

# U.S. NUCLEAR REGULATORY COMMISSION

## REGULATORY GUIDE 1.179, REVISION 2



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

### A. INTRODUCTION

#### Purpose

This regulatory guide (RG) provides general procedures acceptable to the U.S. Nuclear Regulatory Commission (NRC) staff for the preparation of license termination plans (LTPs) for nuclear power reactors. This RG also describes an acceptable format and content of LTPs for nuclear power reactor licensees to terminate their licenses and release their sites.

#### Applicability

This RG applies to power reactors applicants and licensees subject to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, “Domestic Licensing of Production and Utilization Facilities” (Ref. 1), and 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants” (Ref. 2).

#### Applicable Regulations

- 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities”
  - 10 CFR 50.59, “Changes, tests and experiments,” applies to each holder of an operating license issued under this part or a combined license issued under 10 CFR Part 52, including the holder of a license authorizing operation of a nuclear power reactor that has submitted the certification of permanent cessation of operations.
  - 10 CFR Part 50.75, “Reporting and recordkeeping for decommissioning planning,” establishes requirements for indicating to NRC how a licensee will provide reasonable assurance that funds will be available for the decommissioning process.
  - 10 CFR 50.82(a)(6), states that licensees shall not perform any decommissioning activities, as defined in 10 CFR Part 50.2, that —

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Electronic copies of this RG, previous versions of RGs, and other recently issued guides are also available through the NRC’s public Web site in the NRC Library at <https://nrcweb.nrc.gov/reading-rm/doc-collections/reg-guides/>, under Document Collections, in Regulatory Guides. This RG is also available through the NRC’s Agencywide Documents Access and Management System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html>, under ADAMS Accession Number (No.) ML19128A067.

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- (i) Foreclose release of the site for possible unrestricted use;
  - (ii) Result in significant environmental impacts not previously reviewed; or
  - (iii) Result in there no longer being reasonable assurance that adequate funds will be available for decommissioning.
- 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 approval.
- 10 CFR 50.82(a)(9)(i) states that 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.
- 10 CFR 50.82(a)(9)(ii) lists the information that an LTP must include.
- 10 CFR 50.82(a)(10) states that if the LTP demonstrates that the rest of the decommissioning activities will be performed in accordance with the regulations, the Commission shall approve the plan by a license amendment subject to such conditions and limitations as it deems appropriate.
- 10 CFR Part 20, “Standards for Protection Against Radiation,” establishes standards for protection against ionizing radiation resulting from activities conducted under licenses issued by the NRC (Ref. 3).
- 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants”
  - 10 CFR 52.110, “Termination of license,” states that when a licensee has determined to permanently cease operations the licensee shall, within 30 days, submit a written certification to the NRC.

### **Related Guidance**

- RG 1.184, “Decommissioning of Nuclear Power Reactors” (Ref. 4), 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.
- RG 1.185, “Standard Format and Content for Post-Shutdown Decommissioning Activities Report” (Ref. 5), provides guidance on the content of a postshutdown decommissioning activities report.
- NUREG-1757, “Consolidated Decommissioning Guidance,” Volume 2, “Characterization, Survey, and Determination of Radiological Criteria” (Ref. 6), provides 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, “Standards for Protection Against Radiation” (Ref. 7).
- NUREG-1700, “Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans” (Ref. 8), provides the acceptance criteria for all areas of review for license

termination, and identifies the matters to be reviewed, the basis for the review, and the conclusions that are sought.

### **Purpose of Regulatory Guides**

The NRC issues RGs 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 events, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not required. Methods and solutions that differ from those set forth in RGs 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.

### **Paperwork Reduction Act**

This RG provides voluntary guidance for implementing the mandatory information collections in 10 CFR Part 50 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These information collections were approved by the Office of Management and Budget (OMB), approval number 3150-0011. Send comments regarding this information collection to the Information Services Branch (T6-A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), and to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0008), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street, NW Washington, DC 20503; e-mail: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov).

### **Public Protection Notification**

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

## B. DISCUSSION

### Reason for Revision

This revision of the guide (Revision 2) incorporates editorial changes and minor corrections to align with NUREG-1700, “Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans,” Revision 2, issued April 2018. This revision also updates the references and aligns the guidance with the current program guidance for RGs. These changes were intended to improve clarity and do not substantially alter the NRC staff’s regulatory guidance for the acceptable format and content of LTPs for nuclear power reactor licensees.

### Background

This RG establishes a standard format for the license application to ensure the completeness of an application, assist the NRC staff in locating relevant information, and shorten the time needed to review the submittal. Conformance with the standard format is not required. Applications prepared in other formats will be deemed acceptable if they provide an adequate basis for the findings required to approve them. Nonetheless, the use of other formats may increase the time required to review the application because it may be more difficult for the staff to locate the required information to meet the regulations.

The standard format included in this guide is an approved approach to meet the regulatory requirements contained in 10 CFR Part 50. The regulations in 10 CFR Part 50 (10 CFR Part 50.82) further describe the requirements that must be met in 10 CFR Part 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions,” for a supplement to the environmental report, pursuant to 10 CFR 51.53, “Postconstruction environmental reports,” describing any new information or significant environmental change associated with the licensee's proposed termination activities; and identification of parts, if any, of the facility or site that were released for use before approval of the license termination plan.

The information provided in the application should account for NRC regulations and guides, industry codes and standards, and developments in source material facilities that process significant quantities of uranium. The NRC may request additional information in support of an application, if such information is necessary to provide reasonable assurance of the ability of the facility to meet the regulations. Also, decommissioning activities for power reactors may be divided into three phases: (1) transitional activities, (2) major decommissioning and storage activities, and (3) license termination activities.

On July 29, 1996, the NRC published a *Federal Register* notice entitled, “Decommissioning of Power Reactors” (Ref. 9), amending its regulations to prescribe specific criteria for decommissioning nuclear power reactors. The amended regulations include 10 CFR Part 2, “Agency Rules of Practice and Procedure,” 10 CFR Part 50, and 10 CFR Part 51. The regulations in 10 CFR Part 50 (10 CFR 50.82) further describe the requirements that must be met in 10 CFR Part 2, specifically for power reactor licensees whose decommissioning plan approval activities have been relegated to notice of opportunity for a hearing under subpart G of 10 CFR Part 2. Any orders arising from proceedings under subpart G of 10 CFR Part 2 shall continue and remain in effect absent any orders from the Commission.

Compared to operating facilities, nuclear reactors that are permanently shut down with no fuel in the reactor vessel present a significantly reduced risk to the public. This change to 10 CFR Part 50 specifies requirements for such permanently shut-down nuclear reactors by eliminating, revising, or extending operating reactor requirements commensurate with their importance to safety.

On July 21, 1997, the NRC published in a *Federal Register* notice (Ref. 10) an amendment of its regulations regarding decommissioning. The amendment included changes in 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.” The regulations in 10 CFR Part 50 further describe the requirements that must be met in: (1) 10 CFR Part 30, specifically for funds for decommissioning costs, (2) 10 CFR Part 40 regarding source material, (3) 10 CFR Part 70 pertaining to maintaining a monitoring system capable of detecting a criticality, and (4) 10 CFR Part 71 regarding transportation of radioactive material. These changes prescribe specific radiological criteria for license termination for all NRC licenses. Under these 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 staff reviews LTPs using the Standard Review Plan in NUREG-1700 for evaluating nuclear power reactor LTPs to ensure quality and uniformity of the NRC staff review. LTPs should discuss the current site radiological condition, remaining remediation activities and costs for implementing them, final site radiological surveys plan, and radiological criteria for license termination and methods for demonstrating compliance.

The RG provides guidance for licensees to submit the LTP as a supplement to the final safety analysis report or as an equivalent document, and they may submit the LTP concurrently with the postshutdown decommissioning activities report.

### **Harmonization with International Standards**

The NRC’s goal is to harmonize its guidance with international standards. The International Atomic Energy Agency (IAEA) has established a series of safety guides and standards constituting a high level of safety for protecting people and the environment. The IAEA safety guides present international good practices to help users to achieve high levels of safety. These documents address safety requirements applicable to the termination of license of nuclear power plants, research reactors, and other nuclear fuel cycle facilities. The information in this RG is generally consistent with the principles in the IAEA documents below:

- IAEA Specific Safety Guide No. SSG-47, “Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities,” October 2018 (Ref. 11). The objective of this safety guide is to provide guidance for regulatory bodies, licensees, technical support organizations, and other interested parties on planning for decommissioning, conducting decommissioning actions, demonstrating completion of decommissioning, and terminating the authorization for decommissioning of facilities. It aims to ensure that the decommissioning of facilities is conducted in a safe and environmentally acceptable manner in accordance with good international practice.
- IAEA Safety Standards Series No. GSR Part 6, “Decommissioning of Facilities,” January 2014 (Ref. 12), provides recommendations for a consistent approach to planning and implementing the decommissioning of both new and existing facilities, incorporating lessons learned from previous decommissioning projects.

## C. STAFF REGULATORY GUIDANCE

This section provides detailed descriptions of the methods, approaches, or data that the staff considers acceptable for meeting the requirements of the applicable regulations cited in the Introduction of this guide.

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

#### 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. Include the estimated volume of radiological waste and proposed disposal methods.
- 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 change associated with the licensee's proposed termination activities.
- h. Identify parts, if any, of the facility that were released for use before approval of the LTP under 10 CFR 50.82(a)(9)(ii)(H).

#### 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)," issued August 2000 (Ref. 13), provides guidance on developing a site characterization program, and NUREG-1757 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 inside and outside 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 NRC 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 about changes to the radiation protection program, but these details should be provided in either periodic updates to the final safety analysis report or the LTP.

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. Use of new techniques should be reviewed under the 10 CFR 50.59 criteria and described sufficiently for the NRC to perform a safety evaluation.

## 5. Final Status Survey Plan

The LTP should describe the final status survey. This survey is not conducted for the purpose of locating residual radioactivity; the historical site assessment and the characterization survey perform that function. It is also not conducted as part of remedial action surveys. 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). NUREG-1575 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 provide 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. Discuss variances in background radiation that can be expected (e.g., between structures constructed of different materials), as outlined in draft NUREG-1501, "Background as a Residual Radioactivity Criterion for Decommissioning," issued August 1994 (Ref. 14).
- 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. Include survey instrument calibration and efficiency calculations.
- 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 it 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 artificial 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)(1) and 10 CFR 20.1404(a)(1), (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 the case of a premature shutdown, 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.

RG 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors" (Ref. 15), 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," issued January 2013 (Ref. 16), 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**

Pursuant to 10 CFR 50.82(a)(9)(ii)(G), 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 do the following:

- a. Describe in detail the environmental impact of the site-specific termination activity.
- b. Compare the impact with previously analyzed termination activities (see NUREG-0586, “Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities,” Supplement 1, “Regarding the Decommissioning of Nuclear Power Reactors,” issued November 2002) (Ref. 17).
- c. Analyze the environmental impact of the site-specific activity. Include alternative actions and any mitigating actions.

## **9. References**

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

## D. IMPLEMENTATION

The purpose of this section is to provide information on how applicants and licensees<sup>1</sup> may use this guide and information regarding the NRC's plans for using this RG. In addition, it describes how the NRC staff complies with 10 CFR 50.109, "Backfitting" and any applicable finality provisions in 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

### Use by Applicants and Licensees

Applicants and licensees may voluntarily<sup>2</sup> use the guidance in this document to demonstrate compliance with the underlying NRC regulations. Methods or solutions that differ from those described in this RG may be deemed acceptable if they provide sufficient basis and information for the NRC staff to verify that the proposed alternative demonstrates compliance with the appropriate NRC regulations. Current licensees may continue to use guidance the NRC found acceptable for complying with the identified regulations as long as their current licensing basis remains unchanged.

Licensees may use the information in this RG for actions that do not require NRC review and approval such as changes to a facility design under 10 CFR 50.59, "Changes, Tests, and Experiments." Licensees may use the information in this RG or applicable parts to resolve regulatory or inspection issues.

### Use by NRC Staff

The NRC staff does not intend or approve any imposition or backfitting of the guidance in this RG. The NRC staff does not expect any existing licensee to use or commit to using the guidance in this RG, unless the licensee makes a change to its licensing basis. The NRC staff does not expect or plan to request licensees to voluntarily adopt this RG to resolve a generic regulatory issue. The NRC staff does not expect or plan to initiate NRC regulatory action which would require the use of this RG without further backfit consideration. Examples of such unplanned NRC regulatory actions include issuance of an order requiring the use of the RG, requests for information under 10 CFR 50.54(f) as to whether a licensee intends to commit to use of this RG, generic communications, or a rule requiring the use of this RG.

During regulatory discussions on plant specific operational issues, the staff may discuss with licensees various actions consistent with staff positions in this RG, as one acceptable means of meeting the underlying NRC regulatory requirement. Such discussions would not ordinarily be considered backfitting even if prior versions of this RG are part of the licensing basis of the facility. However, unless this RG is part of the license for a facility, the staff may not represent to the licensee that the licensee's failure to comply with the positions in this RG constitutes a violation.

Additionally, an existing applicant may be required to comply with new rules, orders, or guidance if 10 CFR 50.109(a)(3) applies.

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<sup>1</sup> In this section, "licensees" refers to licensees of nuclear power plants under 10 CFR Parts 50 and 52; and the term "applicants," refers to applicants for licenses and permits for (or relating to) nuclear power plants under 10 CFR Parts 50 and 52, and applicants for standard design approvals and standard design certifications under 10 CFR Part 52.

<sup>2</sup> In this section, "voluntary" and "voluntarily" means that the licensee is seeking the action of its own accord, without the force of a legally binding requirement or an NRC representation of further licensing or enforcement action.

If a licensee believes that the NRC is either using this RG or requesting or requiring the licensee to implement the methods or processes in this RG in a manner inconsistent with the discussion in this Implementation section, then the licensee may file a backfit appeal with the NRC in accordance with the guidance in NRC Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection" (Ref. 18), and in NUREG-1409, "Backfitting Guidelines," (Ref. 19).

## REFERENCES<sup>1</sup>

1. *U.S. Code of Federal Regulations (CFR)*, Part 50, “Domestic Licensing of Production and Utilization Facilities,” Chapter I, Title 10, “Energy”
2. CFR, Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” Chapter I, Title 10, “Energy”
3. CFR, Part 20, “Standards for Protection against Radiation,” Chapter I, Title 10, “Energy”
4. U.S. Nuclear Regulatory Commission (NRC), Regulatory Guide (RG) 1.184, “Decommissioning of Nuclear Power Reactors,” Washington, DC.
5. NRC, Regulatory Guide (RG) 1.185, “Standard Format and Content for Post-Shutdown Decommissioning Activities Report,” Washington, DC.
6. NRC, NUREG-1757, “Consolidated NMSS Decommissioning Guidance,” Volume 2, “Characterization, Survey, and Determination of Radiological Criteria,” Washington, DC.
7. CFR, “Standards for Protection against Radiation,” Part 20 (10 CFR Part 20), Chapter I, Title 10, “Energy,” Washington, DC.
8. NRC, NUREG-1700, “Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans,” Revision 2, issued April 2018, Washington, DC.
9. NRC, “Decommissioning of Nuclear Power Reactors,” *Federal Register (FR)*, Vol. 61, No. 146: pp. 39278 (61 FR 39278), Washington, DC, July 29, 1996.<sup>2</sup>
10. NRC, “Radiological Criteria for License Termination,” 62 FR 39058, Washington, DC, July 21, 1997.
11. International Atomic Energy Agency (IAEA), Specific Safety Guide No. SSG-47, “Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities,” Vienna, Austria, 2018.<sup>3</sup>

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<sup>1</sup> Publicly available NRC-published documents are available electronically through the NRC Library on the NRC’s public Web site 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>. The documents can also be viewed online or printed for a fee in the NRC’s Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD. For problems with ADAMS, contact the PDR staff at 301-415-4737 or (800) 397-4209; fax 301-415-3548; or e-mail [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).

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<sup>3</sup> Copies of International Atomic Energy Agency (IAEA) documents may be obtained through its Web site at <http://www.iaea.org> or by writing to the International Atomic Energy Agency, P.O. Box 100 Wagramer Strasse 5, A-1400 Vienna, Austria, or by telephone (+431) 2600-0; fax (+431) 2600-7; or e-mail [Official.Mail@IAEA.org](mailto:Official.Mail@IAEA.org).

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