



The views expressed in this document do not necessarily represent the views of the U.S. Nuclear Regulatory Commission (NRC). The information in this document represents NRC staff-developed draft language for possible inclusion in a package to be provided for Commission approval for publication as a proposed rule. In accordance with Commission direction, NRC staff is providing this information at this time for preliminary public comment and discussion. The public will have an opportunity also for formal comment once the Commission approves publication of the proposed rule for public comment.

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**1. Release notes**

A. We have attempted to provide annotations [in redlined-brackets] that identify parallels to the [SECY 98-185 version of the proposed rule](#) or call attention to certain clarifying information or other changes. These annotations will be put on the website but removed in the proposed rule package language. (Appropriate parts of this information would reappear in the revision to the statement of considerations for the proposed rule.) The following redraft is a revision-in-total of Chapter 10 entitled Decommissioning of the SECY 98-185 version of the Draft Standard Review Plan. The [SECY 98-185 version of Chapter 10](#) of the Standard Review Plan may be viewed or downloaded from this page by clicking on the highlighted link or by setting your browser to [http://techconf.llnl.gov/cgi-bin/library?source=\\*&library=dom\\_lic\\_lib](http://techconf.llnl.gov/cgi-bin/library?source=*&library=dom_lic_lib) and clicking on either the WordPerfect (wp) or html version of 042-0018.

B. The purpose of the following redraft of Chapter 10 of the Draft SRP was to clarify the staff guidance to indicate that complete decommissioning plans are not required for all license renewals and amendments. Comments were provided on this issue by the Nuclear Energy Institute (NEI), in a [letter dated November 25, 1998](#). In addition, this issue was discussed at the December 3-4, 1998, [public meeting](#) on the draft rule. In response to these comments the Draft SRP chapter was revised to include an explanation of the difference in the level of detail and purpose of a decommissioning plan versus a decommissioning funding plan. It also indicates, generally, when completed decommissioning plans are required (i.e., prior to performing major decommissioning actions), and when decommissioning funding plans are required (i.e., during license renewal). The chapter was also modified to include additional guidance on the content and review of a decommissioning funding plan. It clarifies that a decommissioning funding plan must contain a brief description of the future decommissioning actions proposed at a site which is used to determine the appropriate amount of decommissioning financial assurance which the licensee is to provide.

## 1.2. Clarifying Modifications to Chapter 10 of Draft SRP

### 10.0 DECOMMISSIONING

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## 10.0 DECOMMISSIONING

### 10.1 PURPOSE OF REVIEW

The purpose of the review of the applicant's plans for decommissioning is to ensure that these plans provide reasonable assurance that the applicant will be able to decommission the facility safely and in accordance with NRC requirements.

At the time of the initial license application, and upon license renewal, the applicant/licensee may be required to submit a decommissioning funding plan (DFP). The purpose of NRC review of the DFP is to determine that the applicant/licensee has considered decommissioning actions which may be needed in the future, has performed a credible site specific cost estimate for these actions, and has presented NRC with financial assurance to cover the cost of those actions in the future. The DFP therefore should contain an overview of the proposed decommissioning actions, the methods used to determine the cost estimate, and the financial assurance mechanism. These must be in sufficient detail to allow the reviewer to determine that the decommissioning cost used in the DFP is reasonably accurate.

Prior to the initiation of decommissioning activities, for the entire site or some portion of the site, the applicant must submit a decommissioning plan (DP). The review for a DP is more rigorous than the review of the DFP. A DP must contain a detailed description of the specific decommissioning activities to be performed and must be sufficient to allow the reviewer to assess the appropriateness of the decommissioning activities, the potential impacts on health and safety of the public, workers, and the environment and the adequacy of the actions to protect health and safety and the environment. The reviewer must ascertain that the applicant understands decommissioning requirements and procedures, and commits to health and safety during decommissioning.

### 10.2 RESPONSIBILITY FOR REVIEW

Primary: Licensing Project Manager

Secondary: Environmental Reviewer  
ISA Lead Reviewer  
Technical and financial specialists in the Division of Waste Management

Supporting: Fuel facility inspection staff

### 10.3 AREAS OF REVIEW

The reviewer will evaluate the applicant's description of plans for decommissioning plans, and financial assurance for decommissioning, as described in Regulatory Guide 3.65, *Standard Format and Content of Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70*, and Regulatory Guide 3.66, *Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30, 40, 70, and 72*. In

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addition, the reviewer will evaluate the applicant's plans for preparing and retaining records important to decommissioning and, for new applicants after August 20, 1997, the applicant's description of how the facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment and facilitate eventual decommissioning. New applicant's descriptions of waste minimization plans are evaluated under SRP 9.0 on Environmental Protection. Existing licensees are already required to minimize contamination and reduce exposures and effluents as part of radiation protection established under 10 CFR Part 20 [see 62 FR 39082]. Consequently, review of these aspects for existing facilities will be conducted under SRP 9.0. Review of the applicant's decommissioning portions of the (Integrated Safety Analysis) ISA and ISA summary will be conducted under SRP 3.0 on ISA.

## 10.4 ACCEPTANCE CRITERIA

### 10.4.1 Regulatory Requirements

~~Decommissioning planning~~ Planning for decommissioning, financial assurance for decommissioning, recordkeeping for decommissioning ~~recordkeeping~~, and waste and contamination minimization are required by the following NRC regulations:

|                                 |   |
|---------------------------------|---|
| 10 CFR 70.22(a)(9)              | Decommissioning Funding Plan  |
| 10 CFR 70.25                    | Financial Assurance and Recordkeeping for Decommissioning   |
| 10 CFR 70.38                    | Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas |
| 10 CFR 70.62(b)                 | ISAs during Decommissioning   |
| 10 CFR 20.1401-1406 (Subpart E) | Radiological Criteria for License Termination   |

### 10.4.2 Regulatory Guidance

The principal document that provides NRC regulatory guidance for the review of plans for decommissioning ~~plans~~, financial assurance for decommissioning, recordkeeping for decommissioning, and waste and contamination minimization is the *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*, NUREG/BR-0241 (March 1997) and documents referenced therein. This includes - *Standard Review Plan for the Review of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70 and 72*, NUREG-1337 (Rev. 1), the *Standard Review Plan for Evaluating Compliance with Decommissioning Requirements for Source, Byproduct, and Special Nuclear Material License Applications* [Policy and Guidance Directive FC 90-2, April 30, 1991; provides guidance on decommissioning financial assurance reviews, planning, and recordkeeping], and *Standard Review Plan for Evaluating Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70* [Policy and Guidance Directive FC 91-02, August 5, 1991; provides guidance on reviewing decommissioning plans]. Because NRC requirements for decommissioning have changed since issuance of these two SRPs, the reviewer should first consult NUREG/BR-0241 for specific guidance on the application of the SRPs.

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Additional relevant guidance is *Demonstrating Compliance with the Radiological Criteria for License Termination*, Draft Regulatory Guide DG-4006, February 17, 1998 [to be updated].

## 10.4.3 Regulatory Acceptance Criteria

### 10.4.3.1 ~~Decommissioning Planning, Recordkeeping, and Financial Assurance~~ **Funding Plans**

An applicant/licensee's **plans for** decommissioning-planning, recordkeeping, and financial assurance **in a DFP** are acceptable if they fulfill the criteria described in the *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*, NUREG/BR-0241 (March 1997) and documents referenced therein including the *Standard Review Plan for Evaluating Compliance with Decommissioning Requirements for Source, Byproduct, and Special Nuclear Material License Applications* [Policy and Guidance Directive FC 90-2, April 30, 1991].

At the time of licensing or license renewal, a DFP may be required. A DFP does not need to meet all of the criteria of a formal DP, but will be a subset of the information required in a DP. The DFP must provide an estimate of the decommissioning cost for unrestricted or restricted release of the site. It also must include a means for adjusting cost estimates and associated funding levels periodically over the life of the facility. If submitted during license renewal, the DFP must also compare the estimated cost with the present funds set aside for decommissioning, and should note how decommissioning financial assurance instruments required under 10 CFR 70.22 will be increased, if necessary. The financial assurance instrument required under 10 CFR 70.22(a)(9) must be funded to the amount of the cost estimate. If there is a deficit in current funding, the DFP must indicate the means for ensuring adequate funds to complete decommissioning.

The DFP decommissioning cost estimates are acceptable if they include an evaluation of the following cost elements identified below. In addition, Regulatory Guide 3.66 "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72", provides a detailed explanation of methods for estimating decommissioning costs, as well as accepted financial assurance mechanisms.

#### Cost Elements

- cost assumptions used, including a contingency factor
- major decommissioning activities and tasks
- unit cost factors
- estimated costs of decontamination and removal of equipment and structures
- estimated costs of waste disposal, including applicable disposal site surcharges and transportation costs
- estimated final survey costs
- estimated total costs

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The DFP cost estimate is acceptable if it includes the cost of the remediation action being evaluated, the cost of transportation and disposal of the waste generated by the action, and other costs that are appropriate for the specific case. The current version of NUREG-1307, "Report on Waste Burial Charges", provides guidance on estimating waste disposal costs.

Additional guidance can be found in NUREG/CR-1754 *Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities*, NUREG/CR-0129 *Technology, Safety and Costs of Decommissioning a Reference Small Mixed Oxide Fuel Fabrication Plant*;  
and NUREG/CR 1266 *Technology, Safety and Costs of Decommissioning a Uranium Fuel Fabrication Plant*.

## 10.4.3.2 Decommissioning Plan

~~An applicant's~~ When the applicant/licensee is required to submit a formal DP, the plan is acceptable if it satisfies the review criteria described in the *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*, NUREG/BR-0241 (March 1997) and documents referenced therein, including the *Standard Review Plan for Evaluating Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70* [Policy and Guidance Directive FC 91-02, August 5, 1991]. In addition, an acceptable DP will demonstrate compliance with the radiological criteria for license termination in Subpart E of 10 CFR Part 20.

## 10.4.3.3 Minimization of Contamination

[For New Applicants after August 20, 1997]

An applicant's plans for minimization of contamination are acceptable if they satisfy the following criteria:

1. The applicant's facility has been designed, to the extent practicable, to minimize radioactive and hazardous chemical contamination of the facility (buildings, structures, and equipment) and the environment, to minimize the generation of radioactive waste, and to facilitate eventual decommissioning. The design incorporates features, such as strippable coatings, low porosity and permeability barriers, filters, ventilation systems, glove boxes, closed containers, double containment and leak detection, overhead piping, monitoring devices and instrumentation, and catch basins, intended to contain contamination, detect contaminant migration through barriers, minimize the extent of contamination, and limit volumes and hazards associated with wastes from operations and decommissioning.
2. The facility design reflects consideration of the accident sequences and essential controls identified in the ISA reviewed under SRP 3.0.
3. The application reflects consideration of radiological survey needs in support of decommissioning and demonstrates that the facility has been designed to facilitate routine area surveys to detect contamination, operational surveys to plan for and conduct decommissioning, and final termination surveys to demonstrate compliance with license termination criteria.

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4. The facility has been designed to minimize, to the extent practicable, the potential the facility and site will require land use restrictions and institutional controls following decommissioning and license termination.
5. The application identifies the volumes and types of radioactive waste that will be stored onsite, describes the controls that will ensure containment of the waste while in storage, and ensures that the duration and effects of waste storage will be minimized. The applications demonstrates a firm commitment to storing waste inside buildings with appropriate environmental controls, as described in NRC Information Notice 90-09, rather than relying on outside storage of wastes in lagoons, scrap yards, or paved areas. If wastes are stored in outdoor areas, the application includes adequate environmental monitoring provisions to promptly detect and assess environmental migration of contaminants in soil, surface water, and groundwater [see SRP 9.0].
6. The applicant's procedures for operation will minimize radioactive and hazardous chemical contamination of the facility (buildings, structures, and equipment) and the environment, to minimize the generation of radioactive waste, and to facilitate eventual decommissioning. Operating procedures minimize the potential for release of contaminants outside of process vessels. Spills, drips, and other unplanned releases are promptly detected and corrected to stop the release, prevent the spread of contamination, and remove contamination. Procedures for monitoring and surveillance include steps to identify and report any unplanned releases and take prompt corrective action.

## 10.5 REVIEW PROCEDURES

### 10.5.1 Acceptance Review

The primary reviewer evaluates the applicant's description of the DP and financial assurance for decommissioning as described in Regulatory Guide 3.65, *Standard Format and Content of Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70*, [Standard Review Plan for the Review of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70 and 72, NUREG-1337 \(Rev. 1\)](#) and Regulatory Guide 3.66, *Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30, 40, 70, and 72*. In addition, the reviewer evaluates the applicant's plans for preparing and retaining records important to decommissioning. For new applicants after August 20, 1997, the reviewer also evaluates the applicant's description of how the facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment and facilitate eventual decommissioning. The purpose of these reviews is to ensure completeness against NRC requirements and the acceptance criteria in SRP 10.4. If deficiencies are identified, the applicant is requested to submit additional information to correct these deficiencies before NRC acceptance of the application and the start of the safety and environmental evaluation.



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## 10.5.2 Safety Evaluation

Upon acceptance of the application for review, the primary reviewer will review the application against NRC requirements and acceptance criteria identified in SRP 10.4 using the procedures described in NUREG/BR-0241 and in the *Standard Review Plan for Evaluating Compliance with Decommissioning Requirements for Source, Byproduct, and Special Nuclear Material License Applications* [Policy and Guidance Directive FC 90-2, April 30, 1991; provides guidance on decommissioning financial assurance reviews, planning, and recordkeeping], and *Standard Review Plan for Evaluating Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70* [Policy and Guidance Directive FC 91-02, August 5, 1991; provides guidance on reviewing decommissioning plans]; and *Standard Review Plan for the Review of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70 and 72, NUREG-1337 (Rev. 1)*. This review will be supplemented as appropriate by detailed review of any contamination and waste minimization plans submitted by the applicant in response to 10 CFR 20.1406. The reviewer will also coordinate with the principal reviewers for environmental protection under SRP 9.0 to confirm review of a new applicant's descriptions of plans for waste minimization, as well as plans for existing licensees to minimize contamination and reduce exposures and effluents as part of radiation protection established under 10 CFR Part 20. The reviewer will also coordinate with the lead reviewer for the ISA to confirm the evaluation of the applicant's ISA for decommissioning under the ISA SRP 3.0. The purpose of this coordination is to ensure that any issues that are relevant to the environmental review or the ISA are properly conveyed to the lead reviewers for these sections for consideration and resolution. Similarly, any decommissioning issues that arise in the environmental or ISA reviews and that are most suited for review under SRP 10.0 are conveyed to the primary reviewer for consideration and resolution.

If the applicant submits a DP for all or a portion of the site (individual buildings or separate outdoor areas), the reviewer will conduct the review in accordance with the procedures described in NUREG/BR-0241. Such reviews would not normally be conducted as part of the review for a new application, unless the applicant submits detailed information as part of the cost estimate for decommissioning.

If the safety evaluation identifies the need for the applicant to submit information that has not already been included in the application, the reviewer will document these additional information needs in a Request for Additional Information (RAI). The RAI will be transmitted to the applicant with a request for the information in a reasonable amount of time (e.g., 30 to 60 days). Failure of the applicant to provide the information by the requested date, or on an alternative schedule that is mutually agreeable, could be grounds to terminating or suspending the application review.

In accordance with the FCLB licensing manual, the lead reviewer will coordinate with the Division of Waste Management for appropriate technical assistance in reviewing proposed decommissioning plans, financial assurance, and other environmental site-related issues. The lead reviewer will coordinate the evaluation of the application with reviewers assigned by the Division of Waste Management and will incorporate, as appropriate, RAIs and review findings in licensing correspondence and safety evaluation reports related to decommissioning.



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## 10.6 EVALUATION FINDINGS

If the staff's review verifies that sufficient information has been provided in the application to satisfy the acceptance criteria and requirements identified in SRP 10.4, the staff will document its review as follows:

The NRC staff has reviewed the applicant/licensee's plans [and financial assurance] for decommissioning in accordance with SRP 10.0. Based on this review, the NRC staff has determined that the applicant's plans for decommissioning [and decommissioning financial assurance] provide reasonable assurance of protection for members of the public and the environment and comply with NRC's regulations.

## 10.7 REFERENCES

*Code of Federal Regulations*, Title 10, Part 70, Domestic Licensing of Special Nuclear Material, U.S. Government Printing Office, Washington, DC.

Orlando, D. A., *et al.* 1997. *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*, U.S. Nuclear Regulatory Commission, NUREG/BR-0241.

U.S. Nuclear Regulatory Commission, 1991, *Standard Review Plan for Evaluating Compliance with Decommissioning Requirements for Source, Byproduct, and Special Nuclear Material License Applications*, Office of Nuclear Material Safety and Safeguards, Policy and Guidance Directive FC 90-2.

U.S. Nuclear Regulatory Commission, 1991, *Standard Review Plan for Evaluating Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70*, Office of Nuclear Material Safety and Safeguards, Policy and Guidance Directive FC 91-02.