NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OCT 2 4 1984

MEMORANDUM FOR: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: TRANSMITTAL OF INFORMATION REQUESTED AT COMMISSION MEETING ON OCTOBER 10, 1984

At the Commission meeting on October 10, 1984, where the staff presented a review of the proposed rule setting forth technical and financial criteria for decommissioning nuclear facilities, Commissioner Asselstine requested that the staff ascertain where licensees are establishing their reserve funds for decommissioning financial assurance and what types of assets are acquired by utilities using internal reserve funds.

The use of internal reserve funds received by utilities for decommissioning was discussed with Richard Bratz, Vice President, Finance, of the Edison Electric Institute; Scott DuBoff, member of the firm of Bishop, Liberman, Cook, Purcell and Reynolds, attorneys for the Electric Decommissioning Group; and William Stimart, Vice President, Regulatory Affairs, Duke Power Co. We also discussed this with Dr. J. Siegel of the Wharton School whom we have consulted with before on financial affairs.

They stated that the funds received from ratepayers to cover decommissioning would be used to increase the net worth of the utility. This is done by investing in new utility assets such as power plants and electrical transmission and distribution systems or by retiring debt. They also indicated that decommissioning funds would not be needed to cover current expenses such as salaries and overhead since these are covered by the rates set by the public utility commissions or Federal Energy Regulatory Commission and that the decommissioning funds cannot be used by utilities to diversify as those funds can only come out of company profits.

(Signed) William J. Dircks

William J. Dircks
Executive Director
for Operations

cc: General Counsel
Director, Policy Evaluation
Office of the Secretary
of the Commission

Cunningham

LTSD

JMaples

September 7, 1984

SECY-84-354

RULEMAKING ISSUE

(Notation Vote)

For: The Commissioners

From: William J. Dircks, Executive Director for Operations

Subject: PROPOSED AMENDMENTS TO 10 CFR PARTS 30, 40, 50, 51, 70, AND 72: DECOMMISSIONING CRITERIA FOR NUCLEAR FACILITIES

Purpose: To obtain Commission approval to publish for public comment proposed amendments to 10 CFR Parts 30, 40, 50, 51, 70, and 72 setting forth technical and financial criteria for decommissioning nuclear facilities.

Category: This paper covers a minor policy question requiring Commission approval. Resource estimates: Category 1, preliminary.

Issue: Should financial assurance for decommissioning be required and should more specific technical requirements for decommissioning be codified.

Discussion: Background. In March 1978, the Commission announced in the Federal Register (43 FR 10370) its intention to reevaluate its decommissioning policy and to consider amending its regulations in this regard. Additionally, on June 22, 1979 (44 FR 36523) the Commission responded to a petition for rulemaking (PRM 50-22) concerning decommissioning financial assurance, filed by the Public Interest Research Group, et al. on June 5, 1977, by granting that issues and funding alternatives raised by the petitioners would be considered within the context of this decommissioning rulemaking. The policy reevaluation included the development of an information base, a series of studies by Battelle Pacific Northwest Laboratories on the technology, safety and costs of decommissioning various types of nuclear facilities, and the preparation of a draft generic environmental impact statement (January 1981). Development of the data base is essentially complete. The staff believes it is appropriate at this time to publish a proposed rule setting forth decommissioning

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criteria for nuclear facilities. This includes all facilities except waste disposal facilities which have been covered separately in Parts 60 and 61. Also, major decommissioning issues such as financial assurance are already covered for uranium mills by Appendix A of Part 40.

Five major issues evolved from the policy reevaluation, namely, alternative methods of decommissioning, timing, planning (at licensing and just prior to decommissioning), financial assurance, and acceptable levels of residual radioactivity for release of property for unrestricted use. More specific requirements and guidance are needed in these areas. Additionally, in light of the information in the data base and the draft generic environmental impact statement and as a result of the requirements in the proposed amendments, it became apparent that environmental review requirements related to NEPA could be reduced. This proposed rule addresses all of these issues except that of residual radioactivity limits, which is being addressed in a separate rulemaking as an amendment to Part 20.

Proposed Regulations. In the areas of decommissioning alternatives and timing it is proposed that all alternatives be defined as leading to release of the site for unrestricted use and termination of license. Delays in attaining unrestricted release conditions would be limited to situations where there is a compensating benefit such as reduced occupational exposures.

Planning would be more completely specified both at the licensing stage and at the end of operation. Information on funding methods for providing financial assurance for decommissioning would be submitted in applications for operating licenses and by existing reactor licensees within two years of the effective date of the rule. This information would show how reasonable assurance of funds for decommissioning will be provided, and would be in the form of a funding plan proposing an appropriate level of assurance based on a cost estimate for the particular facility or, in the case of power reactors, may consist of a certification of financial assurance in a prescribed amount proposed at $100 million using a funding method acceptable to the Commission.

For those materials facilities where major decommissioning costs are likely, financial assurance for decommissioning would also be required. Applicants and licensees (within one year) would be required to submit either a certification of financial assurance in a prescribed amount or a funding plan showing reasonable assurance of funds for decommissioning. Certain of these licensees, specified in the rule by types and quantities of materials, would be required to submit a funding plan rather than the certification at the time of license renewal to better assure that the funding level is appropriate for the specific facility.

All licensees would be required to keep records of information important to decommissioning in order to minimize both the costs and health and safety impacts of decommissioning.

Under the proposed amendment, decommissioning plans would be submitted at the end of operation by Part 50 and 72 licensees whether or not the actual dismantling is to be delayed. Thus, decommissioning alternatives involving delay could be used only with Commission approval. Under the existing regulations, the ultimate disposition need not be planned at the end of operation. Reactors can be put into "storage" indefinitely, normally with an amendment to "possession-only" status; plans are then submitted only when the licensee desires to dismantle. Under the proposed amendments, a safe storage period would still be allowed when appropriate and in this case more detailed plans and specifications for the actual dismantlement procedure could still be deferred until needed. (These could be considered an addendum to the decommissioning plan and the timing for this would be spelled out in the plan.) The proposed rule also codifies in more detail the contents of decommissioning plans. In Parts 30, 40, and 70 plans for decommissioning would be required only when a significant health and safety question may exist.

A means of providing financial assurance for decommissioning will be provided by a decommissioning funding plan or a certification of financial assurance. A number of acceptable methods are specified in the proposed rule amendments with some differences for utility licensees versus non-utility licensees. While it is believed that these methods provide reasonable assurance that licensees will have funds available when needed to perform decommissioning, they do not create a lien on the property or constitute an absolute guarantee that protected priority money will be available solely for the purpose of decommissioning. A regulatory guide is being prepared which will identify various types of responsible organizations, such as, for example, chartered banks and licensed insurance companies, with which financial assurance arrangements acceptable to the Commission may be made. The guide also indicates how cost estimates submitted as part of a funding plan can be based on generic studies adjusted for facility specific differences such as reactor size, local labor costs, and differing waste disposal charges and cost of energy. The issue of which specific funding methods should be allowed for utilities has been of particular interest and is discussed in an Appendix for Commission information. The draft Federal Register Notice includes a specific request for comments on this issue as well as on the issue of whether to include the option of providing financial assurance in a prescribed amount.

The proposed rule would reduce specific environmental review requirements in the area of decommissioning. Decommissioning of reactors and certain materials facilities would no longer require environmental impact statements. Instead, in accordance with the procedures in revised Part 51, an environmental assessment would be prepared which would supplement the environmental impact statements previously prepared in connection with the issuance of the construction permit or operating license for the facility. Although this environmental review procedure is expected to accommodate most decommissioning actions, it should be noted that under the criteria in revised Part 51 an environmental assessment may result in a conclusion that an environmental impact statement is required in the particular circumstances of the proposed Federal decommissioning action. (Environmental impact statements would continue to be required for the decommissioning of waste disposal facilities only.) Information on environmental impacts would be submitted by licensees as a supplement to previously submitted environmental reports.

Resource Requirements

The proposed rule will have some impact on manpower needs in NRR, NMSS, the Regions, SP, IE, and RES. Because the rule would provide for more efficient and effective licensing action at the time of decommissioning and reduces some requirements for environmental reviews, the overall net change in manpower needs as a result of this rule if made effective is estimated to be insignificant over the long term. The most significant impact on resource requirements is the review of decommissioning funding plans for existing licensees. This is estimated to involve approximately 5 man-years effort per year over a 2-5 year period following the effective date of the final rule (24 man-years total), these responsibilities being in NRR, NMSS, the Regions, and SP (SP will review funding methods for reactors and may provide assistance to NMSS or the Regions in this area).

In addition, a number of regulatory guides are planned to be published in connection with this rule. Updating of the information base which aids in the development and review of decommissioning cost estimates is also planned. This would require manpower in RES, NRR, and NMSS, a continuation of the present level for these activities of 5 man-years per year over the next few years. Even if no additional rules or regulatory guides were to be published resource requirements related to decommissioning would increase in the future as more major facilities reach the end of operating life.

Recommendations: That the Commission

1. Approve publication of a notice of the proposed amendments in the Federal Register (Enclosure A);

2. Note:

   (a) The notice of proposed rulemaking in Enclosure A will be published in the Federal Register with a 90-day comment period.

   (b) A preliminary analysis has been made on the impact of the proposed rule, if adopted, on small entities. It is not expected that there will be a significant impact on a substantial number of small entities. However, since definitive information is not available, comment will be requested specifically of small entities. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the rule and the analysis of impacts on small entities.

   (c) A draft generic environmental impact statement (DGEIS), NUREG-0586, was published in January 1981 and made available for public comment in February 1981 (46 FR 11666). The proposed rule reflects comments received on the DGEIS.

   (d) The Agreement States have reviewed a draft of the proposed rule and will be informed when the proposed rule is published. The final rule will be made a matter of compatibility for Agreement States.

   (e) The Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, the Subcommittee on Energy and the Environment of the House Interior and Insular Affairs Committee, the Subcommittee on Energy Conservation and Power of the House Energy and Commerce Committee, and the Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Governmental Affairs Committee will be informed of the Commission's action by letter such as Enclosure C.

(f) This proposed rule amends information requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S. C. 3501 et seq.). The proposed rule has been submitted to OMB for review and approval of the information collection requirements.

(g) The Federal Register notice of proposed rulemaking will be distributed to affected licensees and other interested parties.

(h) A public announcement, such as Enclosure D, will be issued at the same time the notice of proposed rulemaking is published in the Federal Register.

(i) A copy of the proposed rule was provided to the ACRS for their information. The ACRS indicated that they did not need to review the proposed rule.

Scheduling: If scheduled on the Commission agenda, recommend this paper be considered at an open meeting. No specific circumstance is known to staff which would require Commission action by any particular date in the near term.

William J. Dircks
Executive Director for Operations

Enclosures: "A" - Federal Register Notice
"B" - Draft Regulatory Analysis
"C" - Draft Congressional Letter
"D" - Draft Public Announcement

Commissioners' comments or consent should be provided directly to the Office of the Secretary by Tuesday, October 16, 1984.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Friday, September 28, 1984, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for discussion at Open Meetings on Thursday, September 20, 1984 and Tuesday, October 9, 1984.

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APPENDIX

DISCUSSION OF METHODS OF FINANCIAL ASSURANCE FOR DECOMMISSIONING ALLOWED FOR ELECTRIC UTILITY LICENSEES

The methods of providing financial assurance fall into three general types: (1) deposit of funds (either at startup or over plant life) into accounts separate from licensee assets and control; (2) holding of funds by the licensee as part of his assets and under his control, referred to as internal reserves; or (3) some form of guarantee of funds such as insurance or sureties.

The following are the major options considered with regard to funding requirements for electric utility licensees:

A. Permit licensees to use only those methods in which deposits are in accounts separate from licensee control, or guarantee methods (types 1 and 3 noted above);

B. Same as Option A, except that methods allowing accounts to be under licensee control (type 2) are also permitted for most utilities (i.e., not including utilities owning only a single generating facility).

Permitting the licensees to use only those methods indicated in Option A is considered to provide better assurance of availability of funds since those methods are not subject to problems which may occur with a utility's finances. However, under most assumptions, use of the additional method permitted in Option B is less expensive by between a factor of 2 and 3 because a utility can usually earn more from its own capital structure than by investing in higher grade commercial securities outside the company. The recent promulgation of 10 CFR 50.54(w) which requires that electric utilities maintain insurance for post-accident decontamination increases confidence in utility financial viability even under the severe circumstances of an accident. In addition, it was concluded by a recent consultant study that even if the extreme levels of financial stress currently being experienced by some utilities were to exist at the time a utility needed to decommission a reactor, the assets of the utility would be more than sufficient to cover decommissioning costs. These factors, coupled with capability of utilities, in general, to recover costs of providing electricity from their consumers, leads to the conclusion that an internal reserve also provides reasonable assurance and is more cost effective. Thus, the staff recommends Option B and has included in the proposed rule internal reserve as an acceptable funding method for utilities owning more than one generating facility.

In addition to the above, if a utility licensee proposes to delay completion of decommissioning, there is the question of what funding methods should be permitted by NRC for maintaining a decommissioning fund during a long term (30 years or more) decommissioning storage period. There are three major options for consideration:

1. Permit licensees to use the methods listed in A above;

2. Permit licensees to use the methods listed in B above;

3. Leave the acceptability of funding methods during long term storage for case-by-case determination, thus permitting use of internal reserve if it can be shown to provide reasonable assurance.

Option 2 is not advisable because case-specific consideration may be important before internal reserve is permitted for a long period after the end of operation when the reactor is no longer producing revenue. Option 3 allows the Commission flexibility to consider case-specific information. Internal reserve may provide an adequate level of assurance in some cases and potentially at a lower cost. However, significantly more administrative effort would be required on the part of Commission staff than with Option 1. Questions related to financial qualifications may have to be considered, although the Commission is eliminating all review of financial qualifications for utilities at the operating license stage. Also, periodic review of funding during the storage period would have to include reconsideration of the adequacy of the internal reserve method. Since funds (or credited accounts) for decommissioning would have already been collected during reactor operation, it appears reasonable to eliminate internal reserve specifically in the regulations for a long term decommissioning period. Thus, Option 1 is recommended, since a higher level of assurance will be provided with less administrative effort.

APPENDIX

ENCLOSURE A

[7590-01]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 30, 40, 50, 51, 70, and 72

Decommissioning Criteria for Nuclear Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission is proposing amendments to its regulations that would set forth technical and financial criteria for decommissioning licensed facilities. The proposed amendments address decommissioning planning needs, timing, funding mechanisms, and environmental review requirements. The intent of the proposed amendments is to assure that decommissioning of all licensed facilities will be accomplished in a safe and timely manner and that adequate licensee funds will be available for this purpose. The proposed rule also contains a response to a petition for rulemaking (PRM-50-22), concerning decommissioning financial assurance, initially filed by the Public Interest Research Group (PIRG), et al. on July 5, 1977.

DATE: Comments must be received on or before [insert a date to allow 90 days for public comment]. Comments received after this date will be considered if it is practical to do so. Assurance of consideration is possible only if comments are received on or before this date.

ADDRESSES: Submit written comments to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Services Branch. Copies of comments received and the generic environmental impact statement may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Keith G. Steyer or Catherine R. Mattsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)443-7910.

SUPPLEMENTARY INFORMATION:

Background

On March 13, 1978, the Commission published an Advance Notice of Proposed Rulemaking in the Federal Register [43 FR 10370] stating that the Commission was reevaluating its decommissioning policy and considering amendments to its regulations to provide more specific requirements relating to the decommissioning of nuclear facilities. The plan for the reevaluation included the development of an information base and the preparation of a generic environmental impact statement (GEIS), and based on these, the development of proposed amendments to the regulations. The information base for rulemaking is essentially complete and consists primarily of a series of NUREG/CR reports on studies of the technology, safety, and costs of decommissioning various kinds of nuclear facilities. These reports were prepared by Battelle Pacific Northwest Laboratories (PNL).[1] On February 10, 1981, the Commission announced the availability of the draft GEIS for public comment [46 FR 11666]. Section 15 of the draft GEIS recommends certain policy considerations. These recommendations, as modified by comments received on the draft GEIS and other sources, provide the basis for the proposed amendments to the Commission's regulations. The proposed amendments cover a number of topics related to decommissioning. However, acceptable levels of residual radioactivity for release of property for unrestricted use are not being proposed as part of this rulemaking. This issue will be dealt with in a separate rulemaking action which will propose amending 10 CFR Part 20 to specify limits of residual radioactivity for decommissioning.

[1] A bibliography of these reports and other background documents is included at the end of the supplementary information. These documents are available for inspection and copying for a fee in the Commission's Public Document Room at 1717 H Street NW, Washington, DC 20555.

In the course of this reevaluation, the staff has maintained a dialogue with the States and the public during the early, formative time of decisionmaking on critical issues. Preliminary staff positions on the major decommissioning issues have been presented in staff (NUREG) reports.[2]

Decommissioning as defined in this proposed rule means to remove nuclear facilities safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license. For the purposes of this proposed rule, the term 'nuclear facilities' is used to refer to the site, buildings and contents, and equipment associated with any NRC licensed activity.

Decommissioning activities are initiated when a licensee decides to terminate licensed activities. If nuclear facilities are to be reused for nuclear purposes, applications for license renewal or amendment or for a new license are submitted according to the appropriate existing regulation. Reuse of a nuclear facility for other nuclear purposes is not considered decommissioning.

These proposed amendments apply to decommissioning of power reactors, nonpower reactors, fuel reprocessing plants, fuel fabrication plants, uranium hexafluoride production plants, independent spent fuel storage installations, and non-fuel-cycle nuclear facilities. The decommissioning of uranium mills and mill tailings, low-level waste burial facilities, or high-level waste repositories, has been treated in separate regulatory actions. However, the general technical criteria in this proposed rule will apply to uranium mills in addition to the technical and financial criteria contained in Appendix A of Part 40.

The proposed amendments apply to nuclear facilities that operate through their normal lifetime, as well as to those that may be shut down prematurely. It is expected that nearly all facilities will operate through their normal lifetime. However, the activities following premature shutdown of a facility as a result of an accident are somewhat different than those of a routine decommissioning. There are three stages involved: a stabilization period, during which accident conditions are brought under control if necessary; an accident cleanup period;

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[2]Ibid.

and a decommissioning period. During the accident cleanup, the major portion of contamination resulting from the accident is cleaned up and the associated wastes are processed. Following accident cleanup, the facility may either be recovered for reuse or be decommissioned. A detailed study of reactor decommissioning following accident cleanup (NUREG/CR-2601 - Reference 7) indicated that there may be differences in some of the specific aspects of decommissioning such as the spread of contamination, waste volumes, exposures, and costs. However, the report also indicates that the technology exists to accomplish the decommissioning and that the safety and costs of decommissioning following the accident cleanup do not vary significantly from that following normal operations.

Current regulations cover the requirements and criteria for decommissioning in only a limited fashion. Although decommissioning is not an imminent health and safety problem, specific requirements related to decommissioning have had to be determined on a case-by-case basis. Revision of current regulations is necessary to clarify these requirements and to provide for consistent and efficient regulatory actions related to decommissioning. The necessary amendments could be issued as a new part of the Commission's regulations. However, the policy developed as a result of the reevaluation will directly affect licensing activities under 10 CFR Parts 30, 40, 50, 51, 70, and 72. Accordingly, amendments to each of these parts, rather than a new part, will facilitate use by NRC staff and licensees.

Classes of facilities licensed under Parts 50 and 72 are considered major facilities all of which will require a significant decommissioning effort. Activities licensed under Parts 30, 40, and 70, however, cover a wide range. Termination of the majority of these licenses requires relatively simple decommissioning procedures. For these reasons it was necessary to take a somewhat different regulatory approach in these parts to implement the same generic policy.

Description of Policy and Proposed Rule

Five major issues evolved from the policy reevaluation, namely, decommissioning alternatives, timing, planning, financial assurance, and residual radioactivity. In addition, it became apparent that environmental

review requirements could be reduced. These subjects are discussed in the following paragraphs.

A. Decommissioning Alternatives

More than one alternative method of decommissioning may be acceptable depending on the type of radioactive contamination present at shutdown and other factors. The proposed rule indicates that use of alternatives in which unrestricted release is postponed for a significant period of time following cessation of operations would be acceptable in cases where sufficient benefit results. Possible benefits include such things as reduction in occupational exposure or waste volume. Alternatives and factors affecting their acceptability will be dealt with in a revision of Regulatory Guide 1.86 on termination of licenses for nuclear reactors, and in a similar document to be developed for materials facilities.

The alternatives considered are essentially the same as those which have been used in the past except that they have been redefined to include all activities leading to termination of license in keeping with the definition of decommissioning contained in this proposed rule.

B. Timing

Timing refers to the length of the decommissioning period, that is, the time from permanent cessation of operations to license termination. Each type of nuclear facility has characteristic radionuclides that will affect the selection of the decommissioning alternative and the length of time acceptable to delay license termination. These proposed rules require that decommissioning begin shortly after permanent cessation of operations and significant delays in completion of decommissioning would be acceptable if there is some compensating benefit. Beyond this, factors affecting timing will be considered in the related regulatory guides to be issued, since the acceptability of alternatives and overall timing may involve case-by-case considerations.

C. Planning

Preliminary planning at the licensing stage and over facility life is important to ensure that decommissioning can be accomplished safely. Information on funding methods for providing financial assurance for

decommissioning will be submitted with applications for new licenses for production and utilization facilities. For existing licenses under Part 50, this information will be submitted within a reasonable period of time after the rule becomes effective. The time period suggested in this proposed rule is two years. This information will consist of a cost estimate for decommissioning either as prescribed in the regulations or as estimated by the applicant or licensee and a description of the method of assuring funds for decommissioning. Applicants for independent spent fuel storage installation (ISFSI) licenses will include plans for providing financial assurance for decommissioning in a decommissioning plan submitted at licensing as is currently required.

Similarly, some material licensees licensed under Parts 30, 40, and 70 will either provide financial assurance in prescribed amounts or submit a decommissioning funding plan showing the basis for a proposed amount. Details of financial assurance requirements are discussed in the next section.

Licensees under Parts 30, 40, 50, 70, and 72 will be required to keep records which could be important at the time of decommissioning.

Applicants and licensees should also consider other aspects of operating procedures as well as design features which could facilitate decommissioning as part of overall programs to protect the health and safety of the public and to keep radiation exposures and effluents "as low as reasonably achievable," however, no specific requirements would be added to the regulations.

Decommissioning plans will be submitted by all Parts 50 and 72 licensees at the time of written notification that the licensee desires to terminate the license as is the current licensing practice. This proposed rule would require that this notification be made within two years following permanent cessation of operation or one year prior to license expiration, whichever occurs first. For Part 50 licensees, the present practice would continue of also applying for an amendment to restrict operation of the facility, thus changing the operating license to what is referred to as a "possession only" license, under which required controls and limits are modified as appropriate to planned procedures. Licensees under Parts 30, 40, and 70 engaged in activities resulting in

major decommissioning considerations will also submit plans for completion of decommissioning. These will be required if a potential for significant health and safety impacts exists and will be submitted promptly after the end of operational activities and prior to the license expiration date. Decommissioning plans will contain sufficient detail to demonstrate that decommissioning can be accomplished safely. Major elements of decommissioning plans are specified in the proposed rules. Additional guidance will be made available in planned regulatory guides on standard format and content of decommissioning plans.

In addition to specifying decommissioning plans, other amendments related to license termination are proposed for Parts 30, 40, and 70 primarily for clarity and uniformity. These changes would somewhat modify the procedures established for the termination of a license contained in a final rule published on July 15, 1983 (48 FR 32324). The requirement for notification of intent to terminate contained in existing paragraph (c) of §§ 30.36, 40.42, and 70.38 will be removed. Although it may be practical in most cases for operational activities to cease and initial cleanup and survey to be completed at least 30 days prior to license termination, the requirement as it exists may result in licensees submitting a separate notification of intention not to renew - 30 days prior to expiration plus the submission of information concerning residual contamination sometime in the next 30 days. This separate notification is not considered necessary.

Additional modifications to the requirements contained in existing paragraphs (d)(2) and (3) of §§ 30.36, 40.42, and 70.38 are made to insert the standard for submission of decommissioning plans and to clarify --

1. That, whether or not the licensee has detected residual radioactivity, the licensee is responsible for controlling the site until the Commission terminates the license; and

2. That, in all cases, the same standards for termination of license apply, as stated in proposed paragraph (f) of §§ 30.36, 40.42, and 70.38: that radioactive material has been properly disposed of, reasonable effort has been made to remove any residual contamination, and information exists which demonstrates that the premises are suitable for release for unrestricted use.

D. Financial Assurance

The objective of the proposed rule on financing the decommissioning of nuclear facilities is to require licensees to provide reasonable assurance that adequate funds are available to ensure that decommissioning can be accomplished in a safe manner and that lack of funds does not result in delays that may cause potential health and safety problems. The licensee is responsible for completing decommissioning in a manner that protects health and safety. At this time the Commission wishes to make clear that the issues raised by the recent decision of the U.S. Court of Appeals for the District of Columbia Circuit in New England Coalition on Nuclear Pollution, et al. v. Nuclear Regulatory Commission et al., No. 82-1581 (D.C. Cir, February 7, 1984), which invalidated the Commission's rule respecting the financial qualifications of electric utilities, fall outside the scope of this rulemaking proceeding. As explained in the preamble of the financial qualifications rule (47 FR 13750, March 31, 1982), it was the Commission's intent to consider the issue of financial requirements for decommissioning separately in the context of a generic rulemaking proceeding on decommissioning.

There are several different methods for providing financial assurance. Because of the variety of facility types and licensee financial situations, different methods are considered acceptable for providing reasonable assurance of the availability of funds. The funding methods specified in the proposed rule meet the criteria respecting assurance and cost which are described more fully under the subject heading "Criteria for Funding Methods." Although the provisions of the proposed rule do not preclude review of financial qualifications of a licensee with respect to the ability of the licensee to provide adequate funds to perform decommissioning, it is expected that review of a licensee's qualifications will not be necessary if the licensee elects a funding method specified as acceptable in § 50.33(k). Paragraph 50.33(f) is amended for clarity only.

Information on funding methods will be provided by all applicants for operating licenses and existing licensees for production and

utilization facilities. For electric utility applicants and licensees, the amount of funds assured can be based either on an amount prescribed in the regulations, proposed to be $100 million,[3] or on a facility-specific cost estimate. Plans for financial assurance for decommissioning are already required for independent spent fuel storage installations.

Certain applicants and existing licensees under Parts 30, 40, and 70 will also be required to submit a decommissioning funding plan. The rule specifies that funding plans will be required of licensees authorized to use unsealed materials of half-life greater than 120 days in quantities exceeding 10^5 times the applicable quantities in Appendix C of Part 20. The note to Appendix C concerning the "rule of ratios" used for purposes of § 20.303 is not applied in this case. For the purposes of this requirement, plated foils would not be considered unsealed material. In Part 40, the funding plan requirement applies to licensees authorized to use more than 10 mCi of source material in a readily dispersible form. If the license authorizes processing of materials, although initially sealed or non-dispersible, the processing would be assumed to result in unsealed or readily dispersible material. These licensees will have the following options: (1) submitting the funding plan within one year following the effective date of the final rule or (2) submitting a certification of financial assurance for decommissioning in an amount of at least $500,000, within one year of the effective date of the final rule, deferring the funding plan until application for renewal is made. Financial assurance requirements for mills are contained in Appendix A to Part 40 and are not covered by this proposed rule.

Certain other materials licensees will be required to submit either a certification that a means of assuring funds in a prescribed amount has been provided or a decommissioning funding plan. Licensees using between 10^4 and 10^5 times Appendix C values of unsealed byproduct or special nuclear material must provide assurance of funds in the amount of $500,000[3] or submit a decommissioning funding plan. Licensees using between 10^3 and 10^4 times Appendix C values of unsealed byproduct or special nuclear material or between 10 mCi and 100 mCi of source material in readily dispersible form must provide assurance of funds in the amount of $100,000[3] or submit a funding plan. Licensees using sealed sources

[3]The bases for selecting this prescribed amount and those noted below for materials facilities are described more fully under the subject heading "Mechanisms for Requiring Financial Assurance."

containing byproduct material in quantities exceeding 10^{10} times Appendix C values must provide assurance of funds in the amount of $50,000[3] or submit a funding plan.

This proposed rule specifies acceptable funding methods in the appropriate sections for various types of licensees. In order to assure that the funds will be adequate at the time of decommissioning, the proposed rule provides that decommissioning funding plans include provisions for adjusting cost estimates and associated funding levels over the life of the facility. Additional guidance on financial assurance is also planned to be provided in regulatory guides.

At the time of final shutdown, or cessation of operations, decommissioning plans, when required, will provide an updated, more accurate cost estimate, and some adjustment may need to be made in the decommissioning fund. Parts 50 and 72 specifically state that if an alternative is chosen which significantly delays completion of decommissioning, means must be included to continue periodic review and adjustment of funding level over the extended decommissioning period. In Part 50, where internal reserve is allowed for utilities during operation, it is specifically required that the funds be placed in an account separate from licensee assets during the prolonged decommissioning period or that assurance be provided by a surety or insurance method.

E. Residual Radioactivity

A primary objective after permanent cessation of operations is authorized termination of a license. For all facilities covered by this rule, all premises must be suitable for release for unrestricted use before a license can be terminated. To release property for unrestricted use a permissible level of residual radioactivity must be established. These levels are not proposed in this rule, but are being developed in a separate rulemaking action. In the past, limits have been provided as guidance in such documents as Regulatory Guide 1.86, and have sometimes been determined on a case-by-case basis.

F. Environmental Review Requirements

The proposed rule would reduce the environmental review requirements (National Environmental Policy Act of 1969, as amended) related to decommissioning by amending Part 51..

The overall impacts of decommissioning would continue to be addressed in the environmental reviews for the licensing of major facilities. No additional detail would specifically be required. Except to the extent required by special circumstances, preparation of environmental impact statements for the decommissioning of production and utilization facilities and independent spent fuel storage installations would no longer be required. Instead, in accordance with the procedures in the recently revised Part 51 of the Commission's regulations, an environmental assessment would be prepared. This environmental assessment would supplement the environmental impact statements previously prepared in connection with the issuance of the construction permit and operating license for the facility. It should be noted that pursuant to criteria in revised 10 CFR Part 51 environmental assessments may result in a conclusion that an environmental impact statement is required in the particular circumstances of the proposed Federal action. Information concerning environmental impacts of decommissioning would be submitted by the licensee in a supplement to environmental reports previously submitted. Environmental impact statements would continue to be required for the decommissioning of waste disposal facilities only.

The proposed rule also indicates that there would be no additional environmental review requirements connected with the new decommissioning requirements, specifically, that approval of decommissioning funding plans be categorically excluded from requirements for environmental impact statements or environmental assessments.

Rationale for the Proposed Rule Changes

A. Decommissioning Alternatives

Decommissioning alternatives are categorized into three major classifications which are referred to as DECON, SAFSTOR, and ENTOMB. This terminology was introduced to reduce the confusion and misunderstanding

that existed with the previous terms used to designate decommissioning alternatives. These terms have the following meanings:

DECON is the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations.

SAFSTOR is the alternative in which the nuclear facility is placed and maintained in such condition that the nuclear facility can be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use.

ENTOMB is the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete. The entombed structure is appropriately maintained and continued surveillance is carried out until the radioactivity decays to a level permitting unrestricted release of the property. This alternative would be allowable for nuclear facilities contaminated with relatively short-lived radionuclides such that all contaminants would decay to levels permissible for unrestricted use within a period on the order of 100 years.

Based on an analysis of the technical data base, decommissioning can be accomplished safely and at reasonable cost shortly after cessation of facility operation. DECON has certain benefits in that it would prepare the property for unrestricted use in a much shorter time period than SAFSTOR or ENTOMB with acceptable effects on occupational and public health and safety. Completing decommissioning and releasing the property for unrestricted use eliminates the potential problems that may result from an increasing number of sites contaminated with radioactive material, as well as eliminating potential health, safety, regulatory, and economic problems associated with maintaining the nuclear facility.

Delay in the completion of decommissioning, as in the case of SAFSTOR or ENTOMB, would be acceptable primarily for reasons of occupational health and safety, since it is recognized that with delay there will be reduction in occupational dose and radioactive waste volume for some nuclear facilities due to radioactive decay. In addition, SAFSTOR may have some advantage where there are other operational nuclear facilities at the same site, and may also become necessary in other cases if there is a shortage of radioactive waste disposal space offsite. The

appropriate delay will depend on the type of facility and the contaminant isotopes involved, but should not be greater than about 100 years as this is considered a reasonable time period for reliance on institutional control (Ref. 19). One of the difficulties with ENTOMB for any complex structure such as a reactor is that the radioactive materials remaining in the entombed structure would need to be characterized well enough to be sure that they will have decayed to acceptable levels at the end of the surveillance period (up to about than 100 years). If this cannot be done adequately deferred decontamination would become necessary, which could make ENTOMB more difficult and costly than DECON or SAFSTOR.

B. Timing

The issue of timing concerns what amount of time would be appropriate to allow for completion of decommissioning including the entire period between final shutdown and license termination. The primary consideration is the decay of radioactivity which may result in reductions in occupational exposure and waste needing disposal. Facilities differ regarding the particular radionuclides most critical to decommissioning. For light water power reactors Co-60, with a half-life of 5.3 years, is the nuclide that has the most effect on decontamination efforts and is referred to as the critical/abundant nuclide. Other isotopes that can affect decommissioning efforts are Cs-137 (30-year half-life) and the long-lived isotopes Nb-94 and Ni-59.

As discussed above, a review of the technical data base shows that, for DECON, occupational exposure can be kept reasonable. For example, studies indicate that occupational doses from decommissioning light water power reactors would be about 400 man-rem per year (1200-1900 man-rem over 4-5 years for large reactors). This is generally less than current annual doses at operating reactors. SAFSTOR will result in reduced occupational dose and amount of radioactively contaminated waste. Based on the half-life of the critical/abundant nuclide, the reduction of occupational doses beyond about 30 years would be marginally significant although a significant volume reduction in contaminated waste would result from 50 years in safe storage. It appears that DECON or 30 to 50 year SAFSTOR are reasonable options for decommissioning a light water power reactor. Generally for reactors, the overall impact of either of these alternatives is similar,

with the lower occupational dose and wastes with SAFSTOR compensating for the costs and uncertainties of controlling the site for a long period. The choice of alternative in individual cases will depend on a number of factors specific to the particular reactor, site, and time of decommissioning, for example, a longer SAFSTOR period may be acceptable if the safety of an adjacent reactor might be affected by dismantlement procedures.

With regard to the ENTOMB alternative, long-lived activation products contained in reactor internals, such as Nb-94 and Ni-59, would probably preclude the use of ENTOMB for power reactors unless reactor internals were removed. If reactor internals are removed, some method would have to be provided to demonstrate that the entombed radioactivity will decay to levels permitting release of the property for unrestricted use within about 100 years, which, as noted above, would be difficult.

For testing facilities and ISFSIs, occupational doses would be much less significant and much easier to manage than for power reactors. Thus, DECON is considered the most reasonable option. SAFSTOR could be justified in some cases. ENTOMB is not expected to be viable for ISFSIs and is also unlikely to be a reasonable option for testing facilities as the cost would not be justified.

For materials facilities associated with licenses under Parts 30, 40, and 70, occupational doses are also quite low in most cases, and DECON the most likely option. SAFSTOR is possible for short-lived materials, but any extended delay would rarely be justifiable. For these reasons the proposed amendments to Parts 30, 40, and 70 do not mention alternatives or have special requirements for extended delays. If after disposing of inventory and some preliminary decontamination, contamination from relatively short-lived materials is reported, the Commission will determine whether allowing a period for decay is an appropriate means of completing decommissioning. It is expected however that for most licenses under these parts it will be practical to complete decontamination to levels suitable for unrestricted release prior to reporting levels of residual radioactivity to the Commission. A survey must be carried out and reported on promptly after the end of operations and prior to the expiration of the license.

C. Planning

Planning for decommissioning is a critical item for ensuring that the decommissioning activities can be accomplished in a safe and timely manner. Development of detailed plans at the application stage is not possible because many factors (e.g., technology, regulatory requirements, economics) will change before the license period ends. Thus, most of the planning for the actual decommissioning will occur near final shutdown. However, a certain amount of preliminary planning should be done at the application stage.

Preliminary Planning

The availability of adequate funds is important in assuring that decommissioning will be carried out in a safe and timely manner. There are also aspects of design and operations that could affect decommissioning in terms of improved health and safety and reduction in the amount of radioactive waste.

Information on decommissioning funding methods, described below, will be submitted with an application for an operating license for a production or utilization facility. An application for an independent spent fuel storage installation will include a decommissioning plan including financial plans as is presently required. In the case of existing Part 50 licensees, information on funding methods would need to be submitted within a reasonable time period following the effective date of this rule. This information will be provided in the form of a decommissioning funding plan or, in the case of electric utility applicants and licensees, may be provided as a certification of financial assurance. A certification will indicate that the amount prescribed in the regulation, $100 million, is being used, and will include a description of the method of assuring funds for decommissioning. A funding plan will include an initial cost estimate and also provide a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the facility. The initial cost estimate is intended to provide an approximate estimate of the decommissioning cost. Initial estimates may be based on information from the literature (e.g., generic studies, licensee models, experience, etc.) which provide a reasonable estimate of the cost of

decommissioning. The PNL decommissioning studies can be used for initial estimates with suitable adjustments for inflation and for site-specific factors. The proposed regulations require that over the operating life of the facility, the cost estimate be periodically updated by the licensee to take into account factors which could affect the cost of decommissioning. In this manner it is expected that the amounts being assured by the funding method will reach a level at the end of life which is approximately equal to the actual costs of decommissioning. Acceptable methods of providing financial assurance are specified in the rule and are discussed further in the following section on financial assurances.

For most facilities associated with licenses under Parts 30, 40, and 70, decommissioning is much less involved, and has much less impact than the decommissioning of a reactor, for example. A decommissioning funding plan is being required for certain facilities where decommissioning costs could be very high. Financial assurance is also required without the submittal of a funding plan for certain other materials licensees as discussed in the next section.

The studies performed as part of the policy reevaluation have shown that facilitation of decommissioning in the design of a facility or during its operation can be beneficial in reduction of operational exposures and waste volumes requiring disposal at the time of decommissioning. In addition, facilitation can improve financial assurance by keeping actual costs of decommissioning in line with the estimated costs on which the levels of financial assurance are based. Although no specific requirement is being proposed, the effects of operational procedures on decommissioning should be considered by licensees as part of their program to maintain radiation exposures and effluents "as low as reasonably achievable." The facilitation of decommissioning in the design of facilities can be considered under the general standard for issuance of license that equipment and facilities be adequate to protect the health and safety of the public contained in §§ 30.33(a)(2), 40.32(c), 50.40(a), 70.23(a)(3), and 72.31(a)(10). Suggestions for facilitation are presented in the PNL studies, including a preliminary study on facilitation of reactor decommissioning.

In particular, experience has shown that an important aspect of operation is the maintenance of adequate information on the design and current

condition of the facility and site, so that decommissioning can be carefully planned and carried out. The rule thus specifically requires that records of relevant operational information helpful in facilitating decommissioning be kept. Plans should be developed to collect, maintain, and recall records and archive files which include complete as-built and as-revised drawings and specifications and significant operational occurrences.

The rule specifically allows the use of references to relevant information and locations in order to avoid unnecessary duplication of records kept for other purposes. The rule also specifies that referencing of drawings need not include indexing of each individual relevant document. The intent of this requirement is to assure that all important information is kept until termination of license and that it be readily accessible when needed.

Final Planning

Final decommissioning planning will involve greater technical detail than preliminary planning. Decommissioning plans should be submitted in a timely way for review and approval prior to the initiation of any major decommissioning activity to avoid delay of decommissioning after shutdown. For a power reactor, review and approval could take up to a year. Thus, it would be beneficial to submit plans a year prior to planned termination of operation, if possible.

The proposed rule would require decommissioning plans for production and utilization facilities and ISFSIs to be submitted within two years following permanent cessation of operation or one year prior to operating license expiration. The decision as to whether a shutdown will be permanent is, of course, the licensee's. This provision does not limit how long a licensee can have a facility shut down under his operating license but means only that when a facility is permanently removed from operational status, plans need to be made as to how the ultimate termination of license will be attained. Upon approval of the plans, the license will be modified to reflect the approved decommissioning alternative authorizing continued possession until the approved alternative has been carried out. This reflects current licensing practice. For reactors which have permanently shut down prior to the effective date of the final rule, no time limit is given for application for license termination and no additional planning is

specifically required until such application is made. However, the Commission may require additional planning, particularly in the area of financial assurance, on a case-by-case basis as appropriate or practical for partially decommissioned facilities in line with the policy represented by this rule if made effective.

The level of detail required would be appropriately less for the delayed decontamination activities if SAFSTOR is the proposed alternative, however, preliminary aspects of planning would have to be included for the entire decommissioning procedure. Updated and more complete plans for delayed decontamination activities would be submitted towards the end of the safe storage period and would have to be approved by NRC before the start of the major decontamination activities.

Decommissioning plans must address the following:

1. Decommissioning alternative. A description of the alternative to be used for decommissioning must be presented. Plans for processing and disposing of radioactive waste must also be described. Waste disposal plans must assess the availability of waste burial grounds. If waste burial space is unavailable, then contingency plans must be presented that address use of available temporary above-ground waste storage or some other method. Depending on a variety of circumstances, temporary above-ground waste storage may be accomplished offsite or onsite and may require Commission review and approval.

2. Technical and environmental plans. Controls and limits on procedures and equipment to ensure occupational and public safety and to protect the environment during decommissioning must be proposed by the licensee. As part of this, details of a quality assurance program should also be submitted. Changes to procedures for safeguarding special nuclear material should be included when appropriate.

3. Terminal radiation survey. A plan for a final radiation survey must also be presented to ensure that remaining residual radioactivity is within levels permitted for releasing the property for unrestricted use. Unrestricted access to portions of the property may be desirable prior to full decommissioning. A separate termination survey would be necessary for those areas.

4. Cost estimate. An updated cost estimate must be included along with a plan to ensure that adequate decommissioning funds are available to carry out the decommissioning operations. This plan would show how any deficit in present funding would be covered. If delayed decommissioning is proposed, a method for securing the fund would be proposed. Plans for adjusting funds over the storage period are also needed.

For specific licenses under Parts 30, 40, and 70 detailed plans for the completion of decommissioning are only required where decommissioning could significantly increase health and safety impacts over those of normal operation or if the Commission has previously determined a need for such plans and required them by a license condition. These plans would contain essentially the same information as described above for Parts 50 and 72 licenses. For materials licensees, those plans are not required until after inventories of radioactive materials have been disposed of, preliminary decontamination procedures have been carried out, and contamination remaining after these procedures has been assessed. However, it would be advantageous to licensees and the Commission for decommissioning plans to be submitted prior to the end of operational activities, if possible. It is expected that the need for such a plan will in most cases be anticipated and that a reasonably accurate appraisal of what will be necessary can be accomplished prior to the end of operation. It would therefore be possible for the licensee to submit plans early and obtain approval of these plans in time for decommissioning to proceed promptly following the end of operational activities.

No amendments are proposed which specify limitations on occupational or public doses or effluents to the environment. It is considered sufficient that the requirements of Part 20 continue to apply until the license is terminated by the Commission. The proposed planning requirements are considered appropriate means of assuring that the decommissioning will be carried out in accordance with Part 20 and specifically that doses will be kept as low as reasonably achievable.

D. Financial Assurance

In accordance with its responsibilities as defined by the Atomic Energy Act, the primary responsibility of the NRC with respect to decommissioning is to protect the health and safety of the public. An important

aspect of this responsibility is to have reasonable assurance that at the time of termination of operations (including premature closure of the nuclear facility) adequate funds are available so that decommissioning can be carried out in a safe and timely manner. Without this assurance, there could be uncertainties concerning the availability of funds at the time of decommissioning. These uncertainties are of two general types. The first is that the financial condition of a particular organization is difficult to predict years into the future when decommissioning is likely to occur. As a result it is possible that there may be priority or competing claims to these assets. The second type of uncertainty is the possibility that the nuclear facility could be forced to shut down prematurely, thus reducing the time for collecting funds.

The availability of funds for post-accident cleanup is related to financial assurance for decommissioning. The costs of post-accident cleanup can be substantially larger than the costs of decommissioning and the availability of funds for accident cleanup can impact a licensee's capability to decommission the facility following the cleanup. Assurance of funds for post-accident cleanup is more properly covered by use of insurance. Post-accident cleanup activities are broader in scope than decommissioning, that is, they can lead ultimately to either reuse or decommissioning. Accordingly, the funding requirements for accident cleanup are not included in this proposed rule but are contained in 10 CFR 50.54(w) which requires that utility licensees for production and utilization facilities obtain insurance to cover decontamination and cleanup costs associated with onsite property damage resulting from an accident. As discussed below, the acceptability of certain of the funding methods allowed in the proposed regulations depends on this accident cleanup insurance requirement. Accident cleanup insurance for other types of licensees is under consideration in a separate action; an advanced notice of proposed rulemaking is being developed.

Mechanisms for Requiring Financial Assurance

As discussed earlier, financial assurance for the decommissioning of major facilities will be provided by implementation of a funding method with a funding level based on expected decommissioning costs. This includes all Parts 50 and 72 licensees, as well as those licensees

under Parts 30, 40, and 70 which are expected to have significant decommissioning costs. Electric utility and some material licensees are given the option of providing financial assurance in a prescribed amount or submitting a decommissioning funding plan which contains an estimate based on a facility-specific evaluation. If financial assurance is provided in the prescribed amount, only a certification pertaining to financial assurance is submitted. This approach is proposed in order to minimize the administrative effort of licensees and the Commission of obtaining reasonable financial assurance for decommissioning and is based on the significant data base on decommissioning developed as part of the policy reevaluation.

The specified amounts are chosen to provide sufficient funds to cover decommissioning costs for most of the licensees in each category. For power reactors the amount of $100 million was chosen based on data in NUREG/CR-0130 and -0672 (References 2 and 3), which analyze the costs of decommissioning PWRs and BWRs, respectively. This figure also takes into account escalation of these costs to 1984 dollars, additional costs of engineering and planning, use of contractors, and variations in local labor rates, in waste transportation costs, and in local power costs. This amount does not account for costs of shipment of spent fuel which are assumed to be part of operational costs or the costs of demolition of nonradioactive structures which is not required for NRC license termination. For research and testing facilities a specific amount is not set due to the large diversity of facility types.

The amounts for materials licensees were chosen based primarily on data in NUREG/CR-1754 (Reference 12) and on licensing experience. Based on estimates in NUREG/CR-1754, a single major processing laboratory would cost in a range approaching $100,000 to decommission. It is expected that the majority of licensees for which a certification of $100,000 is specified would have only one major laboratory or processing area and a very limited potential for site contamination. For those licensed materials for which assurance of $500,000 is specified, it is expected that several laboratories would typically be involved in radioactive material processing or handling. In some cases, a large number of individual rooms or laboratories may be used in connection with licensed activities, however, only a few would require a major decontamination effort such as the example

laboratories studied in NUREG/CR-1754. The $50,000 specified for very large sealed sources is based on licensing experience and is the estimated maximum cost to decommission a large pool-type irradiator.

It is anticipated that these prescribed levels of assurance will be updated as cost factors change, for example, increase in costs of low-level waste burial.

Of course, many factors will affect decommissioning costs. Licensees who can demonstrate that the expected decommissioning costs for their facility are significantly lower than the applicable prescribed amount have the option of doing so by submitting a decommissioning funding plan.

An additional means of reducing administrative effort which has been incorporated into the proposed rule is allowing those materials licensees for which a decommissioning funding plan is required to first supply financial assurance for $500,000 and delay submitting the funding plan until application for license renewal is made, at which time the funding plan can be more efficiently reviewed together with the renewal application.

Funding Methods

The wide diversity in types of nuclear facilities necessitates that the NRC allow latitude in the use of funding methods. In analyzing funding methods which would provide reasonable assurance, NRC has developed the following major classification of funding alternatives:

1. Prepayment. Cash or other liquid assets that will retain their value for the projected operating life of the nuclear facility are deposited prior to startup into an account segregated from licensee assets and outside its administrative control. Periodic review and adjustment of the fund is necessary to assure the adequacy of the fund. Prepayment can be in the form of a trust, certificate of deposit, government security, escrow account, or government fund.

2. External sinking funds. The external sinking fund requires that a prescribed amount of funds be set aside in an account at fixed intervals over the life of the facility, such that the funds plus accumulated interest would be sufficient to pay for decommissioning costs at the time termination of operation is anticipated. The account would

be segregated from licensee assets and outside licensee control. Types of accounts could be similar to those described above for prepayment.

3. Internal reserve. This approach usually uses negative net salvage value depreciation that allows estimated decommissioning costs to be accumulated over the life of the nuclear facility. In this method, the funds are not segregated from the company's assets, rather they are invested in its assets. At the end of the nuclear facility's life, bonds are issued against these assets and the funds raised are used to pay for decommissioning. This approach can also take the form of a segregated internal reserve, which is similar to an external sinking fund, except that funds are held by the company.

4. Insurance, surety bonds, letters of credit, and lines of credit and other guarantee methods. Insurance could be used to provide coverage for premature decommissioning expenses. An insurance-type mechanism might also be used for all decommissioning expenses, including those planned under normal circumstances. The surety bond, credit methods, and other guarantee methods assures that the decommissioning costs will be paid should the licensee default. The licensee would still be responsible to pay for decommissioning. With respect to power reactors, it appears questionable that bonds of the size necessary and for the time involved will be available. However, surety bonds or credit methods appear to be available for nuclear facilities that involve smaller costs and shorter time periods. Contractual arrangements must provide that NRC be notified prior to cancellation, must ensure that a surety bond or credit method remains in effect until the license is terminated, and must be set up such that the beneficiary would be a trustee acceptable to the Commission.

The types of surety arrangements being considered in this proposed rule are similar to those contained in the Commission's recently enacted requirements in 10 CFR Part 61. The Commission found in developing those requirements that self insurance for a private sector applicant or licensee would not be an acceptable form of surety.

Another potential funding method of this type is for a licensee, where practical, to obtain a guarantee that the local, state, or Federal government will assume financial responsibility for decommissioning the facility. This would most likely be possible when the licensee is a local,

State, or Federal agency or a state-affiliated organization, such as a university or hospital.

Criteria for Funding Methods

The NRC staff considers two primary criteria in evaluating funding methods. These criteria are the degree of assurance of the availability of funds and the cost of providing assurance.

The degree of assurance is a measure of how effective the funding method is in providing assurance that funds for decommissioning will be available when needed. From the Commission's perspective, assurance is the most important criterion.

Prepayment provides the greatest assurance that funds will actually be available for either normal or premature decommissioning since the necessary funds are deposited at startup. Some adjustment will likely be necessary over the period of licensing because of uncertainties in cost estimates and changes in inflation and interest rates.

The insurance alternative also provides excellent assurance in that it could provide coverage for premature decommissioning costs and for licensee default. For electric utility licensees, the property damage insurance required by 10 CFR 50.54(w) provides reasonable assurance of funds for the potentially large costs of decontamination leading up to premature decommissioning. In some instances, such as in the case of government licensees, guarantees of financial responsibility by the appropriate local, State, or Federal government entities are considered adequate in providing assurance. As discussed above, self-insurance is not considered adequate.

Surety methods (for example, surety bonds, lines of credit, letters of credit, secured interests, or other guarantees) can provide adequate assurance to cover default for those licensees to whom they are available. However, from the standpoint of acceptability, sureties have certain disadvantages that must be considered. In particular, contractual arrangements will have to be written such that the surety bond or credit mechanism cannot be terminated by the surety company or bank prior to other arrangements being made, that a surety bond or credit mechanism remains in effect until the license is terminated, and that the surety company itself is financially stable.

The external sinking fund option provides a good level of assurance. Because the external sinking fund is held outside the licensee's assets and control, it would not be vulnerable under most likely trust arrangements if the licensee went bankrupt. On the other hand, in the event of premature decommissioning, there would be a greater likelihood than with the prepayment method that insufficient funds had been accumulated. This situation would be mitigated if the fund was either structured so that higher payments were made earlier in a facility's life, or coupled with a deposit or insurance or surety.

Providing lesser assurance is the internal reserve. Under normal circumstances, the internal reserve would be similar to the external sinking fund in the pattern of funds set aside and should provide adequate funds if a nuclear facility is decommissioned at the end of its expected life. However, because it depends on financing internal to the licensee, the internal reserve is vulnerable to events or situations that undermine the financial solvency of a licensee. A bankrupt or financially troubled licensee would have difficulty in raising capital against its decommissioning reserve and even a segregated internal reserve fund may not be available to pay for decommissioning costs. Thus, the internal reserve is acceptable only if supplemented by a mechanism providing additional assurance such as insurance or surety arrangement.

For electric utilities, the insurance required by § 50.54(w) is considered sufficient to allow the use of internal reserve. For other licensees, internal reserve would not provide adequate assurance unless backed up by a surety or insurance covering decommissioning costs. In this case, however, it is the surety or insurance that provides the assurance; although the licensee may use an internal reserve to accumulate funds, only the surety or insurance need be reported to NRC.

Cost of assuring funds is an important consideration from the standpoint that an alternative must be reasonably cost effective in order to be acceptable. Cost of a funding method is defined as the incremental revenue requirements that result from using a particular funding method, other factors being equal. (Administrative costs to the NRC and other regulatory agencies are also included.) Cost is sensitive to even relatively small variations in assumed inflation rates, interest and

discount rates, expected facility life, Federal tax policies, depreciation and amortization schedules, and other accounting procedures. Based on these variations, each of the funding alternatives has a fairly wide calculated cost range. Taxation policies can have a significant effect on the cost of funding alternatives.

The internal reserve method tends to be less expensive than external sinking funds or prepayment since a company can normally earn more from its own capital structure than by investing in higher grade commercial securities outside the company. The cost of guarantee methods, such as sureties, letters of credit, or insurance, would be in addition to normal decommissioning expense.

Funding methods considered acceptable in providing reasonable levels of assurance may be different for different types of facilities. For example, the situation for a large power reactor, can be significantly different than that for a small testing facility. Generally for power reactors, state utility commissions regulate retail rates thus permitting utilities to recover the cost of providing electricity from their customers, the decommissioning costs are higher, and the licensees are required by 10 CFR 50.54(w) to carry insurance for post accident decontamination and cleanup. Even financially troubled utilities have sufficient assets to cover the costs of decommissioning. Among utilities, there are also differences, such as multi-asset versus single-asset utilities (i.e., a utility with a single generating facility) or public versus investor-owned utilities.

Based on the above considerations, this proposed decommissioning rule permits a range of options which are expected to provide reasonable assurance of the availability of funds for decommissioning. The acceptable options are specified in the proposed rule. Planned regulatory guides will provide guidance on how these funding methods will be implemented. These requirements and the planned accompanying guidance are similar to those for 10 CFR Part 61.

Periodic Review

The proposed rule would require that decommissioning funding plans contain provisions for periodic review and adjustment in order to assure

that funds will be adequate at the time of decommissioning. Appropriate periods for review and the level of effort necessary will vary for different types of licensees and financial considerations. For many cases, routine adjustments for changes in inflation and interest rates might be done annually by the licensee and could be reported in the annual financial report without the need for NRC approval. A technical review of the information in the preliminary plans or the cost estimate for a funding plan could be done less frequently and submitted to NRC for approval. For the shorter term materials licenses, the renewal process may be sufficient for technical reviews.

Existing Licensees

Particular consideration has been given to the case of existing licensees whose funding methods will need to provide an adequate level of assurance within a shorter time frame. The proposed rule would require that a funding method be proposed within two years following the effective date of this rule for production and utilization facilities and within one year for other licensees for which it is required and established as soon as approved by NRC. For funding methods in which funds would normally be accumulated over the entire life of the facility, larger periodic payments would, of course, be necessary in order to accumulate the total decommissioning costs within the remaining lifetime of the facility. When such methods are not coupled with a surety or other guarantee as is allowed in the case of utilities, adequate assurance should be provided by building up the fund to the level that would have been attained if accumulation of funds had been started at the beginning of facility life. Establishment of these decommissioning funds by use of prepayment or accelerated sinking fund by all existing licensees, within a short time following issuance of this rule could have a significant impact on capital markets. To alleviate this impact, existing licensees with estimated decommissioning costs of 5 million dollars or more would be allowed to accumulate an adequate decommissioning fund, as discussed above, over a reasonable period of time following the initial establishment of the fund. If more than 5 years remain prior to license expiration an acceptable period of time would be 5 years or one-third of the remaining license period, whichever is greater.

Extended Decommissioning Period

When decommissioning is to be carried out over an extended period of time such as with SAFSTOR, the proposed rule would require that the decommissioning fund be in an external account unless assurance is being provided by a surety, insurance, or certification method. In this way, for a facility which is no longer producing revenue, the funds would be protected irrespective of licensee stability. This would be done at the beginning of the storage or surveillance period. Review and adjustment of funding level must continue over the extended decommissioning period.

Request for Comment

The regulatory approach for assuring funds for decommissioning has been particularly difficult to resolve. The issues of concern are: which funding methods to allow for utilities during operation and during any long term decommissioning, and whether to set a prescribed amount for the level of assurance. Additional information and comments are specifically requested by the Commission on the costs and adequacy of assurance of the various funding methods.

PIRG, et al., Petition for Rulemaking, Docket No. PRM-50-22.

On July 5, 1977, as supplemented October 7, 1977, and January 3, 1978, the Public Interest Research Group (PIRG), Arizonans for Safe Energy, Citizens United Against Radioactive Environment, Community Action Research Group, Critical Mass Energy Project, Environmental Action Foundation, Environmental Action, Inc., New Mexico Public Interest Research Group, New York Public Interest Research Group, North Anna Environmental Coalition, Texas Public Interest Research Group, and National Consumer Law Center Energy Project (hereinafter the 'petitioners'), petitioned the Commission to initiate rulemaking to promulgate regulations for nuclear power plant decommissioning which would require plant operators to post bonds, to be held in escrow, to ensure that funds would be available for proper and adequate isolation of radioactive material upon each plant's decommissioning. On June 22, 1979, the Commission published in the Federal Register (44 FR 36523) a partial denial of the petitioners' request. In this notice the Commission specifically denied the petitioners' request to immediately initiate rulemaking to implement

a specific decommissioning funding plan that would require nuclear power plant operators to post surety bonds to cover decommissioning costs. The Commission granted the petitioners' request to reconsider the adequacy of its regulations on decommissioning. The Commission indicated that other issues and funding alternatives raised by the petitioners would be considered within the context of the NRC decommissioning rulemaking proceedings.

In addition to surety bonds, the petitioners advanced two other options to finance nuclear power reactor decommissioning: (1) funds in an amount sufficient to pay for projected decommissioning would be set aside in an escrow account before commencing reactor operations, and (2) funds would be accumulated in a sinking fund during the life of the plant supplemented by a surety arrangement as necessary to allow for the risk of a licensed utility going bankrupt before the sinking fund had accumulated sufficient funds. The petitioners indicated that the requirements should apply to existing licensees as well as future licensees. The petitioners also raised the issue of the Commission's jurisdiction to regulate the arrangements for decommissioning. The original petitioners joined by others, submitted comments in response to the Federal Register notice (44 FR 36523, June 22, 1979). These comments were received on November 21, 1979. The comments discussed NRC's jurisdiction to promulgate rules mandating specific requirements covering decommissioning costs, the need for NRC to establish a rule requiring its licensees to make specific financial plans to meet decommissioning costs, surety bonds as a supplementary option, and the disadvantage of unfunded alternatives.

The PIRG petition and the petitioners' supplementary comments were considered in the development of this proposed rule. The Commission agrees that its regulations should be amended to require that licensees plan for decommissioning and provide reasonable assurance that funds will be available to cover decommissioning costs when needed. For reasons discussed in the previous section, the Commission does not believe it is necessary, or desirable, to require a specific financial method for collecting decommissioning funds. The proposed amendments would require licensees to submit a cost estimate and a proposed financial method for assuring that funds will be available for decommissioning. A number of

acceptable methods are indicated. The Commission will review the licensees funding methods and evaluate them with respect to the new requirements. A licensee's method for providing decommissioning funds must be acceptable to the Commission. This procedure covers all applicants for operating licenses and existing licensees under Part 50. To the extent that the petitioners would require promulgation of a specific method for financing power reactor decommissioning, the petition is denied. To the extent that the proposed amendments would allow consideration of the petitioners suggested financing methods, including surety bonds if they are available, the petition is granted. This action would complete NRC consideration of the issues raised in PRM-50-22.

E. Residual Radioactivity Levels

Although residual radioactivity limits are being developed in a separate action, much consideration has been given to this issue as part of the overall reevaluation of decommissioning policy. Although an upper limit in terms of dose is being considered, actual levels attained in any case should be as low as reasonably achievable. Based on the information developed, it is expected that contamination levels considered suitable for release for unrestricted use will not be changed significantly enough to affect cost estimates for decommissioning, nor conclusions of the generic environmental impact statement concerning overall impacts of decommissioning. Whatever criteria are applicable, the survey which verifies that these criteria are met and serves as the primary basis of termination of the license must be carefully designed to provide a high degree of reliability.

F. Environmental Review Requirements

In the course of development of this proposed rule, it became apparent that the requirements for environmental reviews related to decommissioning could be reduced.

Environmental Review Requirements at Licensing

Decommissioning is the inevitable result of having built and operated a nuclear facility. The GEIS and its supporting technical data base

assessed all of the costs and environmental impacts occurring at the time of decommissioning. These overall impacts, although dependent on the specific decommissioning procedures, are essentially the result of operation and accordingly should be addressed prior to licensing.

As is the present licensing practice, environmental reports and environmental impact statements which are developed in connection with the licensing of major facilities will include the major environmental impacts expected at decommissioning. The major impacts, of which the wastes needing controlled disposal are the most significant, can be reasonably assessed. At the time a facility is licensed, however, it is impractical to plan in detail what specific procedures will be used at decommissioning since decommissioning will not be carried out until many years later. Thus, at this time, it is also impractical to attempt to develop highly detailed analyses of the environmental impacts of specific decommissioning procedures. Since the GEIS and its supporting data base showed that the costs and environmental impacts at decommissioning are small compared to the total costs and impacts of building and operating a major facility such as a reactor, the availability of more detailed information concerning impacts at decommissioning would not affect the NEPA cost-benefit balance. Thus, no amendment to the regulations is being proposed in regard to the consideration of decommissioning impacts in environmental reviews at licensing.

Environmental Reviews at Decommissioning

At the end of operation, when a facility must be decommissioned, application for termination of license is made and, in the case of major facilities, a detailed decommissioning plan is submitted. As stated above, the overall environmental impacts occurring at decommissioning, of which the radioactive wastes resulting from operation and needing controlled disposal are the most significant, have already been evaluated in environmental impact statements prepared in connection with the issuance of the construction permit and operating license for the facility. In view of these circumstances and on the basis of information in the draft GEIS and its supporting technical data base indicating that the environmental impacts associated with decommissioning are unlikely to be significant, the Commission is of the opinion that there is no need,

absent special circumstances, to prepare an environmental impact statement in connection with the issuance of a license amendment or order authorizing the decommissioning of a facility other than a waste disposal facility. In most cases, preparation of an environmental assessment which supplements the previously prepared environmental impact statements should be sufficient. The Commission notes, however, that there may be situations in which the special nature of the decommissioning action necessitates the preparation of an environmental impact statement.

This proposed rule has been developed to assure that decommissioning can and will be accomplished in a safe and efficient manner and that the impacts at decommissioning will be minimized to the extent practical. The draft GEIS indicates that for any viable decommissioning alternative, radioactivity released to the environment and associated radiation doses are substantially less than those associated with operation and maintenance of a reactor during its lifetime and that public doses during decommissioning are negligible (calculated in the background documents as roughly a few micro-rem to the maximally exposed individual). Occupational doses during the decommissioning of a reactor are, for the short period of active dismantlement, comparable to that occurring during operation and maintenance, and over the longer period of a safe storage period are much lower.

Since in most instances environmental impacts are unlikely to be significant enough to warrant the development of an environmental impact statement, the rule proposes that the Commission no longer be required to prepare environmental impact statements in connection with the issuance of license amendments or orders authorizing the decommissioning of facilities licensed under Parts 50 and 72. Instead, the Commission would prepare environmental assessments which would supplement environmental impact statements previously prepared in connection with the facility. Although this environmental review procedure is expected to accommodate most decommissioning actions, it should be noted that under the criteria in revised 10 CFR Part 51 an environmental assessment may result in a conclusion that an environmental impact statement is required in the particular circumstances of the proposed Federal decommissioning action. The environmental assessment would be based on information provided by

the licensee in a supplement to the environmental report submitted at the decommissioning stage. The information submitted by the licensee would take account of any changes to the estimated environmental impacts based on the information in the decommissioning plan.

The information in the data base and the conclusions of the GEIS will also assist in evaluating decommissioning plans. If unique methods are proposed by a licensee which are significantly different from those studied by the Commission, the Commission retains discretion to require an environmental impact statement in special circumstances.

Categorical Exclusion from Environmental Reviews

The Commission has identified a category of actions connected with the proposed requirements which appears to meet the criterion for categorical exclusion set out in 10 CFR 51.22(a). Presently there are eighteen categories of actions designated as such, thus the following category of actions is designated Category 19:

Category of Actions

19. Approvals of decommissioning funding plans.

Discussion and Finding

Although decommissioning funding plans concern how licensees expect to carry out the activities required to decommission their facilities, the approval of these plans does not authorize a licensee to perform these activities. The principal purpose of considering decommissioning activities at this time is to provide information which will enable the Commission to determine whether the licensee's plan for assuring funds for decommissioning is adequate. Approval of a decommissioning funding plan affects the financial arrangements of the licensee but does not affect the scope and nature of the licensed activity. These actions in and of themselves do not have an environmental impact.

Accordingly, the Commission finds that approvals of decommissioning funding plans (Category 19) comprise a category of actions which do not individually or cumulatively have a significant effect on the human environment, designates Category 19 as a categorical exclusion, and directs that Category 19 be listed in 10 CFR 51.22(c) as a categorical exclusion.

References

1. Plan for Reevaluation of NRC Policy on Decommissioning of Nuclear Facilities, NUREG-0436, Revision 1, U.S. Nuclear Regulatory Commission, December 1979, and Supplement 1, July 1980, and Supplement 2, March 1981.

2. R. I. Smith, G. J. Konzek, and W. E. Kennedy, Jr., Technology, Safety, and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station, NUREG/CR-0130, Prepared by Pacific Northwest Laboratory for the U.S. Nuclear Regulatory Commission, June 1978, Addendum 1, August 1979, and Addendum 2, July 1983.

3. H. D. Oak, et al., Technology, Safety, and Costs of Decommissioning a Reference Boiling Water Reactor Power Station, NUREG/CR-0672, Prepared by Pacific Northwest Laboratory for the U.S. Nuclear Regulatory Commission, June 1980, and Addendum, July 1983.

4. G. J. Konzek, Technology, Safety, and Costs of Decommissioning Reference Nuclear Research and Test Reactors, NUREG/CR-1756, prepared by Pacific Northwest Laboratory for the U.S. Nuclear Regulatory Commission, February 1982, and Addendum, July 1983.

5. Norm G. Wittenbrock, et al., Technology, Safety, and Costs of Decommissioning Light Water Reactors at a Multiple Reactor Station, NUREG/CR-1755, prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, January 1982.

6. Emmett B. Moore, Jr., Facilitation of Decommissioning of Light Water Reactors, NUREG/CR-0569, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, December 1979.

7. E. S. Murphy, Technology, Safety, and Costs of Decommissioning Reference Light Water Reactors Following Accidents, NUREG/CR-2601, Prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, November 1982.

8. K. J. Schneider and C. E. Jenkins, Technology, Safety, and Costs of Decommissioning a Reference Nuclear Fuel Reprocessing Plant, NUREG-0278, Prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, October 1977.

9. H. R. Elder and D. E. Blahnik, Technology, Safety, and Costs of Decommissioning a Reference Uranium Fuel Fabrication Plant, NUREG/CR-1266, Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, October 1980.

10. H. R. Elder, Technology, Safety, and Costs of Decommissioning a Reference Uranium Hexafluoride Conversion Plant, NUREG/CR-1757, Prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, October 1981.

11. C. E. Jenkins, E. S. Murphy, and K. J. Schneider, Technology, Safety, and Costs of Decommissioning a Reference Small Mixed Oxide Fuel Fabrication Plant, NUREG/CR-0129, Prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, February 1979.

12. E. S. Murphy, Technology, Safety, and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities, NUREG/CR-1754, Prepared by Pacific Northwest Laboratory for U.S. Nuclear Regulatory Commission, February 1981.

13. J. D. Ludwick and E. B. Moore, Technology, Safety and Costs of Decommissioning Reference Independent Spent Fuel Storage Installations, NUREG/CR-2210, Prepared by Pacific Northwest Laboratory for the U.S. Nuclear Regulatory Commission, January 1984.

14. Robert S. Wood, Assuring the Availability of Funds for Decommissioning Nuclear Facilities Draft Report, NUREG-0584, Revision 3, U.S. Nuclear Regulatory Commission, March 1983.

15. Financing Strategies For Nuclear Power Plant Decommissioning, NUREG/CR-1481, Prepared by Temple, Barker, and Sloan, Inc., for the New England Conference of Public Utilities Commissioners, Inc., for U.S. Nuclear Regulatory Commission, July 1980.

16. P. L. Chernick, et al., Design, Costs and Acceptability of an Electric Utility Pool for Assuring the Adequacy of Funds for Nuclear Power Plant Decommissioning Expense; NUREG/CR-2370, Prepared by Analysis and Inference, Inc., for U.S. Nuclear Regulatory Commission, December 1981.

17. C. F. Holoway and J. Witherspoon, Monitoring for Compliance with Decommissioning Termination Survey Criteria, NUREG/CR-2082, Prepared by Oak Ridge National Laboratory for the U.S. Nuclear Regulatory Commission, June 1981.

18. J. P. Witherspoon, Technology and Cost of Termination Surveys Associated With Decommissioning of Nuclear Facilities, NUREG/CR-2241, Prepared by Oak Ridge National Laboratory for U.S. Nuclear Regulatory Commission, January 1982.

19. Draft Generic Environmental Impact Statement on Decommissioning Nuclear Facilities, U.S. Nuclear Regulatory Commission, NUREG-0586, January 1981.

NOTE: Free single copies of reference items 14 and 19, to the extent of supply, may be requested by writing to the Publication Services Section, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Copies of all other referenced documents may be purchased by calling (301) 492-9530 or by writing to the Publication Services Section, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555, or purchased from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

Environmental Impact Statement: Availability

As required by the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR Part 51, the NRC has prepared a draft environmental impact statement on the decommissioning of nuclear facilities.

This draft environmental impact statement is available for inspection and copying for a fee in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the draft environmental impact statement may be obtained from Carl Feldman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)443-7910.

Paperwork Reduction Act Statement

This proposed rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the paperwork requirements.

Regulatory Analysis

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection and copying for a fee in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from C. R. Mattsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)443-7910.

The Commission requests public comments on the draft regulatory analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C.605(b), the NRC has carefully considered the effect on small entities in developing the proposed rule and has attempted to tier the requirements to reduce the impact on small entities to the extent possible while adequately protecting health and safety.

Based on the information presently available, it is not expected that this proposed rule, if promulgated, will have a significant economic impact on a substantial number of small entities. Although the impact may be considered significant to some, for the large majority of small entities, it is expected to be minimal.

The proposed rulemaking would broadly affect all Commission applicants and licensees and, because Agreement States will be required to maintain compatibility with the proposed changes, the proposed rule would also affect Agreement State applicants and licensees. There are approximately 9,000 Commission licenses, which include about 5200 byproduct material licenses under Parts 30 through 34, 2,500 medical licenses under Part 35, 400 source material licenses under Part 40, 200 production and utilization licenses (including approximately 50 applications in various stages of review) under Part 50, 700 special nuclear material licenses under Part 70, and 1 license and approximately 5 potential applicants under Part 72. Between 11,000 and 12,000 Agreement States' licensees would also be affected.

The Commission estimates that approximately 43 percent of its licensees would be considered small entities under the criteria set out in the size standards by the Small Business Administration in 13 CFR Part 121 (e.g., for most licensees less than 500 employees, for hospitals less than 150 beds, and for other medical licensees less than $1.5 million annual gross receipts). Licensees under 10 CFR Parts 50 and 72 would not be considered small entities.

All licensees including small entities will be required to keep records important to decommissioning. In general, for small licensees,

such recordkeeping is "good practice" and should not constitute a significant change in operation. Generally, keeping records important to decommissioning reduces both the costs and health and safety impacts of decommissioning and can also result in savings in doses or costs during operation. Costs of recordkeeping would tend to be recouped either in operation or at decommissioning.

The changes proposed in this rule at the time of termination of license will affect few small entities. These changes consist primarily of specifying in more detail contents of decommissioning plans, presently called "decontamination plans." Although more detailed plans may be required than have been considered acceptable in the past, there will also be a reduction in administrative effort because there will be less uncertainty as to what is expected. Overall, these changes are not expected to have a significant impact.

The most significant impact of this rule on licensees is likely to result from the financial assurance requirements. A cost estimate for decommissioning and a method of providing assurance of funds for decommissioning will be required of roughly 830 Commission licensees of which few if any will be small entities. Roughly another 660 Commission licensees including about 280 small entities will have the option of providing financial assurance in a prescribed amount and submitting a certification to that effect or submitting a funding plan to support a lower amount. A similar number of Agreement State licensees would also be affected. Those small entities affected would be almost exclusively industrial licensees. Because the historical information indicates that such small industrial licensees are the most likely to default, it is particularly important that financial assurance be provided by these licensees. The rule allows as much flexibility as possible to licensees for providing financial assurance, in order to reduce the impact. Also, the economic impact of making cost estimates can be reduced by using the data base which has been developed.

The cost of this requirement depends on the method used. A surety or insurance method is likely to be used by small entities; it is estimated to cost approximately 1 to 2% of the face value, or 1 to 2% of decommissioning costs annually, plus the administrative cost of either

developing a cost estimate and reporting on the funding methods to NRC or of making a certification. The cost of a surety using the prescribed amounts proposed in the rule would thus be in the range of $500 - $10,000 per year. For a few small entities affected this would be a significant economic impact, however, these cases would present the highest risk of default.

A more detailed analysis of impacts to small entities is included in the Regulatory Analysis.

Because of the widely differing conditions under which the licensees covered by this proposed regulation operate, the Commission is particularly seeking comment from small entities as to how the regulations will affect them and how the regulations may be tiered or otherwise modified to impose less stringent requirements on small entities while still adequately protecting the public health and safety. Those small entities which offer comments on how the regulations could be modified to take into account the differing needs of small entities should specifically discuss the following items:

(a) The size of their business and how the proposed regulations would result in a significant economic burden upon them as compared to larger organizations in the same business community.

(b) How the proposed regulations could be modified to take into account their differing needs or capabilities.

(c) The benefits that would accrue, or the detriments that would be avoided, if the proposed regulations were modified as suggested by the commenter.

(d) How the proposed regulations, as modified, would more closely equalize the impact of NRC regulations or create more equal access to the benefits of Federal programs as opposed to providing special advantages to any individuals or groups.

(e) How the proposed regulations, as modified, would still adequately protect the public health and safety.

The comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

LIST OF SUBJECTS

Part 30 - Byproduct material, Government contracts, Intergovernmental relations, Isotopes, Nuclear materials, Penalty, Radiation protection, Reporting and recordkeeping requirements.

Part 40 - Government contracts, Hazardous materials - transportation, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Source material, Uranium.

Part 50 - Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

Part 51 - Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

Part 70 - Hazardous materials - transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

Part 72 - Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble 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 proposing to adopt the following amendments to 10 CFR Parts 30, 40, 50, 51, 70, and 72.

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

1. The authority citation for Part 30 is revised to read as follows:

AUTHORITY: Secs. 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 30.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 30.34(b) also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273), §§ 30.3, 30.34(b) and (c), 30.41(a) and (c), and 30.53 are issued under sec. 161b, 68 Stat. 948 as amended (42 U.S.C. 2201(b)); and §§ 30.36, 30.51, 30.52, and 30.55 issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

2. Section 30.4 is amended by adding a new paragraph (y) to read as follows:*

§ 30.4 Definitions.

* * * * *

(y) "Decommission" means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

3. Section 30.32 is amended by adding a new paragraph (g) to read as follows:

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* Proposed rule changes are shown in comparative text; deletions are bracketed and lined through and additions are underlined; where extensive revision has been made to existing paragraphs, only the revised version is shown. Comparative text will be removed before submittal to the Office of the Federal Register.

§ 30.32 Application for specific licenses.

* * * * *

(g) As provided by § 30.35, certain applications for specific licenses filed under this part and Parts 32 through 35 of this chapter must contain a proposed decommissioning funding plan or a certification of financial assurance for decommissioning. In the case of renewal applications submitted before [insert a date one year after the effective date of the final rule] this submittal may follow the renewal application but must be submitted on or before [insert a date one year after the effective date of the final rule].

4. Section 30.33 is amended by deleting the word "and" following paragraph (a)(4), replacing the period following paragraph (a)(5) with a semi-colon, adding the word "and" following paragraph (a)(5), and adding a new paragraph (a)(6) to read as follows:

§ 30.33 General requirements for issuance of specific licenses.

(a) An application for a specific license will be approved if:

* * * * *

(6) The applicant's proposed decommissioning funding plan or certification of financial assurance for decommissioning, if required by § 30.35(a) or (b), includes sufficient information to demonstrate that the proposed funding method will provide reasonable assurance that funds will be available to decommission the facility in a safe and timely manner.

* * * * *

5. Section 30.34 is amended by adding new paragraphs (h) and (i) to read as follows:

§ 30.34 Terms and conditions of licenses.

* * * * *

(h)(1) Each holder of a specific license issued on or after [insert a date 1 year after the effective date of the final rule] which is of a type described in §30.35(a) or (b), shall provide financial assurance for decommissioning in accordance with the criteria set forth in §30.35.

(2) On or before [insert a date one year after the effective date of the final rule], each holder of a specific license of a type described in § 30.35(a) shall submit a decommissioning funding plan or a certification

of financial assurance for decommissioning in an amount at least equal to $500,000 in accordance with the criteria set forth in § 30.35. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.

(3) On or before [insert a date 1 year after the effective date of the final rule], each holder of a specific license of a type described in §30.35(b) shall submit a certification of financial assurance for decommissioning or a decommissioning funding plan in accordance with the criteria set forth in § 30.35.

(4) As of [insert a date 1 year after the effective date of the final rule], each licensee covered by §30.35(a) or (b) shall provide financial assurance for decommissioning as a condition of license. If a decommissioning funding plan has been submitted to the Commission, implementing the plan becomes a condition of the license upon approval of the plan.

(i) Each person licensed under this part or Parts 32 through 35 of this chapter shall keep records of information important to the safe and effective decommissioning of the facility in a file explicitly for this purpose until the license is terminated by the Commission. If records of relevant information are kept for other purposes, reference to such records and their locations may be substituted. Information the Commission considers important to decommissioning consists of--

(1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(2) As-built drawings and modifications of structures and equipment in high radiation areas and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If referencing such drawings, it is not necessary to index each individual relevant document. If drawings are not available, the licensee shall

substitute appropriate records of available information concerning these areas and locations.

6. A new § 30.35 is added to read as follows:

§ 30.35 Financial assurance for decommissioning.

(a) Each applicant for a specific license authorizing the possession and use of unsealed byproduct material of half-life greater than 120 days and in quantities exceeding 10^5 times the applicable quantities set forth in Appendix C of Part 20 shall submit a decommissioning funding plan as described in paragraph (d) of this section. Each holder of such a license shall provide financial assurance for decommissioning; required submittals for providing financial assurance are set out in § 30.34(h)(2).

(b) Each applicant for or holder of a specific license authorizing possession and use of byproduct material of half-life greater than 120 days and in quantities specified in paragraph (c) of this section shall either--

(1) Submit a decommissioning funding plan as described in paragraph (d) of this section; or

(2) Submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by paragraph (c) of this section using one of the methods described in paragraph (e) of this section. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material.

(c) Table of required amounts of financial assurance for decommissioning by quantity of material.

greater than 10^4 but less than or equal to 10^5 times the applicable quantities of Appendix C of Part 20 in unsealed form	$500,000
greater than 10^3 but less than or equal to 10^4 times the applicable quantities of Appendix C of Part 20 in unsealed form	$100,000

greater than 10^{10} times the applicable quantities of Appendix C of Part 20 in sealed sources	$50,000

(d) Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the facility.

(e) Financial assurance for decommissioning must be provided by one or more of the following methods:

(1) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets that will retain their value over the projected operating life of the facility and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) A surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method. Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

(i) The surety or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Commission, the beneficiary, and the licensee of its intention not to renew. The surety or insurance must also provide that the beneficiary may automatically collect prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Commission within 30 days after receipt of notification of cancellation.

(ii) The beneficiary of the surety or insurance must be a trustee acceptable to the Commission such as an appropriate state or Federal government agency or a major financial organization.

(iii) The surety or insurance must remain in effect until the Commission has terminated the license.

(3) An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(4) In the case of Federal, State, or local government licensees, a certification that the appropriate government entity will be guarantor of decommissioning funds.

(5) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (c)(1) through (3) of this section.

7. Section 30.36 is revised to read as follows:

§ 30.36 Expiration and termination of licenses.

(a) Except as provided in § 30.37(b) and paragraph [~~(d)~~(3)] (e) of this section, each specific license expires at the end of the day, in the month and year stated in the license.

(b) Each licensee shall notify the Commission [immediately] promptly, in writing under § 30.6, and request termination of the license when the licensee decides to terminate all activities involving materials authorized under the license. This notification and request for termination of the license must include the reports and information specified in paragraphs [~~(d)~~](c)(1)(iv) and (v) of this section [~~:~~] and a plan for completion of decommissioning if required by paragraph (c)(2) of this section or by license condition. [~~The licensee is subject to the provisions of paragraphs (d) and (e) of this section, as applicable:~~]

[~~(c)--No less than 30 days before the expiration date specified in a specific license, the licensee shall either -~~

~~(1)--Submit an application for license renewal under §30.37; or~~

~~(2)--Notify the Commission, in writing under §30.6, if the licensee decides not to renew the license;~~]

[~~(d)~~] (c)(1) If a licensee does not submit an application for license renewal under § 30.37, the licensee shall on or before the expiration date specified in the license -

(i) Terminate use of byproduct material;

(ii) Remove radioactive contamination to the extent practicable except for those procedures covered by paragraph (c)(2)(i) of this section;

(iii) Properly dispose of byproduct material;

(iv) Submit a completed form NRC-314, which certifies information concerning the disposition of materials; and

(v) [~~Submit a radiation survey report to confirm the absence of radioactive materials or to establish the levels of residual radioactive contamination~~] Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates [~~the absence of residual radioactive contamination~~] that the premises are suitable for release for unrestricted use in some other manner. The licensee shall, as appropriate -

(A) Report levels of radiation in units of microrads per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces, and report levels of radioactivity in units of disintegrations per minute (or microcuries) per 100 square centimeters removable and fixed [~~on~~] for surfaces, microcuries per milliliter [~~in~~] for water, and picocuries per gram for [~~in contaminated~~] solids such as soils or concrete; and

(B) Specify the survey instrument(s) used and certify that each instrument is properly calibrated and tested.

[~~(2)--If no residual radioactive contamination attributable to activities conducted under the license is detected, the licensee shall submit a certification that no detectable radioactive contamination was~~

~~found:--If-the-information-submitted-under-this-paragraph-and-paragraphs-(d)(1)(iv)-and-(v)-of-this-section-is-adequate;-the-Commission will-notify-the-licensee-in-writing-that-the-license-is-terminated:~~

~~(3)(i)--If-detectable-levels-of-residual-radioactive-contamination attributable-to-activities-conducted-under-the-license-are-found;-the license-continues-in-effect-beyond-the-expiration-date;-if-necessary; with-respect-to-possession-of-residual-byproduct-material-present-as contamination-until-the-Commission-notifies-the-licensee-in-writing-that the-license-is-terminated:--During-this-time;-the-licensee-is-subject-to the-provisions-of-paragraph-(e)-of-this-section:~~

~~(ii)--In-addition-to-the-information-submitted-under-paragraphs-(d)(1)(iv)-and-(v)-of-this-section-the-licensee-shall-submit-a-plan-for decontamination;-if-required;-as-regards-residual-radioactive-contamination-remaining-at-the-time-the-license-expires:]~~

(2)(i) In addition to the information required under paragraphs (c)(1)(iv) and (v) of this section, the licensee shall submit a plan for completion of decommissioning if the procedures necessary to carry out decommissioning have not been previously approved by the NRC, are extensive, and could significantly increase potential health and safety impacts to workers or to the public such as in cases where --

(A) workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation; or

(B) procedures could result in significantly greater airborne concentrations of radioactive materials than are present during operation; or

(C) procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation; or

(D) procedures would involve techniques not applied routinely during maintenance operations.

(ii) Procedures with potential health and safety impacts may not be carried out prior to approval of the decommissioning plan.

(iii) The proposed decommissioning plan, if required by paragraph(c)(2)(i) of this section or by license condition, must include--

(A) Discussion of planned decommissioning activities;

(B) Description of methods used to assure protection of workers and the environment against radiation hazards during decommissioning;

(C) A description of the planned final radiation survey; and

(D) An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning.

(iv) The proposed decommissioning plan will be approved by the Commission if the information therein demonstrates that the decommissioning will be completed as soon as is reasonable and that the health and safety of workers and the public will be adequately protected.

(3) Upon approval of the decommissioning plan by the Commission, the licensee shall complete decommissioning in accordance with the approved plan. As a final step in decommissioning, the licensee shall again submit the information required in paragraph (c)(1)(v) of this section and shall certify the disposition of accumulated wastes from decommissioning.

(d) If the information submitted under paragraphs (c)(1)(v) or (c)(3) of this section does not adequately demonstrate that the premises are suitable for release for unrestricted use, the Commission will inform the licensee of the appropriate further actions required for termination of license.

(e) ~~[Each licensee who possesses residual byproduct material under paragraph (d)(3) of this section; following the expiration date specified in the license shall---]~~ Each specific license continues in effect beyond the expiration date if necessary with respect to possession of residual byproduct material present as contamination until the Commission notifies the licensee in writing that the license is terminated. During this time, the licensee shall--

(1) Limit actions involving byproduct material to those related to ~~[decontamination and other activities related to preparation for release for unrestricted use]~~ decommissioning; and

(2) Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the Commission notifies the licensee in writing that the license is terminated.

(f) Specific licenses will be terminated by written notice to the licensee when the Commission determines that--

(1) Byproduct material has been properly disposed;

(2) Reasonable effort has been made to eliminate residual radioactive contamination, if present; and

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release for unrestricted use; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release for unrestricted use.

PART 40 - DOMESTIC LICENSING OF SOURCE MATERIAL

8. The authority citation for Part 40 continues to read as follows:

AUTHORITY: Secs. 62, 63, 64, 65, 81, 161, 182, 183, 186, 68 Stat. 932, 933, 935, 948, 953, 954, 955, as amended, secs. 11e(2), 83, 84, Pub. L. 95-604, 92 Stat. 3033, as amended, 3039, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2014(e)(2), 2092, 2093, 2094, 2095, 2111, 2113, 2114, 2201, 2232, 2233, 2236, 2282); secs. 274, Pub. L. 86-373, 73 Stat. 688 (42 U.S.C. 2021); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 40.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 40.31 (g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 40.46 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 40.71 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 40.3, 40.25(d)(1)-(3), 40.35(a)-(d), 40.41(b) and (c), 40.46, 40.51(a) and (c), and 40.63 are issued under sec. 161b, 68 Stat. 948, as amended, (42 U.S.C. 2201(b)); and §§ 40.25(c) and (d)(3) and (4), 40.26(c)(2), 40.35(e), 40.42, 40.61, 40.62, 40.64 and 40.65 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

9. Section 40.4 is amended by adding a new paragraph (r) to read as follows:

§ 40.4 Definitions.

* * * * *

(r) "Decommission" means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

10. Section 40.31 is amended by adding a new paragraph (i) to read as follows:

§ 40.31 Applications for specific licenses.

* * * * *

(i) As provided by § 40.36, certain applications for specific licenses filed under this part must contain a proposed decommissioning funding plan or a certification of financial assurance for decommissioning. In the case of renewal applications submitted before [insert a date one year after the effective date of the final rule] this submittal may follow the renewal application but must be submitted on or before [insert a date one year after the effective date of the final rule].

11. Section 40.32 is amended by adding a new paragraph (g) to read as follows:

§ 40.32 General requirements for issuance of specific licenses.

An application for a specific license will be approved if:

* * * * *

(g) The applicant's proposed decommissioning funding plan or certification of financial assurance for decommissioning, if required by § 40.36(a) or (b), includes sufficient information to demonstrate that the proposed funding method will provide reasonable assurance that funds will be available to decommission the facility in a safe and timely manner.

12. A new § 40.36 is added to read as follows:

§ 40.36 Financial assurance for decommissioning.

Except for licenses authorizing the receipt, possession, and use of source material for uranium or thorium milling, or byproduct material at sites formerly associated with such milling, for which financial assurance requirements are set forth in Appendix A of this part, criteria for providing financial assurance for decommissioning are as follows:

(a) Each applicant for a specific license authorizing the possession and use of more than 100 mCi of source material in a readily dispersible form shall submit a decommissioning funding plan. Each holder of such a license shall provide financial assurance for decommissioning; required submittals for providing financial assurance are set out in § 40.41(f)(2).

(b) Each applicant for or holder of a specific license authorizing possession and use of quantities of source material greater than 10 mCi but less than or equal to 100 mCi in a readily dispersible form shall either--

(1) Submit a decommissioning funding plan as described in paragraph (c) of this section; or

(2) Submit a certification that financial assurance for decommissioning has been provided in the amount of $100,000 using one of the methods described in paragraph (d) of this section. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material.

(c) Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the facility.

(d) Financial assurance for decommissioning must be provided by one or more of the following methods:

(1) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets that will retain their value over the projected operating life of the facility and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) A surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method.

Any surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

(i) The surety or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Commission, the beneficiary, and the licensee of its intention not to renew. The surety or insurance must also provide that the beneficiary may automatically collect prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Commission within 30 days after receipt of notification of cancellation.

(ii) The beneficiary of the surety or insurance must be a trustee acceptable to the Commission such as an appropriate state or federal government agency or a major financial organization.

(iii) The surety or insurance must remain in effect until the Commission has terminated the license.

(3) An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(4) In the case of Federal, State, or local government licensees, a certification that the appropriate government entity will be guarantor of decommissioning funds.

(5) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (c)(1) through (3) of this section.

13. Section 40.41 is amended by adding new paragraphs (f) and (g) to read as follows:

§ 40.41 Terms and conditions of licenses.

* * * * *

(f)(1) Each holder of a specific license issued on or after [insert a date 1 year after the effective date of the final rule] which is covered by § 40.36(a) or (b), shall provide financial assurance for decommissioning in accordance with the criteria set forth in § 40.36.

(2) On or before [insert a date one year after the effective date of the final rule], each holder of a specific license covered by § 40.36(a) shall submit a decommissioning funding plan or certification of financial assurance for decommissioning in an amount at least equal to $500,000 in accordance with the criteria set forth in § 40.36. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.

(3) On or before [insert a date 1 year after the effective date of the final rule], each holder of a specific license covered by § 40.36(b) shall submit a certification of financial assurance for decommissioning or a decommissioning funding plan in accordance with the criteria set forth in § 40.36.

(4) As of [insert date 1 year after the effective date of the final rule], each licensee covered by § 40.36(a) or (b) shall provide financial assurance for decommissioning as a condition of license. If a decommissioning funding plan has been submitted to the Commission, implementing the plan becomes a condition of the license upon approval of the plan.

(g) Each person licensed under this part shall keep records of information important to the safe and effective decommissioning of the facility in a file explicitly for this purpose until the license is terminated by the Commission. If records of relevant information are kept for other purposes, reference to such records and their locations may be substituted. Information the Commission considers important to decommissioning consists of--

(1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination

remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(2) As-built drawings and modifications of structures and equipment in high radiation areas and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If referencing such drawings, it is not necessary to index each individual relevant document. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

14. Section 40.42 is revised to read as follows:

§ 40.42 Expiration and termination of licenses.

(a) Except as provided in § 40.43(b) and paragraph [~~(d)(3)~~] (e) of this section, each specific license expires at the end of the day, in the month and year stated in the license.

(b) Each licensee shall notify the Commission [~~immediately~~] promptly, in writing under § 40.5, and request termination of the license when the licensee decides to terminate all activities involving materials authorized under the license. This notification and request for termination of the license must include the reports and information specified in paragraphs [~~(d)~~] (c) (1)(iv) and (v) of this section[~~:~~] and a plan for completion of decommissioning, if required by paragraph (c)(2) of this section or by license condition. [~~The licensee is subject to the provisions of paragraphs (d) and (e) of this section, as applicable.~~]

[~~(c)~~] ~~No less than 30 days before the expiration date specified in a specific license, the licensee shall either --~~

~~(1) Submit an application for license renewal under § 30.37; or~~

~~(2) Notify the Commission, in writing under § 30.6, if the licensee decides not to renew the license.~~]

[~~(d)~~] (c)(1) If a licensee does not submit an application for license renewal under § 40.43, the licensee shall on or before the expiration date specified in the license--

(i) Terminate use of source material;

(ii) Remove radioactive contamination to the extent practicable except for those procedures covered by paragraph (c)(2)(i) of this section;

(iii) Properly dispose of source material;

(iv) Submit a completed form NRC-314, which certifies information concerning the disposition of materials; and

(v) [~~Submit a radiation survey report to confirm the absence of radioactive materials or to establish the levels of residual radioactive contamination,~~] Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates [~~the absence of residual radioactive contamination~~] that the premises are suitable for release for unrestricted use in some other manner. The licensee shall, as appropriate--

(A) Report levels of radiation in units of microrads per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces, and report levels of radioactivity in units of disintegrations per minute (or microcuries) per 100 square centimeters removable and fixed [~~on~~] for surfaces, microcuries per milliliter [~~in~~] for water, and picocuries per gram for [~~in contaminated~~] solids such as soils or concrete; and

(B) Specify the survey instrument(s) used and certify that each instrument is properly calibrated and tested.

[~~(2) If no residual radioactive contamination attributable to activities conducted under the license is detected, the licensee shall submit a certification that no detectable radioactive contamination was found. If the information submitted under this paragraph and paragraphs (d)(1)(iv) and (v) of this section is adequate, the Commission will notify the licensee in writing that the license is terminated.~~

~~(3)(i) If detectable levels of residual radioactive contamination attributable to activities conducted under the license are found, the license continues in effect beyond the expiration date, if necessary, with respect to possession of residual byproduct material present as contamination until the Commission notifies the licensee in writing that the license is terminated. During this time, the licensee is subject to the provisions of paragraph (e) of this section.~~

~~(ii)--In addition to the information submitted under paragraphs (d)(1)(iv) and (v) of this section the licensee shall submit a plan for decontamination, if required, as regards residual radioactive contamination remaining at the time the license expires.]~~

(2)(i) In addition to the information required under paragraphs (c)(1)(iv) and (v) of this section, the licensee shall submit a plan for completion of decommissioning if the procedures necessary to carry out decommissioning have not been previously approved by the NRC, are extensive, and could significantly increase potential health and safety impacts to workers or to the public such as in cases where --

(A) workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation; or

(B) procedures could result in significantly greater airborne concentrations of radioactive materials than are present during operation; or

(C) procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation; or

(D) procedures would involve techniques not applied routinely during maintenance operations.

(ii) Procedures with potential health and safety impacts may not be carried out prior to approval of the decommissioning plan.

(iii) The proposed decommissioning plan, if required by paragraph(c)(2)(i) of this section or by license condition, must include--

(A) Discussion of planned decommissioning activities;

(B) Description of methods used to assure protection of workers and the environment against radiation hazards during decommissioning;

(C) A description of the planned final radiation survey; and

(D) An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning.

(iv) The proposed decommissioning plan will be approved by the Commission if the information therein demonstrates that the decommissioning will be completed as soon as is reasonable and that the health and safety of workers and the public will be adequately protected.

(3) Upon approval of the decommissioning plan by the Commission, the licensee shall complete decommissioning in accordance with the approved plan. As a final step in decommissioning, the licensee shall again submit the information required in paragraph (c)(1)(v) of this section and shall certify the disposition of accumulated wastes from decommissioning.

(d) If the information submitted under paragraphs (c)(1)(v) or (c)(3) of this section does not adequately demonstrate that the premises are suitable for release for unrestricted use, the Commission will inform the licensee of the appropriate further actions required for termination of license.

(e) [~~Each licensee who possesses residual source material under paragraph (d)(3) of this section; following the expiration date specified in the license shall~~ -] Each specific license continues in effect beyond the expiration date if necessary with respect to possession of residual source material present as contamination until the Commission notifies the licensee in writing that the license is terminated. During this time, the licensee shall--

(1) Limit actions involving source material to those related to [~~decontamination and other activities related to preparation for release for unrestricted use~~] decommissioning; and

(2) Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the Commission notifies the licensee in writing that the license is terminated.

(f) Specific licenses will be terminated by written notice to the licensee when the Commission determines that--

(1) Source material has been properly disposed;

(2) Reasonable effort has been made to eliminate residual radioactive contamination, if present; and

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release for unrestricted use; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release for unrestricted use.

PART 50 - DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

15. The authority citation for Part 50 continues to read as follows:

AUTHORITY: Secs. 103, 104, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2133, 2134, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, 202, 206, 88 Stat. 1242, 1244, 1246, as amended (42 U.S.C. 5841, 5842, 5846), unless otherwise noted.

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Sections 50.57(d), 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2071, 2073 (42 U.S.C. 2133, 2139). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Sections 50.100-50.102 also issued under sec. 186, 68 Stat. 955 (42 U.S.C. 2236).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273), §§ 50.10(a), (b), and (c), 50.44, 50.46, 50.48, 50.54, and 50.80(a) are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 50.10(b) and (c) and 50.54 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§50.55(e), 50.59(b), 50.70, 50.71, 50.72, 50.73, and 50.78 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

16. Section 50.2 is amended by adding a new paragraph (y) to read as follows:

§ 50.2 Definitions.

* * * * *

(y) "Decommission" means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

17. Section 50.33 is amended by revising the introductory text of paragraph (f)(1), revising paragraphs (f)(1)(ii) and (f)(3) and adding paragraph (k) to read as follows:

§ 50.33 Contents of applications; general information.

Each application shall state:

* * * * *

(f)(1) Information sufficient to demonstrate to the Commission the financial qualifications of the applicant to carry out, in accordance with regulations in this chapter, the activities for which the permit or license is sought. However, no information on financial qualifications, including that in paragraphs (f)(1)(i) and (ii) of this section, is required in any application, [~~nor shall any financial review be conducted~~] if the applicant is an electric utility applicant for a license to construct or operate a production or utilization facility of the type described in § 50.21(b) or § 50.22, and no review of financial qualifications will be conducted, notwithstanding that a cost estimate and funding method for decommissioning are required of any applicant for an operating license for a production or utilization facility by paragraph (k) of this section.

* * * * *

(ii) If the application is for an operating license, the applicant shall submit information that demonstrates the applicant possesses or has reasonable assurance of obtaining the funds necessary to cover estimated operation costs for the period of the license, plus the estimated costs of decommissioning [~~permanently shutting~~] the facility, [~~down and maintaining it in a safe condition~~] The applicant shall submit estimates for total annual operating costs for each of the first five years of operation of the facility and estimates of the costs to decommission [~~permanently shut down~~] the facility. [~~and maintain it in a safe condition~~] The applicant shall also indicate the source(s) of funds to cover these costs. An application to renew or extend the term of an operating license must include the same financial information as required in an application for an initial license.

* * * * *

(3) [Except-that-for-electric-utility-applicants-for-construction permits-and-operating-licenses] The Commission may request an established entity or newly-formed entity to submit additional or more detailed information respecting its financial arrangements and status of funds if the Commission considers this information appropriate. This may include information regarding a licensee's ability to continue the conduct of the activities authorized by the license and to decommission [permanently-shut-down] the facility. [and-maintain-it-in-a-safe-condition]. A request for financial information addressed to an electric utility applicant for a construction permit or an operating license will be limited to information directly related to providing financial assurance for decommissioning.

* * * * *

(k)(1) For an application for an operating license for a production or utilization facility, information on how reasonable assurance will be provided that funds will be available to decommission the facility. This information must consist of either a proposed decommissioning funding plan that contains a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the facility, or, in the case of an electric utility, a certification that financial assurance for decommissioning will be provided in the amount of $100,000,000 using a means acceptable to the Commission for providing such assurance as specified in paragraphs (k)(2) and (4) of this section.

(2) As provided in paragraphs (k)(3) and (4) of this section, financial assurance may be provided by the following methods:

(i) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets that will retain their value over the projected operating life of the facility and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(ii) External sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(iii) A surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method. Any surety method or insurance used to provide financial insurance for decommissioning must contain the following conditions:

(A) The surety or insurance must be open-ended or, if written for a specified term such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Commission, the beneficiary, who must be a Commission-approved trustee, and the licensee of its intention not to renew. The surety or insurance must also provide that the beneficiary may automatically collect prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Commission within 30 days after receipt of notification of cancellation.

(B) The surety or insurance must remain in effect until the Commission has terminated the license.

(iv) Internal reserve. Internal reserve is a fund established and maintained by the periodic deposit or crediting of a prescribed amount into an account or reserve which is not segregated from licensee assets and is within the licensee's administrative control in which the total amount of the periodic deposits or funds reserved plus accumulated earnings would be sufficient to pay for decommissioning at the time termination of operation is expected. This method may use negative net salvage value depreciation in which funds are invested in licensee assets, and at the end of facility life, bonds are issued against these assets and the funds raised are used to pay for decommissioning. An internal reserve

may also be in the form of an internal sinking fund which is similar to an external sinking fund except that the fund is held and invested by the licensee.

(3) Except for an electric utility, acceptable methods of providing financial assurance for decommissioning are--

(i) Prepayment;

(ii) An external sinking fund, in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund,

(iii) A surety method or insurance;

(iv) In the case of Federal, State, or local government licensees, certification that the appropriate government entity will be guarantor of decommissioning funds; and

(v) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (k)(3)(i) through (iv) of this section.

(4) For an electric utility, acceptable methods of providing financial assurance for decommissioning are--

(i) Prepayment;

(ii) An external sinking fund in which deposits are made at least annually;

(iii) A surety method or insurance;

(iv) For an electric utility owning more than one generating facility, an internal reserve in which deposits are made at least annually; and

(v) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (k)(4)(i) through (iv) of this section.

18. Section 50.51 is revised to read as follows:

§ 50.51 Duration of license, renewal.

Each license will be issued for a fixed period of time to be specified in the license but in no case to exceed 40 years from the date of issuance. Where the operation of a facility is involved the Commission will issue the license for the term requested by the applicant or for the estimated useful life of the facility if the Commission determines

that the estimated useful life is less than the term requested. Where construction of a facility is involved, the Commission may specify in the construction permit the period for which the license will be issued if approved pursuant to §50.56. Licenses may be renewed by the Commission upon the expiration of the period. Unless application for renewal has been made, application for termination of license pursuant to § 50.82 must be made no later than one year prior to the license expiration date.

19. Section 50.54 is amended by adding new paragraphs (bb) and (cc) to read as follows:

§ 50.54 Conditions of licenses.

Whether stated therein or not, the following shall be deemed conditions in every license issued:

* * * * *

(bb)(1) Each holder of an operating license for a production or utilization facility issued on or after [insert a date 2 years after the effective date of the final rule] shall provide financial assurance for decommissioning in accordance with an approved decommissioning funding plan or by means of a certification as provided in § 50.33(k)(1).

(2) On or before [insert a date two years after the effective date of the final rule], each holder of an operating license for a production or utilization facility in effect on [insert date immediately preceding the date two years after the effective date of the final rule] shall submit information on providing financial assurance for decommissioning as specified in § 50.33(k). Upon approval of a decommissioning funding plan by the Commission, the licensee shall implement procedures for providing financial assurance for decommissioning in accordance with the plan. In each certification of financial assurance, the licensee shall indicate that the means of providing financial assurance for decommissioning are in place.

(3) A decommissioning funding plan will be approved if it includes sufficient information to demonstrate that a reasonable level of assurance will be provided that funds will be available when needed to cover the costs of decommissioning.

(cc) Each licensee shall keep records of information important to the safe and effective decommissioning of the facility in a file explicitly

for this purpose until the license is terminated by the Commission. If records of relevant information are kept for other purposes, reference to such records and their locations may be substituted. Information the Commission considers important to decommissioning consists of --

(1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(2) As-built drawings and modifications of structures and equipment in high radiation areas and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If referencing such drawings, it is not necessary to index each individual relevant document. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

20. Section 50.55 is amended by revising paragraph (c) to read as follows:

§ 50.55 Conditions of construction permits.

Each construction permit shall be subject to the following terms and conditions:

* * * * *

(c) Except as modified by this section and § 50.55a, the construction permit shall be subject to the same conditions to which a license is subject, not including § 50.54(bb).

* * * * *

21. Section 50.82 is revised to read as follows:

§ 50.82 Applications for termination of licenses.

(a) Any licensee may apply to the Commission for authority to surrender a license voluntarily and to decommission the facility. For a facility that permanently ceases operation after [insert effective date

of the final rule] this application must be made within two years following permanent cessation of operations, and in no case later than one year prior to expiration of the operating license. Each application for termination of license must be accompanied, or preceded, by a proposed decommissioning plan. For a facility which has permanently ceased operation prior to [insert effective date of the final rule], requirements for contents of the decommissioning plan as specified in paragraphs (b) through (d) of this section may be modified with approval of the Commission to reflect the fact that the decommissioning process has previously been initiated.

(b) The proposed decommissioning plan must include--

(1) The choice of the alternative for decommissioning with a description of activities involved. Alternative methods for decommissioning which significantly delay completion of decommissioning such as use of a storage period, will be acceptable if sufficient benefit results;

(2) A description of controls and limits on procedures and equipment to protect occupational and public health and safety;

(3) A description of the planned final radiation survey;

(4) An updated cost estimate for the chosen alternative for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning.

(c) Decommissioning plans which propose an alternative that delays completion of decommissioning by including a period of storage or long-term surveillance must provide that--

(1) Funds needed to complete decommissioning be placed into an account segregated from licensee assets and outside the licensee's administrative control during the storage or surveillance period, or a surety method or fund certification be maintained in accordance with the criteria of § 50.33(k); and

(2) Means be included for adjusting cost estimates and associated funding levels over the storage or surveillance period.

(d) For decommissioning plans in which the major dismantlement activities are delayed by first placing the facility in storage, planning for these delayed activities may be less detailed. Updated detailed plans must be submitted and approved prior to the start of these activities.

(e) If the decommissioning plan demonstrates that the decommissioning will be performed in accordance with the regulations in this chapter and will not be inimical to the common defense and security or to the health and safety of the public, and after notice to interested persons, the Commission will issue an order authorizing the decommissioning.

(f) The Commission will terminate the license if it determines that--

(1) The decommissioning has been performed in accordance with an approved decommissioning plan and any conditions in the order authorizing decommissioning; and

(2) The terminal radiation survey and associated documentation demonstrates that the facility and site are suitable for release for unrestricted use.

PART 51 - ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY FUNCTIONS

22. The authority citation for Part 51 continues to read as follows:

AUTHORITY: Sec. 161, 68 Stat. 948, as amended (42 U.S.C. 2201); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842).

Subpart A also issued under National Environmental Policy Act of 1969, secs. 102, 104, 105, 83 Stat. 853-854, as amended (42 U.S.C. 4332, 4334, 4335); and Pub. L. 95-604, Title II, 92 Stat. 3033-3041. Section 51.22 also issued under sec. 274, 73 Stat. 688, as amended by 92 Stat. 3036-3038 (42 U.S.C. 2021).

§51.20 [Amended]

23. Section 51.20 is amended by removing paragraphs (b)(5) and (10).

24. Section 51.22 is amended by adding a new paragraph (c)(19) to read as follows:

§ 51.22 Criterion for and identification of licensing and regulatory actions eligible for categorical exclusion.

* * * * *

(c) The following categories of actions are categorical exclusions:

* * * * *

(19) Approvals of decommissioning funding plans.

25. Section 51.53 is revised to read as follows:

§ 51.53 Supplement to Environmental Report. [--Operating license stage:]

(a) Operating license stage

Each applicant for a license or for renewal of a license to operate a production or utilization facility covered by § 51.20 shall submit with its application the number of copies, as specified in § 51.55, of a separate document, entitled "Supplement to Applicant's Environmental Report - Operating License Stage," which will update "Applicant's Environmental Report - Construction Permit Stage." Unless the applicant requests the renewal of an operating license or unless otherwise required by the Commission, the applicant for an operating license for a nuclear power reactor shall submit this report only in connection with the first licensing action authorizing full power operation. In this report, the applicant shall discuss the same matters described in §§ 51.45, 51.51 and 51.52, but only to the extent that they differ from those discussed or reflect new information in addition to that discussed in the final environmental impact statement prepared by the Commission in connection with the construction permit. Unless otherwise required by the Commission, no discussion of need for power or alternative energy sources or alternative sites for the facility is required in this report. The "Supplement to Applicant's Environmental Report - Operating License Stage" may incorporate by reference any information contained in the "Applicant's Environmental Report - Construction Permit Stage," final environmental impact statement or record of decision previously prepared in connection with the construction permit.

(b) Decommissioning stage. Each applicant for a license amendment authorizing the decommissioning of a production or utilization facility covered by § 51.20 shall submit with its application the number of copies, as specified in § 51.55, of a separate document, entitled "Supplement to Applicant's Environmental Report - Decommissioning Stage," which will update "Applicant's Environmental Report - Construction Permit Stage" and "Supplement to Applicant's Environmental Report - Operating License Stage," as appropriate, to reflect any new information or significant environmental change associated with the applicant's proposed decommissioning activities. The "Supplement to Applicant's Environmental Report - Decommissioning Stage" may incorporate by reference any information contained in the "Applicant's Environmental Report - Construction Permit Stage," "Supplement to Applicant's Environmental Report - Operating License Stage," final environmental impact statement, or record of decision previously prepared in connection with the construction permit or the operating license.

26. In § 51.55, paragraph (a) is revised to read as follows:

§ 51.55 Environmental Report - Number of copies; Distribution.

(a) Each applicant for a license to construct and operate a production or utilization facility covered by paragraphs (b)(1), (b)(2), (b)(3) or (b)(4) of § 51.20 [~~or for a license amendment covered by paragraph (b)(5) of § 51.20~~] and each applicant for a license amendment authorizing the decommissioning of a production or utilization facility covered by § 51.20 shall submit to the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards, as appropriate, in accordance with § 50.30(c)(1)(iv) of Part 50 of this chapter, forty-one (41) copies of an environmental report, or any supplement to an environmental report. The applicant shall retain an additional 109 copies of the environmental report or any supplement to the environmental report for distribution to parties and Boards in the NRC proceeding, Federal, State, and local officials and any affected Indian tribes, in accordance with written instructions issued by the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards, as appropriate.

* * * * *

27. In § 51.60, paragraph (a) is revised to read as follows:

§ 51.60 Environmental Report - Materials licenses.

(a) Each applicant for a license or other form of permission or an amendment to or renewal of a license or other form of permission issued pursuant to Parts 30, 32, 33, 34, 35, 40, 61, 70 and/or 72 of this chapter, and covered by paragraphs (b)(1)-(b)(6) of this section, shall submit with its application to the Director of Nuclear Material Safety and Safeguards the number of copies, as specified in § 51.66, of a separate document, entitled "Applicant's Environmental Report" or "Supplement to Applicant's Environmental Report," as appropriate. The "Applicant's Environmental Report" shall contain the information specified in § 51.45. If the application is for an amendment to or a renewal of a license or other form of permission for which the applicant has previously submitted an environmental report, the supplement to applicant's environmental report may be limited to incorporating by reference, updating or supplementing the information previously submitted to reflect any significant environmental change, including any significant environmental change resulting from operational experience or a change in operations[.] or proposed decommissioning activities.

* * * * *

PART 70 - DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

28. The authority section for Part 70 is revised to read as follows:

AUTHORITY: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, Sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246 (42. U.S.C. 5841, 5842, 5845, 5846).

Section 70.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 70.21(g) also issued under Sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d, Pub. L. 93-377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234).

Section 70.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273), §§ 70.3, 70.19(c), 70.21(c), 70.22(a), (b), (d)-(k), 70.24(a) and (b), 70.32(a)(3), (5), (6), (d), and (i), 70.36, 70.39(b) and (c), 70.41(a), 70.42(a) and (c), 70.56, 70.57(b), (c) and (d), 70.58(a)-(g)(3), and (h)-(j) are issued under sec. 161b, 68 Stat. 948 as amended (42 U.S.C. 2201(b)); §§ 70.7, 70.20a(a) and (d), 70.20b (c) and (e), 70.21(c), 70.24(b), 70.32(a)(6), (c), (d), (e), and (g), 70.36, 70.51(c)-(g), 70.56, 70.57(b) and (d) and 70.58(a)-(g)(3), and (h)-(j) are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 70.20b(d) and (e), 70.51(b) and (i), 70.52, 70.53, 70.54, 70.55, 70.58(g)(4), (k), and (l), 70.59 and 70.60(b) and (c) are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

29. Section 70.4 is amended by adding a new paragraph (x) to read as follows:

§ 70.4 Definitions.

* * * * *

(x) "Decommission" means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

30. Section 70.22 is amended by adding a new paragraph (a)(9) to read as follows:

§ 70.22 Contents of applications.

(a) Each application for a license shall contain the following information:

* * * * *

(9) As provided by § 70.25, certain applications for specific licenses filed under this part must contain a proposed decommissioning funding plan or a certification of financial assurance for decommissioning.

In the case of renewal applications submitted before [insert a date one year after the effective date of the final rule] this submittal may follow the renewal application but must be submitted on or before [insert a date one year after the effective date of the final rule].

* * * * *

31. Section 70.23 is amended by adding a new paragraph (a)(12) to read as follows:

§ 70.23 Requirements for the approval of applications.

(a) An application for a license will be approved if the Commission determines that:

* * * * *

(12) The applicant's proposed decommissioning funding plan or certification of financial assurance for decommissioning, if required by § 70.25(a) or (b), includes sufficient information to demonstrate that the proposed funding method will provide reasonable assurance that sufficient funds will be available to decommission the facility in a safe and timely manner.

* * * * *

32. A new § 70.25 is added to read as follows:

§ 70.25 Financial assurance for decommissioning.

(a) Each applicant for a specific license authorizing the possession and use of unsealed special nuclear material in quantities exceeding 10^5 times the applicable quantities set forth in Appendix C of Part 20 shall submit a decommissioning funding plan as described in paragraph (d) of this section. Each holder of such a license shall provide financial assurance for decommissioning; required submittals for providing financial assurance are set out in § 70.32(k)(2).

(b) Each applicant for or holder of a specific license authorizing possession and use of unsealed special nuclear material in quantities specified in paragraph (c) of this section shall either--

(1) Submit a decommissioning funding plan as described in paragraph (d) of this section; or

(2) Submit a certification that financial assurance for decommissioning has been provided in the amount prescribed by paragraph (c) of this section using one of the methods described in paragraph (e) of this section. For an applicant, this certification may state that the appropriate assurance will be obtained after the application has been approved and the license issued but prior to the receipt of licensed material.

(c) Table of required amounts of financial assurance for decommissioning by quantity of material.

greater than 10^4 but less than or equal to 10^5 times the applicable quantities of Appendix C of Part 20	$500,000
greater than 10^3 but less than or equal to 10^4 times the applicable quantities of Appendix C of Part 20	$100,000

(d) Each decommissioning funding plan must contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the facility.

(e) Financial assurance for decommissioning must be provided by one or more of the following methods:

(1) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets that will retain their value over the projected operating life of the facility and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) A surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method. Any

surety method or insurance used to provide financial assurance for decommissioning must contain the following conditions:

(i) The surety or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Commission, the beneficiary, and the licensee of its intention not to renew. The surety or insurance must also provide that the beneficiary may automatically collect prior to the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Commission within 30 days after receipt of notification of cancellation.

(ii) The beneficiary of the surety or insurance must be a trustee acceptable to the Commission such as an appropriate state or federal government agency or a major financial organization.

(iii) The surety or insurance must remain in effect until the Commission has terminated the license.

(3) An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(4) In the case of Federal, State, or local government licensees, a certification that the appropriate government entity will be guarantor of decommissioning funds.

(5) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (c)(1) through (3) of this section.

33. Section 70.32 is amended by adding new paragraphs (k) and (l) to read as follows:

§ 70.32 Conditions of licenses.

* * * * *

(k)(1) Each holder of a specific license issued on or after [insert a date 1 year after the effective date of the final rule] which is of a type described in § 70.25(a) or (b), shall provide financial assurance for decommissioning in accordance with the criteria set forth in § 70.25.

(2) On or before [insert a date 1 year after the effective date of the final rule] each holder of a specific license of a type described in § 70.25(a) shall submit a decommissioning funding plan or certification of financial assurance for decommissioning in an amount at least equal to $500,000 in accordance with the criteria set forth in § 70.25. If the licensee submits the certification of financial assurance rather than a decommissioning funding plan at this time, the licensee shall include a decommissioning funding plan in any application for license renewal.

(3) On or before [insert a date 1 year after the effective date of the final rule] each holder of a specific license of a type described in § 70.25(b) shall submit a certification of financial assurance for decommissioning or a decommissioning funding plan in accordance with the criteria set forth in § 70.25.

(4) As of [insert a date 1 year after the effective date of the final rule] each licensee covered by § 70.25(a) or (b) shall provide financial assurance for decommissioning as a condition of license. If a decommissioning funding plan has been submitted to the Commission, implementing the plan becomes a condition of the license upon approval of the plan.

(l) Each person licensed under this part shall keep records of information important to the safe and effective decommissioning of the facility in a file explicitly for this purpose until the license is terminated by the Commission. If records of relevant information are kept for other purposes, reference to such records and their locations may be substituted. Information the Commission considers important to decommissioning consists of--

(1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(2) As-built drawings and modifications of structures and equipment in high radiation areas and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If referencing such drawings, it is not necessary to index each individual relevant document. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

34. Section 70.38 is revised to read as follows:

§ 70.38 Expiration and termination of licenses.

(a) Except as provided in § 70.33(b) and paragraph [~~(d)(3)~~] (e) of this section, each specific license expires at the end of the day, in the month and year stated in the license.

(b) Each licensee shall notify the Commission [~~immediately~~] promptly, in writing under § 70.5, and request termination of the license when the licensee decides to terminate all activities involving materials authorized under the license. This notification and request for termination of the license must include the reports and information specified in paragraphs [~~(d)~~] (c)(1)(iv) and (v) of this section [~~:~~] and a plan for completion of decommissioning if required by paragraph (c)(2) of this section or by license condition. [~~The licensee is subject to the provisions of paragraphs (d) and (e) of this section, as applicable:~~]

[~~(c) No less than 30 days before the expiration date specified in a specific license, the licensee shall either -~~

~~(1) Submit an application for license renewal under § 30.37; or~~

~~(2) Notify the Commission, in writing under § 30.6, if the licensee decides not to renew the license:~~]

[~~(d)~~ (c)(1) If a licensee does not submit an application for license renewal under § 70.33, the licensee shall on or before the expiration date specified in the license--

(i) Terminate use of special nuclear material;

(ii) Remove radioactive contamination to the extent practicable except for those procedures covered by paragraph (c)(2)(i) of this section;

(iii) Properly dispose of special nuclear material;

(iv) Submit a completed form NRC-314, which certifies information concerning the disposition of materials; and

(v) [~~Submit a radiation survey report to confirm the absence of radioactive materials or to establish the levels of residual radioactive contamination,~~] Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates [~~the absence of residual radioactive contamination~~] that the premises are suitable for release for unrestricted use in some other manner. The licensee shall, as appropriate--

(A) Report levels of radiation in units of microrads per hour of beta and gamma radiation at one centimeter and gamma radiation at one meter from surfaces, and report levels of radioactivity in units of disintegrations per minute (or microcuries) per 100 square centimeters removable and fixed [~~on~~] for surfaces, microcuries per milliliter [~~in~~] for water, and picocuries per gram for [~~in contaminated~~] solids such as soils or concrete; and

(B) Specify the survey instrument(s) used and certify that each instrument is properly calibrated and tested.

~~[(2) If no residual radioactive contamination attributable to activities conducted under the license is detected, the licensee shall submit a certification that no detectable radioactive contamination was found. If the information submitted under this paragraph and paragraphs (d)(1)(iv) and (v) of this section is adequate, the Commission will notify the licensee in writing that the license is terminated.~~

~~(3)(i) If detectable levels of residual radioactive contamination attributable to activities conducted under the license are found, the~~

~~license continues in effect beyond the expiration date, if necessary, with respect to possession of residual byproduct material present as contamination until the Commission notifies the licensee in writing that the license is terminated. During this time, the licensee is subject to the provisions of paragraph (e) of this section.~~

~~(ii) In addition to the information submitted under paragraphs (d)(1)(iv) and (v) of this section the licensee shall submit a plan for decontamination, if required, as regards residual radioactive contamination remaining at the time the license expires.]~~

(2)(i) In addition to the information required under paragraphs (c)(1)(iv) and (v) of this section, the licensee shall submit a plan for completion of decommissioning if the procedures necessary to carry out decommissioning have not been previously approved by the NRC, are extensive and could significantly increase potential health and safety impa workers or to the public such as in cases where --

(A) workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation; or

(B) procedures could result in significantly greater airborne concentrations of radioactive materials than are present during operation; or

(C) procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation; or

(D) procedures would involve techniques not applied routinely during maintenance operations.

(ii) Procedures with potential health and safety impacts may not be carried out prior to approval of the decommissioning plan.

(iii) The proposed decommissioning plan, if required by paragraph(c)(2)(i) of this section or by license condition, must include--

(A) Discussion of planned decommissioning activities;

(B) Description of methods used to assure protection of workers and the environment against radiation hazards during decommissioning;

(C) A description of the planned final radiation survey; and

(D) An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning.

(iv) The proposed decommissioning plan will be approved by the Commission if the information therein demonstrates that the decommissioning will be completed as soon as is reasonable and that the health and safety of workers and the public will be adequately protected.

(3) Upon approval of the decommissioning plan by the Commission, the licensee shall complete decommissioning in accordance with the approved plan. As a final step in decommissioning, the licensee shall again submit the infomation required in paragraph (c)(1)(v) of this section and shall certify the disposition of accumulated wastes from decommissioning.

(d) If the information submitted under paragraphs (c)(1)(v) or (c)(3) of this section does not adequately demonstrate that the premises are suitable for release for unrestricted use, the Commission will inform the licensee of the appropriate further actions required for termination of license.

(e) [~~Each licensee who possesses residual byproduct material under paragraph (d)(3) of this section; following the expiration date specified in the license shall--~~] Each specific license continues in effect beyond the expiration date if necessary with respect to possession of residual special nuclear material present as contamination until the Commission notifies the licensee in writing that the license is terminated. During this time, the licensee shall--

(1) Limit actions involving special nuclear material to those related to [~~decontamination and other activities related to preparation for release for unrestricted use~~] decommissioning; and

(2) Continue to control entry to restricted areas until they are suitable for release for unrestricted use and the Commission notifies the licensee in writing that the license is terminated.

(f) Specific licenses will be terminated by written notice to the licensee when the Commission determines that--

(1) Special nuclear material has been properly disposed;

(2) Reasonable effort has been made to eliminate residual radioactive contamination, if present, and

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release for unrestricted use; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release for unrestricted use.

PART 72 - LICENSING REQUIREMENTS FOR THE STORAGE OF SPENT FUEL IN AN INDEPENDENT SPENT FUEL STORAGE INSTALLATION

35. The authority citation for Part 72 is revised to read as follows:

AUTHORITY: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2239, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended by (42 U.S.C. 2021); secs. 201, as amended, 202, 206, Pub. L. 93-438, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851).

36. Section 72.3 is amended by adding a new paragraph (y) to read as follows:

§ 72.3 Definitions.

* * * * *

(y) "Decommission" means to remove (as a facility) safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license.

37. Section 72.14 is amended by revising paragraph (e)(3) to read as follows:

§ 72.14 Contents of application: General and financial information.

* * * * *

(e)***

(3) Estimated [~~shutdown and~~] decommissioning costs, and the necessary financial arrangements to provide reasonable assurance prior to

licensing that [~~shutdown;-decontamination;-and~~] decommissioning will be carried out after the removal of spent fuel from storage.

38. Section 72.18 is revised by revising paragraph (b) and adding a new paragraph (c) to read as follows:

§ 72.18 Decommissioning plan, including financing

* * * * *

(b) The decommissioning plan must contain information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI. This information must include a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning including means of adjusting cost estimates and associated funding levels over the life of the ISFSI.

(c) Financial assurance for decommissioning must be provided by one or more of the following methods:

(1) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's administrative control of cash or liquid assets that will retain their value over the projected operating life of the ISFSI and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) A surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method. Any surety method or insurance used to provide financial insurance for decommissioning must contain the following conditions:

(i) The surety or insurance must be open-ended or, if written for a specified term, such as five years, must be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the Commission, the beneficiary, which shall be a Commission-approved trustee, and the licensee of its intention not to renew. The surety or insurance must also provide that the beneficiary may automatically collect prior to

the expiration without proof of forfeiture if the licensee fails to provide a replacement acceptable to the Commission within 30 days after receipt of notification of cancellation.

(ii) The surety or insurance must remain in effect until the Commission has terminated the license.

(3) An external sinking fund in which deposits are made at least annually, coupled with a surety method or insurance, the value of which may decrease by the amount being accumulated in the sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's administrative control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(4) In the case of Federal, State, or local government licensees certification that the appropriate government entity will be guarantor of decommissioning funds.

(5) Other funding methods which are demonstrated by the applicant or licensee to provide comparable assurance to methods listed in paragraphs (c)(1) through (3) of this section.

39. In § 72.33 new paragraphs (b)(6) and (7) are added to read as follows:

§ 72.33 License conditions.

* * * * *

(b) Every license issued under this part shall be subject to the following conditions, even if they are not explicitly stated therein:

* * * * *

(6) The licensee shall implement procedures for providing financial assurance for decommissioning in accordance with the approved preliminary decommissioning plan.

(7) Each licensee shall keep records of information important to the safe and effective decommissioning of the facility in a file explicitly

for this purpose until the license is terminated by the Commission. If records of relevant information are kept for other purposes, reference to such records and their locations may be substituted. Information the Commission considers important to decommissioning consists of --

(i) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(ii) As-built drawings and modifications of structures and equipment [illegible]gh radiation areas and of locations of possible inaccessible contam[illegible]cion such as buried pipes which may be subject to contamination. If referencing such drawings, it is not necessary to index each individual relevant document. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

* * * * *

40. Section 72.38 is revised to read as follows:

§ 72.38 Applications for termination of licenses.

(a) Any licensee may apply to the Commission for authority to surrender a license voluntarily and to decommission the ISFSI. This application must be made within two years following permanent cessation of operations, and in no case later than one year prior to expiration of the license. Each application for termination of license must be accompanied, or preceded, by a proposed final decommissioning plan.

(b) The proposed final decommissioning plan must include--

(1) The choice of the alternative for decommissioning with a description of activities involved. Alternative methods for decommissioning which significantly delay completion of decommissioning, such as use of a storage period, will be acceptable if sufficient benefit results;

(2) A description of controls and limits on procedures and equipment to protect occupational and public health and safety;

(3) A description of the planned final radiation survey; and

(4) An updated detailed cost estimate for the chosen alternative for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning including means for adjusting cost estimates and associated funding levels over any storage or surveillance period.

(c) For final decommissioning plans in which the major dismantlement activities are delayed by first placing the ISFSI in storage, planning for these delayed activities may be less detailed. Updated detailed plans must be submitted and approved prior to the start of such activities.

(d) If the final decommissioning plan demonstrates that the decommissioning will be performed in accordance with the regulations in this chapter and will not be inimical to the common defense and security or to the health and safety of the public, and after notice to interested persons, the Commission will issue an order authorizing the decommissioning.

(e) The Commission will terminate the license if it determines that--

(1) The decommissioning has been performed in accordance with an approved final decommissioning plan and any conditions in the order authorizing decommissioning; and

(2) The terminal radiation survey and associated documentation demonstrates that the ISFSI and site are suitable for release for unrestricted use.

Dated at Washington, D.C. this _____ day of _____ 1984.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,
Secretary of the Commission.

ENCLOSURE B

Regulatory Analysis

Amendments to 10 CFR Parts 30, 40, 50, 51, 70, and 72 Specifying Licensee Responsibility and Procedures for Decommissioning a Nuclear Facility

1. Statement of Problem

The nuclear industry is maturing and the number and complexity of facilities that will require decommissioning is expected to increase in the near future. There are many aspects of facility activities that require consideration now with respect to decommissioning. These aspects are assurance of funding, facilitation considerations, recordkeeping, planning, and procedures for license termination. Inadequate or untimely consideration of these decommissioning elements could result in significant adverse health, safety, and environmental impacts. These impacts could lead to larger occupational and public doses, larger amounts of radioactive waste to be disposed of, proliferation of contaminated sites, and economic and sociopolitical problems for the states and Federal Government.

Current regulations as specified under 10 CFR Parts 30, 40, 50, 51, 70, and 72 cover decommissioning in a limited, vague, or inappropriate way and are not fully adequate in dealing with licensee decommissioning requirements. Many licensing activities concerning decommissioning have been made on a case-by-case basis in direct response to licensee's requests to decommission and in current licensing hearing cases. This procedure results in a lack of uniformity of application, inefficiency on the part of the licensee and NRC in implementation, and finally a lack of timeliness and comprehensiveness that affects proper application of the ALARA principle in carrying out NRC licensing responsibilities. In the case of a few non-fuel-cycle licensees, both a lack of available funds to carry out decommissioning and improper termination procedures have occurred.

In considering the current decommissioning needs of the nuclear industry, the lack of explicit enough regulatory guidance available, and the nonuniform,

inefficient and noncomprehensive approach that case-by-case considerations can result in, the staff recommends that more explicit rules be proposed that would provide guidance to the licensee on careful, timely and comprehensive planning and implementation of facility decommissioning. Facilitation of decommissioning, while an important aspect to consider, will not be included as a rule amendment requirement. However, in keeping with the as low as is reasonably achievable (ALARA) concept, decommissioning facilitation should be used to implement protection of health and safety. The rules would deal with requirements on financial assurance, planning, recordkeeping, and termination procedures. Their implementation through the NRC licensing process would assure that decommissioning would be handled by the licensee in a way that would result in minimal or even negligible impact on health, safety and the environment.

"Decommissioning" as defined in the proposed rule means to remove safely from service and reduce residual radioactivity to a level that permits release of the property for unrestricted use and termination of license by the NRC. At the end of the useful life of a facility, decommissioning activities should be performed which will ultimately result in termination of the NRC license. It is the responsibility of the NRC to ensure that these activities are performed by the licensee with minimal adverse impact on the health and safety of workers and the public, and on the environment.

A power reactor has potential for substantial health, safety, and environmental impact if decommissioning is improperly performed. This requires major regulatory consideration because of the large number of reactors (approximately 80 operating and 60 under construction), the quantity and radiation level of radioactive materials, size and complexity of the structure, and the proximity to populated areas. Most fuel cycle facilities contain low intensity radioactive materials. Most non-fuel-cycle facilities usually contain small amounts of very short-lived radioactive materials; a few contain large amounts of very low intensity materials. There are also several fuel cycle facilities such as scrap recovery, fuel fabrication, and UF_6 conversion plants that already have been or are being decommissioned. Finally, there are approximately 20,000 non-fuel-cycle licensees (including Agreement State licensees) of which several hundred are decommissioned annually.

Planning for decommissioning and its proper implementation by the licensee at the earliest practical stage of facility licensing can avoid many potential problems resulting from decommissioning. In this regard concerns are that (1) funds will be available for decommissioning at the end of useful facility life because a lack of funds can affect a licensee's ability to select and complete an appropriate decommissioning alternative; (2) facilitation, while not a proposed rule requirement, is considered because this can lead to reduction of occupational and public dose, and reduction of waste volumes through such activities at the design, construction, operation, and actual decommissioning; (3) records are maintained during operation containing information important to performance of eventual decommissioning; (4) planning is performed with details commensurate with complexity of the facility, which could include choice of decommissioning alternative, procedures, schedules, work plans, and off-site radioactive waste accommodations and; (5) termination procedures are prescribed which besides administrative reporting aspects and approvals include termination survey plans, their reliability and validation.

It has already been noted that the present rules do not adequately address all the required elements that a licensee must consider in dealing with decommissioning. Case-by-case licensing considerations are also inadequate because they are inefficient and nonuniform. The staff believes that amended rules backed up by regulatory guides will provide proper guidance to the licensees, Federal government, state and local agencies, and information for the general public. Moreover, the staff has assessed the impacts from decommissioning through a comprehensive information base on the technology, safety and costs of decommissioning nuclear facilities, numerous interactions with the states, industry, federal agencies, the general public, and development of a draft GEIS. Based on these efforts, the staff reached the conclusion that if guidance through rules is provided in essential areas relevant to decommissioning, then decommissioning can be accomplished with very small impact on the public and environment and in a cost effective way.

The proposed rule, when implemented, would allow for reduction of 10 CFR Part 51 NEPA requirements, categorical exclusion of approval of a decommissioning funding plan, and elimination of the mandatory requirement for an environmental impact statement at the time of decommissioning for 10 CFR Part 50 and 72 licenses.

Finally, it should be noted that residual radioactivity limits for unrestricted use are being addressed in a separate rulemaking involving amendment of 10 CFR Part 20.

2. Objectives

The staff focused on the following objectives in developing these proposed rule amendments:

2.1 Selection of the appropriate regulatory method for implementing decommissioning requirements.

2.1.1 no change
2.1.2 amendment of licenses
2.1.3 provide additional guidance through regulatory guides
2.1.4 amendments of regulations in 10 CFR Parts 30, 40, 50, 51, 70, and 72 for clarification and specifications of requirements for licensees on:

2.1.4.1 assurance of funds for decommissioning
2.1.4.2 facilitation of decommissioning
2.1.4.3 decommissioning plans
2.1.4.4 termination of license

2.2 Reduction of 10 CFR Part 51 NEPA requirements regarding decommissioning.

2.3 Consideration of the economic impact on licensees, especially small licensees.

2.4 Promulgation of regulatory requirements commensurate with the Commission's responsibility for public health and safety.

3. Alternatives

3.1 The alternatives considered in determining the need for regulation with respect to decommissioning are as follows:

1. No action
2. Amendment of licenses
3. Use of only regulatory guides
4. Amendment of regulations and preparation of regulatory guides

3.1.1 No change in regulations

It has already been noted that decommissioning guidance is needed in the areas of financial assurance, facilitation, planning, recordkeeping, and termination procedures. Current requirements are brief, non-specific or limited such as those in: (1) requirements in 10 CFR Part 50.82, Application for Termination of License and in 10 CFR Part 72, Section 72.76, Criteria for Decommissioning, and (2) recent amendments to 10 CFR Parts 30, 40, and 70 specifying licensee responsibility for nuclear materials and procedures for termination of specified licenses. This situation requires the licensee and the Commission staff to work on a case-by-case basis in the development of information needed by the Commission for terminating a license. Thus, a timely, orderly, and comprehensive management of licensee decommissioning action may not be possible because of a lack of guidance on decommissioning elements needing consideration. The net result is that case-by-case treatment can result in inefficient and non-uniform actions by the licensee, the NRC and others such as state, federal or public involved parties. Finally, it should be noted that the Commission in promulgating 10 CFR Part 50.54(w), which requires that the licensee have onsite property damage insurance to cover the cost of radioactive contamination clean up following an accident (47 FR 13750), indicated in the Supplementary Information that decommissioning financial requirements were not dealt with and new commission rulemaking in that area would include this consideration.

3.1.2 Amendment of licenses

Amendment of licenses is an alternative available to cover decommissioning requirements of licenses. This alternative is already being used and requires specific actions for each licensee. This can result in repetitive effort and inefficient use of Commission and licensee staff time and could result in an inconsistent application of policy.

3.1.3 Provide additional guidance through regulatory guides

Some of the specific elements of the proposed rule could reasonably be in the form of guidance. However, the NRC position that the licensee provide decommissioning funding assurance could not be effectively accomplished in this way. Even for those provisions which could conceivably be in the form of guidance, codification would provide a legal basis and assure more consistent application. Regulatory guides are planned to support this rule which would provide guidance to licensees and licensing staff on how these requirements can be implemented.

3.1.4 Amendment of regulations

This is the recommended alternative. Amendment of regulations and preparation of supporting regulatory guides presents a regulatory method for clearly delineating explicit regulatory requirements in a way that is comprehensive, uniform and efficient in dealing with the decommissioning of all nuclear facilities which are licensed or use licensed materials. Requirements are needed for all types of nuclear facilities except waste disposal facilties for which requirements are already in place. These requirements could be as amendments to 10 CFR Parts 30, 40, 50, 70, and 72 involving clarification and addition to the existing rules as follows:

3.1.4.1 Assurance of funds for decommissioning

Licensees should provide reasonable assurance at all times during facility life, including decommissioning, that adequate funds are available to ensure that decommissioning can be accomplished in a safe and timely manner. Lack of

funds can cause delay and may result in potential health, safety, environmental, and socio-political problems. The licensee should arrange to assure that funds are available through one or more of the following instruments:

(1) Prepayment. Prepayment is the deposit prior to the start of operation into an account segregated from licensee assets and outside the licensee's control of cash or liquid assets that will retain their value over the projected operating life of the facility and that are in amount such that the principal plus accumulated earnings would be sufficient to pay decommissioning costs. Prepayment may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(2) External sinking fund. An external sinking fund is a fund established and maintained by the periodic deposit of a prescribed amount into an account segregated from licensee assets and outside the licensee's control in which the total amount of the periodic deposits plus accumulated earnings would be sufficient to pay decommissioning costs at the time termination of operation is expected. An external sinking fund may be in the form of a trust, escrow account, government fund, certificate of deposit, or deposit of government securities.

(3) Surety method or insurance. A surety method or insurance is a guarantee that decommissioning costs will be paid should the licensee default. A surety method may be in the form of a surety bond, letter of credit, line of credit, secured interest, or other guarantee method.

(4) Internal reserve. Internal reserve is a fund established and maintained by the periodic deposit or crediting of a prescribed amount into an account or reserve which is not segregated from licensee assets and is within the licensee's control in which the total amount of the periodic deposits or funds reserved plus accumulated earnings would be sufficient to pay for decommissioning at the time termination of operation is expected. This method may use negative net salvage value depreciation in which funds are invested in licensee assets, and at the end of facility life, bonds are issued against these assets and the funds raised are used to pay for decommissioning. An

internal reserve may also be in the form of an internal sinking fund which is similar to an external sinking fund except that the fund is held and invested by the licensee.

(5) Other methods. The licensee might propose a different method, but should proivde information to demonstrate that the assurance provided would be comparable to that of other acceptable methods.

The amount and degree of assurance should be commensurate with potential adverse impact that could occur if the licensee were unable to decommission because of a lack of funds as well as other financial resources available to the licensee. For example, for a utility with more than one power generating station which is regulated by the State Public Utility Commission and collects at established rates (and is protected by postaccident decontamination insurance required by 10 CFR Part 50.54(w)) an internal reserve would constitute reasonable financial assurance; accident cleanup insurance for material facility licensees is under consideration in a separate action and an advanced notice of proposed rulemaking is being developed. For a non-fuel-cycle facility (which is a privately owned business), insurance or bonding would be a reasonable form of funding assurance. It is recommended that the rule specify acceptable methods for different categories of licensees (i.e., utilities vs. non-utilities).

In developing a rule that would assure that all facilities will be decommissioned in a safe and timely way, it is necessary to determine which licensees need to submit funding plans. Various options determining which licensees must provide financial assurance have been considered, ranging from only those likely to have very large decommissioning costs, such as those licensees presently required to submit radiological contingency plans, to all licensees. To require all licensees to submit funding plans would not be cost-effective; the health and safety of the public can be adequately protected by limiting the requirements to those licensees likely to have substantial decommissioning costs. If costs are low, lack of funds is less likely to result in default or abandonment, and in cases where defaults do occur, the NRC or state regulatory agency can take over control in order to protect health and safety relatively easily. However, the historical record indicates that relatively small licensees (that do not require a radiological contingency plan) may default and may have

the potential for a substantial contamination problem. It is believed important that some form of funding assurance be provided by these licensees.

The rule allows flexibility to licensees for providing such assurance to reduce the impact and a data base has been developed to reduce the impact of making cost estimates. For power reactor applicants and licensees, for example, the rule would allow a certification of a prescribed amount of available funding; for the non-reactor licensees the rule would also allow a certification of prescribed amounts of available funding for the majority of licensees based on the radioactive material possession limits allowed by their license. Thus these licensees can be generically treated and would not be required to submit a decommissioning funding estimate. However, all these licensees would have the option of submitting a funding estimate for approval, if a lower amount than is prescribed is anticipated. All other applicants and licensees such as non-power-reactor licensees (Part 50) and independent spent fuel storage facility licensees (Part 72) as well as material licensees with potential for substantial decommissioning costs would be required to submit a decommissioning funding assurance plan consisting of a cost estimate and method of providing assurance. All material licensees required to submit a funding plan could initially, prior to license renewal, submit a certification of a prescribed amount.

According to the proposed rules, Parts 50 and 72 licensees and applicants would submit information concerning funding assurance in a decommissioning funding plan. Material licensees with potential for substantial decommissioning costs would also be required to provide funding assurance.

3.1.4.2 Facilitation of decommissioning

It is recognized that planning for decommissioning at an early a stage of facility construction and operation is desirable. This is expecially true of facilitation aspects (in particular, features that could reduce radiation doses and waste volumes resulting from decommissioning). Features that are reasonable in cost and effective in implementation can be more easily incorporated at early stages. However, at any stage of facility life, consideration of facilitation by the licensee is important, particularly if by its

implementation, operational and decommissioning cost savings can be obtained. Implementation of facilitation considerations can result in lower radiation doses as well as reduction of radioactive waste volumes during the actual decommissioning process. No additional rule amendments are being proposed except certain recordkeeping requirements; all licensees should, however, consider other ways of facilitating decommissioning in the design and operations of the facility. This is in keeping with the "as low as is reasonably achievable" (ALARA) concept when implementing protection of health and safety.

Keeping records of information which may be important at the time of decommissioning should be required because it allows for more efficient and comprehensive decommissioning planning and can result in a reduction of impacts to health, safety, and economics during decommissioning. In complying with this requirement, the licensee would keep records of information (which could be a relatively simple reference file) containing material important to safe and effective decommissioning such as unusual occurrences involving the spread of contamination in and around the facility, as-built drawings and updates of any changes, etc. Other aspects of facilitation may be more affected by facility-specific considerations, thus, no other specific procedures should be required for all licensees.

3.1.4.3 Decommissioning plans

Planning for decommissioning is necessary to ensure that all decommissioning activities are accomplished in a safe, timely, and efficient manner. As mentioned above, financial, facilitation, and recordkeeping considerations need to be addressed at licensing or as soon as possible for existing licensees. Licensees that require a plan are required to take into account financial and technical situation at the time of actual decommissioning.

The plans need to address:

- Discussion of planned decommissioning activities.
- Description of methods used to assure protection of workers and the environment against radiation hazards during decommissioning.
- A description of the planned final radiation survey.

An updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning.

It is expected, however, that operators of a large number of simpler facilities would be able to accomplish all or much of their decommissioning using techniques the same as during routine operation and not need a decommissioning plan.

3.1.4.4 Termination of Licenses

Explicit procedures and requirements for a licensee to terminate a license must be clearly delineated. These include the licensee request to terminate a license and submittal and approval of plans including a termination survey plan. Surveys submitted for termination must be designed to demonstrate with a high degree of confidence that the property is suitable for release for unrestricted use. The plan including termination survey details should be commensurate with the type of facility and its potential for adverse effects. For many non-fuel-cycle facilities, decommissioning could involve little more than notification that the licensee wishes to terminate the license.

3.2 Reduction of 10 CFR Part 51 NEPA Requirements

Approval of the decommissioning funding plan for Part 30, 40, 50, and 70 licenses does not change the nature or the scope of the licensed activity. The principal purpose of these plans is the provide information to the Commission which will enable them to determine whether the licensees funding plans for decommissioning are adequate. These actions in and of themselves do not have an environmental impact and therefore can be categorically excluded from 10 CFR Part 51 NEPA requirements.

If proper consideration and implementation is given to decommissioning elements (as specified in Section 2.1.3 of this document), the environmental impacts from decommissioning are expected to be small and elimination from 10 CFR Part 51 of the mandatory requirement for an environmental impact statement

(EIS) at the time of decommissioning for Part 50 and 72 licenses is warranted. Environmental assessments would still be required but these would not necessarily lead to an EIS.

4. Consequences

4.1 Benefits and Costs

4.1.1 Benefits

4.1.1.1 NRC

The proposed amendments to 10 CFR Parts 30, 40, 50, 51, 70, and 72 will clarify and specify NRC requirements and licensee responsibilities for decommissioning nuclear facilities. The proposed rule amendments set forth requirements and procedures the licensee must follow at all licensing stages relating to decommissioning. This will reduce uncertainties in the licensing process, reduce the need for the Commission to request additional information from licensees, provide for uniform, comprehensive and efficient licensing implementation, and ensure that the application of the as low as reasonably achievable principle is effectively considered in areas of health, safety, and the environment. Finally, these amendments will allow for termination of licenses in as prompt a manner as possible.

4.1.1.2 Other Government and State Agencies

The rule will affect other Federal agencies if they are NRC licensees. For agencies licensed by the NRC the benefits are similar to those for Industry. The clarification of existing licensee responsibility, particularly in the areas of funding assurance and environmental impacts will benefit especially the Federal Energy Regulatory Commission, which regulates rates on interstate power, and the EPA, which regulates environmental factors affecting the public sector and sets radiation standards. Other agencies such as DOE and DOD will also benefit by having examples of decommissioning requirements to follow in the areas of planning and facilitation.

The rule will affect state agencies in providing for explicit licensee requirements, particularly in the area of funding assurance. This requirement will benefit the states in allowing for uniform applicability and adequate planning in rate collection requirements (especially for Public Utility Commission rate regulated reactors). Moreover, planning and requirements for the termination of license will ensure that decommissionings will be performed as promptly as possible with minimal adverse impact on the state and ensure that the health and safety of the public and the environment are adequately protected.

4.1.1.3 Industry

The proposed rule would require licensees to consider particulars of compliance in the areas of funding assurance, planning, recordkeeping, and license termination procedures including termination surveys. Currently, regulations concerning decommissioning requirements are limited or vague. Case-by-case action has been used to effect licensing requirements. The proposed amendments would allow licensees to satisfy decommissioning requirements, many of which are already required on an hoc basis, more efficiently and cost-effectively. In situations where additional requirements would be imposed, such as in areas of funding assurance, requirements have been kept to the minimum that ensures that health, safety, or the environment are not compromised. Finally, an additional benefit of these amendments is that licensee compliance would eliminate some of the 10 CFR Part 51 requirements concerning decommissioning.

Amendments can be classified into two basic types: type 1 - those which relate to the licensing of any facility under 10 CFR Parts 50 and 72; type 2 - those which relate to licensing possession and use of radioactive materials as in 10 CFR Parts 30, 40, and 70.

The majority of type 1 licenses are power and research and test reactors. Non-fuel-cycle facilities and fuel-cycle facilities, except fuel reprocessing plants, fall into type 2 category. There are only a small number of fuel cycle facilities; however, there are approximately 20,000 non-fuel-cycle facilities (including Agreement State licenses). It is estimated that approximately 43% of these could be considered small entities under the criteria set out in the size standards by the Small Business Administration in 13 CFR

Part 121 (e.g., for most licensees less than 500 employees, for hospitals less than 150 beds, and for other medical licensees less than $1.5 million annual gross receipts). The benefits of the proposed rule requirements for the major decommissioning elements, using the classifications are:

Funding Assurance - The regulations require as a condition of license either (1) a certification that the licensee has provided financial assurance in the amount and methods prescribed in the rule or, (2) approval of a funding plan (with periodic update) requiring an estimate of decommissioning cost as well as a prescribed method for providing assurance. For power reactor licensees, type 1, a rule prescribed amount for certification, $100 million, can be used. This amount is based on the most current information available and the extensive NRC data base developed in support of this rulemaking. It is not intended that the prescribed amount be exact but rather that it cover the bulk of the expected decommissioning cost within the context of reasonable funding assurance. It is intended that as economic factors change the amount will be appropriately updated by an ammendment to the rule. For research and test reactors there is a wide diversity of types and it is difficult to prescribe a single meaningful certification amount. It is also not likely for this situation as compared with power reactors, that licensees would choose a precribed certification amount. For these reasons research and test reactors must submit funding plans. Similarly, for these same reasons material licensees (type 2) having large potential for radioactive contamination would also be required to submit funding plans. The majority of type 2 licensees are excepted from this requirement. A wide latitude of methods for providing funding will be allowed within the bounds of reasonable assurance that funds will be available to decommission the facility in a safe and timely manner (including provision for premature closure). The funding assurance requirements allow the licensee to implement a method of funding with long lead time and during the time that the facility is operating so that funding requirements can be considered with other revenue requirements.

For type 1 licenses - reasonable assurance of funding capability allows utilities to use the internal reserve funding method in which the collection of fees from the rate payer can be invested in company assets. Assuming such funds earn a reasonable rate of return then, the incremental cost of such a funding method

(compared to no rule) is zero. This method of funding costs less than other alternative choices such as external funds or prepayment, (by a factor of 2 or 3) because a utility can usually earn more investing in its own assets. For example, for an estimated decommissioning cost of $50 million for a modern day 1200 Mwe PWR in 1979 dollars and which is assumed to operate for 30 years, internal reserve funding could result in a saving of $200 million. For the approximately 80 operating reactor plants and 60 undergoing construction, this could result in an overall saving of $28 billion. Moreover, with respect to premature closure the reasonable assurance requirement takes into consideration the recently promulgated rule 10 CFR 50.54(w) that requires an electric utility to obtain onsite property damage insurance. In comparison to possible costs that would result from accident cleanup, decommissioning costs are small (on order $50 million compared to as much as $1 billion). It is expected that required on-site property damage insurance for such accident cleanup would allow a utility to remain financially solvent even in the case of an accident. Thus a utility should have adequate financial resources to pay for the cost of decommissioning following accident cleanup.

An exception to the above is a single asset utility, i.e., one which owns only one generating facility, where external funding or other guarantee would be required. While there could be some initial economic impact in meeting this requirement, there are only a few single asset utilities and so the overall impact is very small. Moreover, the impact on the individual rate payer is also very small and estimated to result in an increase in rates over an internal reserve funding mechanism of no more than 0.2% of the consumer electrical usage rate. Finally, recognition by the utility at an early time of the necessity of including decommissioning costs into the rate base would further minimize overall economic impact. For research and test reactors, most are federal or state owned or are part of large universities. State or federal certification that funds for decommissioning will be made available would be considered reasonable assurance for funding; knowledge of the funding requirement by appropriate agencies would allow for adequate budget planning. For independent spent fuel installations, of which there is one under Part 72 license, the funding assurance is essentially the same as that already required in 10 CFR Part 72.18(b).

For type 2 licenses - the majority of type 2 licensees, while financially responsible for decommissioning costs, are excepted from funding assurance requirements. For the other licensees (about 1500 NRC licenses) some type of funding assurance is required. However, for many of those a certification that the licensee has provided financial assurance in the amount and methods prescribed in the rule would be sufficient. For the remainder (about 828 NRC licenses) a financial plan indicating amounts and methods of assurance for providing decommissioning funds would be required. All sealed source users, except those using source material greater than 10^{10} appendix C values of 10 CFR Part 20 (10,000 Ci for Co-60 and 100,000 Ci for Cs-137) would be excepted. Also excepted would be plated foils or equivalent source material in a non-readily-dispersible form. Moreover, all licensees with materials of half-lives not exceeding 120 days would also be excepted as would those licensees with possession limits less than or equal to 10^3 times the curie content specified in 10 CFR Part 20, Appendix C for Part 30, 40, and 70 licenses. Thus the majority of small businesses would be excepted, especially hospitals which primarily possess short half-life radioactive materials. Specification of a tiered system based on possession limits for fixed amounts of required financial assurance, aside from eliminating a majority of type 2 licensees having minimal risk, results in a more implementible system both for the licensee who does not have to provide the NRC with a decommissioning funding estimate as well as the NRC in the administration of the requirement to ensure that the licensee has provided adequate financial assurance. Moreover, for those licensees requiring a financial assurance plan, the plan would only be required at license renewal at which time it is much more efficient for the licensee and staff to implement as part of the overall renewal effort. All affected licensees, including those requiring a funding plan at renewal would have a year from the date that the rule becomes effective to acquire prescribed funding assurance. Those licensees requiring a funding plan would provide to the NRC a funding certification for $500,000 until a funding plan was submitted at license renewal. In general, funding assurance amounts have been based on the PNL data base. Decommissioning a typical laboratory of a facility in 1983 dollars is estimated to cost about $100,000 and this is the requirement for those Part 30 and 70 licensees having possession limits greater than 1000 but less than or equal to 10,000 times the curie limits prescribed in 10 CFR Part 20 Appendix C. For Part 40 licensees, this is also the prescribed amount

for those licensees having source material limits greater than 10 mCi but less than or equal to 100 mCi; for those Part 40 licensees having possession limits greater than 100 mCi a financial plan would be required. For Part 30 and 70 licensees having possession limits greater than 10,000 but less than or equal to 100,000 times the possession limit values of 10 CFR Part 20 Appendix C, the amount of assurance required would be $500,000 (the equivalent cost of decommissioning 5 major laboratories); for those above this limit a funding plan would be required. All affected licensees who do not require a funding plan may still submit one for approval if they feel the prescribed assurance costs are too high. It is not expected that many would do this, however, because it is felt that the prescribed costs are reasonable. If a surety method were used for providing this assurance which costs about 1-2% annually of the value of the surety, then this further reduces any incentive to submit a funding plan, especially when it is recognized that the cost of the surety is a business expense and is tax deductible; depending on the size of the licensee such deduction would be in the 25-50% tax bracket.

Recordkeeping - The licensee is already required to keep records for various limited times of such things as unusual occurrences involving the spread of contamination and as-built drawings or other information which can affect operational health and safety. Proposed rule requirements on recordkeeping could be satisfied by keeping a central updated reference file of already generated records that have potential for relevance to decommissioning such as instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of seepage into porous material such as concrete. Relevant records must be kept until the facility is decommissioned. This information could minimize radiation exposure as well as greatly reduce actual decommissioning costs. Decommissioning experience has shown that a lack of sufficient historical information can result in increased dose to occupational workers, difficulty in planning and cost estimating, inefficiency in the decommissioning process and delay in completing decommissioning.

Planning - planning for decommissioning requires two main phases because certain aspects of decommissioning should be considered early such as recordkeeping

and funding assurance; while other aspects concerning actual decommissioning are best considered when decommissioning is imminent. At this time, if decommissioning is complex and costly final planning is needed that takes into account relevant technical and financial considerations at that time.

For type 1 licensees - besides the initial planning of recordkeeping and funding assurance final planning would be required. Final planning is already required but only when the licensee desires to dismantle. For a power reactor such planning would be elaborate because of the complexity of the facility being decommissioned. Preparation of such a plan allows for a more efficient and direct use of licensee time.

For type 2 licensees - as with type 1 licensees, aside from funding assurance and recordkeeping considerations, decommissioning plans may be required at the time of decommissioning and would depend on the complexity of the decommissioning. Such plan requirements have already been approved by some case-by-case licensing decisions. For the large number of non-fuel-cycle licensees, plans would not be required because the decommissioning work could be performed prior to requesting license termination. All that might be required is a notification of a desire to terminate the license as well as a termination survey or other information that demonstrates that the facility is suitable for unrestricted use.

Termination Procedures - Specific requirements as to how a licensee can terminate a license including administrative procedures as well as technical requirements should result in efficient, less costly efforts. Specifically in the technical area, requirements for the performance of acceptable termination surveys can speed up the NRC termination of license.

For type 1 licensees - a survey plan would be required for NRC approval. Proper implementation of this plan by the licensee would allow the NRC to terminate the license promptly.

For type 2 licensees - For some licensees, submittal of a final decommissioning plan would be required. However, for most licensees only the results

of a termination survey or other information of an equivalent nature would be needed. For the more complex facilities, or those where large areas need to be surveyed, the licensee may choose to have a termination survey plan approved by the NRC prior to execution so that the license could be terminated when the survey was properly implemented.

It should be noted that specific criteria for residual radiation limits acceptable for terminating a license are being proposed in 10 CFR Part 20 in a separate rulemaking action.

Other Considerations - Mitigation of adverse environmental impact from decommissioning will occur provided that the proposed rule amendments are implemented. Reduction of 10 CFR Part 51 requirements through categorical exclusion of the funding plan approval for type 1 licenses and the funding plan approval for type 2 licenses as well as elimination of the mandatory requirement for an environmental impact statement for type 1 licenses is warranted and will eliminate some requirements for such considerations in environmental reports, assessments and impact statements.

4.1.1.4 Public

The requirements set forth in this proposed rule will minimize licensee decommissioning impacts on health, safety and the environment. Moreover, financial requirements will ensure that decommissioning is done as promptly as reasonable and that a non-operational facility does not become a public burden. From a financial aspect, especially for power reactors, requirements for funding assurance will minimize rate payer costs relating to decommissioning.

4.1.2 Costs

The major cost impact of the proposed rule amendments is in the area of funding assurance.

For type 1 licensees - other cost impacts for existing licenses are associated with recordkeeping. Also, at the end of facility life, the new requirements

could add some additional requirements to what is presently required of licensees.

For type 2 licenses - other cost impacts are in the area of recordkeeping. Also, at the end of facility life, for those licensees requiring a final plan, some additional requirements could be incorporated into the licensing requirements beyond those incorporated into present licensing conditions.

Detailed considerations of cost impact for the NRC, other government and state agencies, the industry, and the general public are presented in the remainder of this chapter.

General estimating data relative to interpreting results presented is the use of a 235 day work year (49-5 day weeks less 10 holidays) and a worker rate of $40/hr which is aimed at the technical staff thought to be needed level for the majority of the required efforts described. Thus a man-year of effort results in a cost of $75,000.

4.1.2.1 NRC

For type 1 licenses - the major resource impacts are estimated to occur within the first 2 to 5 years following promulgation of the final rule amendments during which time decommissioning certification or funding plans would be required of all licensees (and would be submitted within 2 years from effective date of rule).

In 1984 there are approximately 80 operating power reactor licenses (and about 60 under construction 50% of which are 2/3 completed) and NRC review and approval of the operating license required funding plan will result in an estimated 6-day effort or a 3-day effort for certification. For purposes of impact estimating it is assumed that 50% of the power reactors under construction, about 30, will be affected by this rule along with the already operating power reactors resulting in a total of 110 power reactors. Use of regulatory guides on financial assurance has been assumed in this estimate. Thus for all presently operating power reactors this results in about 1.4 to 2.8 man-years effort and a cost of about $105,000 to $210,000. Estimating that this effort occurs over

3 years results in an expenditure of about $35,000 to $70,000/yr. There are also approximately 75 research and test reactors of varying size and complexity. Using an average of 4 days of effort for review and approval of the funding plan results in an estimated effort of about 1 man-year at a cost of about $75,000 resulting in an annual cost of approximately $25,000 spread over 3 years.

Thus the total effort is estimated as 2.4 to 3.8 man-years at a cost of about $180,000 to $285,000 or $60,000 to $95,000/year over 3 years.

Other impacts were estimated at the operating and decommissioning stages but were all judged minor for the following reasons:

(1) During reactor operations, total NRC staff requirements are estimated at 0.4 person-year/year (about 1/2 day per facility) or $30,000/yr for ensuring that NRC approved plan requirements are being implemented.

(2) At the decommissioning stage, it is expected that there will be a considerable spread in time when actual decommissionings take place and its impact on an annual basis should be small. Decommissioning has to be reviewed even under existing regulations and overall administrative effort should be reduced at this time because of more specific requirements. Elimination of the mandatory requirement for an environmental impact statement will result in routine use of the simpler environmental assessment. This is all that has been required in the past (prior to a recent revision to 10 CFR Part 51).

For type 2 licenses - the major resource impacts are estimated to occur within 1 to 5 years following rule amendment finalization primarily from funding assurance requirements for existing material licenses that have not been excepted. It is estimated that a funding plan consisting of a cost estimate and a method of providing assurance will be required of about 828 licenses. Funding plans would be required at the time of license renewal (once every 5 years) and so efficiency of staff effort would be optimized. Moreover, it is expected that funding plan updates at license renewal would be very minimal and would primarily be based on considerations of inflation. Thus, no cost is considered for NRC funding plan cost estimate update review at license renewal.

Licensees that require a plan as well as those affected but not requiring a plan would require a certification that funds have been assured by prescribed methods and amounts specified in the rule. This would require little NRC staff effort. It is estimated that staff effort in evaluating and approving of a funding plan would require about 6 man days on average resulting in about 21 man-years at a cost of approximately $1.6 million spread over 5 years or $320,000/yr.

Other impacts were estimated during plant operation and decommissioning, but were all judged minor for the following reasons:

(1) During plant operation, NRC inspection staff requirements are estimated as 0.9 person-year/year (1/4 day per facility) or about $68,000 for assuring that rule amendment requirements are being implemented.

(2) At the decommissioning stage it is estimated that there will be considerable spread in time when actual decommissioning occurs. It is also expected that except for the complex and costly facilities to decommission, primarily fuel cycle or large non-fuel cycle ones (of which there are only few), most licensees will complete decommissioning requirements prior to their request for license termination and all that will be required is confirmation that an acceptable termination survey had been done, or equivalent proof of acceptability, and residual radioactivity levels allow for unrestricted use of the facility and termination of license. The requirement for a decommissioning plan is already required in the recent amendments to 10 CFR Part 30, 40, and 70 specifying licensee responsibility for nuclear materials and procedures for termination of of specific licenses (48 FR 32324, July 15, 1983). These amendments have been incorporated into the proposed rules to ensure uniformity of style as well as completeness.

A summary table of NRC manpower effort for type 1 and 2 licenses in terms of manpower and cost is presented in Attachment B.

4.1.2.2 Other Government and State Agencies

Other state or government agencies are not expected to be signifitantly cost impacted. For state or Federal licensees, such as test or research reactors; funding assurance allowing for state or Federal agency certification will limit impacts and provide for a more efficient method of funding preparation. It is estimated that 75% of research and test reactor licenses are federal or state owned and that funding plans plus recordkeeping requirements for the approximately 60 reactors would cost $75,000/yr over 3 years (see section 4.1.2.3, 3rd paragraph).

Agreement states must maintain comparable requirements, and will have similar impacts as that to NRC to implement these requirements. Type 2 licensees only are involved and a similar number are expected to be affected. Thus, the total impacts to all Agreement States would be similar to the impacts to NRC associated with type 2 licensees.

4.1.2.3 Industry

For type 1 licenses - major impacts would be in the funding plan requirements and for recordkeeping. For funding assurance plans an initial cost estimate is required together with a method for providing reasonable assurance that such funds will be available for decommmissioning. Licensees and applicants can base estimates of decommissioning costs on the Battelle Pacific Northwest Laboratory reports on technology, safety and costs for decommissioning as well as a regulatory guide. The proposed amendments indicate that collection of funds which can be kept in an internal reserve account provides reasonable assurance of availability of funds. It is recognized that some "phasing in" time for power reactor funding assurance is required for existing operating reactor licensees because otherwise this could have an immediate capital market resource impact. Therefore, within the interpretation of reasonable funding assurance, the NRC would recognize (for facilities where decommissioning costs would be $5 million or more) a period of 5 years or one-third of the remainder of years until license expiration, whichever is greater, as the time the licensee would have to make up funding costs in an annual sinking fund

that would bring the fund to adequate current funding levels. As part of the NRC's elimination of the requirement for financial qualifications (47 FR 13750 March 1982) the Commission noted that requirements for decommissioning funding would be included in proposed rule amendments. Use of the option of unsegregated internal reserve collected for this purpose with gradual phasing in of reserve amounts required over a 5 year or greater period minimizes any impact that might result from this requirement.

The majority of licensed test and research reactors are owned by the State, Federal Government, or large universities. Reasonable funding for those not owned by the State or Federal Government would require a funding assurance method. This could be in the form of a broad variety of alternatives prescribed in the rule but does not include internal reserve as in the case of a multi-asseted utility. However in the most costly case, such as a surety, an annual cost of 1-2% of the face value of the surety would result (which for most would not exceed $20,000/yr) and could be reduced as funds are set aside in an external sinking fund to pay for the cost of decommissioning so long as the surety coverage plus accumulated funds are adequate.

It is estimated that a certification or funding plan as well as implementation of recordkeeping for power reactors would take about 14 to 22 days to develop (including 4 days on recordkeeping, 8 days on cost estimating, and 10 days on plan implementation). This would result in an effort for the approximately 110 operating reactors (includes 30 under construction) of about 6.6 to 10.3 man years at a cost of approximately $495,000 to $773,000. When spread over 3 years this would result in a cost of $188,000/yr. For research and test reactors, the funding plan as well as the recordkeeping effort is estimated at about 11 days on average resulting in a cost of about $3,700 per reactor. Assuming 25% of these are industry owned, this would result in a cost of $75,000 which when spread over 3 years results in a relatively minor cost of $25,000/yr. Other impacts were estimated at the operating and decommissioning stages but were all judged minor for the following reasons:

(1) During the operational stage costs (primarily financial update) are estimated as less than 0.5 person-year/year ($38,000/yr) for the total industry.

(2) At the decommissioning stage, plans are already required. Explicit requirements would make this process more efficient. Moreover, it is expected that such explicit requirements would allow for a simpler presentation of environmental report requirements resulting in some reduction in cost.

For type 2 licenses - major impacts would be in the funding assurance requirements. Details of the results presented here can be found in Attachment A. A cost estimate for decommissioning and a method of providing assurance would be required of about 1656 such licensees; it was estimated that the number of NRC and state licenses are comparable. Based on this, it is also estimated that an additional 252 licensees will require certification of funding assurance of $500,000 and about 468 others will require assurance of $100,000. Also for affected large sealed sources licensees (about 602), assurance of $50,000 will be required. The proposed rule amendments allow as much flexibility as possible for providing such assurance, in order to reduce the impacts. It is likely that many licensees (especially small licensees) will choose a surety or other guarantee method. This is estimated to cost 1-2% of its face value annually. However, this cost can be considered an operating business expense and is tax deductible, resulting in a saving of between about 25-50% depending on the size of the licensee. If a surety method is used, then this is estimated to cost $10.6 million annually ($1,500 to $5,000 per licensee). Licensees requiring plans are expected to utilize other allowed funding methods such as external sinking funds which may reduce funding assurance costs. It is also expected that many other licensees will use other allowable funding assurance methods, thereby reducing these estimated costs. For small entities, it is expected that the majority will be excepted (especially for medical licensees) because of the exception for half-lives less than 120 days, most sealed sources, Part 30 and 70 licensees possessing material less than or equal to 1000 Appendix C values of 10 CFR 20, and Part 40 licensees possessing source materials less than or equal to 10 mCi. For those small entities affected (about 276 licenses) it is estimated that at worst the annual cost of maintaining sureties is about $560,000 annually ($1,500 for the majority of licensees). These small entities would be almost exclusively industrial licensees. Historical information indicates that such small industrial licensees are the most likely to default and it is particularly important that these licensees provide financial assurance

to ensure that health and safety will not be compromised because of a lack of funds to decommission.

For those licensees where a funding plan is required, it is estimated that the cost of developing such a plan based on a 12 day effort is about 85 man-years, at a cost of $6.4 million or spread over 5 years, $1.28 million/yr. No cost is considered for funding plan cost estimate updates because this occurs at license renewal and efficiency of effort can be optimized. Moreover, it is expected that this effort will be very minor and primarily pertain to consideration of inflation.

Other additional requirements such as recordkeeping considerations are expected to have minor impact and are considered to be consistent with good practices. No plan is required and recordkeeping can be as simple as maintenance of a centralized reference file.

Impacts during operation or termination of license are judged minor. For the majority of licensees, decontamination and surveys can be conducted under the operating license and no plan will need to be submitted. For those facilities which are complex and costly to decommission, detailed plans are already required. These requirements have recently been included in amendments to 10 CFR 30, 40, and 70 and have been incorporated into this proposed rule for uniformity and completeness.

4.1.2.4 Public

The public, as user of electricity, has to pay for the cost of decommissioning as a routine cost and thus decommissioning costs in themselves do not constitute a special impact. However, major potential cost to the public could come from a lack of financial assurance resulting in inadequate or nonexisting licensee decommissioning funds and lead to an inability to expediently decommission. Such a situation would result in a public burden. Use of proper practices through regulatory requirements would minimize this possibility as well as tend to keep decommissioning costs to a minimum.

5. Decision Rationale

An assessment of the costs and benefits of the proposed amendments leads to the conclusion that overall there will be a moderate increase in costs to the NRC, State and Federal agencies, industry, and other licensees and an important increase in the effectiveness of decommissioning activities that will ensure that impacts on health, safety and the environment are minor. Therefore, the proposed action is recommended. No alternatives, other than rule amendments were judged to be satisfactory. This decision is supported by both quantified cost data and a reasoned judgment on improvements to health, safety and the environment.

6. Implementation

(a) Schedule

No implementation problems are anticipated. The framework for implementation is already established in the NRC, State and Federal agencies, and the industry. Major impact from initiating the rule has been minimized by allowing phase in time of requirements after rule finalization. For type 1 licensees, this is 2 years for submittal of a funding plan. For type 2 licensees, financial assurance requirements become effective 1 year after the rule becomes final. For those licensees requiring a funding plan, such plans are required to be submitted at the time of license renewal.

(b) Relationship to Other Schedules

It is intended that an FEIS on decommissioning be issued which will consider comments from these proposed amendments. Issuance of final amendments will occur after the FEIS has been issued. No effect on other schedules is anticipated.

ATTACHMENT A

Cost to Affected NRC Material Licenseest

	Number of Licenses		Total Cost* - Millions of Dollars (2% of Surety less tax rebates)
Licensees requiring plans and/or certification for $500,000	828		4.1
Licensees requiring certification for $500,000	126		0.63
		Total	4.7
Licensees requiring certification of $100,000	234		0.35
Sealed Source licensees requiring certification of $50,000	301		0.23
		Overall	5.3

*For licensees requiring $500,000 certification or more use 50% tax bracket. For licensees requiring $100,000 or less use 25% tax bracket.
†It is estimated that Agreement State licensees are equal in number and that Agreement States would have equal costs.

Estimate that the number of Agreement State licensees are equal in number and thus overall cost impact is doubled. Therefore, surety cost for all affected licensees would be 2 x $5.3 million or about $10.6 million annually.

For small businesses, it is estimated that 50% of the licenses requiring $100,000 certification plus 10% of those requiring $500,000 certification plus 1% of those requiring a plan are affected. This results in about 138 affected NRC small business licenses and a surety cost of 1% of 4.1 million plus 10% of $0.63 million plus 50% of $0.35 million or about $0.28 million/yr. Thus, doubling these numbers results in an estimated total of small business licenses of 276 at an annual cost of $0.56 million.

ATTACHMENT B

Effect and Cost of Proposed Rules to NRC

License Type	NRC Office	Manpower (man-year)	Cost (thousands/yr)	Duration (years)
Part 50 and 72				
	NRR	0.7 (certification)	18	3
		2.5 (plan)	63	
	SP	1.7 (certification)	43	3
		1.3 (plan)	33	
	Regions	0.15 operating life of reactor	12.5	over period of license
	SP	0.15 operating life of reactor	12.5	over period of license
	NMSS	negligible		
Part 30, 40, and 70				
	NMSS or Regions	4.2 funding plan	320	5
	Regions	0.9 operating life of facility	68	over period of license

ENCLOSURE C

DRAFT CONGRESSIONAL LETTER

Dear Mr. Chairman:

Enclosed for your information is a copy of a Notice of Proposed Rulemaking pertaining to decommissioning of nuclear facilities.

The proposed rule sets forth financial and technical criteria for the decommissioning of licensed facilities and is a result of a reevaluation of the Commission's decommissioning policy. An Advance Notice of Proposed Rulemaking was published on March 13, 1978 (43 FR 10370) announcing that the Commission was reevaluating its decommissioning policy. A Draft Generic Environmental Impact Statement (GEIS) was published, and a notice published announcing its availability for public comment on February 10, 1981 (46 FR 11666). This proposed rule is based on an extensive data base which has been developed as part of the reevaluation and considers comments received on the Advance Notice, GEIS and discussions with the states at 5 workshops.

The proposed rule defines decommissioning as always leading to unrestricted use of property. The proposed rule would require that financial assurance for decommissioning be provided by reactor licensees and other licensees with potential for major decommissioning costs. A number of alternative methods of providing this assurance would be allowed.

The proposed rule would also require that appropriate records be kept to be sure adequate information is available at the time of decommissioning.

More specific criteria for planning for decommissioning are also provided.

The enclosed Federal Register Notice allows 90 days for public comment. Also enclosed is a copy of a public announcement that will be released by the Commission in the next few days.

Sincerely,

Robert B. Minogue, Director
Office of Nuclear Regulatory Research

Enclosures: As stated

Enclosure C

ENCLOSURE D

Draft Public Announcement

NRC PROPOSES
DECOMMISSIONING CRITERIA

The Nuclear Regulatory Commission is proposing to amend its regulations to include technical and financial criteria for decommissioning licensed nuclear facilities. The existing regulations cover decommissioning requirements only in a limited way.

As proposed, the decommissioning guidance would deal with planning needs, timing, funding mechanisms and environmental review requirements. If adopted, the rules would assure that licensed nuclear facilities would be decommissioned in a safe and timely manner and that adequate funds would be available for decommissioning purposes.

The proposed amendments would apply to all NRC licensees except licensees for low-level radioactive waste burial facilities and high-level radioactive waste repositories which have been addressed in separate regulatory actions.

The proposed rule defines decommissioning as removing from service and reducing residual radioactivity to a level that would permit release of the property for unrestricted use and termination of license.

Three acceptable decommissioning alternatives are contemplated but not specified in the proposed rules. They are:

DECON: under this alternative, equipment, structures, and portions of the site contaminated with radioactivity would be removed or decontaminated to a level which would permit the property to be released for unrestricted use shortly after operations have been terminated. It would satisfy the objective of unrestricted release of the property in a much shorter time period than the other alternatives while protecting the health and safety of workers and members of the public.

SAFSTOR: under this alternative, the nuclear facility would be placed and maintained in such a condition that it could be safely stored and decontaminated to levels which would permit release for unrestricted use at a later date. It would be an acceptable alternative if radiation doses to workers involved in the decommissioning process would be reduced significantly or in cases where almost all of the radioactivity would decay within a few months or years. It could also become necessary in other cases such as if there were a shortage of offsite radioactive waste disposal space.

ENTOMB: under this alternative, radioactive materials would be encased in a structurally long-lived material such as concrete and the structure would be maintained and surveyed until the radioactivity had decayed to a level permitting the unrestricted release of the property. This alternative could reduce radiation doses to workers as well as the volume of radioactive waste but would be expected to be little used because of practical considerations.

The proposed rules would require that decommissioning begin shortly after nuclear facility operations have been terminated and that the time to reach unrestricted use be minimized.

As proposed, planning for decommissioning would be divided into two parts: preliminary and final.

Preliminary aspects of planning are financial planning and facilitation of decommissioning. Current license holders and applicants for new licenses would have to submit either funding plans or certification of financial assurance in amounts specified in the proposed rules. Funding plans would have to include a cost estimate and means of providing financial assurance for decommissioning. Generally, facilitation of decommissioning should be considered under the principle of keeping exposures to radiation as low as reasonably achievable; the rule would require specifically only that relevant records be kept to assure adequate information is available at the time of decommissioning.

Final planning would involve the submission of decommissioning plans for review and approval in advance of initiation of any major decommissioning activity where a significant health and safety question could be involved. These final plans would have to include as appropriate:

(1) a description of decommissioning procedures to be used including plans for processing and disposing of the radioactive waste;

(2) a description of methods used to ensure the safety of workers and members of the public;

(3) a plan for a final radiation survey to ensure that the property is suitable for release for unrestricted use; and

(4) a cost estimate to ensure that adequate funds would be available before decommissioning activities were initiated.

A number of alternative methods for assuring that funds for decommissioning--either prematurely or at the end of operations--would be available are set forth in the proposed rules. They include:

(1) Prepayment--under this alternative, funds would be set aside, prior to commencement of operations, in an account segregated from other licensee funds.

(2) Surety or insurance--this alternative involves a method to guarantee that decommissioning costs will be paid should the licensee default.

(3) External sinking fund--under this alternative, funds would be set aside periodically over the life of the facility in an account segregated from other licensee funds. This segregated account would be coupled with a surety guaranteeing funds for decommissioning in the event of licensee default unless the licensee is an electric utility.

(4) Internal reserve--under this alternative, allowed only for utilities, funds would be set aside periodically over the life of the facility in an account which would be part of or invested in licensee assets.

(5) Federal, state, or local certification of the availability of funds for decommissioning.

(6) Other funding methods which an applicant could demonstrate would provide comparable assurance to the other alternatives.

If adopted, the new requirements would reduce the specific requirements for environmental reviews related to decommissioning by:

(1) Providing that the decommissioning of reactors and certain materials facilities would no longer require environmental impact statements unless specifically determined by the Commission; environmental assessments would be prepared, however.

(2) Providing that information concerning environmental impacts would be submitted by licensees as a supplement to previously developed environmental reports.

(3) Providing that approval of funding plans would be a categorical exclusion (a category of action which does not individually or cumulatively have a significant effect on the human environment and no environmental review is required).

Written comments on the proposed decommissioning criteria, written as amendments to Parts 30, 40, 50, 51, 70 and 72 of the NRC's regulations, should be submitted by (date). They should be addressed to the Secretary of the Commission, Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

SECRETARIAT RECORD COPY

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

JUN 18 1984

MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: TRANSMITTAL OF DOCUMENT REQUESTED AT COMMISSION BRIEFING ON JUNE 11, 1984

At the Commission briefing on decommissioning rulemaking presented by the Office of Nuclear Regulatory Research on June 11, 1984, it was requested that you be provided with copies of an RES contractor report referred to in the briefing. This document, entitled "The Impact of NRC Estimates of Decommissioning Costs on Ratepayers and the Regulatory Process" by Dr. J. Siegel, the Wharton School, University of Pennsylvania, is enclosed for your information.

(Signed) Jack W. Roe

William J. Dircks
Executive Director for Operations

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THE IMPACT OF NRC ESTIMATES OF DECOMMISSIONING COSTS ON RATEPAYERS AND THE REGULATORY PROCESS

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by

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The listing of the Wharton School and the University of Pennsylvania is for identification purposes only. Neither the School nor the University has passed any judgements on the merits of this research.

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The Nuclear Regulatory Commission (NRC) is developing a set of rules pertaining to the decommissioning of nuclear power plants. These rules could require that licensees either set aside a prescribed amount of funds, or permit licensees to make facility specific cost estimates. Either of these approaches would require collection of funds over the operating life of the facility in either an external or internal account, unless the total costs were borne solely at the time of decommissioning. I have been requested by the NRC to evaluate these two approaches and include the following considerations:

- The potential impact on the utility and the ratepayer in dollars of the two different approaches;
- The impact on the ratepayer, both from a financial and an equity standpoint, if the NRC prescribed amount turns out to be different from the actual costs incurred at the time of decommissioning;
- The potential infringement of the NRC regulation on the normal functioning of the public utility commissions, and other impacts on the ratemaking process; and
- Summary and opinion based on the above analysis.

I. Differential Impact of NRC versus Utility Specific Cost Estimates

There are essentially three effects of misestimating the true costs of decommissioning. The first directly involves the timing of the collections of revenues through time by the utility from the ratepayer to generate either an external or internal fund for decommissioning. The timing influences whether early users, i.e., those who purchase electricity in the early part of the plant's life, bear a greater or lesser burden than late users. There is even some possibility that those who use electricity after the plant has been decommissioned will be influenced by this policy. I shall refer to this group as the "after-users". The second effect of differential estimates involves the effect on the cost of capital is passed through to the ratepayer, this will also influence the timing and distribution of the burden on the early and late users. The third effect stems from the difference in tax treatment resulting from the differential estimates. As long as the real costs of decommissioning above involve a distributional effect between the ratepayers, the utility, and the government.

A. Timing of collections from ratepayer

The influence of a larger than needed decommissioning allocation on the relative burden among ratepayers is generally to increase the relative burden on early users and decrease the burden on late or after-users. This will be particularly true in the NRC estimate of the cost eventually converges to the utilities' cost estimate over time. If this occurs, early collections will be excessive and must be offset by smaller later collections of funds. If the NRC cost

estimate always remains above the utilities' cost estimate by the same percentage, then all generations of users will experience an increase in their burden. When the true cost of decommissioning is revealed, the utility must undertake refunds, a situation which will be discussed in Section II below.

The Appendix illustrates the effects on the funds collected by the utility under various assumptions. If decommissioning costs are rising at 10% per year, while general inflation is rising at 8% per year, a $120 million current cost estimate will have a real value of $208.1 million at the end of 30 years. The most equitable way to fund this cost is for ratepayers to pay into a fund $5.13 million per year, escalated each year by 8%, the rate of inflation, so that the real costs of contribution remain unchanged. This involves an equal burden between early and late ratepayers. If this method were chosen, then an overestimate by the NRC would raise the burden equally among all ratepayers, except that the sum left over after decommissioning would have to be distributed.

Unfortunately, the above method of allocating costs is not frequently used by utilities in calculating decommissioning funding. Instead, a future cost net negative salvage value method is used. This method involves the use of level dollar funding, which amount to annual contribution of $12.73 million. This means that the early users will pay 248% of the ideal funding requirements while late users will pay as little as 24.7% of their ideal funding requirements. If the future cost net negative salvage value method is used, then an NRC overestimate of the true costs will worsen the relative imbalance between early and late users. If the future cost method

were used, based on $120 million, while the true current costs of decommissiong were only $100 million, then early ratepayers would pay 297% of the ideal burden while late ratepayers would pay only 29.6% of the true burden. In other words, early ratepayers' burden would rise under NRC estimates by 49 percentage points while late ratepayers' burden would rise by only 5 percentage points. Therefore an NRC provided overestimate would worsen the distributional consequences among ratepayers.

If the Public Utility Commission (PUC) permitted a collection procedure which required lower than ideal early collections and higher than ideal late collections, and NRC overestimate of decommissioning costs would tend to offset this bias. This type of situation could develop if the costs of decommissioning increased at a rate far more rapidly than expected, so that early contributions were actually insufficient to cover the actual costs as later experienced. In this case an "overestimate" by the NRC acutally is closer to the true costs of decommissioning.

B. Impact on the Cost of Capital

In general, the impact of a higher than true estimate of the costs of decommissioning is influenced by whether the funding is done internally or externally. If the PUC (or the NRC) requires that funding be external, and maintained in very high grade taxable government or corporate bonds, then the effect of a higher NRC estimate would be to lower the average rate of return to capital for the utility. This occurs since the borrowing rate of utilities (particularly today for those with high nuclear power plant exposure) is higher than the rate

of return earned on the assets invested in the decommissioning fund. The establishment of an external decommissioning fund actually redistributes the overall return of the utility away from the junior bondholders and equity holders and towards the senior bondholders. In the event of bankruptcy, the senior bondholders are now more secure than they would have been otherwise, and the price of their bonds would rise in the market. Since the difference between the long-term government bond rate and the rate of Baa (Moody rated) utilities is now almost 2%, this amount could become significant as the decommissioning fund accumulates through time. In fact, in the final year of the fund, the differential interest return would be about $4.2 million (2% of the real cost of decommissioning) which is 82% of the amount collected in the final year.

If funding is accomplished internally, so that the revenue inflow from ratepayers is used to retire existing utility debt or borrow less than otherwise, the problem of differential yields does not arise. Of course in this situation the NRC does not have the same degree of assurance that funds will be available for decommissioning in the event of the utilities' bankruptcy. I believe that the possibility of insufficient decommissioning funds is extraordinarily unlikely, particularly for large ongoing utilities which have other assets. However, this question involves issues that are beyond the scope of this study.

If external funding is required, then the relative burden of collections for the fund would depend on the type of collection procedure used by the utility, as outlined above. If, in our example, the utility were able to invest in 12% securities instead of 10%

securities, the ideal yearly burden would fall to $3.71 million from $5.13 million. If calculated properly, the reduction in the annual collections would be proportional to the ideal collection pattern, so that the relative burden on ratepayers remains unchanged. However, if the future cost net negative salvage value procedure is chosen, then allowing the utility to invest in higher interest bonds would decrease the yearly nominal payments to $8.68 million, or 32%. This would decrease the relative burden of the early users, although they would still shoulder a greater burden than from the ideal collection procedure. This occurs because any collection plan that involves a constant dollar collection will mean less real dollars in the later years than earlier years. If the utility is permitted to invest in higher yielding securities (which would occur in the funding was done internally) then the reduction in annual collections would mean more real dollars to the early users than the late users. However, as already cited, a higher than actual cost estimate by the NRC automatically means a greater relative burden for the early users in the case of future cost net negative salvage value accounting. Therefore, internal funding will only partially offset this extra burden imposed by the higher NRC estimate.

C. Tax Impacts

Some of the above results concerning the costs of external and internal funding may be reversed when tax considerations are included. If the utility is allowed to invest its external decommissioning fund in tax-exempt securities, then this may offer a better return than can be obtained from internal funding. For example, if

the debt costs of the utility are 16%, a utility in the 50% marginal tax bracket has a net debt cost of only 8%. If tax-exempt securities are available with a 10% yield, than this is a preferable investment. This occurs because the utility is essentially performing "tax arbitrage," i.e., borrow with tax deductible interest to buy tax-free securities. This is prohibited by the Internal Revenue Service for individuals, but may not be for utilities for the purpose of establishing a decommissioning fund.

Under current IRS regulations, decommissioning costs can only be expensed by the utility at the time they physically occur. Up to that time, the income received by the utility from the ratepayers is taxable. Although some have observed that this requires nearly $2 of ratepayer contribution for every one dollar of net revenue collected into the decommissioning fund, this is wrong since it ignores that total costs of decommissioning are deductible to the utility at the time they occur. Therefore, a $2 decommissioning expense costs the utility only one dollar. The true costs of the IRS method of tax treatment depends on two considerations: (1) the extent to which individuals receive a greater after-tax return than the utility, and (2) the extent to which the utility can utilize the full tax benefit of the decommissioning costs at the time they occur.

In respect to (1) above, one must determine whether the individual is in a lower marginal tax bracket than the utility. Since this will, in general, be true, an individual can accumulate funds, for the same level of risk, at a greater rate than can the utility. In our example above, if an individual is in the 30% marginal tax bracket, if he invests in a 16% utility bond, he will receive an 11.2

after-tax rate of return. If one assumes that the utility chooses external funding, so that it invests in 10% tax-fre securities, the individual will accumulate his investment at a rate 1.2% above the rate for the utility. Using our example in the Appendix, this means that ratepayers would have to contribute at a rate of only $4.23 million per year, in real terms, or about 17 1/2% below the rate required by the utility.

Point (2) above can only be answered by knowing the taxable income of the utility at the time of decommissioning. If the utilities' net income is less than the decommissioning cost, then the tax loss may be carried forward, but under these circumstances the utility will lose interest earned on the tax benefit, as well as not enjoy the full maximum tax benefit (due to graduated rates) of the deduction that can be taken at the time of decommissioning.

In general, it can be concluded that current tax law discriminates against the collection (either internal or external) of a decommissioning fund. This causes more taxes to be paid to the federal government than would occur if the costs were just collected at the time of decommissioning. Therefore, an NRC overestimate of the decommissioning costs would cause increased taxes to the utility, which will eventually be passed on to the ratepayer. This is, however, a complicated question involving assumptions about the marginal tax rates of individuals and utilities, as well as the taxable and tax-exempt yields available to both these groups. Further study of this problem is certainly warranted.

D. Summary

From the above discussion, it is clear that a higher decommissioning fund will probably raise the costs to both the ratepayers, especially the early users, and to the utility, which will seek to pass these costs on to the ratepayers. Despite this, it is probable that the utility will seek the largest possible decommissioning fund to be approved by the PUC. The reason for this is that if the actual costs of decommissioning turn out to be greater than estimated, the PUC may not allow the utility to recover the difference. This would occur for two reasons. First, if actual costs exceeded estimates, the utility could be challenged that it did not decommission in the most cost-effective manner, a charge, if substantiated, would not permit recovery from the ratepayer. Furthermore, even if decommissioning were cost-effective, it may be politically impossible for the utility to backcharge earlier users or surcharge after-users for the difference. The utility would greatly prefer to be in the position of overestimating costs and then remitting refunds at some future date. Of course, if there were competition in the distribution of electricity, then it would be in the interest of the utility to collect the lowest feasible decommissioning funding from its customers, so as to increase its customer base. However, under current ratemaking procedures, the considerations analyzed above would indicate that the utility would prefer to overcharge early customers than risk never collecting the difference.

II. Effects of Fund Balance Differing from Decommissioning Costs

If the actual costs of decommissioning turn out to be less than

those estimated by the NRC, then the public utility commissions will demand that the difference be refunded to the customers. How this is done will depend on circumstances. Ideally, the refund would be made to all customers who have used electricity from the date the nuclear reactor was commissioned, but this is administratively impossible. The next choice would be to search back as far as practical, say a year or two, and refund late users. In practice, some refunds would probably be made to individuals who have not used power produced by the nuclear plant. These after-users would get a benefit, even though they may not have shared any of the costs of providing such energy.

If the NRC estimate turned out to be less than the actual decommissioning costs, then the utility will seek to recover the difference from the ratepayer. It would be very difficult, if not politically infeasible, to collect the difference from past ratepayers since many of them may have left the area. Therefore the collection would have to be attempted from the after-user group, who may very well object since they did not share in any of the benefits of the plant. As mentioned above, this may be one reason why utilities may choose the highest decommissioning cost estimate possible, to avoid the possibility that they may never be able to collect the deficiency. In fact, unless the NRC estimates were carefully worded, the NRC may incur a legal liability in the case the utility used the NRC estimate and was unable to recover the deficiency.

It should be noted that the problems noted above, i.e., the actual decommissioning costs differeing from those estimated, may occur whether or not the NRC provides an estimate of these costs.

However, the greater the deviation of the NRC estimated costs from the true costs, the more likely the above problems would arise. In particular, since the utility would probably want to choose the highest estimate available, the result would be an even greater burden on the early ratepayers. In this case the very later users, and the after-users, would gain the primary benefit of such an overestimate when the PUC orders a refund.

III. Effect on the PUC Ratemaking Process

There is no doubt that the NRC estimate will have a significant impact on the decision of the PUC regarding the magnitude of the decommissioning fund. In my experience in PUC proceedings, estimates made by govenment or quasi-government agencies have a strong influence on final decisions. The determination of the size of the decommissioning fund, and therefore the amount to be collected from ratepayers, normally occurs when the utility seeks a change in tariffs. The following procedure occurs in the state of Pennsylvania and is very similar to that used in other states. At the point the utility files a tariff change it must present its best estimate of its total expenses, revenues, capital expenditures, and costs of financial capital to the PUC. Among the items considered would be the size of the decommissioning fund. At this point, plaintiffs against the utility, as well as the PUC, can challenge the utility estimates before an administrative law judge. These hearings normally take several months. Infrequently a settlement is reached by the parties involved before a formal ruling by the PUC is made. If a settlement is not reached, the administrative law judge will

render an opinion. This is then sent to the PUC, along with comments and exceptions by all parties involved, for a final decision. The decision of the PUC is usually final, although it may be appealed to the state Supreme Court.

Since, as noted above, it is probably in the interest of the utility to obtain the highest possible estimate of the decommissioning fund, the utility will use the NRC estimate even though it may be higher than the utilities' internally generated estimate. This occurs since the utility correctly perceives it as difficult, if not impossible, to recover decommissioning costs exceeding those estimated. Of course, if the plaintiffs in the rate hearings also believe that the decommissioning estimate is too high, this estimate will be challenged and the utility will be forced to justify its estimate. However, the burden of proof would be shifted significantly, to the plaintiffs to prove that the NRC estimate is too high and not applicable to the particular plant being considered. Whenever figures requiring judgement are in contention in a rate hearing, the administrative law judge, as well as the PUC, often take simple averages of well-informed opinion to arrive at a consensus estimate. This is no question, therefore, that an NRC estimate above that which would be estimated by the utility alone will result in a higher decommissioning fund than in the absence of an NRC estimate. There will have generally unfavorable effects on ratepayers as analyzed in Sections I and II above.

IV. Summary and Conclusions

The analysis presented in Sections I, II, and III above support

the following conclusions:

- o Utilities normally desire the highest possible decommissioning fund so that there will be a lower probability of an underfinanced fund from which the deficiency may not be collectible.

- o The establishment of an NRC estimate will influence PUC proceedings and the final cost estimate of the decommissioning fund awarded by the PUC.

- o In general, the higher the level of the decommissioning fund, the higher will be the costs to the ratepayers due to the lower marginal rate of return on the fund's assets and the unfavorable tax treatment accorded by the IRS.

- o Most procedures for funding the decommissioning fund result in a relatively heavier burden on early ratepayers. If actual decommissioning expenses differ from the final fund balance, there are difficulties in properly distributing the excess equitably among ratepayers.

Therefore, the effect of a utility adopting an NRC estimate of the decommissioning costs which exceeds that which would have been developed by the utility will generally result in:

(1) Higher energy costs to all ratepayers

(2) Greater relative burden of decommissioning costs on early ratepayers

(3) More paperwork and hearings as the NRC estimate is challenged by the PUC and other interested parties, and

(4) A greater assurance the funds will be available for decommissioning, if the fund is externally financed.

It is my opinion that unless the last point is of overriding importance, it would <u>not</u> be in the best interest of the ratepayer to have the NRC develop an estimate of decommissioning costs, especially if that estimate would not be tailored to the plan in question and tended to overestimate the true costs of decommissioning.

APPENDIX

The example in the body of the report is analyzed with the following parameters:

Length of Life of Reactor	30 years
Overall Inflation Rate (yearly)	8%
Decommissioning Inflation Rate	10%
Current NRC estimate of decom costs	$120 million
Current utility estimate of decom costs	$100 million

The following results follow from the above assumptions

	NRC Estimate (millions) $	Utility Estimate
Money Cost of Decom 30 years hence	2,094	1,745
Real Cost of Decom 30 years hence	208.1	173.4
Annual Funding Using Future Cost Negative Net Salvage Value (Constant Nominal Dollars)		
at 10% interest	12.73	10.61
12% interest	8.68	7.23
11.2% interest	10.12	8.44
Annual Funding Using Ideal Price Escalated Methods (Constant Real Dollars)		
at 10% interest	5.13	4.28
12% interest	3.71	3.09
11.2% interest	4.23	3.53