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OFFICE OF NUCLEAR REGULATORY RESEARCH

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STANDARD FORMAT AND CONTENT OF LICENSE TERMINATION PLANS FOR NUCLEAR POWER REACTORS

A. INTRODUCTION

This guide provides general procedures that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for the preparation of license termination plans (LTPs) for nuclear power reactors. Use of this regulatory guide will help to ensure the completeness of the information provided in an LTP, assist the NRC staff and others in locating pertinent information, and facilitate the review process. The staff reviews LTPs using the Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans (Ref. 1) to ensure quality and uniformity of NRC staff review. However, the NRC does not require conformance with the procedures, which are provided for guidance only.

On July 29, 1996, the NRC published a *Federal Register* notice entitled, "Decommissioning of Nuclear Power Reactors" (Ref. 2), that amended its regulations in Title 10, of the *Code of Federal Regulations*, Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders" (10 CFR Part 2); 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"; and 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." These amendments, which went into effect on August 28, 1996, prescribe specific criteria for decommissioning nuclear power reactors. Compared to operating facilities, reactors that are permanently shut down with no fuel in the vessel present a significantly reduced risk to the public. This change to 10 CFR Part 50 specifies requirements for such reactors by eliminating, revising, or extending operating reactor requirements commensurate with their importance to safety. Decommissioning activities for power reactors may be divided into three phases: (1) initial activities, (2) major decommissioning and

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The NRC issues regulatory guides to describe and make available to the public methods that the NRC staff considers acceptable for use in implementing specific parts of the agency's regulations, techniques that the staff uses in evaluating specific problems or postulated accidents, and data that the staff needs in reviewing applications for permits and licenses. Regulatory guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions that differ from those set forth in regulatory guides will be deemed acceptable if they provide a basis for the findings required for the issuance or continuance of a permit or license by the Commission.

This guide was issued after consideration of comments received from the public.

Regulatory guides are issued in 10 broad divisions—1, Power Reactors; 2, Research and Test Reactors; 3, Fuels and Materials Facilities; 4, Environmental and Siting; 5, Materials and Plant Protection; 6, Products; 7, Transportation; 8, Occupational Health; 9, Antitrust and Financial Review; and 10, General.

Electronic copies of this guide and other recently issued guides are available through the NRC's public Web site under the Regulatory Guides document collection of the NRC's Electronic Reading Room at http://www.nrc.gov/reading-rm/doc-collections/ and through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html, under Accession No. ML110490419. The regulatory analysis may be found in ADAMS under Accession No. ML110490425.

storage activities, and (3) license termination activities.

For Phases 1 and 2, Regulatory Guide 1.184, "Decommissioning of Nuclear Power Reactors" (Ref. 3), describes methods and procedures that are acceptable to the NRC staff for implementing the rules that relate to the initial activities and the major decommissioning activities.

For Phase 3, 10 CFR 50.82(a)(9) specifies that an application for license termination must be accompanied or preceded by an LTP, which the licensee submits for NRC review and the agency approves by license amendment. This regulatory guide provides guidance on developing LTPs for nuclear power reactor licensees who wish to terminate their licenses and release their sites.

LTPs should discuss the current site radiological condition, remaining remediation activities and costs for implementing them, final site radiological surveys, and radiological criteria for license termination and methods for demonstrating compliance.

Licensees should submit the LTP as a supplement to the final safety analysis report or as an equivalent document. A licensee might submit the LTP concurrently with the post shutdown decommissioning activities report. Regulatory Guide 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report" (Ref. 4), provides guidance on the content of that report. According to 10 CFR 50.82(a)(9)(i), the licensee must submit an LTP at least 2 years before the planned license termination date. The NRC must issue a notice of receipt of the LTP and conduct a public meeting near the site to discuss the plan. After the NRC approves an acceptable LTP, the provisions of 10 CFR 50.59, "Changes, Tests and Experiments," continue to apply to allow the licensee to make certain changes that do not result in an unreviewed safety question or modify the technical specifications. Such changes must meet the requirements of 10 CFR 50.82(a)(6).

In a *Federal Register* notice dated July 21, 1997, the Commission amended its regulations in 10 CFR Part 20, "Standards for Protection against Radiation"; 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; 10 CFR Part 40, "Domestic Licensing of Source Material"; 10 CFR Part 50; 10 CFR Part 51; 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material"; and 10 CFR Part 71, "Packaging and Transportation of Radioactive Material" (Ref. 5). These changes prescribe specific radiological criteria for license termination for all NRC licenses. Under the new regulations, a licensee could propose in the LTP either release of the facility and site for unrestricted use or release of the facility and site under restricted use conditions.

The NRC developed NUREG-1757, "Consolidated Decommissioning Guidance," Volume 2, "Characterization, Survey, and Determination of Radiological Criteria," Revision 1, issued September 2006 (Ref. 6), to provide additional guidance on demonstrating compliance with the unrestricted release, restricted release, and alternative criteria for license termination in accordance with Subpart E, "Radiological Criteria for License Termination," of 10 CFR Part 20.

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not required.

This regulatory guide contains information collection requirements covered by 10 CFR Part 50 that the Office of Management and Budget (OMB) approved under OMB control number 3150-0011. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection request or requirement unless the requesting document displays a currently valid OMB

control number. The NRC has determined that this regulatory guide is not a major rule as designated by the Congressional Review Act and has verified this determination with OMB.

B. STANDARD FORM AND CONTENT

1. General Information

The licensee's name, address, license number, and docket number should agree with the most recent license. The LTP should address each of the criteria from 10 CFR 50.82(a)(9) and 10 CFR 50.82(a)(10), and the related radiological criteria from Subpart E of 10 CFR Part 20 for unrestricted or restricted release of the site. The LTP should provide any supporting information necessary to address the criteria, including the following:

a. Describe the site characteristics.

b. Identify remaining site dismantlement activities.

c. Discuss plans for site remediation.

d. Provide detailed plans for the final radiation survey for release of the site.

e. Detail a method for demonstrating compliance with the radiological criteria for license termination. For restricted release, describe the site's end use and provide documentation on public consultation, institutional controls, and financial assurance needed to comply with the requirements for license termination for restricted release or alternate criteria.

f. Update site-specific estimates of remaining decommissioning costs.

g. Provide a supplement to the environmental report, in accordance with 10 CFR 51.53, "Postconstruction Environmental Reports," that describes any new information or significant environmental changes associated with the licensee's proposed termination activities.

2. Site Characterization

The purpose of the site characterization is to ensure that the licensee conducts final radiation surveys in all areas where contamination existed, remains, or has the potential to exist or remain. NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," Revision 1, issued August 2000 (hereafter referred to as MARSIMM) (Ref. 7), provides guidance on developing a site characterization program. The federal agencies that have adopted MARSSIM are issuing changes via federal register notices. NUREG-1757 (Ref. 5) contains additional guidance.

The licensee can submit the entire site characterization package separately at any time before submitting the LTP and reference it in the LTP, or the licensee can submit the site characterization as an integral part of the LTP.

The LTP site characterization should be sufficiently detailed to allow the NRC to determine the extent and range of radiological contamination of structures, systems (including sewer systems, waste plumbing systems, floor drains, ventilation ducts, and piping and embedded piping), rubble, and paved parking lots (both on and beneath the site). It should also include data on ground water, surface water, components, residues, and the environment, as well as the maximum and average contamination levels

and the ambient exposure rate measurements of all relevant areas (structures, equipment, and soils) of the site. The site characterization should contain sufficiently detailed data to support planning for all remaining decommissioning activities and the final status survey program.

The LTP should describe historic events (including dates, types of occurrences, and locations in and outside of the facility), such as radiological spills, onsite disposals, or other radiological accidents or incidents, that resulted or could have resulted in the contamination of structures, equipment, letdown areas, or soils and ground water beneath buildings and in outside areas.

The LTP should also describe the survey instruments and supporting quality assurance (QA) practices used in the site characterization program. The LTP should discuss how the licensee applied the data quality objectives discussed in NUREG-1575 during site characterization.

3. Identification of Remaining Site Dismantlement Activities

The LTP should include a discussion of the remaining tasks associated with the decontamination and dismantlement; an estimate of the quantity of radioactive material to be released to unrestricted areas; and the proposed control mechanisms, dose estimates, and radioactive waste characterization. The LTP should also identify any decommissioning tasks that require coordination with other Federal or State regulatory agencies and explain how that coordination will occur.

In the LTP, the licensee should describe the areas and equipment that need further remediation in sufficient detail to allow the reviewer to predict the radiological conditions that will be encountered during remediation. The details in this section should be sufficient for the NRC to identify any inspection or technical resources needed during the remaining dismantlement activities.

The LTP should list the remaining activities that do not involve unreviewed safety questions or changes in a facility's technical specifications. This list should be sufficiently detailed for the staff to confirm that remedial activities may in fact be carried out under 10 CFR 50.59.

4. Remediation Plans

The LTP should summarize any changes from the previously approved radiological control program that the licensee will use for the control of radiological contamination associated with the remaining decommissioning and remediation activities. The NRC does not require the LTP to include details regarding changes to the radiation protection program, but periodic updates to the final safety analysis report should provide such details.

The LTP should discuss in detail the remediation methods and techniques that the licensee will use to demonstrate that the facility and site areas meet the NRC criteria for license termination in Subpart E of 10 CFR Part 20.

5. Final Status Survey Plan

The LTP should describe the final status survey. The final status survey is not conducted for the purpose of locating residual radioactivity; rather, the historical site assessment and the characterization survey perform that function. The final status survey is the radiation survey performed after an area has been fully characterized and remediated and the licensee believes that the area is ready to be released. The purpose of the final status survey is to demonstrate that the plant and site meet the radiological criteria for license termination in Subpart E of 10 CFR Part 20. The NRC's regulations applicable to

radiological surveys appear in 10 CFR 50.82(a)(9)(ii)(D) and 10 CFR 20.1501(a) and (b). MARRSIM provides guidance on developing a final survey plan and on final survey methods for demonstrating compliance with Subpart E of 10 CFR Part 20. Section 4.4 and Appendix A to NUREG-1757 include further guidance.

The licensee should include the following items, which are not meant to be all inclusive, in the final radiation survey plan:

a. Describe the methods proposed for surveying all equipment, systems, structures, and soils, as well as a method for ensuring that sufficient data are included for a meaningful statistical survey. Use diagrams, plot plans, and facility layout drawings to facilitate presentation.

b. Describe the methods the licensee will use to establish background radiation levels. Include a discussion of variances in background radiation that can be expected (e.g., between structures constructed of different materials), as discussed in draft NUREG-1501, "Background as a Residual Radioactivity Criterion for Decommissioning," issued August 1994 (Ref. 8).

c. Describe the QA program to support both field survey work and laboratory analysis. Address the QA organization; training and qualification requirements; survey instructions and procedures, including water, air, and soil sampling procedures; document control; control of purchased items; inspections; control of survey equipment; handling, storage, and response checks; shipping of survey equipment and laboratory samples; disposition of nonconformance items; corrective action; QA records; and survey audits, including methods to be used for reviewing, analyzing, and auditing data.

d. Describe the verification surveys and evaluations used to support the delineation of radiologically affected (contaminated) areas and unaffected (uncontaminated) areas.

e. Identify the major radiological contaminants.

f. Discuss methods used for addressing hard-to-detect radionuclides.

g. Describe access control procedures to avoid recontamination of clean areas.

h. Identify survey units having the same area classification.

i. Describe scanning performed to locate small areas of elevated concentrations of residual radioactivity.

j. Discuss levels established for investigating significantly elevated concentrations of residual radioactivity.

k. Describe the reference coordinate system established for the site areas.

6. Compliance with the Radiological Criteria for License Termination

If a licensee requests unrestricted release of the site in accordance with Subpart E of 10 CFR Part 20, then the LTP should demonstrate that the dose from residual radioactivity that is distinguishable from background radiation does not exceed 25 millirem (mrem) (0.25 millisievert (mSv)) per year to an average member of the critical group from all appropriate pathways over a 1,000-year period. Residual radioactivity means radioactivity in structures, materials, soils, ground water, and other

media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. The LTP should also demonstrate that residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA) (see 10 CFR 20.1402, "Radiological Criteria for Unrestricted Use"). The LTP should describe in detail the methods and assumptions used to demonstrate compliance with the 25-mrem (0.25-mSv)-per-year criterion. NUREG-1757 provides additional guidance on how to demonstrate compliance with the unrestricted release, restricted release, and alternative criteria for license termination. If a licensee requests license termination under the restricted release criteria of 10 CFR 20.1403, "Criteria for License Termination under Restricted Conditions," then the LTP should describe in detail the methods and assumptions that will be used to demonstrate that the licensee will provide reasonable assurance that the dose from residual radioactivity distinguishable from background will not exceed 25 mrem (0.25 mSv) per year to a member of the critical group over a 1,000-year period with the restrictions in place (see 10 CFR 20.1401(d) and 10 CFR 20.1403(b)). The LTP should discuss site end use, the institutional controls to be put in place, and the maintenance required for the controls, including financial assurance for any necessary control and maintenance of the site, until the residual radioactivity meets unrestricted release criteria. The LTP should demonstrate that further reductions in residual radioactivity necessary to release the site for unrestricted use (1) would result in net public or environmental harm or (2) were not being made because the residual levels are ALARA in accordance with 10 CFR 20.1403(a). The LTP should also describe in detail how the dose limits of 10 CFR 20.1403(e)(1) or (2) will be met when the restrictions fail. If a licensee requests license termination under the restricted release criteria of 10 CFR 20.1403, then the LTP should document how the licensee met the requirements of 10 CFR 20.1403(d) to seek and incorporate advice from the community.

If a licensee requests license termination under the alternative radiological criteria in 10 CFR 20.1404, "Alternate Criteria for License Termination," then the LTP should describe in detail the methods and assumptions used to demonstrate that public health and safety will continue to be protected. Specifically, the LTP should demonstrate that: (1) the dose from all manmade sources combined, other than medical, would be unlikely to exceed the 100 mrem (1.0 mSV) annual value set forth in 10 CFR 20.1301(a)(l) and 10 CFR 20.1404(a)(l), (2) the licensee has employed, to the extent practicable, restrictions on site use to minimize exposures at the site, and (3) doses have been reduced to ALARA levels, taking into consideration any detriments, such as traffic accidents, that might result from further decontamination or waste disposal. The LTP should discuss site end use, the institutional controls to be put in place, and the maintenance required for the controls, including financial assurance for any necessary control and maintenance of the site until the residual radioactivity meets the unrestricted release criteria. If a licensee requests license termination in accordance with the alternative criteria under 10 CFR 20.1404, the LTP should document how the licensee met the public consultation requirements of 10 CFR 20.1404(a)(4).

The use of alternate criteria requires approval by the Commission after it considers the NRC staff's recommendation in response to any comments by the U.S. Environmental Protection Agency and the public.

7. Update the Site-Specific Decommissioning Costs

As required by 10 CFR 50.75(f)(3), licensees must make a site-specific decommissioning cost estimate approximately 5 years before planned shutdown. In addition, 10 CFR 50.82(a)(8)(iii) requires that licensees submit a site-specific decommissioning cost estimate within 2 years following permanent shutdown. The financial assurance instrument the licensee selected from 10 CFR 50.75(e) must be funded to the full amount of the cost estimate. The LTP should include the following:

a. Estimate the decommissioning costs remaining at the time of LTP submittal.
b. Compare the estimated remaining costs with the present funds set aside for decommissioning. If there is a deficit in present funding, then indicate the means for ensuring adequate funds to complete the decommissioning.

Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," Revision 1, issued October 2003 (Ref. 9), provides detailed guidance on methods for estimating decommissioning costs and on financial assurance mechanisms that are acceptable to the NRC staff. If the LTP indicates that the licensee will provide assurance of funding by a surety method, insurance, or other guarantee, then the financial assurance instrument should remain in effect until the NRC has terminated the license.

The decommissioning cost estimate should evaluate the following seven cost elements, which are not meant to be all inclusive:

(1) cost assumptions used, including a contingency factor,
(2) major decommissioning activities and tasks,
(3) unit cost factors,
(4) estimated costs of decontamination and removal of equipment and structures,
(5) estimated costs of waste disposal, including applicable disposal site surcharges,
(6) estimated final survey costs, and
(7) estimated total costs.

The cost estimate should focus on the remaining work and provide details for each activity associated with the decommissioning, including the costs of labor, materials, equipment, energy, and services. The cost estimates should be based on credible engineering assumptions that are related to all remaining major decommissioning activities and tasks. The cost estimate should include the cost of the planned remediation actions, the cost of transportation and disposal of the waste generated by the actions, and other costs that are appropriate for the planned actions. NUREG-1307, "Report on Waste Burial Charges: Changes in Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities," (Ref.10), provides information on estimating waste disposal costs. The cost estimate should not include any credit for the salvage value of equipment.

8. Supplement to the Environmental Report

The licensee should submit a supplement to the environmental report describing any new information or significant environmental change associated with the site-specific termination activities. The supplement to the environmental report should include the following:

a. Describe in detail the impact of the site-specific termination activity.
b. Compare the impact with previously analyzed termination activities.
c. Analyze the environmental impact of the site-specific activity.

9. References

References may appear either as footnotes to the page on which they are cited or at the end of each chapter.

10. Format of the License Termination Plan Graphic Presentations

The licensee should employ graphic presentations, such as drawings, maps, diagrams, sketches, and tables, if the information may be presented more adequately or conveniently by such means. The licensee should ensure that all information so presented is legible, symbols are defined, and scales are not reduced to the extent that visual aids are necessary to interpret pertinent items of information. These graphic presentations should appear in the section where they are primarily discussed.

10.1 Physical Specifications

The LTP should comply with the following physical specifications:

a. Paper Size: Text pages should be 8-1/2 x 11 inches. Drawings and graphics should be 8-1/2 x 11 inches; however, a larger size is acceptable if the finished copy, when folded, does not exceed 8-1/2 x 11 inches.

b. Paper Stock and Ink: The licensee should use suitable quality in paper weight, paper color, and ink density for handling and reproduction by microfilming or image-copying equipment.

c. Page Margins: A margin of no less than 1 inch should be maintained on the top, bottom, and binding side of all pages submitted.

d. Printing: In terms of composition, the text pages should be single spaced. The typeface and style used should be suitable for microfilming or image-copying equipment, including computer scanning. In terms of reproduction, plans should be mechanically or photographically reproduced. All pages of text should be printed on both sides and the image printed head to head. Pages should be punched for standard three-hole loose-leaf binders.

e. Page Numbering: Pages should be numbered with the digits corresponding to the chapter followed by a hyphen and a sequential number (e.g., the third page of Section 4 should be numbered 4-3). The entire report should not be numbered sequentially.

f. Table of Contents: The LTP should include a table of contents and an index of key items.

10.2 Procedures for Updating or Revising Pages

Data and text should be updated or revised by replacing pages. The changed or revised portion on each page should be highlighted by a change-indicator mark consisting of a bold vertical line drawn in the margin opposite the binding margin. The line should be the same length as the portion of text actually changed.

All pages submitted to update, revise, or add pages to the report should show the date of change and change or amendment number. A guide page listing the pages to be inserted and the pages to be removed should accompany the revised pages. When major changes or additions are made, the licensee should provide a revised table of contents.

C. IMPLEMENTATION

The purpose of this section is to provide information on how applicants and licensees may use this guide and information regarding the NRC's plans for using this regulatory guide. In addition, it describes how the NRC staff has complied with the Backfit Rule, 10 CFR 50.109, and any applicable finality provisions in 10 CFR Part 52.

Use by Applicants and Licensees

Applicants and licensees may voluntarily use the information in this regulatory guide to develop applications for initial licenses, amendments to licenses, requests for exemptions, or NRC regulatory approval. Licensees may use the information in this regulatory guide for actions that do not require prior NRC review and approval (e.g., changes to a facility design under 10 CFR 50.59 that do not require prior NRC review and approval). Licensees may voluntarily use the information in this regulatory guide or applicable parts to resolve regulatory or inspection issues (e.g., by committing to comply with provisions in the regulatory guide).

Current licensees may continue to use the guidance that was found acceptable for complying with specific portions of the regulations as part of their license approval process, which may be a previous version of this regulatory guide.

A licensee who believes that the NRC staff is inappropriately imposing this regulatory guide as part of a request for a license amendment or request for a change to a previously issued NRC regulatory approval may file a backfitting appeal with the NRC in accordance with applicable procedures.

Use by NRC Staff

The NRC staff does not intend or approve any imposition or backfitting of the guidance in this regulatory guide. The staff does not expect any existing licensee to use or commit to using the guidance in this regulatory guide in the absence of a licensee-initiated change to its licensing basis. The NRC staff does not expect or plan to request licensees to voluntarily adopt this regulatory guide to resolve a generic regulatory issue. The NRC staff does not expect or plan to initiate NRC regulatory action that would require the use of this regulatory guide (e.g., issuance of an order requiring the use of the regulatory guide, requests for information under 10 CFR 50.54(f) as to whether a licensee intends to commit to use of this regulatory guide, generic communication, or promulgation of a rule requiring the use of this regulatory guide) without further backfit consideration.

During inspections of specific facilities, the staff may suggest or recommend that licensees consider various actions consistent with staff positions in this regulatory guide as one acceptable means of meeting the underlying NRC regulatory requirement. Such suggestions and recommendations would not ordinarily be considered backfitting even if prior versions of this regulatory guide are part of the licensing basis of the facility with respect to the subject matter of the inspection. However, the staff may not represent to the licensee that: (1) the licensee's failure to comply with the positions in this regulatory guide constitutes a violation, (2) the licensee may avoid the violation only by agreeing to comply with this regulatory guide, or (3) the only acceptable way for the licensee to address the NRC-identified noncompliance or violation is to commit to this regulatory guide (i.e., including this regulatory guide in the facility's licensing basis).

If an existing licensee seeks an amendment or change in an already approved area of NRC regulatory concern and (1) the NRC staff's consideration of the request involves a regulatory issue

directly relevant to this new or revised regulatory guide and (2) the specific subject matter of this regulatory guide is an essential consideration in the staff's determination of the acceptability of the licensee's request, then, as a prerequisite for NRC approval of the license amendment or change, the staff may require the licensee to either follow the guidance in this regulatory guide or to provide an equivalent alternative method that demonstrates compliance with the underlying NRC regulatory requirements. This is not considered backfitting as defined in 10 CFR 50.109(a)(1) or a violation of any of the issue finality provisions in 10 CFR Part 52.

Conclusion

This regulatory guide is not being imposed upon current licensees and may be voluntarily used by existing licensees. In addition, this regulatory guide is issued in conformance with all applicable internal NRC policies and procedures governing backfitting. Accordingly, the issuance of this regulatory guide by the NRC staff is not considered backfitting, as defined in 10 CFR 50.109(a)(1), nor is it deemed to be in conflict with any of the issue finality provisions in 10 CFR Part 52.

REFERENCES[1]

1. NUREG-1700, "Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans," U.S. Nuclear Regulatory Commission, Washington, DC.

2. 61 FR 39278, "Decommissioning of Nuclear Power Reactors," Volume 61, Number 146, p. 39278, Washington, DC, July 29, 1996.

3. Regulatory Guide 1.184, "Decommissioning of Nuclear Power Reactors," U.S. Nuclear Regulatory Commission, Washington, DC.

4. Regulatory Guide 1.185, "Standard Format and Content for Post Shutdown Decommissioning Activities Report," U.S. Nuclear Regulatory Commission, Washington, DC.

5. 62 FR 39058, "Radiological Criteria for License Termination," *Federal Register*, Volume 62, Number 139, p. 39058, Washington, DC, July 21, 1997.

6. NUREG-1757, "Consolidated NMSS Decommissioning Guidance," Volume 2, "Characterization, Survey, and Determination of Radiological Criteria," Revision 1, September 2006.

7. NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," Revision 1, August 2000.

8. NUREG-1501, "Background as a Residual Radioactivity Criterion for Decommissioning," draft for comment, August 1994.

9. Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," Revision 1, U.S. Nuclear Regulatory Commission, Washington, DC, October 2003.

10. NUREG-1307, "Report on Waste Burial Charges: Changes in Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities."

[1] Publicly available NRC published documents are available electronically through the Electronic Reading Room on the NRC's public Web site at: http://www.nrc.gov/reading-rm/doc-collections/. The documents can also be viewed on-line or printed for a fee in the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone 301-415-4737 or (800) 397-4209; fax (301) 415-3548; and e-mail pdr.resource@nrc.gov.