and containing americium-241 or plutonium-238. Given the hypothetical case that all these sources were candidates for disposal, the total consolidated source volume would be only about 35 ft³. After packaging for shipment, however, the total disposed waste volume would be significantly increased. The total activity contained in the sources is estimated to be approximately 70,000 curies.

Radioisotope product manufacturing wastes. Wastes exceeding Class C concentration limits are occasionally generated as part of manufacture of sealed sources, radiopharmaceutical products, and other materials used for industrial, educational, and medical applications. Volumes and characteristics of such wastes

are difficult to project. However, it is believed that the largest volume of this waste consists of sealed sources which cannot be recycled, plutonium-238 and americium-241 source manufacturing scrap, and waste contaminated with carbon-14.

Sealed sources as a waste form are discussed above. Manufacture of large plutonium-238 and americium-241 sources is concentrated in only a few facilities, from which the generation of waste exceeding Class C concentration limits is believed to total only a few hundred ft³ per year. Approximately 10 ft³ per year of carbon-14 waste is generated as a result of radiopharmaceutical manufacturing.

Other wastes. Although the above discussed wastes are believed to be the principal wastes that are expected to exceed Class C concentration limits, other wastes may occasionally also be generated. For example, relatively small quantities of such wastes are currently being generated as part of decontamination of the Three Mile Island, Unit 2, nuclear power plant. However, these wastes are being generated as a result of an accident, are therefore considered abnormal, and are being transferred to DOE under a memorandum of understanding with NRC. Wastes exceeding Class C concentration limits and generated as part of the West Valley Demonstration Project are also being transferred to DOE for storage pending disposal.

Sealed sources and other waste containing discrete quantities of radium-226 may also exceed Class C concentration limits. Products containing radium-226 have been manufactured in the past for a variety of industrial and medical applications. Such wastes are not regulated by NRC but occasionally have been disposed at licensed low-level waste disposal facilities. NRC is currently investigating the impacts of disposal of such waste in order to provide guidance to States and other interested parties on safe disposal methods and any concentration limitations.

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APPENDIX C

MIXED WASTE

Introduction

Commercial low-level radioactive waste, as defined in the LLRWPA, is regulated by the NRC and NRC Agreement State programs under the Atomic Energy Act, as amended. Hazardous waste, as identified in 40 CFR Part 261, is regulated by the U.S. Environmental Protection Agency (EPA) and EPA authorized states under the Resource Conservation and Recovery Act (RCRA), as amended. Certain low-level waste may also contain chemical constituents which are hazardous under EPA regulations. Such waste is commonly referred to as mixed low-level radioactive and hazardous waste, or mixed waste. NRC regulations control the radiological component (byproduct, source, and special nuclear material) of the mixed waste; EPA has the authority and continues to develop regulations to control the hazardous component of mixed waste. However, when the components are combined to become mixed waste, neither agency has exclusive jurisdiction. This overlap of agency jurisdiction has led to a situation of dual regulation where both agencies, NRC and EPA, regulate the same waste.

Jurisdictional Issue

Compliance with dual regulation is possible if the requirements are compatible. However, there are legislative and regulatory differences between the two agencies which are perceived to make the regulation of mixed waste complex and burdensome for both regulatory agencies and licensees. The principal differences between the two agencies that need to be addressed in order to resolve the issue of dual or conflicting jurisdiction are summarized below:

1. Overall Performance Requirements:

10 CFR 61: Design waste migration to stay within dose limits at disposal site boundary. Maintain effluent releases as low as is reasonably achievable (ALARA). Provide protection to inadvertent intruders following loss of institutional control over the disposal site. Design and operate the disposal facility to achieve long-term stability.

RCRA: Design for no migration from disposal unit for as long as the waste remains hazardous.

2. Overall Design Requirements:

10 CFR 61: Minimize contact of water with waste during disposal and contact of standing water with wastes after disposal. Design minimum need for active maintenance of disposal cells.

RCRA: Install two or more liners, leachate collection, and treatment system. Such a system could result in waste contact with standing or percolating water. Also may result in long-term and active maintenance programs.

3. LLRWPA and RCRA Schedules:

LLRWPA: Sets forth milestones with stringent financial penalties for not meeting them. Require states and compact regions to develop and submit siting plan by January 1988.

RCRA: Also establishes deadlines, but does not impose sanctions for failure to meet them. Location standards still developing with completion currently scheduled for September 1988.

Studies on Mixed Waste

The NRC has sponsored several studies in an effort to better understand the problem of mixed waste. The Brookhaven National Laboratory and the Oak Ridge National Laboratory provided technical assistance in these efforts which are summarized in the following documents (see Appendix D for ordering information from the U.S. Government Printing Office).

1. An Analysis of Low-Level Wastes: Review of Hazardous Waste Regulations and Identification of Radioactive Mixed Waste. Final Report, NUREG/CR-4406, December 1985.
2. Management of Radioactive Mixed Waste in Commercial Low-Level Wastes, Draft Report for Comments, NUREG/CR-4450, January 1986.
3. Document Review Regarding Hazardous Chemical Characteristics of Low-Level Waste, Final Report, NUREG/CR-4433, March 1986.
4. Nonradiological Groundwater Quality at Low-Level Radioactive Waste Disposal Sites, Final Report, NUREG-1183, April 1986.
5. Evaluation of Potential Mixed Wastes Containing Lead, Chromium, Used Oil, or Organic Liquids, Final Report, NUREG/CR-4730, January 1987.

The significant conclusions from the above studies are:

1. There are three potentially mixed waste streams generated by academic, biomedical, industrial, and reactor waste generators: (i) waste containing organic liquids; (ii) lead-containing waste; and (iii) chromium-containing waste. These waste streams make up less than three percent of all low-level waste materials and less than one-tenth of one percent of all hazardous waste shipped for disposal in 1984.
2. Migration of hazardous chemicals including lead, chromium, toluene, and xylene into groundwater at the Sheffield Low-Level Waste Disposal Facility (not operating) and the Barnwell Waste Management Facility (operating) is at or below detection limits or at background levels.

3. Recent compliance sampling at the Hanford Low-Level Waste Facility (operating) shows no hazardous materials in groundwater attributable to the disposed radioactive waste.

Current Status

Since May 1986, the NRC and EPA staffs have been working together towards an administrative resolution of the dual jurisdictional issue. The efforts under progress have been directed towards the resolution of: (i) technical differences between 10 CFR 61 and RCRA regulations, and (ii) inconsistencies between LLRWPA milestones and EPA's schedule for issuing the remaining RCRA implementing regulations. To minimize the burden of dual regulation, the two agencies have adopted the approach of developing and issuing joint guidance on several topics to address the mixed waste problem. The following two documents are available from:

Public Document Room (PDR)
US NRC
Washington, DC 20555
(202)634-3273

(Letter or telephone requests are accepted. There is a copying fee for each document. For price information, call the PDR.)

1. Guidance on the Definition and Identification of Commercial Mixed Low-Level Radioactive and Hazardous Waste and Answers to Anticipated Questions. Approved on January 8, 1987, and noticed availability in Federal Register dated April 7, 1987. (WM-3-870108)
2. Combined NRC-EPA Siting Guidelines for Disposal of Commercial Mixed Low-Level Radioactive and Hazardous Wastes. Issued to the States and Compact Regions as a Generic Letter dated March 13, 1987. (WM-3-870313)

NRC and EPA are also developing guidance on conceptual designs for commercial mixed waste facilities and a comparative analysis of NRC/EPA regulations.

Both agencies recognize that implementation of dual regulation is complex at every stage including licensing, inspection, and enforcement. NRC and EPA staffs will continue to resolve technical differences between their regulations, and are committed to simplifying procedures for dual regulation wherever practical, such as through jointly developed permitting, licensing, inspection, and enforcement procedures.

APPENDIX D

FUNCTIONAL CHART

DIVISION OF LOW-LEVEL WASTE MANAGEMENT AND DECOMMISSIONING

U.S. NUCLEAR REGULATORY COMMISSION

ORGANIZATION CHART

DIVISION OF LOW-LEVEL WASTE MANAGEMENT AND DECOMMISSIONING

Directs the NRC's program for the licensing, inspection, and regulation to assure safety and quality associated with the management, treatment, and commercial disposal of low-level nuclear waste (LLW), uranium recovery (UR) activities including mill tailings management, and related decommissioning. Develops, implements, and evaluates safety and environmental policies and long-range goals for low-level waste, uranium recovery activities, and related decommissioning activities. Identifies and takes action to control safety issues under its responsibility. Interacts with other NRC Offices and international, federal and state organizations and jurisdictions on matters under its cognizance. Coordinates within NRC so that consistent criteria are developed for acceptable LLW disposal, UR activities, and decommissioning practices. Coordinates on research to insure regulatory program commitments are achieved. Represents the agency in international LLW and UR activities; provides guidance for Regional activities relating to LLW disposal, UR activities, and decommissioning; serves as Agency lead for DOE's Remedial Action Plans. Authorities include the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974; the National Environmental Policy Act of 1969; the Uranium Mill Tailings Radiation Control Act of 1978; the Low Level Radioactive Waste Policy Act of 1980; and the Low Level Radioactive Waste Policy Amendments Act of 1985.

Director
Deputy Director

Malcolm R. Knapp
John T. Greeves

Operations Branch

Serves as NRC focal point for licensing and operational safety activities associated with the management and disposal of LLW and UR activities including mill tailings management and related decommissioning. Plans and directs the program for 1) safety and environmental evaluation of applications for licenses for low level radioactive waste disposal; 2) inspection and quality assurance of existing facilities; 3) maintenance of information on the status of LLW operation, management, and disposal for all NRC licensees and agreement state licensees; 4) NRC's evaluation of and concurrence in the Department of Energy's Remedial Action Plans for cleanup of inactive uranium mill tailings sites and contaminated vicinity properties; and 5) oversight and review of Regional Offices' performance for matters under the Division's cognizance. Identifies and takes action to control safety issues under the Division's responsibility.

Chief (Acting)

Paul H. Lohaus

Technical Branch

Directs and manages the program necessary for technical review and evaluation of the acceptability of proposed and operational low level waste disposal, uranium recovery activities, and decommissioning activities with respect to geology, hydrogeology, geochemistry, facility design, engineered barriers, waste form, and packaging. Identifies specific information needs, data-gathering strategies, and methods needed to obtain acceptable licensing, inspection, and enforcement data in these areas. Develops technical evaluation and assessment codes for these areas. Identifies further research and development needs in these areas and serves as Division liaison with the Office of Research in developing and executing programs to fill these needs. Directs technical assistance contracts and consultants in support of the above functions. Prepares technical positions and other guidance documents in these areas. Responsible for the Division's internal quality assurance program.

Chief

John J. Surmeier

Regulatory Branch

Serves as NRC focal point for all NRC regulatory activities under the Uranium Mill Tailings Radiation Control Act of 1978 and the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA). Responsible for interagency and international coordination, development of policy and practices and long-range goals, and initiating the development of standards and guides for matters under the Division's cognizance. Plans and directs the program for financial assurance of licensees (other than Price-Anderson) and decommissioning of non-reactor materials licensees.

Chief (Acting)

Michael S. Kearney

APPENDIX E

NRC PUBLICATIONS ON DISPOSAL OF LOW-LEVEL WASTE

BRANCH TECHNICAL POSITIONS AND DRAFT REGULATORY GUIDES

The following reports may be ordered from:

Public Document Room (PDR)
US NRC
Washington, DC 20555
(202)634-3273

Letter or telephone requests are accepted. There is a copying fee for each document. For price information, call the PDR.

- WM-7902 Low-Level Waste Burial Ground Site Closure & Stabilization, Revision 1, May 1979 (update planned for September, 1987).
- WM-8204 Technical Position--Waste Form, May 1983.
- WM-8205 Technical Position on Radioactive Waste Classification, May 1983.
- WM-8206 Funding Assurances for Closure, Postclosure and Long-Term Care of a Low-Level Waste Disposal Facility, June 1982.
- WM-8207 Near-Surface Disposal Facility Design and Operation, November 1982.
- WM- Environmental Monitoring, draft planned for August 1987.
- WM-408-4 Draft Regulatory Guide for Selecting Sites for Near-Surface Disposal of Low-Level Radioactive Waste, May 1987.
- WM- Draft Regulatory Guide on Waste Form Stability, August 1987.

NUREG REPORTS

The following reports may be purchased from:

Superintendent of Documents
U.S. Government Printing Office
P.O. Box 37082
Washington, D.C. 20013-7082
(202)275-2060 or 2171
ATTN: Ann Butler

NUREG-0217 NRC Task Force Report on Review of the Federal/State Program for Regulation of Commercial Low-Level Radioactive Waste Burial Grounds, March 1977.

NUREG-0456 A Classification System for Radioactive Waste Disposal - What Waste Goes Where?, June 1978.

NUREG-0782 Draft Environmental Impact Statement on 10 CFR Part 61: Licensing Requirements for Land Disposal of Radioactive Waste (Vols. 1 - 4), September 1981.

NUREG-0868 A Collection of Mathematical Models for Dispersion in Surface Water and Groundwater, June 1982.

NUREG-0879 Environmental Assessment for the Barnwell Low-Level Waste Disposal Facility, January 1982.

NUREG-0902 Site Suitability, Selection and Characterization, Branch Technical Position - Low-Level Waste Licensing Branch, April 1982.

NUREG-0945 Final Environmental Impact Statement on 10 CFR Part 61: "Licensing Requirements for Land Disposal of Radioactive Waste" (Vols. 1 - 3), November 1982.

NUREG-0959 User's Guide for 10 CFR 61 Impact Analysis Codes, January 1983.

NUREG-0962 The Role of the State in the Regulation of Low-Level Radioactive Waste, March 1983.

NUREG-1101 Onsite Disposal of Radioactive Waste:
 Vol. 1 - Guidance for Disposal by Subsurface Burial, March 1986.
 Vol. 2 - Methodology for the Radiological Assessment of Disposal by Disposal by Subsurface Burial, February 1987.
 Vol. 3 - Estimating Potential Groundwater Contamination, December 1986.

NUREG-1183 Nonradiological Groundwater Quality at Low-Level Radioactive Waste Disposal Sites, April 1986.

NUREG-1199 Standard Format and Content of a License Application for a Low-Level Radioactive Waste Disposal Facility, January 1987.

NUREG-1200 SRP for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility, January 1987.

NUREG-1213
Rev. 1 Plans and Schedules for Implementation of U.S. Nuclear Regulatory Commission's Responsibilities Under the Low-Level Radioactive Waste Amendments Act of 1985 (P.L. 99-240), July 1987.

NUREG-1241 Licensing of Alternative Methods of Disposal of Low-Level Radioactive Waste, January 1987.

NUREG-1268 Staff Analysis of Public Comments on ANPRM for 10 CFR 30, 40, 61, 70, and 72 (Accidents), September 1987.

NUREG-1300 Environmental Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility, April 1987.

NUREG/CP-0028 Proceedings of the Symposium on Low-Level Waste Disposal (Vol. 1--Site Suitability Requirements), September 1982; (Vol. 2--Site Characterization and Monitoring), December 1982; (Vol. 3--Facility Design, Construction, and Operating Practices), March 1983.

NUREG/CP-0030 Symposium on Unsaturated Flow and Transport Modeling, September 1982.

NUREG/CP-0085 Meeting with States on the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985, February 1987.

NUREG/CP-0055 Proceedings of the State Workshop on Shallow Land Burial and Alternative Concepts, October 1984.

NUREG/CR-0130 Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station (Vols. 1 and 2), June 1978.

NUREG/CR-0308 Preliminary Screening of Alternative Methods for Disposal of Low-Level Wastes, November 1978.

NUREG/CR-0680 Evaluation of Alternative Methods for Disposal of Low-Level Radioactive Wastes, July 1979.

NUREG/CR-0707 Evaluation of Isotope Migration - Land Burial: Water Chemistry at Commercially Operated Low-Level Radioactive Waste Disposal Sites, Progress Report No. 9, April-June 1978, February 1979.

NUREG/CR-1005 Radioactive Waste Disposal Classification System (Vol. I - General, Vol. II Detailed), September 1979.

NUREG/CR-1289 Evaluation of Isotope Migration - Land Burial: Water Chemistry at Commercially Operated Low-Level Radioactive Waste Disposal Sites, Status Report Through September 30, 1979, March 1980.

NUREG/CR-1358 Vegetational Cover in Monitoring and Stabilization of Shallow Land Burial Sites, Annual Report, October 1978 - September 1979, August 1980.

NUREG/CR-1565 General Investigation of Radionuclide Retention in Migration Pathways at the West Valley, New York Low-Level Burial Site. Final Report, October 1978 - February 1980, October 1980.

NUREG/CR-1683 Characterization of Existing Surface Conditions at Sheffield Low Level Waste Disposal Facility, August 1980.

NUREG/CR-1759 Data Base for Radioactive Waste Management (Vols. 1, 2, and 3), November 1981.

NUREG/CR-1793 Study of Chemical Toxicity of Low-Level Wastes (Vols. 1 and 2), November 1980.

NUREG/CR-1832 Research Program at Maxey Flats and Consideration of Other Shallow Land Burial Sites, March 1981.

NUREG/CR-1862 Evaluation of Isotope Migration - Land Burial, April 1981.

NUREG/CR-1963 System Analysis of Shallow Land Burial (Vol. 1 - Code Manual, Vol. 2 - Technical Background), March 1981.

NUREG/CR-2101 Evaluation of Trench Subsidence and Stabilization at Sheffield Low-Level Radioactive Waste Disposal Facility, May 1981.

NUREG/CR-2206 Volume Reduction Techniques in Low-Level Radioactive Waste Management, September 1981.

NUREG/CR-2212 An Evaluation of Ground Penetrating Radar for Assessment of Low Level Nuclear Waste Disposal Sites, February 1982.

NUREG/CR-2478 A Study of Trench Covers to Minimize Infiltration at Waste Disposal Sites (Vol. 1 - Task I Report), March 1982; (Vol. 2 - Task II Report), July 1983, (Vol. 3 - Final Report).

NUREG/CR-2502 Users Guide and Documentation for Adsorption and Decay Modifications to the USGS Solute Transport Model, January 1982.

NUREG/CR-2589 A Ground-Penetrating Radar Survey of the Maxey Flats Low-Level Nuclear Waste Disposal Site, Fleming County, Kentucky, June 1982.

NUREG/CR-2700 Parameters for Characterizing Sites for Disposal of Low-Level Radioactive Waste, May 1982.

NUREG/CR-2705 Training Course No. 1: The Implementation of FEMWATER (ORNL-5567) Computer Program, June 1982.

NUREG/CR-2706 Training Course No. 2: The Implementation of FEMWASTE (ORNL-5601) Computer Program: Final Report, November 1982.

NUREG/CR-2721 Scoping Study of the Alternatives for Managing Waste Containing Chelating Decontamination Chemicals, February 1984.

NUREG/CR-2785 Irradiation of Zeolite Ion-Exchange Media, May 1983.

NUREG/CR-2808 GWNBL 1: A Computer Model for Groundwater Transport of Radioactive Isotopes and Dose Rate Calculation, November 1983.

NUREG/CR-2813 Development of Low Level Waste From criteria Testing of Low Level Waste Forms, November 1983.

NUREG/CR-2830 Permissible Radionuclide Loading for Organic Ion Exchange Resins from Nuclear Power Plants, October 1983.

NUREG/CR-2862 Geomorphic Processes and Evolution of Buttermilk Valley and Selected Tributaries, West Valley, New York, July 1982.

NUREG/CR-2870 Characterization of the Radioactive Large Quantity Waste of the Union Carbide Corporation, November 1983.

NUREG/CR-2917 Review of Ground-Water Flow and Transport Models in the Unsaturated Zone, November 1982.

NUREG/CR-2969 Solidification of Irradiated EPICOR-II Waste Products, May 1983.

NUREG/CR-2977 Tests of Absorbents and Solidification Techniques for Oil Wastes, November 1983.

NUREG/CR-3018 Characterization of Class B Stable Radioactive Waste Packages of the New England Nuclear Corporation, December 1983.

NUREG/CR-3032 Studies of Transport of Waste Radionuclides Through Soil at the Maxey Flats, Kentucky, Waste-Burial Site, March 1983.

NUREG/CR-3038 Tests for Evaluating Sites for Disposal of Low-Level Radioactive Waste, December 1982.

NUREG/CR-3084 Low-Level Nuclear Waste Shallow Land Burial Trench Isolation, March 1983.

NUREG/CR-3125 Current Practices for Maintaining Occupational Exposures ALARA at Low-Level Waste Disposal Sites, December 1983.

NUREG/CR-3130 Influence of Leach Rate and Other Parameters on Groundwater Migration, February 1983.

NUREG/CR-3144 Trench Design and Construction Techniques for Low-Level Radioactive Waste Disposal, February 1983.

NUREG/CR-3164 Subsurface Monitoring Programs at Sites for Disposal of Low-Level Radioactive Waste, April 1983.

NUREG/CR-3168 Technical Considerations for High Integrity Containers for the Disposal of Radioactive Ion-Exchange Resin Waste, October 1983.

NUREG/CR-3207 Geologic and Hydrologic Research at the Western New York Nuclear Service Center, West Valley, New York. Annual Report, August 1981 - July 1982, March 1983.

NUREG/CR-3210 Low-Level Waste Risk Methodology Development, May 1983.

NUREG/CR-3343 Recommended Radiation Protection Practices for Low-Level Waste and Uranium Mill Tailings Disposal Facilities, June 1983.

NUREG/CR-3356 Geotechnical Quality Control: Low-Level Radioactive Waste and Uranium Mill Tailings Disposal Facilities, June 1983.

NUREG/CR-3381 Evaluation of the Three Mile Island Unit 2 Reactor Building Decontamination Process, August 1983.

NUREG/CR-3383 Irradiation Effects on the Storage and Disposal of Radwaste Containing Organic Ion-Exchange Media, April 1984.

NUREG/CR-3390 Documentation and User's Guide: USAT2 - Variably Saturated Flow Model (Including 4 Example Problems), December 1983.

NUREG/CR-3444 The Impact of LWR Decontaminations on Solidification, Waste Disposal and Associated Occupational Exposure (Vol. 1, Annual Report), January 1984; (Vol. 2), February 1984.

NUREG/CR-3554 Radionuclide Migration in Groundwater. Annual Progress Report for 1982, January 1984.

NUREG/CR-3570 Low-Level Nuclear Waste Shallow Land Burial Trench Isolation Annual Report, October 1982 - September 1983; December 1983.

- NUREG/CR-3583 De Minimis Waste Impacts Analysis Methodology, February 1984.
- NUREG/CR-3620 Intruder Dose Pathway Analysis for the Onsite Disposal of Radioactive Wastes, October 1984.
- NUREG/CR-3712 Radionuclide Migration in Groundwater. Annual Report for FY 1983, Vol. 1, December 1984; the ONSITE/MAXII Computer Program, Vol. 2, July, 1986.
- NUREG/CR-3774 Alternative Methods for Disposal of Low-Level Radioactive Wastes:
- Vol. 1 - Task 1: Description of Methods and Assessment of Criteria, April 1984.
 - Vol. 2 - Task 2a: Technical Requirements for Belowground Vault Disposal of Low-Level Radioactive Waste, October 1985.
 - Vol. 3 - Task 2b: Technical Requirements for Aboveground Vault Disposal of Low-Level Radioactive Waste, October 1985.
 - Vol. 4 - Task 2c: Technical Requirements for Earth Mounded Concrete Bunker Disposal of Low-Level Radioactive Waste, October 1985.
 - Vol. 5 - Task 2e: Technical Requirements for Shaft Disposal of Low-Level Radioactive Waste, October 1985.
 - Vol. 6 - Task 2d: Technical Requirements for Mined-Cavity Disposal of Low-Level Waste, December, 1986.
- NUREG/CR-3838 An Initial Review of Several Meteorological Models Suitable for Low-Level Waste Disposal Facilities, June 1984.
- NUREG/CR-3973 Alternative Containers for Low-Level Wastes Containing Large Amounts of Tritium, January 1985.
- NUREG/CR-3985 Organic Complexant-Enhanced Mobility of Toxic Elements in Low-Level Wastes, Annual Report, July 1983 - June 1984, November 1984.
- NUREG/CR-3993 Geochemical Investigations at Maxey Flats Radioactive Waste Disposal Site, October 1984.
- NUREG/CR-4062 Extended Storage of Low-Level Radioactive Wastes: Potential Problem Areas, December 1985.
- NUREG/CR-4069 Analyses of Soils From an Area Adjacent to the Low-Level Radioactive Waste Disposal Site at Sheffield, Illinois, March 1985.

NUREG/CR-4083 Analyses of Soils From the Low-Level Radioactive Waste Disposal Sites at Barnwell, SC, and Richland, WA, March 1985.

NUREG/CR-4150 EPICOR-II Resin Degradation Results From First Resin Samples of PF-8 and PF-20, July 1985.

NUREG/CR-4201 Thermal Stability Testing of Low-Level Waste Forms, May 1985.

NUREG/CR-4370 Update of Part 61 Impacts Analysis Methodology (Vol. 1, Methodology Report; Vol. 2, Codes and Example Problems), January 1986.

NUREG/CR-4406 An Analysis of Low-Level Wastes: Review of Hazardous Waste Regulations and Identification of Radioactive Mixed Waste, December 1985.

NUREG/CR-4433 Document Review Regarding Hazardous Chemical Characteristics of Low-Level Waste, March 1986.

NUREG/CR-4450 Management of Radioactive Mixed Wastes in Commercial Low-Level Wastes: Draft Report for Comment, January 1986.

NUREG/CR-4592 Leaching of Solutes from Ion-Exchange Resins Buried in Bandelier Tuff, December 1986.

NUREG/CR-4498 Field Testing of Waste Forms Containing EPICOR-II Exchange Resins Using Lysimeters, July 1986.

NUREG/CR-4601 Technical Considerations Affecting Preparation of Ion-Exchange Resins for Disposal, June 1986.

NUREG/CR-4608 EPICOR-II Resin Degradation Results from Second Samples of PF-8 and PF-20, December 1986.

NUREG/CR-4615 Modeling Study of Solute Transport in the Unsaturated Zone: Information and Data Sets Vol. 1, July 1986.

NUREG/CR-4622 Validation of Stochastic Flow and Transport Models for Unsaturated Soils: A Comprehensive Field Study, September, 1986.

NUREG/CR-4637 EPICOR-II Resin Waste Form Testing, November 1986.

NUREG/CR-4720 Compilation of Field-Scale Caisson Data on Solute Transport in the Unsaturated Zone, December 1986.

APPENDIX F

FEDERAL REGISTER NOTICE

ON

TECHNICAL ASSISTANCE AVAILABILITY

**Radioactive Waste; Low-Level Waste
Compacts; NRC Technical Assistance
Availability**

AGENCY: Nuclear Regulatory
Commission.

ACTION: Notice of NRC Low-Level
Waste Technical Assistance Program.

SUMMARY: This notice is to inform the public of the Nuclear Regulatory Commission's (NRC) ongoing regulatory assistance program to provide technical guidance to States and compact organizations in developing and regulating new low-level radioactive waste (LLW) disposal facilities. The purpose of this NRC technical assistance effort is to promote timely implementation of the Low-Level Radioactive Waste Policy Act, as amended, which assigns States the responsibility to provide for disposal of commercial LLW. Assistance is available to State and compact entities with disposal capacity development responsibilities, to NRC Agreement State programs with regulatory responsibilities, and to States intending to establish Agreement State status. Due to resource limitations, NRC will target technical assistance to those States and compact regions in which substantive progress is taking place toward the siting and development of new LLW disposal facilities.

DATES: Assistance will be available on a continuing basis.

ADDRESSEE: Comments regarding this notice may be directed to the Rules and Procedures Branch, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission.

FOR FURTHER INFORMATION CONTACT: Donald A. Nussbaumer, Assistant Director, Office of State Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone 301-492-7767.

SUPPLEMENTARY INFORMATION: The Low-Level Radioactive Waste Policy Act, as amended, assigns States the responsibility to provide for disposal of commercial LLW, and encourages the formation of interstate compacts to meet this responsibility. NRC intends, within its statutory responsibility, to minimize uncertainty and promote predictability in the licensing and regulation of new LLW facilities. NRC will assist States and compact organizations involved in developing and regulating disposal site development. Attachment A is the letter sent to all Agreement State and non-Agreement State regulatory programs highlighting the NRC Low-Level Waste Technical Assistance Program and Attachment B is the letter sent to the Low-Level Radioactive Waste Compacts and those States not presently in compacts on the same subject.

Dated at Bethesda, Maryland, this 23rd day of January 1986.

For the Nuclear Regulatory Commission.
G. Wayne Kerr,
Director, Office of State Programs.

**Attachment A.—Nuclear Regulatory
Commission**

January 22, 1986.

*All Agreement and Non-Agreement States
NRC Low-Level Waste Technical Assistance
Program*

As you are aware, the Low-Level Radioactive Waste Policy Act, as amended, assigns States the responsibility to provide for disposal of commercial LLW, and encourages the formation of interstate compacts to meet this responsibility. State activity following passage of the original Policy Act in 1980 has generally focused on formation of compacts and consideration of approaches for designating States to host new LLW disposal facilities. Certain States have elected to develop their own disposal capacity rather than joining a compact. The critical measure of success in implementing the Low-Level Radioactive Waste Policy Act is the establishment of new disposal capacity in those States and compact regions that are currently without such capacity.

NRC intends, within its statutory responsibility, to minimize uncertainty and promote predictability in the licensing and regulation of new LLW facilities. The NRC also recognizes that timely and understandable regulatory guidance is needed to assist States and compacts as they proceed toward the development of new disposal facilities. States that plan to expand their regulatory programs in response to low-level waste disposal responsibility may also need NRC assistance and advice.

The purpose of this letter is to highlight the availability of NRC regulatory assistance, to describe the nature of such assistance and to further encourage Agreement States and those non-Agreement States anticipating low-level waste regulatory authority under a 274b agreement to contact NRC to facilitate assistance activities. NRC staff has met with officials from a variety of States and LLW compacts in the past several months to describe the type and level of assistance NRC is prepared to provide. Also, ongoing technical assistance activities are underway in several States.

The scope of available NRC technical assistance includes regulatory related topics associated with disposal site selection, design, licensing and operation. For Agreement States or States seeking low-level waste regulatory authority under a 274b agreement, assistance may include but would not necessarily be limited to:

1. Guidance in assessing staff technical capability needs and overall staffing requirements;
2. Assistance in evaluating contractor capabilities and/or proposals;
3. Assistance in evaluating disposal site license applications and environmental assessments; and
4. Assessment of the performance of unique wastes in the disposal environment.

NRC intends to coordinate its technical assistance activities with the Department of

Energy Low-Level Waste Management Program to help ensure that relevant data and analyses developed by the two Federal agencies are shared with States, compacts, and other parties interested in successful implementation of the **Low-Level Radioactive Waste Policy Act** as amended.

Please contact the NRC Regional State Agreement Representative for your State to explore specific technical assistance needs. I would be pleased to receive any general comments you may have regarding NRC's effort in this area.

G. Wayne Kerr.

Director, Office of State Programs.

Attachment B.—Nuclear Regulatory Commission

January 22, 1986.

Memorandum For: Addressees
From: G. Wayne Kerr, Director, Office of State Programs
Subject: NRC Low-Level Waste Technical Assistance Program

The critical measure of success in implementing the Low-Level Radioactive Waste Policy Act, as amended, is the establishment of new disposal capacity in those States and compact regions that are currently without such capacity.

NRC intends, within its statutory responsibility, to minimize uncertainty and promote predictability in the licensing and regulation of new LLW facilities. The NRC also recognizes that timely and understandable regulatory guidance is needed to assist States and compacts as they proceed toward the development of new disposal facilities. States that plan to expand their regulatory program in response to low-level waste disposal responsibilities may also need NRC assistance advice.

The purpose of this letter is to highlight the availability of NRC regulatory assistance, to describe the nature of such assistance, and to further encourage States and compacts to contact the NRC to facilitate assistance activities. NRC staff has met with officials from a variety of States and LLW compacts in the past several months to describe the type and level of assistance NRC is prepared to provide. Also, ongoing technical assistance activities are underway in several States.

The NRC intends to concentrate limited staff resources on those specific States and compacts in which substantive progress toward siting and development of new disposal facilities is taking place. Assistance may be provided through staff meetings to discuss technical and licensing topics, supplying NRC staff as resource personnel to advisory bodies or LLW symposia, development of technical studies and related regulatory guidance documents addressing specific inquiries, and other means capable of effectively meeting State needs. Your comments are invited on the assistance considered to be most relevant to your needs.

The scope of available NRC technical assistance includes regulatory-related topics associated with disposal site selection, design, licensing and operation. For States and compact entities with developmental responsibilities, this may include but would not necessarily be limited to:

1. Prelicensing guidance on the applicability of existing NRC regulatory requirements to alternative LLW disposal methods;
2. Guidance on development of site selection criteria consistent with the NRC 10 CFR Part 61 regulation, and application of such criteria to site screening studies;
3. Guidance on characterizing candidate disposal sites and preparing environmental impact report documents;
4. Guidance on disposal site modeling and performance assessment; and
5. Guidance on license application content requirements.

The NRC does not intend to provide technical assistance for developing regional management plans nor designation of States to host new LLW disposal facilities. The NRC also will not undertake detailed engineering design work nor research on reference concept designs for commercial disposal facilities. These developmental activities are considered inconsistent with NRC's regulatory role. Rather, NRC anticipates providing detailed regulatory analyses of various disposal facility design concepts that may be submitted by compacts or by individual States to NRC. We anticipate that NRC guidance would be most useful in cases where detailed information is provided by those entities pursuing disposal site development.

NRC intends to cooperate closely with States and compacts pursuing disposal site development. NRC also intends to coordinate its technical assistance activities with the Department of Energy Low-Level Waste Management Program to help ensure that relevant data and analyses developed by the two Federal agencies are shared with States, compacts, and other parties interested in successful implementation of the Low-Level Radioactive Waste Policy Act as amended.

Please contact your NRC Regional State Liaison Officer (RSLO) to explore specific technical assistance needs. I would also be pleased to receive any general comments you may have regarding NRC's efforts in this area.

G. Wayne Kerr.

Director Office of State Programs.

[FR Doc. 86-2102 Filed 1-29-86; 8:45 am]

BILLING CODE 7590-01-M

APPENDIX G

FEDERAL REGISTER NOTICE

ON

FORMAT AND CONTENT GUIDE AND STANDARD REVIEW PLAN

NUCLEAR REGULATORY COMMISSION

Low-Level Radioactive Waste Disposal Facility; Availability of Publications Concerning License Applications

AGENCY: Nuclear Regulatory
Commission.

ACTION: Notice of Availability.

SUMMARY: The Nuclear Regulatory Commission (NRC) is announcing the availability of two publications concerning license applications for a Low-Level Radioactive Waste Disposal Facility. These publications specify the information needed by NRC to perform its safety review and explain the technical review process.

ADDRESS: Copies of NUREG-1199 and NUREG-1200 may be purchased by calling the U.S. Government Printing Office, (202) 275-2060 or 2171 or by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37062, Washington, DC 20013-7082.

FOR FURTHER INFORMATION CONTACT: Clayton L. Pittiglio, Jr., Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 427-4793.

SUPPLEMENTARY INFORMATION: Section 61.10 of Title 10 of the Code of Federal Regulations (10 CFR Part 61.10) specifies the general contents of a license application for a Low-Level Radioactive Waste Disposal Facility. The Nuclear Regulatory Commission's safety review is primarily based on the information provided by the applicant in the license application. The Standard Format and Content, NUREG-1199, specifies the information which should be provided to perform the review and defines an efficient format for presenting that information. The Standard Review Plan, NUREG-1200, defines the technical review process. These documents provide a definition of a complete license application and review procedures to assure that NRC can review and process that application within 15 months in order to meet the requirements of Pub. L. 99-240, the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985.

The Standard Format and Content, NUREG-1199, specifies the information

which should be provided in the license application and also establishes a uniform format for presenting that information. To aid the applicant and to promote efficient review of the application by NRC staff, the format parallels the organization of the Standard Review Plan. The use of the Standard Format will: (1) Help ensure that the license application contains the information required by 10 CFR 61, (2) aid the applicant in ensuring that the information is complete, (3) help persons reading the application to locate information, and (4) contribute to shortening the time required for the review of a license application. By defining the contents of a complete application, this document provides the basis for making findings pursuant to sections 5(e)(1) (C) and (D) of the LLRWPA of 1985.

The Standard Review Plan (SRP), NUREG-1200, is prepared for the guidance of staff reviewers in performing safety reviews of applications to construct and operate a low-level waste disposal facility. The principal purpose of the SRP is to assure the quality and uniformity of staff reviews and to present a well-defined base from which to evaluate proposed changes in the scope and requirements of reviews. It is also a purpose of the SRP to make information about regulatory matters widely available and to improve communication and understanding of the staff review process by States, Compacts, interested members of the public and the industry.

The SRP consists of 11 Chapters containing approximately 60 individual SRP sections. The SRP sections identify who performs the review, the matters that are reviewed, the basis for review, how the review is performed, and the conclusions that are sought. This provides assurance that NRC can review and process a license application within 15 months and meet the requirements of sections 9(1) and 9(2) of the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985.

Dated at Silver Spring, Maryland, this 23rd day of January, 1987.

For the Nuclear Regulatory Commission.

Malcolm R. Knapp,

*Chief, Low-Level Waste and Uranium
Recovery Projects Branch, Division of Waste
Management, Office of Nuclear Material
Safety and Safeguards.*

(FR Doc. 87-1764 Filed 1-29-87; 8:45 am)

BILLING CODE 7530-01-M

APPENDIX H

FEDERAL REGISTER NOTICE ON EMERGENCY ACCESS

Proposed Rules

Federal Register

Vol. 52, No. 10

Thursday, January 15, 1987

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

NUCLEAR REGULATORY COMMISSION

10 CFR Part 62

Intent to Develop Regulations to Establish Criteria and Procedures for Evaluating Requests for Emergency Access to Low-Level Radioactive Waste Disposal Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of intent to develop regulations.

SUMMARY: The Nuclear Regulatory Commission (NRC) is announcing its intent to develop regulations to establish criteria and procedures for evaluating requests for emergency access to non-Federal low-level radioactive waste (LLW) disposal facilities. The regulations will be promulgated pursuant to the Commission's responsibilities under section 6 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA) and will identify the information and certification that must be submitted by a LLW generator or a State to support a request for emergency access.

FOR FURTHER INFORMATION CONTACT: Janet Lambert, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, Washington, DC 20555, 301-427-4009.

SUPPLEMENTARY INFORMATION:

Background

Pursuant to its responsibilities under section 6 of the LLRWPA, the NRC is developing regulations to be used by the Commission in evaluating requests for emergency access to non-Federal LLW disposal facilities. Section 6 of the LLRWPA authorizes the NRC to grant emergency access to any non-Federal LLW disposal facility, if the NRC determines that such action "is necessary to eliminate an immediate and serious threat to the public health and safety or the common defense and security", and if NRC determines that

"the threat cannot be mitigated by an alternative consistent with the public health and safety, including storage of low-level radioactive waste at the site of generation or in a storage facility obtaining access to a disposal facility by voluntary agreement, purchasing disposal capacity available for assignment or ceasing the activities that generate the low-level waste." The regulations will identify the information and certifications that must be submitted by a LLW generator or a State to support a request for emergency access. The regulations will also establish the NRC review procedures and the criteria that will be used by the Commission to make the determinations required by section 6 of the LLRWPA.

Consistent with both the spirit and the letter of the LLRWPA, the NRC plans to set strict requirements for granting emergency access. NRC intends to authorize emergency access to LLW disposal facilities only in those cases where the low-level waste generators or States requesting emergency access provide certification to NRC with clear and convincing evidence that an immediate and serious threat to the public health and safety or the common defense and security will result if such access is denied. Generators or States will also have to provide NRC with documentation demonstrating that the situation could not be mitigated by any alternative, including ceasing to generate the waste, in a manner which would be consistent with the public health and safety.

In addition to this information, States requesting emergency access will have to address the adequacy of their efforts to meet the milestones established in the LLRWPA for siting a LLW disposal facility.

LLW generators in States that may be denied access to the existing LLW disposal facilities should plan for that contingency. Evidence of such advanced planning will be required as part of the information that must be submitted with a request for emergency access.

Requests for further information, or any issues or concerns identified relative to emergency access, should be brought to the attention of the staff contact.

Issuance of the proposed rule is planned for September of 1987.

Dated at Washington, DC, this 12th day of January, 1987.

For the Nuclear Regulatory Commission.

Samuel Chilk,

Secretary of the Commission.

[FR Doc. 87-945 Filed 1-14-87; 8:45 am]

BILLING CODE 7530-01-M

APPENDIX I

FEDERAL REGISTER NOTICES ON ALTERNATIVE METHODOLOGIES

Rules and Regulations

Federal Register

Vol. 52, No. 3

Tuesday, January 6, 1987

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

NUCLEAR REGULATORY COMMISSION

10 CFR Part 61

Technical Position Statement on Licensing of Alternative Methods of Disposal for Low-Level Radioactive Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of Availability.

SUMMARY: This technical position statement identifies and describes specific alternative methods of disposal currently being considered as alternatives to shallow land burial, provides general guidance on these methods of disposal, and recommends procedures that will improve and simplify the licensing process. The statement provides answers to certain questions that have arisen regarding the applicability of 10 CFR Part 61 to near-surface disposal of waste, using methods that incorporate engineered barriers or structures, and other alternatives to conventional shallow land burial disposal practices. This position also identifies a recently published NRC contractor report that addresses the applicability of 10 CFR Part 61 to a range of generic disposal concepts and which provides technical guidance that the staff intends to use for these concepts.

As a result of comments received on the published draft of this position (51 FR 7806, March 6, 1986) as well as input at workshops and State meetings, the NRC has decided to focus on alternative methods that utilize engineering material with earthen cover (for example, below-ground vaults and earth-mounded concrete bunkers). Consequently, NRC will expend minimal resources on above ground vaults and mined cavities. This position statement

combined with the above mentioned NRC contractor report fulfills the requirements of section 8(a) of Pub. L. 99-240, the Low-Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985.

ADDRESS: Copies of NUREG-1241 may be purchased by calling the U.S. Government Printing Office on (202) 275-2060 or 2171 or by writing to the Superintendent of Documents, U.S. Government Printing Office, ATTN: Ann Butler, P.O. Box 37082, Washington, DC 20013-7082.

FOR FURTHER INFORMATION CONTACT: Clayton L. Pittiglio, Jr., Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 427-4793.

Dated at Silver Spring, Maryland, this 4th day of December 1986.

For the Nuclear Regulatory Commission.

Malcolm R. Knapp,

Branch Chief, Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 87-77 Filed 1-5-87; 8:45 am]

BILLING CODE 7560-01-M

NUCLEAR REGULATORY COMMISSION

10 CFR Part 61

Branch Technical Position Statement on Licensing of Alternative Methods of Disposal for Low-Level Radioactive Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Draft branch technical position statement; requests for comments.

SUMMARY: This draft branch technical position statement proposes to answer licensing questions regarding the land disposal of low-level radioactive waste (LLW) and improve and simplify the licensing process. This statement would provide answers to certain questions that have arisen regarding the applicability of 10 CFR Part 61 to near-surface disposal of waste, using methods that incorporate engineered barriers or structures, and other alternatives to conventional shallow land burial disposal practices. Also, there have been general requests for regulatory guidance on alternative disposal methods. The specific alternative methods of interest to the requesters, however, are undetermined, as is the type and extent of desired guidance. This statement identifies a recently published NRC contractor report which addresses the applicability of 10 CFR Part 61 to a range of generic disposal concepts and which provides guidance that the staff intends to use for these concepts. To ensure prompt and meaningful regulatory guidance during the development of new disposal capacity for LLW, NRC staff encourages early and continuing interactions between the NRC and other entities involved in efforts to develop or regulate new LLW disposal sites. Finally, this notice solicits the States and other interested persons to identify any additional alternative disposal methods that they may be considering, so that they can be included in NRC actions to fulfill the requirements of section 8(a) of Pub. L. 99-240, the Low-Level Radioactive Waste Policy Amendments Act of 1985.

DATES: The comment period expires May 5, 1986.

ADDRESSES: Send written comments to the Director, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Copies of all comments received by the NRC may be examined at the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: Dr. R. John Starmer, Low-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone (202) 427-4170.

SUPPLEMENTARY INFORMATION: This statement would provide technical guidance for licensing and regulation of alternative methods for near-surface land disposal of LLW. The statement describes general design concepts for several alternative disposal methods and discusses related licensing considerations. For the purpose of this statement, alternative disposal methods are defined as disposal facility designs or disposal concepts which incorporate engineered barriers or structures, or otherwise differ from the past and present methods of near-surface land disposal of LLW by shallow land burial.

With the enactment of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99-240), on January 15, 1986, the NRC is required, in consultation with the States and other interested persons, to identify methods for the disposal of low-level radioactive waste other than shallow land burial, and establish and publish technical guidance regarding licensing of facilities that use such methods. These actions are to be completed by January 1987. Further, the Act requires that by January 1988, the NRC, again in consultation with the States and other interested persons, identify and publish all relevant technical information regarding such alternative disposal methods that must be provided to the Commission in order to pursue such methods. For the NRC to meet these statutory requirements in a timely manner, it must immediately hear from the States and other interested parties as to what additional alternatives should be identified, as licensing guidance must be developed and published over very short time frames. Alternatives identified after the comment period will be noted, but licensing guidance for them not be available within the statutory time frames.

Draft Branch Technical Position Statement on Licensing of Alternative Methods of Disposal for Low-Level Radioactive Waste

A. Introduction

This technical position statement on alternative methods of land disposal of low-level radioactive waste (LLW) is provided in response to the question of whether disposal methods employing engineered structures and barriers can

be licensed under the existing requirements in 10 CFR Part 61. "Licensing Requirements for Land Disposal of Radioactive Waste". The answer to the question is, "yes". This technical position statement is further prompted by the receipt of general requests for guidance on alternative disposal methods. These requests, however, have been indefinite regarding the disposal methods of specific interest, and the extent and type of regulatory guidance desired. The NRC staff has met with a number of different State and Regional Compact officials over the past six months to discuss regulatory guidance needed for the development of new disposal sites. Such discussions will continue and we hope they will begin to focus more sharply on specific technical questions as States and Regional Compacts reach decisions on choice of disposal method. A major purpose of this technical position statement is to provide guidance in response to requests received to date and to help ensure that States and Compacts are able to make timely decisions. The specific information contained in this technical position is intended to:

- Clarify the scope of disposal methods included within the meaning of the term "near-surface disposal";
- Define the characteristics of alternative land disposal concepts considered to be within the framework of the existing regulatory requirements in 10 CFR Part 61;
- Provide general guidance regarding the various components of the disposal system for alternative near-surface land disposal concepts which may present problems in light of the performance objectives of 10 CFR Part 61;
- Encourage early and continuing interactions between potential license applicants, the LLW disposal service industry, States, other government agencies, and the NRC regarding efforts to develop and regulate new disposal capacity for LLW;
- Encourage design engineers, vendors, and prospective license applicants to submit detailed technical information on proposed disposal methods as far in advance of license application as possible; and
- Encourage focus on the fewest possible approaches to ensure standardization and resultant ability to use limited NRC resources most effectively.

The NRC staff will apply existing licensing criteria, performance objectives, and most of the technical requirements of 10 CFR Part 61 to proposed alternative disposal methods

employing engineered structures and barriers. The NRC staff believes it will be possible to complete reviews of disposal alternatives with an expectation of fully resolving the licensing questions that may arise in the review process provided that an adequate pre-licensing dialogue is established.

B. Background Considerations

As a part of its work in developing 10 CFR Part 61 and its supporting environmental impact statement, NRC conducted a study of alternative low-level waste disposal methods. This was intended to help ensure that all viable disposal methods were considered and that the initial issuance of the regulation and subsequent amendments would be based on the disposal methods most likely to be used. The results of studies and public comments in response to the Advance Notice of Proposed Rulemaking for Part 61 led NRC to concentrate its efforts to develop regulations on land disposal methods.

Land disposal methods readily divide into two categories: Those that take place near the earth's surface and those that involve deeper disposal. Near-surface disposal encompasses the full range of technology that can be applied to low-level waste disposal near the earth's surface; that is, shallow land burial, deeper burial at depths up to 30 meters, and the use of engineered structures, barriers, and other concepts, some of which may be partially above the surface.

Specific requirements for deeper land disposal methods such as mined cavities, either natural or man-made, were not considered in the initial rulemaking effort. This technology involves considerations for siting and facility design, operations, and closure which are sufficiently different from those for near-surface disposal, that certain technical requirements in Subpart D of 10 CFR Part 61 do not apply. Such methods were left to be addressed in action on a specific application, subsequent guidance, and rulemaking effort, if rulemaking is warranted. It was also recognized that other disposal methods such as hydrofracture and deep-well injection have been used (e.g., by the Department of Energy in Oak Ridge, Tennessee). These two alternatives were not specifically addressed in the initial Part 61 rulemaking effort since they are suited to a very narrow range of waste types and require specific geologic and hydrogeologic conditions. Consequently, they also were left to be addressed at a later time, if necessary. Mined cavity, hydrofracture, or deep-well injection

disposal methods, could, however, be sited and licensed on a facility-specific basis under existing regulatory provisions in Part 61.

C. Position

1. Regulatory Framework

The regulatory framework established in 10 CFR Part 61 covers all phases of waste disposal from site selection through facility design, licensing, operations, closure, and post-closure stabilization, to the end of the period of active institutional control. This framework of regulations establishes the procedures, criteria, terms, and conditions forming the basis upon which the NRC will issue and renew licenses for the land disposal of LLW.

Subparts of the rule covering general provisions and procedural licensing aspects, as well as those subparts covering performance objectives, financial assurances, State and Tribal participation, and records, reports, tests and inspections apply to all methods of land disposal of LLW, both near-surface and at greater depths. The technical requirements in Subpart D are specified only for near-surface disposal methods with reserved sections for other than near-surface. As discussed in Section 5, the NRC staff believes that, except for the potential need to develop site specific alternative waste form and classification requirements, the technical requirements in Subpart D should apply to alternative methods of near-surface disposal using engineered barriers or structures. These alternative methods include, for example, disposal by emplacement in below-ground engineered vaults, partially above-ground engineered vaults, earth-mounded engineered bunkers, lined shafts or boreholes, caissons or pipes, and concrete-walled trenches.

2. Evaluation of Alternative Disposal Methods

This technical position is guided by the background of knowledge and experience reflected in the rulemaking which culminated in the issuance of 10 CFR Part 61. Both draft and final environmental impact statements for the rule address alternative disposal methods. Alternative disposal facility design and operating practices were also among the subjects covered in the background studies and information considered in the rulemaking.

Since the publication of Part 61 in December 1982, the staff has continued to evaluate alternative disposal methods. A NRC contractor report prepared by the U.S. Army Corps of Engineers, entitled "Alternative

Methods for Disposal of Low-Level Radioactive Wastes" (NUREG/CR-3774)¹ was published in five volumes:

- Volume 1, "Description of Methods and Assessment of Criteria," published April 1984, examined the applicability of 10 CFR Part 61 requirements—siting, design, operations and closure, and monitoring—to five generic design concepts for alternative disposal methods. The five design concepts are below-ground vaults, above-ground vaults, earth-mounded concrete bunkers, mined cavities, and augered holes.
- Volumes 2-5 published October 1985, provide a more detailed assessment of the applicability of existing criteria for near-surface disposal (Subpart D, 10 CFR Part 61) to four of the five alternative disposal methods covered in Volume 1. The four methods covered in the reports were below-ground vaults, above-ground vaults, earth-mounded concrete bunkers, and shaft disposal. (Note that mined cavity disposal is being evaluated but the work is incomplete at the present time.)

The authors concluded that the siting and site design, operations, closure, and monitoring criteria of Subpart D, 10 CFR Part 61, should apply to the four alternative disposal methods. The staff agrees with those conclusions, differing with the contractor's report on only a few minor interpretive points of the regulation. The findings of these reports and clarification of the ways the criteria should be interpreted will be incorporated into future regulatory guidance. This guidance will be issued based on consideration of any specific disposal alternatives that may be received for review, and analysis of particular design features of the generic disposal concepts that have already been studied. Staff expects to issue the guidance as modifications to a standard format and content guide being prepared for shallow land burial applications under Part 61.

The NRC basis for selecting the conceptual designs for first study by the Army Corps of Engineers was that each method appears to be under practical consideration by other countries, U.S. agencies, or States. One of these concepts, mined cavities, does not

¹ Copies of NUREG/CR-3774 may be purchased through the U.S. Government Printing Office by calling (202) 275-2080 or by writing to the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies may also be purchased from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Copies are available for inspection and/or copying for a fee in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.

appear to be under serious domestic consideration at this time. Further, as noted earlier, mined cavity disposal represents a significant departure from the experience, data and knowledge base used in formulating the requirements for Part 61. The NRC staff is currently evaluating the recommendations made by the Corps of Engineers regarding technical requirements for mined cavity disposal prior to publication of a separate volume of NUREG/CR-3774 on that disposal alternative.

While NRC has studied design concepts for alternative disposal methods, NRC cannot complete detailed design work or developmental research on new concepts or specific designs for facilities that would have the effect of establishing or developing their commercial potential. These activities are developmental rather than regulatory in nature and should be supported by the entities responsible for establishing new waste disposal capacity or, on the Federal level, by the Department of Energy.

3. General Guidance

Section 9 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 requires that, to the extent practicable, NRC complete all activities associated with the review and processing of any license application within 15 months of receipt of the application. The NRC is moving ahead to provide information which will help to ensure the timely review of low-level waste disposal facility license applications. However, the NRC staff will also evaluate innovative disposal designs that might later be reflected in a license application. To promote timely regulatory decisions, designers, vendors, and prospective license applicants are encouraged to submit detailed technical information on proposed disposal facility designs in advance of formal license application. This will permit NRC staff to evaluate fundamental safety and performance aspects and provide pre-licensing guidance. However, such information should only be submitted when the designs are a part of a specific application being prepared, represent work sponsored by a potential applicant, or are based on some other type of commitment by a potential licensee. Advance review, and where feasible, approval of designs and related technical information can reduce considerably the time needed for license application review.

Designs for alternative disposal methods should reflect both the benefits of significant research and development work, and the experience gained from

waste disposal operations in the United States and other countries. It is anticipated that alternative disposal methods may offer an enhanced margin of protection for the public and the environment. If the alternative design is coupled with innovative operations (e.g., automated handling and emplacement) or more conservative waste forms, content, or packaging, it may also offer an enhanced margin of protection for workers. Tradeoffs on worker exposure, operations, and waste form should be factored into designing as indicated in Section 4 which follows. The NRC particularly encourages design innovations which increase safety and reliability and which generally are supported by a proven technology or one which can be demonstrated by a satisfactory technology development program.

Early review of facility design can be requested on an individual applicant basis. However, the NRC believes that there are advantages to standardized approaches to waste disposal. Standard disposal design features can benefit public and environmental protection by concentrating the resources of waste management engineers and vendors on particular approaches, and by stimulating standardized programs of construction practice and quality assurance. The use of standardized approaches and design concepts can also facilitate more effective and efficient licensing and inspection processes. To this end, staff plans to give higher priority and focus resources on those approaches which are of greatest interest to States. Therefore, the NRC staff strongly encourages industry and the States to pursue standardization in developing alternative waste disposal methods. Procedures for reviewing standard designs could be patterned after the procedures for reviewing standard designs for reactors in Appendix O to 10 CFR Part 50.

The public should note that pre-application requests for NRC review that also request approval by NCR involve fees. There are two ways for NRC to give approval. Both involve fees under 10 CFR Part 170. Requests that are suitable and submitted as Topical Reports involve a \$20,000 fee. If the request is not suitable and not submitted as a Topical Report, Part 170 requires full cost recovery as a Special Project (see 10 CFR 170.31, Item 12). Also see 10 CFR 170.11(b) which allows the Commission to consider exemptions from the fee requirements when consistent with law and the public interest.

The NRC intends, commensurate with its statutory responsibilities, to improve and simplify the licensing process and provide stability and predictability in the regulation of new LLW disposal facilities. To help accomplish this objective, the NRC staff encourages the earliest possible interaction between potential license applicants, the waste disposal service industry, States, other government agencies, and the NRC. This should also serve to provide all interested parties, including the public, with timely and objective assessments of the public and environmental protection aspects of proposed alternative waste disposal methods.

4. Descriptions of Alternative Disposal Concepts

Each of the design concepts described below has either been evaluated as a waste disposal alternative to shallow land burial or is currently being used or considered for that purpose in other countries. Descriptions of these design concepts are included here to help define the range of design characteristics considered to be within the framework of the existing regulatory requirements of 10 CFR Part 61. The concepts are described in more detail in NUREG/CR-3774.

a. *Below-ground Vaults.* The term below-ground vault refers to any enclosed engineered structure built totally below the surface of the earth and used for the disposal of low-level radioactive waste. No portion of the structure would protrude above the natural surface grade. A below-ground vault could be fabricated from the engineering materials discussed below for above-ground vaults. The vault could be built with engineered walls and roof; the floor could be natural soil or rock, treated soil or rock, or engineered materials. The vault, as an integrated structure, also has the characteristic of limited access to its interior space, such as a doorway or portal or hatch opening. Operational access to the vault from the surface may be in the form of an excavated ramp, which is built and then covered over at closure. During operations, however, the vault may have more extensive access, depending on its design. See Volume 2 of NUREG/CR-3774 for a more complete description of variations in conceptual design and operation of below-ground vaults.

b. *Above-ground Vaults.* An above-ground vault disposal unit is an engineered structure or building with floor, walls, roof, and limited access openings on a foundation near the ground surface. At least some portion of the structure would be above the final

post-closure surface grade. The vault is built from engineered structural materials. Fabrication could be of masonry blocks, fabricated metal shapes, reinforced cast-in-place or sprayed concrete, pre-cast concrete, or plastic or fluid media molded into various solid shells. All of these materials have been used to construct vaults. There are no existing regulatory constraints on material selection or shape of the vault as long as it can be demonstrated by the license applicant that the performance objectives of 10 CFR Part 61 can be achieved. See Volume 3 of NUREG/CR-3774 for a more complete description of variation in conceptual design and operation of above-ground vaults.

c. *Earth-mounded Concrete Bunkers.* The design of earth-mounded concrete bunkers may include features of trenches, below-ground vaults, and earth mounds. This disposal method may also rely on mandatory requirements on waste form or site operation, such as specialized packaging and encapsulation. The basic design of an earth-mounded concrete bunker currently used in France segregates wastes according to level of radioactivity. Wastes with higher levels of radioactivity are embedded in concrete below ground. Waste packages with lower levels of radioactivity are emplaced above ground at natural grade in earthen mounds (tumuli). Thus, an earth-mounded concrete bunker may involve both above-ground and below-ground construction, and may include waste encapsulation and backfilling with both concrete and earth. See Volume 4 of NUREG/CR-3774 for a more complete description of variations in conceptual design and operation of earth-mounded concrete bunkers.

d. *Shaft Disposal.* The term shaft disposal refers to a near-surface disposal alternative in which wastes would be disposed of in shafts or boreholes augered, bored, or sunk by conventional construction methods. The shafts could be lined or unlined and be of various sizes. Lining could be of concrete, metal, or other suitable structural material. See Volume 5 of NUREG/CR-3774 for a more complete description of variations in conceptual design, use, and operations of shaft disposal.

If specific disposal facility designs are brought to the NRC for evaluation, the NRC will provide pre-licensing guidance to help ensure that key issues will be identified and resolved prior to licensing and that NRC's regulatory requirements are incorporated into the applicant's program. However, until such time as

detailed technical information on designs are submitted, the NRC staff believes that regulatory guidance must be sufficiently general to avoid placing unnecessary constraints on the development of new design concepts. The nature of any new NRC regulatory requirements will be based on the extent to which an individual proposed disposal design is shown to conform to the existing technical requirements of Part 61 or is compatible with meeting the performance objectives set out in Part 61 when combined with other components of the disposal system.

The following general guidance is provided for features and characteristics of various alternative disposal concepts which may present problems in demonstrating compliance with the 10 CFR Part 61 performance objectives. Requirements to reassess and potentially modify other components of the disposal system are also discussed. This guidance is intended to assist waste disposal engineers, license applicants, and States in identifying a preferred waste disposal design.

5. Design Considerations

Land disposal facilities must be sited, designed, operated, closed, and controlled after closure to achieve the performance objectives set forth in Subpart C of Part 61. The combination of performance objectives and technical requirements establish a systems approach to waste disposal. The components of the "system" include the site and its characteristics, the facility and disposal unit design, the waste, facility operations and closure, intruder barriers, and institutional controls. Environmental monitoring is used to assess the system's performance. Reliance is not placed on any one component of the system. Rather, all interact in achieving the performance objectives. Design of the facility and disposal units plays an important role in the performance of the waste disposal system.

a. *Siting.* The disposal site suitability requirements of § 61.50 are minimum common sense requirements and apply to siting of all near-surface alternative disposal methods. The first critical step, as with any disposal facility, is to select a site where natural conditions favor disposal.

Engineered structures and barriers should not be viewed as a planned substitute for a suitable site. Rather, in conjunction with other disposal system components, the engineered features should offer enhanced confidence in protection for the public and environment.

Thus, States are encouraged to proceed expeditiously with their disposal siting programs while NRC develops supplemental standard format and content guidance for alternative methods.

b. *Design of Disposal Units.* The disposal site design requirements of § 61.51 are sufficiently flexible to apply to alternative disposal methods which fall within the four concepts described in section 4 of this statement. Although little experience concerning waste disposal in engineered structures is available, the technology exists to construct buildings and structures that will last for centuries. There are structures in use today that were built hundreds and even thousands of years ago. However, procedures are not well developed for obtaining assurance that structures will be left alone or will survive intact over the period required to safely isolate emplaced wastes from the human environment after the loss of institutional controls. Designs which actively rely on engineering should be evaluated for deterrence of intrusion and also the consequences of intrusion and failure of the structure sooner than expected.

Waste retrievability is not required or prohibited by 10 CFR Part 61. If waste retrievability is proposed as a design feature, several important factors should be considered. Retrievability should not compromise or otherwise lessen the ability of the combined features to meet the performance objectives of Part 61. The designer should be sure that retrievability measures do not result in increased problems in protecting the inadvertent intruder. If the retrievability concept requires action by the custodial agency during the active institutional control period to assure long-term performance (e.g., grouting around packages), funding and institutional commitments for the action should be included.

c. *Waste Classification.* The ability to dispose of all Class A, B, and C LLW, as currently specified in Subpart D of Part 61, may have to be reassessed for the specific concept finally developed. Existing concentration limits for Class A, B, and C are based on associated waste form and other components of the system to determine critical pathways. Certain disposal methods and associated operations may not accommodate all classes of LLW or parts of one or more classes. An alternative waste classification system may be proposed by the applicant because of the types of waste generated within the region served by the proposed facility, the specific design of

disposal units, or other factors. The applicant may propose a waste classification system different from that described in § 61.55, provided the system is compatible with the performance objectives of Part 61 and the concentrations of radionuclides in the system proposed do not exceed the values specified in § 61.55 for Class C waste. Alternatives to current waste classification requirements can be considered under the flexibility in § 61.58. However, alternative waste classes have the potential to confuse waste generators. Staff believes that using other options such as more restrictive waste forms or packaging or alternative emplacement methods would minimize waste generator confusion.

d. Intruder Barriers. Part 61 requires Class C waste to be disposed of in such a manner that the top of the waste is a minimum of five meters below the top surface of the cover over the waste or that intruder barriers are included that are designed to protect against an inadvertent intrusion for at least 500 years (§ 61.42, § 61.52). Alternative disposal methods coupled with alternative waste classification systems should provide a level of protection for the inadvertent intruder equivalent to the existing requirements.

e. Waste Characteristics: The minimum requirements on waste characteristics specified in § 61.56(a) will apply for alternative disposal methods. The applicant may use the flexibility on stability requirements in 10 CFR 61.56(b)(1) if waste stability is to be provided by the engineered structure in which the waste is emplaced. However, proposed designs may need more stringent minimum waste forms or packaging to protect workers or design features to accommodate planned operations (e.g., weight or size limits). Supplemental requirements should be reasonable enough so that generators and processors can be relied on to comply with the requirements. Alternatives to current waste characteristics requirements can be considered under § 61.58.

f. Facility Operations and Closure: The requirements for facility operations and closure in § 61.52 will be applied to the alternative disposal methods described in this statement. The specific application of the individual requirements may vary with a particular alternative disposal design. Worker exposure and safe operations should obviously be a factor in developing designs. Volumes 2 through 5 of NUREG/CR-3774 contain a more complete explanation and discussion of individual requirements of § 61.52 and

their application than is included in this position.

g. Environmental Monitoring: The requirements for monitoring specified in § 61.53 will apply for alternative disposal methods. The specific parameters to be monitored and the measurements and observations to be made may vary significantly between below-ground and above-ground disposal units and, for above-ground units, between earth covered and uncovered units. Provisions for monitoring should be included in design considerations.

h. Institutional Requirements. The land ownership and institutional control requirements of § 61.59 will apply to alternative disposal methods. Existing requirements related to active institutional controls may have to be modified by license to accommodate some engineered structure disposal concepts, such as those built above ground without cover. For example, the wastes may be more readily available for exposure, so additional controls and a more comprehensive program to exclude the public from the site during the active institutional control period may be necessary. Part 61 provides that active institutional controls cannot be relied on for more than 100 years. Part 61 does not prohibit longer periods of active controls. However, longer periods should only provide additional assurances and should not be necessary to assure long-term performance.

6. Summary

The NRC staff should be informed as early as possible of new design concepts under development by the industry or under consideration by States and Compacts that do not represent a variation on the four concepts in Volumes 2 through 5 of NUREG/CR-3774. New disposal concepts may involve technical issues that should be identified and resolved in order to assure timely regulatory actions on license applications. NRC resources are limited and their use must be planned and focused on real needs. Recent legislation also requires that licensing guidance on alternatives be prepared and published by January 1987. Also, if design questions on specific proposals raise serious problems in meeting the requirements of 10 CFR Part 61, the most cost-effective decision on the part of the applicant may be to eliminate a particular alternative or design feature from further consideration. Early consultation with the appropriate licensing authority will aid timely decisions.

Prospective applicants should understand that they are responsible for

all research, data, and technical evaluations necessary to support a specific license application. NRC conducts research only to provide the technical bases for rulemaking and regulatory decisions, to support licensing and inspection activities, to assess the feasibility and effectiveness of safety features and to increase our understanding of phenomena for which analytical methods are needed to carry out regulatory responsibilities.

D. Questions

A number of basic issues have been identified by NRC staff in the course of its evaluation of alternative disposal methods. The staff requests comments from States and all other interested parties on these questions as well as any other aspect of this proposed technical position.

1. Are there any alternative disposal methods under serious consideration that do not represent a variation or combination of the four concepts evaluated in Volumes 2 through 5 of NUREG/CR-3774?

2. With the publication and endorsement of NUREG/CR-3774 and plans for modified guidance on the content of applications for alternative methods, what additional specific regulatory guidance is needed regarding alternative disposal methods?

3. To concentrate the resources of designers, engineers, and vendors on particular approaches, and permit a more effective and efficient licensing process, should NRC's regulatory program include active solicitation and review of a reference design concept? The staff could review and approve a submitted generic design for most (or a major portion) of a near-surface land disposal facility outside the context of a application for a site-specific license. (An approval design may be referenced in later applications.) If so, what aspects of a disposal facility design are amenable to standardization?

4. To promote a more effective and efficient licensing process, should NRC's regulatory approach include early pre-application review of site suitability issues relating to the development of a low-level radioactive waste disposal facility separately from and prior to the application for a license to construct and operate such a facility? Such early review and documentation of staff findings could be patterned after the procedures for reactor construction permits in Appendix Q to 10 CFR Part 50. If so, what provisions in Appendix Q should be included or deleted?

Dated at Silver Spring, Maryland, this 26th day of February, 1986.

APPENDIX J

FEDERAL REGISTER NOTICE ON ENVIRONMENTAL STANDARD REVIEW PLAN

Low-Level Radioactive Waste Disposal Facility; Availability of Publication Concerning Environmental Protection

AGENCY: Nuclear Regulatory Commission.

SUMMARY: The Nuclear Regulatory Commission (NRC) is announcing the availability of NUREG-1300, Environmental Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility. This document provides guidance to staff in conducting the environmental review associated with a license application for a low-level radioactive waste disposal facility and also makes information about NRC's compliance with the National Environmental Policy Act of 1969 (NEPA) more readily available to the public, States and Regional Compacts, and the regulated community.

ADDRESS: Copies of NUREG-1300 may be purchased by calling the U.S. Government Printing Office at (202) 275-2080 or 275-2171 or by writing to the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082.

FOR FURTHER INFORMATION CONTACT: George Pangburn, Operations Branch, Division of Low-Level Waste Management and Decommissioning, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 427-4160.

SUPPLEMENTARY INFORMATION: Section 61.10 of Title 10, Code of Federal Regulations requires that each application for a license to dispose of low-level radioactive waste be accompanied by an environmental report (ER) prepared in accordance with Subpart A of 10 CFR Part 51. The applicant's ER serves as the basis for the NRC staff to prepare an environmental statement (ES) as required by 10 CFR Part 51, § 51.20 (b)(11). The Environmental Standard Review Plan (NUREG-1300) provides guidance to the staff in reviewing the ER, making the necessary independent analyses and evaluations and preparing the formal ES.

NRC regulations on environmental protection (10 CFR Part 51) were revised substantially in 1984 to take into account the Council on Environmental Quality's 1978 regulations implementing the National Environmental Policy Act (NEPA). The Environmental Standard Review Plan (ESRP) was prepared in accordance with the revised 10 CFR Part 51 and will help to assure that licensing decisions made by NRC conform to the requirements of NEPA. The ESRP should

also enable NRC to complete the environmental component of licensing a low-level radioactive waste disposal facility within the 15-month time frame specified by the Low-Level Radioactive Waste Policy Amendments Act of 1985.

Because Regulatory Guide 4.18, "Standard Format and Content of Environmental Reports for Near-Surface Disposal of Radioactive Waste," was prepared before 10 CFR Part 51 was revised, the data and information requirements in NUREG-1300 are not necessarily consistent with the guidance contained in Regulatory Guide 4.18. The NRC staff anticipates preparation of a revised "Standard Format and Content of Environmental Reports for Near-Surface Disposal of Radioactive Waste" that will accurately reflect the ESRP requirements for data and information to be supplied in an applicant's environmental report.

In addition to the aforementioned purposes, the Environmental Standard Review Plan will help to assure quality and uniformity of staff reviews and make information about the environmental component of the licensing process more readily available and thereby improve the understanding of this process among the public, States and Regional Compacts and the regulated community.

Dated at Silver Spring, Maryland, this 30th day of April, 1987.

Paul H. Lohaus,

Acting Chief, Operations Branch, Division of Low-Level Waste Management and Decommissioning, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 87-10330 Filed 5-5-87; 8:45 am]

BILLING CODE 7590-01-M

APPENDIX K

FEDERAL REGISTER NOTICES

ON

RADIOACTIVE WASTE BELOW REGULATORY CONCERN

The documents describe the kind of information petitioners should file to allow timely Commission review of the petition. They also describe decision criteria the Commission will use and the administrative procedures to be followed in order to permit the Commission to act upon the petition in an expedited manner. These documents respond to a mandate in the Low-Level Radioactive Waste Policy Amendments Act of 1985 and are being published as Appendix B to 10 CFR Part 2.

EFFECTIVE DATE: October 27, 1986.

ADDRESSES: Send any written comments or suggestions to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Attention: Docketing and Service Branch. Comments received within 60 days would be most helpful. Copies of comments received by the Commission may be examined or copied for a fee at the U.S. Nuclear Regulatory Commission (NRC) Public Document Room, 1717 H Street NW, Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: Kitty S. Dragonette, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone: (301) 427-4300.

SUPPLEMENTARY INFORMATION:

List of Subjects in 10 CFR Part 2

Administrative practice and procedure, Classified business information, Freedom of information, Hazardous waste, Nuclear material, Nuclear power plants and reactors, Penalties, Sex discrimination.

For the reasons set forth below and under the authority of the Atomic Energy Act of 1954 as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is adopting the following amendments to 10 CFR Part 2.

PART 2—RULES OF PRACTICE FOR DOMESTIC LICENSING PROCEDURES

1. The authority citation for Part 2 is revised to read as follows:

Authority: Secs. 161, 181, 68 Stat. 948, 953, as amended (42 U.S.C. 2201, 2231); sec. 191, as amended, Pub. L. 87-615, 78 Stat. 409 (42 U.S.C. 2241); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841); 5 U.S.C. 552.

Section 2.101 also issued under secs. 53, 62, 63, 81, 103, 104, 105, 68 Stat. 930, 932, 933, 935, 936, 937, 938, as amended (42 U.S.C. 2073, 2092, 2093, 2111, 2133, 2134, 2135); sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332); sec. 301, 88 Stat. 1248 (42 U.S.C. 5871). Sections 2.102, 2.103, 2.104, 2.105, 2.721 also issued under secs. 102, 103, 104, 105, 183, 189, 68 Stat. 936, 937, 938, 954, 955, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2233, 2239). Section 2.105 also issued under

Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Sections 2.200-2.206 also issued under secs. 186, 234, 68 Stat. 955, 83 Stat. 444, as amended (42 U.S.C. 2236, 2282); sec. 206, 88 Stat. 1248 (42 U.S.C. 5846). Sections 2.600-2.606 also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332). Sections 2.700a, 2.719 also issued under 5 U.S.C. 554. Sections 2.754, 2.760, 2.770 also issued under 5 U.S.C. 557. Section 2.790 also issued under sec. 103, 68 Stat. 936, as amended (42 U.S.C. 2133) and 5 U.S.C. 552. Sections 2.800 and 2.808 also issued under 5 U.S.C. 553. Section 2.809 also issued under 5 U.S.C. 553 and sec. 29, Pub. L. 85-256, 71 Stat. 579, as amended (42 U.S.C. 2039). Subpart K 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). Appendix A also issued under sec. 8, Pub. L. 91-580, 84 Stat. 1437 (42 U.S.C. 2135). Appendix B is also issued under sec. 10, Pub. L. 99-240, 99 Stat. 1842 (42 U.S.C. 2021b et seq.).

2. Add the following policy statement as Appendix B to Part 2:

Appendix B to Part 2—General Statement of Policy and Procedures Concerning Petitions Pursuant to § 2.802 for Disposal of Radioactive Waste Streams Below Regulatory Concern:

- I. Introduction and Purpose
- II. Standards and Procedures
- III. Agreement States
- IV. Future Action

I. Introduction and Purpose

The Low-Level Radioactive Waste Policy Amendments Act of 1985 (the Act) (42 U.S.C. 2021b et seq.) was enacted January 15, 1986. Section 10 of the Act addresses disposal of wastes termed "below regulatory concern" that would not need to be subject to regulatory control to assure adequate protection of the public health and safety because of their radioactive content. The goal of this section of the Act is for the Commission to make practical and timely decisions to determine when wastes need not go to a licensed low-level waste disposal site. These decisions will be expressed through rulemaking. Alternative disposal would conserve space in the existing sites while new sites are established and reduce the costs of disposal. Rulemaking petitions may play a role in the national low-level waste strategy outlined by the Act. The Act provides that the Commission establish procedures for acting expeditiously on petitions to exempt specific radioactive waste streams from the Commission's regulations.

The purpose of this statement and accompanying implementation plan is to establish the standards and procedures that will permit the Commission to act upon rulemaking petitions in an expeditious manner as called for in the Act. This policy statement does not require petitioners to present all the information outlined or demonstrate that the decision criteria for expedited handling can be met, if such expedited handling is not wanted. For example, petitions requesting exemption of concentrations of radionuclides that might

NUCLEAR REGULATORY COMMISSION

10 CFR Part 2

Radioactive Waste Below Regulatory Concern; Policy Statement

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule; policy statement.

SUMMARY: This notice contains a policy statement and staff implementation plan regarding expeditious handling of petitions for rulemaking to exempt specific radioactive waste streams from disposal in a licensed low-level waste disposal facility. For the Nuclear Regulatory Commission (NRC) to grant these rulemaking petitions, the waste streams must be sufficiently low in concentration or quantities of radionuclides for the Commission to find that they may be disposed of by alternative means without posing an undue risk to public health and safety. The policy statement and plan are in the nature of regulatory guidance for implementing existing requirements for rulemaking petitions in 10 CFR 2.802.

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result in individual exposures higher than those recommended in the decision criteria may be submitted, but expedited handling cannot be assured.

Finally, this policy statement and accompanying implementation plan are intended to facilities handling of rulemaking petitions for streams from multiple producers and do not apply to individual licensing actions on single producer waste. Individual licensees who seek approval for disposal of their unique wastes may continue to submit their disposal plans under 10 CFR 20.302(a).

II. Standards and Procedures

The standards and procedures needed to handle petitions expeditiously fall into the following three categories: (1) Information petitioners should file in support of the petitions, (2) standards for assessing the adequacy of the proposals and providing petitioners insight on the decision criteria the Commission intends to use so that all relevant informational issues will be addressed in the petition, and (3) the internal NRC administrative procedures for handling the petitions. These three categories are addressed in the attached staff implementation plan. The staff plan was developed in response to Commission direction to provide detailed guidance on implementing the general approach outlined in this policy statement. Although staff may revise it from time to time as experience is gained in processing petitions, the plan outlines a reasonable basis for accomplishing the approach. Staff is to publish revisions as NUREG documents and notice the availability of the revisions in the Federal Register.

As a practical matter, the primary information for justifying and supporting petitions must be supplied by the petitioner if the Commission is to act in an expedited manner. If the petitioner wishes to assure expedited action, the supporting information should be complete enough so that Commission action is primarily limited to independent evaluation and administrative processing.

Decision criteria for judging whether to grant a petition involve the overall impacts of the proposed action, waste properties, and implementation of the proposed exemption. The following criteria address these areas. Petitions which demonstrate that these criteria are met should be suitable for expedited action.

1. Disposal and treatment of the wastes as specified in the petition will result in no significant impact on the quality of the human environment.
2. The maximum expected effective dose equivalent to an individual member of the public does not exceed a few millirem per year for normal operations and anticipated events.
3. The collective doses to the critical population and general population are small.
4. The potential radiological consequences of accidents or equipment malfunction involving the wastes and intrusion into disposal sites after loss of normal institutional controls are not significant.
5. The exemption will result in a significant reduction in societal costs.

6. The waste is compatible with the proposed treatment and disposal options.

7. The exemption is useful on a national scale, i.e., it is likely to be used by a category of licensees or at least a significant portion of a category.

8. The radiological properties of the waste stream have been characterized on a national basis, the variability has been projected, and the range of variation will not invalidate supporting analyses.

9. The waste characterization is based on data on real wastes.

10. The disposed form of the waste has negligible potential for recycle.

11. Licensees can establish effective, licensable, and inspectable programs for the waste prior to transfer to demonstrate compliance.

12. The offsite treatment or disposal medium (e.g., sanitary landfill) does not need to be controlled or monitored for radiation protection purposes.

13. The methods and procedures used to manage the wastes and to assess the impacts are no different from those that would be applied to the corresponding uncontaminated materials.

14. There are no regulatory or legal obstacles to use of the proposed treatment or disposal methods.

III. Agreement States

The Low-Level Radioactive Waste Policy Amendments Act of 1985 establishes a national system for dealing with low-level waste disposal. The system assigns to the States responsibility for disposal capacity for low-level wastes not exceeding Class C wastes as defined in 10 CFR 61.55. Section 10 of the Act encourages a reduction in volume of such wastes subject to State responsibility for disposal through the option of determining that certain wastes need not go to existing licensed disposal facilities or new sites licensed under 10 CFR Part 61 or equivalent State regulations. If radiological safety can be assured, such disposal would conserve space in the existing sites while new sites are developed, and would serve as an important adjunct to volume reduction efforts in meeting the waste volume allocation limits set forth in the Act. Thus, these rulemakings should aid the States in fulfilling their responsibilities under the Act. Equity also suggests that all waste generators be able to take advantage of below regulatory concern options as part of their waste management strategies. Generators in both Agreement and non-Agreement States will be competing for space in the existing sites and the concept should be applicable nationwide.

Agreement States will play an important role in ensuring that the system works on a national basis and that it remains equitable. States have been encouraging findings that certain wastes are below regulatory concern and do not have to go to low-level waste sites. The States have been voicing this view for a number of years through forums such as the Conference of Radiation Control Program Directors. Rulemakings granting petitions will be made a matter of compatibility for Agreement States. Consequently, rulemaking will be coordinated with the States.

IV. Future Action

The Commission will conduct a generic rulemaking on waste streams below regulatory concern based on a number of factors. The factors include public comments received on the statement, the number and types of petitions for rulemaking received, and how effective the statement is in enabling timely processing of petitions. A generic rulemaking is warranted to provide a more efficient and effective means of accomplishing the goals reflected in Section 10 of the Act. An advance notice of proposed rulemaking will be published within 90 days. Furthermore, the Commission may periodically review all rulemakings in order to assure that the relevant parameters have not changed significantly and may ask the petitioner to submit updated information to assist in the review. The Commission would also have to confirm that approved exemptions are consistent with any general standards issued by EPA.

Dated at Washington, DC this 25th day of August, 1986.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary to the Commission.

Editorial Note: The staff implementation plan will not appear in the Code of Federal Regulation.

Nuclear Regulatory Commission Staff Implementation of Nuclear Regulatory Commission Policy on Radioactive Waste Below Regulatory Concern

- I. Introduction
- II. Information to Support Petitions
 - A. General
 1. 10 CFR Part 2 Requirements
 2. Environmental Impacts
 3. Economic Impact on Small Entities
 4. Computer Program
 5. Scope
 - B. Waste Characterization
 1. Radiological Properties
 2. Other Considerations
 3. Totals
 4. Basis
 5. As Low as Reasonably Achievable (ALARA)
 - C. Waste Management Options
 - D. Analyses
 1. Radiological Impacts
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 3. Regulatory Analysis
 - E. Recordkeeping and Reporting
 1. Surveys
 2. Reports
 - F. Proposed Rule
- III. Decision Criteria
- IV. Administrative Handling

I. Introduction

Section 10 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 requires the Nuclear Regulatory Commission (NRC) to develop standards and procedures for expeditious handling of petitions for rulemaking to exempt disposal of radioactive waste determined to be

low regulatory concern. The Act also requires NRC to identify information petitioners should file. The Commission Policy Statement provides general guidance on how to meet the requirements of section 10 of the Act, outlines the overall approach to be followed, and lists decision criteria to be used. Implementation of the general approach and decision criteria of the Commission Policy Statement involves developing more detailed guidance and procedures. In accordance with Commission direction, the NRC staff has developed more detailed guidance and procedures for implementation of the Commission Policy Statement. This staff guidance and procedures cover: (1) information petitioners should file in support of petitions to enable expedited processing, (2) discussion of the decision criteria, and (3) administrative procedures to be followed.

Information to Support Petitions

General

10 CFR Part 2 requirements. The identified information requirements for petitions for rulemaking are outlined in Commission's regulations in 10 CFR 2.2(c). These regulations require the petitioner to identify the problem and propose solutions, to state the petitioner's grounds for and interest in action, and to provide supporting information and rationale. As a practical matter, the information demonstrating the radiological health and safety risks are so low as to be below regulatory concern must be provided by the petitioner if the Commission is to act in an expedited manner. Petitions for rulemaking should therefore be submitted following the staff's supplemental guidance and procedures to assure expedited action.

Environmental impacts. Petitions to enable the Commission to make a finding of no significant impact on the quality of the human environment. Such Commission findings must be based on Environmental Assessment that complies with 10 CFR 51.30 and must meet the requirements of 10 CFR 51.32. These requirements include addressing the need for the proposed action, identifying alternatives, and assessing potential environmental impacts of the proposed action and alternatives. Consistent with 10 CFR 51.41, the petitioner should submit the information needed to meet these requirements and do so in a manner that permits independent evaluation by the Commission of the data and methodology used and the conclusions reached.

Economic impact on small entities.

When a rulemaking action is likely to have a significant economic impact on a substantial number of small entities, the Regulatory Flexibility Act requires that the impacts on these small entities must be specifically addressed. (The Commission's size standard for identifying a small entity is \$3.5 million or less in annual receipts except for private practice physicians and educational institutions where the standard is \$1 million or less in annual receipts for private practice physicians and 500 employees for educational institutions. See 50 FR 50214, December 9, 1985.) For any rulemaking, the Commission must either certify that the rule will not economically impact or will have no significant economic impacts on small entities, or present an analysis of alternatives to minimize the impacts. Because rulemakings on below regulatory concern should provide relief from requirements for all affected entities, satisfaction of this requirement should be straightforward but it must be addressed in any rulemaking. To facilitate expeditious preparation of the proposed rule responding to the petition, the petitioner should submit an evaluation of the estimated economic impacts on small entities. The evaluation should include estimates of the costs for small entities in terms of staff time and dollar costs. Any alternatives that could accomplish the objective of the petitioner's proposed rule while minimizing the economic impact on small entities should be presented. The evaluation should include an assessment of the incremental recordkeeping and reporting costs that would be associated with the petitioned rule change.

4. Computer program. The computer program (IMPACT-BRC) the Commission intends to use to independently evaluate petitioners' assessments of impacts is based on "De Minimis Waste Impacts Analysis Methodology" (NUREG/CR-3585) published February 1984.¹ Petitioners are encouraged to consult NUREG/CR-3585 in order to better understand the Commission's information needs. The IMPACTS-BRC program will be distributed by the National Energy Software Center on floppy diskettes for use on IBM-PC and compatible computers. The Center's address is 9700 South Cass Avenue, Argonne National Laboratory, Argonne, Illinois 60439. The users guide for IMPACTS-BRC will be published as a draft Volume II of NUREG/CR-3585. Petitioners may evaluate the impacts of the proposed activity using NRC's code, if desired.

¹ Footnotes at end of article.

When alternate calculational methodologies are used, the petitioner should provide all the specific input needed to analyze the waste stream in the petition using IMPACTS-BRC and provide a rationale for all parameter selections. The Commission may clarify or modify the computer code from time to time. Petitioners choosing to use NRC's code should be sure to use the current revision. The National Energy Software Center will provide changes to persons obtaining the program from the Center. Users are encouraged to comment on the code so that their experience can be factored into future revisions.

5. Scope. The petitioner should define the geographic area to which the proposed rule should apply and the reasons supporting any area less than national in scope. It might be possible to justify limiting the scope to a low-level waste regional compact or a state but implementation issues such as import or export of wastes outside the compact or state should be addressed in the rationale.

B. Waste Characterization

1. Radiological properties. The minimum radiological properties that should be described are the concentration or contamination levels and the half-lives, total quantity, and identities of the radionuclides present. The chemical and physical form of the radionuclides should be addressed. All radionuclides present or potentially present should be specified, including radionuclides identified as trace constituents. The distribution of the radionuclides within the wastes should be noted (e.g., surface or volume distribution). Mass and volume average concentrations should also be presented. For incineration, the radioactive content of the ash and noncombustible fraction should be described. The variability as a function of process variation and variation among licensees should be addressed and bounded.

2. Other considerations. An understanding of nonradiological properties of the waste stream is needed to assure that they are consistent with the proposed disposal method and to evaluate the adequacy of the analysis of the radiological impacts. (NRC's deregulation of the radioactive content would not relieve licensees from the applicable rules of other agencies which cover the nonradiological properties.) The petitioner should provide a detailed description of the waste materials, including their origin, chemical

composition, physical state, volume, and mass.

The term "stream" only means wastes produced from a common set of circumstances and possessing common characteristics. It does not mean "liquid" although the stream may be in a liquid form (e.g., waste oil). The wastes may be resin beads, laboratory glassware, or any other form. Waste form includes packages or containers used to manage (i.e., store, handle, ship, or dispose) the wastes. The variability and potential changes in the waste form as a function of process variation should be addressed. The variation among licensees should be described and bounded.

Compatibility with requirements associated with the proposed management options should be carefully presented. For example, if the petitioner proposes that the wastes be incinerated, the waste form should be shown to be compatible with the temperatures, flow rates, feed rates, and other operating parameters of typical incinerators that may be used. The petitioner should identify the minimum requirements an incinerator must meet to assure adequate combustion. The form and volume of the ash and other residue from incineration should be described. Similar consideration for disposal at sanitary landfills or hazardous waste sites should be addressed. For example, wastes that include components or properties that would qualify the waste as a "hazardous waste" under EPA rules in 40 CFR Parts 260 through 265 should not be proposed for disposal at a municipal landfill.

The potential for recycle should be presented. Possible treatment, such as shredding, would reduce the recycle potential should be described. Both the resource value (e.g., salvageable metals) and the functional usefulness (e.g., usable tools) should be addressed. Both short- and long-term potentials for recycle are of significant concern to the Commission.

3. *Totals.* A subsequent rulemaking based upon an accepted petition is generic, and the exemption will likely be used nationwide. Therefore, to the extent possible, the petitioner should estimate the number of NRC and Agreement State licensees that produce the waste, the annual volumes and mass, and the total annual quantities of each radionuclide that would be disposed of. The estimates should include the current situation and the likely variability over the reasonably foreseeable future. If the petition is for a proposed rule that will be limited to less than national scope (e.g., a state or compact region), the totals should be

estimated for the petitioned scope. A concentration distribution would be a helpful tool in characterizing the waste stream. For example, the petitioner could indicate that 10% of the wastes fall in the range of 1-10 picocuries per gram, 60% fall in the 10-100 range, and 30% in the 100-1,000 range. Such distribution would permit more realistic assessment of impacts in addition to conservative bounding estimates using maximum values. In any case, the typical quantities produced per generator and an estimate of the geographic distribution of the generators should be described.

4. *Basis.* The basis for the waste stream characterization should be provided. The basis for characterization of the wastes and the total quantities produced should be described. Monitoring, analytical data, and calculations should be specified. Actual measurements or values that can be related to measurements to confirm calculations are important. The description of the bases should include quality assurance aspects. For example, the petitioner should describe the number of samples measured, the representativeness of the samples, and the appropriateness of the instruments used. The statistical confidence in the estimates should be evaluated. If the petitioner conducted any surveys of licensees or relied on surveys by others to help quantify the amount and content of wastes, they should be described. Market information might be useful in characterizing waste generation on a national basis. Designation as a "trace concentration" should be related to specified detection limits, but detection limits themselves are not sufficient reason to dismiss trace concentrations when methods exist to infer concentrations.

For estimates of the radionuclide content of the waste stream, the petitioner may take advantage of licensee experience in classifying wastes for disposal at low-level waste sites. For example, the transuranic radionuclide content of the wastes would likely be below detection limits, but licensees have already established scaling factors for estimating the transuranic content of wastes as part of complying with 10 CFR Part 61 waste classification requirements. Waste generators use generic scaling factors and factors established for their specific wastes through sophisticated analyses. The scaling factors are used to infer the presence and concentrations of many radionuclides based on measurement of only a few nuclides. The classification scheme in 10 CFR Part 61 has been in effect since December 1983.

Considerable data and experience should be available to allow characterizing the radiological content and composition of the waste stream being addressed in the petition. The same principles outlined in 10 CFR 61.55(a)(8) may be applied, i.e., values based on direct measurements, indirect methods related to measurements, or material accountability.

5. *As low as is reasonably achievable (ALARA).* The Commission's ALARA requirement in 10 CFR 20.1(c) applies to efforts by licensees to maintain radiation exposures and releases of radioactive materials in effluents to unrestricted areas as low as is reasonably achievable. 10 CFR Part 50, Appendix I, describes ALARA for radioactive materials in light water reactor effluents. Licensee compliance with 10 CFR 20.1(c) is a precondition to acceptance by NRC of any waste stream as exempt. Therefore, a description should be provided of reasonable procedures that waste generators would be expected to use to minimize radiation exposures resulting from the disposal of the exempt waste, e.g., removal of surface contamination. These procedures are assumed to apply prior to characterizing the waste to be exempted.

C. Waste Management Options

The management options that the Commission can deal with expeditiously are those described in NUREG/CR-3585. Onsite options include incineration and burial. Offsite options are municipal waste disposal facilities (sanitary landfills), municipal waste incinerators, hazardous disposal facilities, and hazardous waste incinerators. Pretreatment, e.g., shredding of otherwise potentially recyclable materials, is a potential adjunct to either onsite or offsite options. Combinations of these options can also be evaluated. For example, wastes may be incinerated on site and the ash shipped to a sanitary landfill. The favored disposal options should be identified and fully described. The petitioner should evaluate a full range of options. The practicality of the proposed option(s) should be presented. Waste compatibility discussed earlier is one aspect. The national availability and distribution of the option is another. Updates on national regulations and laws pertaining to the proposed option should be described and might have to be considered in selecting acceptable options.

D. Analyses

To support and justify the submittal, each petitioner should include analyses of the radiological impacts associated

with handling, transport, and disposal of the specific wastes. Any incremental nonradiological impacts should be assessed. Also the petitioner should use the analyses to prepare and submit a detailed regulatory analysis with the petition.

1. *Radiological impacts.* The evaluation of radiological impacts should distinguish between expected and potential exposures and events. Impacts should be assessed for the expected concentrations and quantities of radionuclides. The petitioner should quantitatively evaluate the impacts from the proposed waste for each option requested. The petitioner should clearly relate the analytical findings to specific provisions in the recommended rule changes. For example, the basis for each recommended radionuclide limit should be clearly explained.

The radiological impacts included in NUREG/CR-3585 and in NRC's computer program (IMPACTS-BRC) cover exposures to workers and individual members of the public and cumulative population exposures. The program calculates both external direct gamma exposures and exposures from ingested or inhaled radionuclides. NRC's computer program can be used to calculate the expected radiological impacts from generator activities, transportation, treatment, disposal operations, and post-disposal inputs. The program can analyze a wide range of management options including onsite treatment and disposal by the generator, shipment to municipal waste management facilities, and shipment to hazardous waste management facilities. The program covers impacts beginning with initial handling and treatment by the generator through final disposal of all the radionuclides contained in the waste stream. Sequential treatment, sorting, and incineration onsite and at municipal and hazardous facilities can be assessed. Disposal of resulting ash and residue is included. Post-disposal impacts that can be calculated include releases due to intrusion, ground-water migration, erosion, and leachate accumulation. The program thus addresses both expected and potential post-disposal impacts.

The petitioner's analysis of transport impacts should be based on a reasonably expected spatial distribution of licensees and waste treatment and disposal facilities which will accept the wastes. The petitioner should address parameters such as average and extreme transport distances. The petitioner's analysis should address the basis for parameter selection and characterize the expected patterns (e.g.,

indicate how likely the extreme case may be). In addition, the petitioner's analysis should also address potential exposures from handling and transport accidents. The petitioner's analysis of accidents should include all assumptions, data, and results to facilitate review. The potential for shipment of the entire waste stream to one or a few facilities should be assessed. This scenario currently exists for 10 CFR 20.306 exempted liquid scintillation wastes and might result from very limited numbers of treatment facilities or decontamination services. The analysis of impacts for transport, handling, and disposal should include evaluation of this potential circumstance unless it can be clearly ruled out.

As suggested in Paragraph 89 on page 20 of ICRP Publication 46²:

Exception from regulation and requirements on these bases should not be used to make it possible to dispose of large quantities of radioactive material in diluted form, or in divided portions, causing widespread pollution which would eventually build up high dose levels by the addition of many small doses to individuals. Nor should they be used to exempt activities that, by isolation or treatment, have been made temporarily harmless but that imply large potential for release and could give rise to high individual doses or high collective doses.

The analysis of expected radiological impacts should clearly address:

- The maximum individual exposures.
- The critical group exposures
- The cumulative population exposures.

The maximum individual exposure evaluation should include exposures to all members of the public who may be exposed beginning with the initial handling at the generator's facility through post-closure. Both internal uptake and external exposures should be included. The individual may be a member of the general population (e.g., consumer of contaminated ground water) or a person receiving the exposure from his or her occupation. Anyone who may be exposed and is not a radiation worker should be considered a member of the public. For example, a worker at a sanitary landfill or a commercial trash truck driver would not be a radiation worker. However, occupational exposures to radiation workers should be evaluated and considered in the cost/benefit analysis of the incremental impacts between disposal at a licensed facility and the requested disposal options.

The total population exposures can be estimated and summed in two parts. One part is the smaller critical group (usually the occupationally exposed population) where potential exposures

may be higher on an individual basis but the exposures and the number of exposed individuals are more predictable and the exposures are short-term. The critical group should be the segment of the population most highly exposed exclusive of radiation workers. The other part is the general population where the expected exposures and size of the exposed population are less predictable, potential individual exposures are probably much smaller, and exposures may extend over longer timeframes. Presentation of the population exposures in these two parts should contribute to a more meaningful cost/benefit analysis.

2. *Other impacts.* The NRC action to exempt the radiological content of the wastes would not relieve persons handling, processing, or disposing of the wastes from requirements applicable to the nonradiological properties. The petition should demonstrate that the nonradiological properties of the radioactive waste are the same as the nonradioactive materials normally handled and disposed of by the proposed methods. If the nonradiological properties are similar and the volumes of exempted waste would not impact the normal operations, there should be no incremental impacts. If the petitioner is aware of other impacts which should be considered for the specific wastes in the petition, the petitioner should also address the additional impacts.

3. *Regulatory analysis.* In order to expedite subsequent rulemaking if the petition is granted, the analysis should also address the topics NRC must address in a Regulatory Analysis (e.g., see NUREG/BR-0058, Revision 1, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission").¹ Following the Regulatory Analysis format will structure the analytical findings, present the bases for decisions, and address the environmental assessment requirements. The topics are:

(1) *A statement of the problem.* This topic is the need for determining which wastes may be safely disposed of by means other than shipment to licensed low-level waste sites.

(2) *Alternatives.* All reasonable alternatives to the proposed action should be described. The no action or status quo alternative should always be included.

(3) *Consequences.* This topic calls for an analysis of the impacts of each alternative described. The factors the petitioner should address include costs and benefits and practical or legal constraints. Cost/benefit considerations

and constraints are discussed more fully after this listing of topics.

(4) *Decision rationale.* This topic is a conclusions statement that explains why the preferred alternative(s) should be adopted.

(5) *Implementation.* This topic covers the steps and schedules for actual implementation of the proposed rule. The petitioner should address the topic from the waste generator's perspective and include surveys discussed under Topic III.A.5. Recordkeeping and Reporting.

A cost/benefit discussion is an essential part of both environmental and regulatory impact considerations and is, therefore, essential to expedited handling. The discussion should focus on expected exposures and realistic concentrations or quantities of radionuclides. The cost/benefit discussion should include the differential exposure and economic costs between disposal at a licensed low-level waste disposal site and the proposed option(s). It may also include qualitative benefits. Reduced hazards from not storing hazardous or combustible materials might be a benefit. Elimination or reduction of the hazardous properties (e.g., by incineration) could be another. Detrimental costs might also be qualitative such as loss of space in municipal or hazardous waste sites. The economic impact on the licensed site operations (i.e., loss of income from diverted wastes) and its potential effect on the availability of economic and safe disposal should be addressed. Costs of surveys and verifying compliance discussed under Topic II.E.

Recordkeeping and Reporting should also be covered. The cost/benefit should also reflect ALARA considerations. Radiation worker exposure, public exposure, and environmental releases might be appropriate in ALARA considerations. In weighing the exposure costs and economic costs for light-water-cooled nuclear reactor wastes, the petitioner could use, for perspective, the \$1,000 per person-rem guideline in 10 CFR Part 50, Appendix I, for effluent releases from these facilities.

The petitioner should identify any legal or regulatory constraints that might impact implementation of the petitioned change. The compatibility of the waste with the proposed method of disposal was discussed under Topic II.B.2. Other constraints might stem from Department of Transportation (DOT) labeling, placarding, and manifesting requirements for radioactive materials. Since the receiving facility will not be licensed to receive radioactive materials, this could be an impediment

to implementation. For most radioactive materials, the general DOT threshold limits of 0.002 microcuries per gram apply. However, the DOT issued a final rule on June 6, 1985 (50 FR 23811) that amended 49 CFR Part 173 to exempt low specific activity wastes as described in NRC's rules in 10 CFR 20.306. (Note that DOT emphasized that the wastes remain subject to the provisions related to other hazards; see 49 CFR 173.425(d).)

E. Recordkeeping and Reporting.

1. *Surveys.* Existing regulations in § 10 CFR 20.201 establish general NRC requirements for performing surveys as necessary to comply with Part 20. Licensees would have to conduct surveys of the waste properties prior to release for exempt disposal to verify that the waste meets the prescribed limits. Such survey programs might consist of (1) fairly comprehensive initial sampling and analysis to confirm that the licensee's wastes will fall below the limits, (2) periodic analysis as part of a process or quality control program to confirm the initial findings, and (3) a routine survey program prior to release of wastes to monitor for gross irregularities. To show that licensees can be expected to conduct compliance surveys prior to waste transfer, the petitioner should describe a sample survey program. The three components just discussed should be included, if appropriate, for the waste stream. Records of the surveys would be maintained for inspection.

2. *Reports.* The petitioner should assume that annual reports on disposals will be required and that associated recordkeeping to generate the reports will be imposed. Minimum information in the annual reports initially might include the type of waste, its volume, its estimated curie content, and the place and manner of disposal. Increased recordkeeping and reporting requirements would address uncertainties in projecting future volumes or amounts of wastes and NRC's responsibility to consider the cumulative impacts of multiple exemptions. When these requirements are proposed, Office of Management and Budget (OMB) approval is required. To facilitate NRC filing for OMB approval, the petitioner should include any duplicating or overlapping reporting requirements, the number and type of expected respondents, suggestions for minimizing the burden, estimates of the staff hours and costs to prepare the reports and keep the records, and a brief description of the basis for the estimates. The petitioner should also

address whether changes in technical specifications or licenses may be needed.

F. Proposed Rule

The petition should include the text for the proposed rule (see 10 CFR 2.802(c)(1)). The proposed text should cover at least the following:

- (1) The quantity and/or concentration limit for each radionuclide present (trace radionuclides could be lumped together with a total limit);
- (2) A method to deal with radionuclide mixtures;
- (3) The nonradiological specifications necessary to adequately define the waste; and
- (4) The specific method(s) of exempt disposal.

If practicable, and if the supporting information indicates the need, the text should also address other features such as annual limits on each generator in terms of volume, mass, or total radioactivity, and administrative or procedural requirements including process controls, surveys, etc., that have been discussed. The text should not include the various dose limits used to justify the proposed radionuclide limits.

III. Decision Criteria

The Commission policy statement establishes that the following criteria should be used by staff as guidelines for acting on a petition. Each criterion is repeated and staff views on implementation are discussed.

1. Disposal and treatment of the wastes as specified in the petition will result in no significant impact on the quality of the human environment.

Discussion: Unless this finding can be made during information submitted by the petitioner, the Commission must prepare an Environmental Impact Statement to more fully examine the proposed action, alternatives to the proposed action, and associated potential impacts of alternatives. Preparation would likely involve contractual support and would likely take 2 years or more to complete. The Commission could not act in the petition in an expedited manner.

2. The maximum expected effective dose equivalent to an individual member of the public does not exceed a few millirem per year for normal operations and anticipated events.

Discussion: The effective dose equivalent means the ICRP Publication 26 and 30² sum of the dose from

6. The waste is compatible with the proposed treatment and disposal options.

Discussion: This criterion relates to the nonradiological properties of the wastes. For example, disposal of radioactive wastes that also qualify as a nonradiological hazardous material should be proposed for disposal methods in accord with EPA regulations (e.g., incineration or disposal at a hazardous waste facility). Also, wastes proposed for incineration should be combustible and wastes proposed for landfills should be appropriate for disposal in typical landfills anywhere in the nation.

7. The exemption is useful on a national scale, i.e., it is likely to be used by a category of licensees or at least a significant portion of a category.

Discussion: Rulemaking is usually not warranted for wastes involving a single licensee, whether a continuing disposal activity or a one-time disposal. Such proposals by individual licensees are normally processed as licensing actions under 10 CFR 20.302(a).

8. The radiological properties of the waste stream have been characterized on a national basis, the variability has been projected, and the range of variation will not invalidate supporting analyses.

Discussion: One of the merits of dealing with specific waste streams is that the actual properties of the waste stream can be relied upon in estimating impacts rather than conservative bounding parameters. The specific pathways that must be considered can be limited to manageable numbers. The expected fate can be credibly limited based on the properties.

9. The waste characterization is based on data on real wastes.

Discussion: Actual data on real waste provide reasonable assurance that the waste characterization is accurate.

10. The disposed form of the waste has negligible potential for recycle.

Discussion: Eliminating the uncertainties associated with recycle is necessary to expeditious handling. Specifying specific wastes and specific methods of disposal narrows the pathways and timeframes to manageable numbers.

11. Licensees can establish effective, licensable, and inspectable programs for the waste prior to transfer to demonstrate compliance.

Discussion: Survey programs and quality control programs will be needed to provide reasonable assurance that actual wastes disposed of under an exemption rule meet the specified parameters. Since disposal would be exempted based on both established

and projected waste characteristics, reporting on the wastes actually transferred for below regulatory concern disposal will be important and should be practical.

12. The offsite treatment or disposal medium (e.g., sanitary landfill) does not need to be controlled or monitored for radiation protection purposes.

Discussion: The evaluation of expected exposures should provide the basis for meeting this criterion. However, this is an area where NRC will have a continuing responsibility as multiple petitions are processed. Reporting on actual disposals will help NRC address this responsibility and monitor the adequacy of the limits included in the exempted disposals.

13. The methods and procedures used to manage the wastes and to assess the impacts are no different from those that would be applied to the corresponding uncontaminated materials.

Discussion: Since the receiving facility will not be licensed for radioactive materials, special handling or measures should not be required at the processing or disposal sites because of the radioactive content of the wastes. This criterion also means that realistic assumptions about the disposal methods have been made in estimating exposures.

14. There are no regulatory or legal obstacles to use of the proposed treatment or disposal methods.

Discussion: To have practical use, the disposal option must be available. For example, if all hazardous waste facilities that accept offsite wastes are closed or are not reasonably distributed, the practicality of an exemption to allow disposal at such sites is questionable. Since the receiving facility will not be licensed for radioactive materials, shipments to landfills or hazardous waste facilities should not require identification as radioactive materials.

IV. Administrative Handling

Agency procedures for expeditious handling of petitions for rulemaking were initially published in 1982 in NUREG/BR-0053, "Regulations Handbook."¹ The procedures are contained in Part 11 of the Handbook and were most recently revised in September 1985. Because of resource limitations and other factors, these procedures have not been fully implemented. Petitions for rulemaking submitted in accordance with the Commission's policy statement and this staff implementation plan will be processed in full compliance with these procedures. These procedures coupled with agency policy to complete all rulemaking within 2 years will provide

expeditious action on the petitions. In addition, the Handbook notes general scheduling advice that proposed rules to grant petitions should be published in 6-12 months after acceptance and publication for comment. Proposed rules will be forwarded to the Commission on a 6-month schedule to the extent permitted by resource limits, the nature and extent of public comments, and internal Control of Rulemakings procedures. Rulemakings involving power reactors must be reviewed by the Committee on Review of Generic Requirements prior to publication. Proposed rules involving reactors will therefore be forwarded to the Commission on a 7-month schedule to the extent permitted by resources, comments, and approval procedures. In both cases, every effort will be made to publish proposed rules no later than 12 months after noticing for public comment.

Although the procedures in Part 11 of NUREG/BR-0053 include fast track processing, the nature of the anticipated petitions do not fully comply with the decision criteria to follow this alternative.

Some of the key features of the handling procedures include the following steps for complete and fully supported petitions.

1. Petitioners may confer on procedural matters with the staff before filing a petition for rulemaking. Requests to confer on procedural matters should be addressed to: The Director, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Attention: Chief, Rules and Procedures Branch.

2. Petitions should be addressed to: The Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. In keeping with 10 CFR 2.802(f), petitioners will be promptly informed if the petition meets the threshold requirements for a petition for rulemaking in 10 CFR 2.802(c) and can be processed in accordance with this implementation plan. Ordinarily this determination will be made within 30 days after receipt of the petition.

3. Following this determination, the petition will be noticed in the Federal Register for a public comment period of at least 60 days.

4. The petitioner will be provided copies of all comments received, scheduling information, and periodic status reports.

The procedures in NUREG/BR-0053 also include the process for denial and withdrawal of petitions.

Footnotes:

¹ Copies of NUREG/BR-0053, NUREG/BR-0058 and NUREG/CR-3585 may be purchased through the U.S. Government Printing Office by calling (202) 275-2060 or by writing to the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013-7082. Copies may also be purchased from the National Technical Information Service, U.S. Department of Commerce, 5185 Port Royal Road, Springfield, VA 22161. Copies are available for inspection and/or copying for a fee in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.

² ICRP Publication 46, "Radiation Protection Principles for the Disposal of Solid Radioactive Waste," adopted July 1985.

³ ICRP Publication 26, "Recommendations of the International Commission on Radiological Protection," adopted January 17, 1977. ICRP Publication 30, "Limits for Intake of Radionuclides by Workers," adopted July 1978.

⁴ Copies of the United Kingdom's document are available for inspection as enclosures to SECY-85-147A (relating to 10 CFR Part 20) dated July 25, 1985 in the Commission's Public Document Room, 1717 H Street NW, Washington, DC 20555. The United Kingdom documents are available for sale from: Her Majesty's Stationery Office, P.O. Box 569, London SE1 9NH, United Kingdom, as Advice document ASP-7 and a related technical report, "The Significance of Small Doses of Radiation to Members of the Public," NRPB-R175.

⁵ Copies of the Canadian document are available for inspection as an enclosure to SECY-85-147A (relating to 10 CFR Part 20) dated July 25, 1985 in the Commission's Public Document Room, 1717 H Street NW, Washington, DC 20555. The Canadian document was issued as Consultative Document C-85, "The Basis for Exempting the Disposal of Certain Radioactive Materials from Licensing" by the Atomic Energy Control Board, P.O. Box 1046, Ottawa, Ontario, Canada, K1P 5S9.

⁶ ICRP/85/G-03, "Statement from the 1985 Paris Meeting of the International Commission on Radiological Protect." 1985-04-26.

[FR Doc. 86-19550 Filed 8-28-86; 8:45 am]

BILLING CODE 7580-01-M

NUCLEAR REGULATORY COMMISSION**10 CFR Parts 2 and 20****Radioactive Waste Below Regulatory Concern; Generic Rulemaking****AGENCY:** U.S. Nuclear Regulatory Commission.**ACTION:** Advance notice of proposed rulemaking.

SUMMARY: The Nuclear Regulatory Commission (NRC) is considering amending its regulations to address disposal of radioactive wastes that contain sufficiently small quantities or low concentrations of radionuclides that their disposal does not need to be regulated as radioactive. The NRC recently published a policy statement that provides guidance for filing petitions for rulemaking to exempt specific waste streams. Generic rulemaking might provide a more efficient and effective means of dealing with disposal of wastes below NRC regulatory concern. A generic approach could potentially reduce the burdens associated with disposal of radioactive waste by all Commission licensees. For NRC to find that wastes may be disposed of without regard to radioactive content, the disposal must not pose an undue risk to public health and safety or the environment. Generic rulemaking would supplement the earlier policy statement response to a mandate in section 10 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99-240).

DATE: The comment period expires March 2, 1987. Comments received after this date will be considered if it is practical to do so but assurance of consideration may not be given except as to comments received on or before this date.

ADDRESSES: Mail comments to Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Attention: Docketing and Service Branch, or deliver comments to the NRC's Public Document Room, 1717 H Street NW., Washington, DC between 8:15 a.m. and 5:00 p.m. weekdays.

FOR FURTHER INFORMATION CONTACT: Kitty S. Dragonette, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 427-4300.

SUPPLEMENTARY INFORMATION: On August 29, 1986, the NRC published a policy statement and staff implementation plan regarding how it plans to expedite handling of petitions for rulemaking to exempt specific radioactive waste streams from disposal

in a licensed low-level waste disposal facility (51 FR 30839). The policy statement and staff implementation plan were published as Appendix B to 10 CFR Part 2. The policy statement and plan are in the nature of regulatory guidance for implementing existing requirements for rulemaking petitions contained in 10 CFR 2.802. These documents describe the kind of information petitioners should file to allow expedited Commission review of the petition as well as the decision criteria that should enable expedited action on petitions and upon which NRC would base its judgments.

Commenters should consult the August 29, 1986 *Federal Register* notice for assistance in formulating their comments on this issue. However, the decision criteria listed in the policy statement are repeated here for the reader's convenience.

1. Disposal and treatment of the wastes as specified in the petition will result in no significant impact on the quality of the human environment.

2. The maximum expected effective dose equivalent to an individual member of the public does not exceed a few millirems per year for normal operations and anticipated events.

3. The collective doses to the critical population and general population are small.

4. The potential radiological consequences of accidents or equipment malfunction involving the wastes and intrusion into disposal sites after loss of normal institutional controls are not significant.

5. The exemption will result in a significant reduction in societal costs.

6. The waste is compatible with the proposed treatment and disposal options.

7. The exemption is useful on a national scale, i.e., it is likely to be used by a category of licensees or at least a significant portion of a category.

8. The radiological properties of the waste stream have been characterized on a national basis, the variability has been projected, and the range of variation will not invalidate supporting analyses.

9. The waste characterization is based on data on real wastes.

10. The disposed form of the waste has negligible potential for recycle.

11. Licensees can establish effective, licensable and inspectable programs for the waste prior to transfer to demonstrate compliance.

12. The offsite treatment or disposal medium (e.g., sanitary landfill) does not need to be controlled or monitored for radiation protection purposes.

13. The methods and procedures used to manage the wastes and to assess the

impacts are no different from those that would be applied to the corresponding uncontaminated materials.

14. There are no regulatory or legal obstacles to use of the proposed treatment or disposal methods.

The policy statement and staff implementation plan responded to the six-month mandate in the Low-Level Radioactive Waste Policy Amendments Act of 1985 which required NRC to establish standards and procedures for expedited action on below regulatory concern waste disposal petitions. However, the Commission realizes that a generic rulemaking on the issues associated with findings that certain wastes may be exempted from further NRC control of the radioactive content without posing an undue risk to public health and safety would reduce the issues to be considered in individual rulemakings on specific wastes. Generic rulemaking could also address broader issues associated with the general issue of slightly contaminated radioactive materials. The six-month mandate in the Act effectively precluded rulemaking as an initial approach but the Commission can now consider the matter more carefully. The policy statement and staff implementation plan will be used in the interim while the Commission considers rulemaking in the area. Publication of this notice should in no way discourage petitioners from making use of the option for petitions for expedited rulemaking on specific waste streams.

The NRC requests public comment on the general question of whether and how to proceed on the matter of exempting slightly contaminated radioactive materials from its requirements for disposal. The NRC also seeks public comment with respect to the following issues and questions. (In responding, commenters are encouraged to provide specific suggestions and the basis for suggestions offered.)

(1) In the past, the Commission has concluded that consideration of exempting wastes from regulation on a waste-stream-by-waste-stream basis is the most practical way to proceed and will lead to exemptions most useful for licensees. Assuming this course of action, what type of rulemaking would facilitate exemption of waste streams? For example,

(a) Should the decision criteria listed above from the Commission policy statement be codified as rules instead of guidance?

(b) Should the decision criteria in the Commission policy statement be quantified where possible and then be codified to facilitate processing petitions?

(c) Should additional criteria be added or criteria be deleted before they are

quantified and codified?

(2) Should the NRC take an entirely different approach than that reflected in the policy statement? For example,

(a) Should the NRC try to establish concentrations or quantities of radionuclides that are below regulatory concern regardless of the form or disposal circumstances? In the past, the Commission has concluded that such concentrations or quantities would be so low or small that they would be of no practical value to licensees. Factors such as the uncertainty in potential pathways and further uses or recycle of the contaminated materials and the consequent conservatism that must therefore be considered have contributed to this conclusion. Innovative ideas from commenters on how to deal with these uncertainties would be welcome.

(b) Should NRC develop a risk or dose value that would represent generic regulatory cut-off levels for an individual licensee's waste (e.g., 0.1, 1, or 10 millirems per year)? If so, how would a licensee demonstrate that its disposal practices do not result in members of the public being exposed in excess of the established limit? For example, can computer codes be developed that licensees would have to use to demonstrate compliance with a generic below regulatory concern risk or dose value? What survey, recordkeeping, and reporting requirements should be included in such regulations?

(3) How can NRC most effectively address the potential for exposures of members of the public from multiple disposal practices or sources that are each below NRC regulatory concern? This concern has been addressed internationally and in the staff implementation plan published with the Commission's policy statement by limiting the maximum potential exposures from individual practices. Under this approach inadvertent exposure of a member of the public to five or ten individual disposal practices would still be of no regulatory concern. How can this aspect of below regulatory concern be best addressed in waste-stream-by-waste-stream or more generic approaches?

(4) Should NRC develop additional guidance instead of rulemaking? If so, what guidance would be most helpful?

(5) The Environmental Protection Agency (EPA) has issued notices on two aspects of slightly contaminated radioactive wastes. In its ANPRM on low-level wastes (48 FR 38563; August 31, 1983), EPA asked, "Are there some types or classes of radioactive waste which do not need regulatory control to protect the public?" In its ANPRM published June 18, 1986 (51 FR 22264),

EPA requested comments on standards for residual activity in buildings and soils of facilities being decommissioned. Should NRC defer entirely, or only in part, to EPA standards development in this area?

(6) Are there other national or international standards or standards development activities that NRC should encourage or support that could negate or minimize the need for further NRC action?

List of Subjects

10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

10 CFR Part 20

Byproduct material, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Special nuclear material, Source material, Waste treatment and disposal.

Authority: Sec. 161, 68 Stat. 948, as amended (42 U.S.C. 2201); sec. 201, 68 Stat. 1242, as amended (42 U.S.C. 5841).

Dated at Washington, DC, this 26th day of November, 1986.

For the Nuclear Regulatory Commission,
Samuel J. Chilk,

Secretary to the Commission.

[FR Doc. 86-27055 Filed 12-1-86; 8:45 am]

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