



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

June 25, 1985

Mr. A. E. Wasserbach  
Post Office Box 2308  
West Saugerties Road  
Saugerties, New York 12477

Dear Mr. Wasserbach:

Recently, you requested a copy of the Nuclear Regulatory Commission's (NRC) final regulations for nuclear reactor/facility decommissioning. We are in the process of revising our regulations with respect to decommissioning. These proposed revisions to our regulations were published in the Federal Register on February 11, 1985. A copy is enclosed for your information. The public comment period for these proposed revisions has been extended from May 13, 1985 to July 12, 1985. Comments received after that date will be considered if it is practical to do so. Following our review of public comments on the proposed revisions the NRC will issue the final revisions to the regulations for decommissioning. We will send you a copy of that final regulation revision when it is available.

Sincerely,

A handwritten signature in dark ink, appearing to read "H.R. Denton".

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Enclosure:  
Federal Register Notice  
on Decommissioning Criteria

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year, the Secretary shall reinstate the provisions applying to such vegetable for that district.

The undersigned hereby authorizes the Secretary to correct typographical errors which may have been made in this marketing agreement.

In witness whereof, the contracting handlers, acting under the provisions of the Act, and for the purposes and subject to the limitations therein contained, and not otherwise, have hereunto set their respective hands and seals.

Signature of party:

(Firm Name)

(Address)

By:

(Name)

(Title)

Date of Execution (Corporate seal; if none, so state)

Copies of this notice of hearing may be obtained from James B. Wendland, Vegetable Branch, Fruit and Vegetable Division, AMS, Room 2545-S, U.S. Department of Agriculture, Washington, D.C. 20250 (202) 447-5432, or from David B. Fitz, McAllen Marketing Field Office, Fruit and Vegetable Division, AMS, U.S. Department of Agriculture, 320 North Main Street, Box A-103, McAllen, Texas 78501 (512) 682-2833.

Signed at Washington, D.C., on February 7, 1985.

William T. Manley,

Deputy Administrator, Marketing Programs.

[FR Doc. 85-3484 Filed 2-7-85; 2:49 pm]

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## 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 May 13, 1985.

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 Service 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). 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.

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.<sup>1</sup>

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,

<sup>1</sup> 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.

<sup>2</sup> Ibid.

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 or 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; 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. Part 50 licensees will also submit an updated cost estimate and, if necessary, plans for adjusting funding levels 5 years before the projected end of operation. 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. Relevant records, as specified in the proposed rule, consist of records of spills or other unusual occurrences from which significant contamination may remain and design specifications, in the form of drawings if available, of areas of high radiation or potential inaccessible contamination. The proposed rule would require a separate file for information important to decommissioning but would allow the use of references to records kept for other purposes.

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.

Decommission 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 of also applying for an amendment to restrict operation of the facility would continue. The amendment changes 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 optional 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 licensed activities 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 radio-activity, 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 licensee 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.

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."

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, or on a facility-specific cost estimate submitted as part of a decommissioning funding plan. The amount<sup>3</sup> proposed is \$100,000,000 (1984 dollars) adjusted for inflation at a rate two times the change in the Consumer Price Index published by the U.S. Department of Labor, Bureau

of Labor Statistics. 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  $10^3$  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<sup>3</sup> of \$500,000 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<sup>3</sup> of \$100,000 or submit a funding plan. Licensees using sealed sources containing byproduct material in quantities exceeding  $10^6$  times Appendix C values must provide assurance of funds in the amount<sup>3</sup> of \$50,000 or submit a funding plan.

This proposed rule specifies acceptable funding methods in the appropriate sections for various types of

<sup>3</sup> 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."



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 and that in the case of Part 50 licensees an update cost estimate be submitted specifically at about 5 years prior to the projected end of operation. 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.

#### **Rational 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. The use of DECON assumes the availability of capacity to handle waste requiring disposal. The Federal and State governments have activities underway to assure that there will be this capacity.

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

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 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 research and test reactors 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 non-power reactors 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 reduced 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 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 updated by the licensee periodically to take into account factors which could affect the cost of decommissioning. The rule would specifically require all Part 50 licensees to submit 5 years prior to the projected end of operation an up-to-date cost estimate on which to base financial assurance even if the certification option had been used previously. 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. In particular, the cost estimate submitted at 5 years prior to end of operation would be based on a current assessment of major factors that could affect decommissioning costs. The requirement is intended to assure that all Part 50 licensees, including those choosing the certification method, shall consider relevant, up-to-date information which could be important to adequate planning and funding for decommissioning well before decommissioning actually begins. It is expected that this requirement can ordinarily be accommodated in the provisions of a funding plan.

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 reducing 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 proposed rule would specifically require that records of relevant operational information helpful in facilitating decommissioning be kept by all reactor and materials licensees. Plans should be developed to collect, maintain, and recall records and archive files which include as-built and as-revised drawings and specifications and operational occurrences which could significantly affect decommissioning. The proposed rule would specifically allow the use of references to relevant information and locations in order to avoid unnecessary duplication of records kept for other purposes. The proposed rule would also specify 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 may 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 most of the licensees in each category. For power reactors the amount of \$100 million (1984 dollars) 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. The use of an inflation rate of twice that indicated by the Consumer Price Index is an approximation obtained by analyzing the rate of escalation of the major cost elements in the PNL data (i.e., waste disposal, labor, energy, and other), over the last several years, and comparing the net increase in decommissioning costs to the general inflation rate as reflected in the Consumer Price Index. This net increase is due primarily to the large increases in the cost of radioactive waste disposal. If decommissioning costs differ significantly in the future from that approximated by this prescribed amount, the regulation may be modified. Additionally, if at any time the licensee determines that this amount is no longer appropriate for a specific reactor, the regulation would allow submittal of a decommissioning funding plan. 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 materials licensees 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.

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 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 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 most 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 of a large power reactor, can be significantly different than that for a small research or 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 the 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 or assurance of the various funding methods.

More specifically, Commissioners Asselstine and Bernthal continue to be concerned about the vulnerability of the internal funding mechanism for decommissioning funds, particularly where the funds are used to purchase assets or reduce existing debt. They believe the proposed rule should have included two options for public comment: one option would permit the use of unsegregated internal funding for electric utilities (as the staff recommended) and the other option not permitting the use of unsegregated internal funding. Commissioners Asselstine and Bernthal would like public comments on the need to consider the possibility of insolvency and its impact on the continued availability of decommissioning funds.

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), Arizona 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 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 analysis 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 environment 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 from decommissioning activities 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.

#### Separate Views of Commissioner Bernthal

I feel compelled to comment on the nature of this rule setting forth, as it does, prescriptive requirements for assuring that financial resources are available for decommissioning of nuclear facilities. My voting record on general financial qualifications reviews reflects my long opposition to what I consider to be inappropriate and ill-suited Commission involvement in financial matters related to the construction and operation of nuclear facilities.

However, there are distinctions between construction and operation of these facilities and their safe

decommissioning. First, the Commission already has prescriptive requirements for construction and operation which, independently from financial review requirements, provide assurance that those tasks will be accomplished safely. For decommissioning there are no such independent requirements in the Commission's regulatory scheme. The financial options which the Commission would adopt by these rule changes appear, therefore, to be justifiable as a means to assure that expeditious action can be taken for safe implementation of whatever decommissioning plan is selected by licensees. Second, abandonment of a facility during construction because of financial problems does not create a health and safety problem. Abandonment of a decommissioning plan before completion may well involve health and safety considerations. Finally, apart from financial considerations, applicants have an incentive to comply with regulations governing the construction of nuclear facilities because their receipt of a permit or license for the facility depends upon such compliance. Absent the proposed decommissioning regulations, no such incentive would exist to dedicate funds in advance for successful completion of decommissioning.

For these reasons, I believe the proposed regulations provide a necessary adjunct to the Commission's authority to take reasonable steps for the protection of public health and safety in the decommissioning of nuclear facilities.

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15. *Financing Strategies For Nuclear Power Plant Decommissioning*. NUREG/CR-1481. Prepared by Temple, Barker and Sloan, 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.J. Siegel, *Utility Financial Stability and the Availability of Funds for Decommissioning*. NUREG/CR-3899. Prepared by Engineering and Economics Research, Inc. for the U.S. Nuclear Regulatory Commission. September 1984.

19. 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.

20. *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 20, 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 reference documents may be purchased by calling (301) 492-9530 or 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 5,200 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****10 CFR Part 30**

Byproduct material, Government contracts, Intergovernmental relations, Isotopes, Nuclear materials, Penalty, Radiation Protection, Reporting and recordkeeping requirements.

**10 CFR Part 40**

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

**10 CFR 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.

**10 CFR Part 51**

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

**10 CFR Part 70**

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

**10 CFR 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, 68 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 30.81 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

For the purposes of sec. 223, 68 Stat. 956, 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. 946 as amended (42 U.S.C. 2201(b)); and §§ 30.36, 30.51, 30.52, and 30.55 are issued under sec. 161a, 68 Stat. 950, as amended (42 U.S.C. 2201(a)).

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:

**§ 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 semicolon, 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 these 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 required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

8. 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  $10^3$  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 by product 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 $10^3$ but less than or equal to $10^4$ times the applicable quantities of Appendix C of Part 20 in unsealed form	\$500,000
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	100,000
Greater than $10^5$ 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 an 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 (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 promptly, in writing under § 30.8, 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 (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.

(c)(1) If a licensee does not submit an application for licensee renewal under § 30.37, the license 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) 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 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 for surfaces, microcuries per milliliter for water, and picocuries per gram for 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)(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 for 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 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 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 the 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. 164, 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. 181o, 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 these 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 required drawings are referenced, each relevant document need not be indexed individually. 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 (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 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 (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.

(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) 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 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 for surfaces, microcuries per milliliter for water, and picocuries per gram for 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)(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 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 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. 4, 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). Section 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. 181b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 50.10 (b) and (c) and 50.54 are issued under sec. 181i, 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. 181o, 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 paragraphs (f) (2) and (4) and adding paragraph (k) to read as follows:

**§ 50.33 Contents of applications; general information.**

Each application shall state:

(f) Except for an electric utility applicant for a license to operate a utilization facility of the type described in § 50.21(b) or § 50.22, information sufficient to demonstrate to the Commission the financial qualification of the applicant to carry out, in accordance with regulations in this chapter, the activities for which the permit or license is sought. As applicable, the following should be provided:

(2) 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 the facility. 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 the facility. 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 is required in an application for an initial license.

(4) 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 the facility.

(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. Except in the case of an electric utility, this information must consist of a proposed decommissioning funding plan. An electric utility may submit either a proposed decommissioning funding plan or a certification that financial assurance for decommissioning will be provided in an amount at least equal to \$100,000,000 (1984 dollars) adjusted annually for inflation using an inflation rate twice that indicated by the change in the Consumer Price Index published by the U.S. Department of Labor, Bureau of Labor Statistics. This certification must also show that the financial assurance will be provided by a means acceptable to the Commission as specified in paragraphs (k) (2) and (4) of this section. A 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.

(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 such amount 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 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 of 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) For licensees other than 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 (cc) and (dd) to read as follows:

**§ 50.54 Conditions of licenses.**

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

(cc)(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.

(4) Each licensee shall at or about 5 years prior to the projected end of operation submit a cost estimate for decommissioning based on an up-to-date assessment of the actions necessary for decommissioning and, if necessary, plans for adjusting levels of funds assured for decommissioning.

(dd) 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 these 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 required drawings are referenced, each relevant document need not be indexed individually. 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(cc).

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, 88 Stat. 948, as amended (42 U.S.C. 2201); sec. 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, sec. 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. 588, 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. In § 51.53 paragraph (b) is revised to read as follows:

#### **§ 51.53 Supplement to Environmental Report.**

(b) *Post operating license stage.* Each applicant for a license amendment authorizing the decommissioning of a production or utilization facility covered by § 51.20 and each applicant for a license or license amendment to store spent fuel at a nuclear power reactor after expiration of the operating license for the nuclear power reactor 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—Post Operating License Stage," which will update "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 or with the applicant's proposed activities with respect to the planned storage of spent fuel. Unless otherwise required by the Commission, in accordance with the generic determination in § 51.23(a) and the provisions in § 51.23(b), the applicant shall only address the environmental impact of spent fuel storage for the term of the license applied for. The "Supplement to Applicant's Environmental Report—Post Operating License Stage" may incorporate by reference any information contained in "Applicant's Environmental Report—Construction Permit Stage," "Supplement to Applicant's Environment Report—

Operating License Stage," final environmental impact statement, supplement to final environmental impact statement or records of decision previously prepared in connection with the construction permit or 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 and each applicant for a license amendment authorizing the decommissioning of a production or utilization facility covered by § 51.20, and each applicant for a license or license amendment to store spent fuel at a nuclear power reactor after expiration of the operating license for the nuclear power reactor shall submit to the Director of Nuclear Reactor Regulation or the Director of Nuclear Material Safety and Safeguards, as appropriate, 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. Section 51.60 is amended by revising paragraph (a) and adding a new paragraph (c) 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 § 51.60, 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.

(c) An applicant for a license or license amendment to store spent fuel at a nuclear power reactor after expiration of the operating license for the nuclear power reactor shall comply with the requirements for environmental reports in § 51.53(b), instead of the requirements in this section.

#### § 51.95 [Amended]

28. In § 51.95, paragraph (b) is revised to read as follows:

(b) *Post operating license stage.* In connection with the amendment of an operating license authorizing the decommissioning of a production or utilization facility covered by § 51.20 or with the issuance, amendment or renewal of a license to store spent fuel at a nuclear power reactor after expiration of the operating license for the nuclear power reactor, the NRC staff will prepare a supplemental environmental impact statement for the post operating license stage or an environmental assessment, as appropriate, which will update the prior environmental review. The supplement or assessment may incorporate by reference any information contained in the final environmental impact statement, the supplement to the final environmental impact statement—operating license stage, or in the records of decision prepared in connection with the construction permit or the operating license for that facility. The supplement will include a request for comments as provided in § 51.73. Unless otherwise required by the Commission, in accordance with the generic determination in § 51.23(a) and the provisions of § 51.23(b), a supplemental environmental impact statement for the post operating license stage or an environmental assessment as appropriate, will address the environmental impacts of spent fuel storage only for the term of the license, license amendment or license renewal applied for.

### PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

29. 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), sec. 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 sec. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108, 66 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. 161, 68 Stat. 949 as amended (42 U.S.C. 2201(i)); and §§ 70.20b (d) and (e), 70.38, 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)).

30. 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.

31. 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].

32. 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.

33. 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<sup>4</sup> but less than or equal to 10<sup>5</sup>  
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 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.

34. 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 these 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 required drawings are referenced, each relevant document need not be indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

35. 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 (c) 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 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 (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.

(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) 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 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 for surfaces, microcuries per milliliter for water, and picocuries per gram for 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)(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 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 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

36. 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, 188, 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. 86-273, 73 Stat. 668, as amended by (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 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).

37. 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.

38. 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 decommissioning costs, and the necessary financial arrangements to provide reasonable assurance prior to licensing that decommissioning will be carried out after the removal of spent fuel from storage.

39. 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 deposits 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.

40. 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 these 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 in high radiation areas and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be

indexed individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

41. 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 5th day of February 1985.

For the Nuclear Regulatory Commission,  
Samuel J. Chalk,

Secretary of the Commission.

[FR Doc. 85-3413 Filed 2-6-85; 8:45 am]

BILLING CODE 7590-01-M

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 84-NM-124-AD]

#### Airworthiness Directives: Boeing Model 767, 757, 737, and 727 Series Airplanes

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of Proposed Rulemaking (NPRM).

**SUMMARY:** This notice proposes a new airworthiness directive (AD) that would require rework of the Rosemount angle of attack (AOA) sensors on Boeing Model 767 and 757 series airplanes and on certain Model 737 and 727 series airplanes. During receiving inspections by the airframe manufacturer, it was found that some internal gears were not secured to the shaft and caused erroneous AOA information; it was also found that gears could come off the shaft and possibly jam the vane. Failure of the AOA system will cause improper operation of the stall warning and stall protection systems, and will also affect operation of other systems using AOA data.

**DATE:** Comments must be received on or before April 1, 1985.

**ADDRESSES:** Send comments to: Seattle Aircraft Certification Office, FAA, Northwest Mountain Region, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168.

The applicable Service Bulletins may be obtained from the Boeing Commercial Airplane Company, P.O. Box 3707, Seattle, Washington 98124, and Rosemount Inc., P.O. Box 35129, Minneapolis, Minnesota 55435. This information may also be examined at the Seattle Aircraft Certification Office, FAA, Northwest Mountain Region, 9010

East Marginal Way South, Seattle, Washington.

**FOR FURTHER INFORMATION CONTACT:** Mr. Frank vanLeynseele, Systems and Equipment Branch; telephone: (206) 431-2948. Mailing address: Seattle Aircraft Certification Office, FAA, Northwest Mountain Region, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168.

#### SUPPLEMENTARY INFORMATION:

##### Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket number and be submitted in duplicate to the address specified under the caption "Availability of NPRM." All communications received on or before the closing date for comments specified above will be considered by the Administrator before taking action on the proposed rule. The proposal contained in this notice may be changed in light of the comments received. All comments submitted will be available, both before and after the closing date for comments, in the rules docket for examination by interested persons. A report summarizing each FAA/public contact concerned with the substance of this proposal will be filed in the rules docket.

##### Availability of NPRM

Any person may obtain a copy of this Notice of Proposed Rulemaking (NPRM) by submitting a request to the Federal Aviation Administration, Northwest Mountain Region, Office of the Regional Counsel, Attention: Airworthiness Directive Rules Docket No. 84-NM-124-AD, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168.

##### Discussion

During receiving inspection at The Boeing Company, it was found that certain Rosemount angle of attack (AOA) sensors had loose resolver and damper gears. Investigation revealed that the looseness is caused by undersized gear set screw threads which prevent the gear set screws from firmly setting against the shafts. The result of loose gears may be loss of vane damping, loss of resolver signal, or blocked vane travel. Failure of the AOA sensor can affect the safe operation of the airplane. Specifically, this condition could result in inadvertent stall warning or no warning by the affected channel; inoperative stick pusher; erroneous minimum speed computations by the autopilot and thrust management

systems; erroneous autoflight operations; and secondary effects on yaw damper performance.

Since these unsafe conditions may exist or develop on other Model 767, 757, 737, and 727 series airplanes, an airworthiness directive is proposed to require: (a) initial and interim inspection(s) to insure that the vane is free to move and provide damping (this can be performed with the assembly installed); and (b) a complete one-time inspection which requires opening of the vane assembly case to insure that all the gears are properly machined and installed as specified. Faulty vane assemblies must be removed from the airplane for rework.

It is estimated that 87 airplanes of U.S. registry would be affected by this AD; that it would take approximately 3 manhours per aircraft to accomplish the required inspection, removal, rework, and/or replacement; and that the average labor cost would be \$40 per manhour. Based on these figures, the total cost impact of this AD would be \$10,440.

For the reasons discussed above, the FAA has determined that this document (1) involves a proposed regulation which is not major under Executive Order 12291 and (2) is not a significant rule pursuant to the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and it is certified under the criteria of the Regulatory Flexibility Act that this proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities, since few, if any, Boeing Model 767, 757, 737, and 727 series airplanes are operated by small entities. A regulatory evaluation has been prepared and has been placed in the public docket.

#### List of Subjects in 14 CFR Part 39

Aviation safety.

#### The Proposed Amendment

Accordingly, the Federal Aviation Administration proposes to amend § 39.13 of Part 39 of the Federal Aviation Regulations (14 CFR 39.13) by adding the following new airworthiness directive:

**Boeing:** Applies to Boeing Model 767 and 757 series airplanes, and certain Model 737 and 727 series airplanes, certificated in all categories, equipped with Rosemount angle of attack (AOA) sensors, identified as Model 861CAB or 861CAK, and modification number 0001. To prevent the hazards associated with a malfunctioning AOA sensor caused by loose resolver and/or damper gears, accomplish the following as indicated below, unless already accomplished: