



DRAFT REGULATORY GUIDE

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(Proposed Revision 1 of Regulatory Guide 1.187, dated November 2000)

GUIDANCE FOR IMPLEMENTATION OF 10 CFR 50.59, “CHANGES, TESTS, AND EXPERIMENTS”

A. INTRODUCTION

Purpose

This regulatory guide (RG) provides licensees and applicants with a method that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for use in complying with the Commission’s regulations on the process by which licensees may make changes to their facilities and procedures as described in the safety analysis report, without prior NRC approval, under certain conditions.

Applicability

This RG applies to all holders of operating licenses for nuclear power reactors under the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities” (Ref. 1), including those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel, and all holders of and applicants for a power reactor combined license under 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants” (Ref. 2).

Applicable Regulations

- 10 CFR 50.59, “Changes, Tests, and Experiments,” contains requirements for the process by which licensees, under certain conditions, may make changes to their facilities and procedures as described in the final safety analysis report (FSAR) (as updated)¹, without prior NRC approval.
- 10 CFR 50.90, “Application for amendment of license, construction permit, or early site permit,” contains the requirements for applicants requesting an amendment to an operating license under 10 CFR Part 50 or a combined license under part 52 of 10 CFR, or for a testing facility.

¹ Per 10 CFR 50.59(c)(3), the “FSAR (as updated),” for purposes of 10 CFR 50.59, also includes FSAR update pages approved by the licensee for incorporation in the FSAR since the last required update was submitted per 10 CFR 50.71(e).

This RG is being issued in draft form to involve the public in the development of regulatory guidance in this area. It has not received final staff review or approval and does not represent an NRC final staff position. Public comments are being solicited on this draft regulatory guide (DG) and its associated regulatory analysis. Comments should be accompanied by appropriate supporting data. Comments may be submitted through the Federal rulemaking Web site, <http://www.regulations.gov>, by searching for Docket ID: NRC-2016-0270. Alternatively, comments may be submitted to the Rules, Announcements, and Directives Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Comments must be submitted by the date indicated in the Federal Register notice.

Electronic copies of this DG, previous versions 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 Library at <http://www.nrc.gov/reading-rm/doc-collections/reg-guides/>. The DG is also available through the NRC’s Agencywide Documents Access and Management System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html>, under Accession No. ML16089A381. The regulatory analysis may be found in ADAMS under Accession No. ML16089A379.

- 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” describes the process by which applicants and holders of combined licenses may, under certain conditions, make changes to their facilities and procedures as described in the FSAR (as updated), without prior NRC approval.
- 10 CFR 72.48, “Changes, Tests, and Experiments,” contains requirements for the process by which holders of licenses to receive, transfer, and possess power reactor spent fuel, power reactor-related greater than class C waste, and other radioactive materials associated with spent fuel storage installations, under certain conditions, may make changes to their facilities and procedures as described in the FSAR (as updated), without prior NRC approval, (Ref. 3).

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 contains and references information collections covered by 10 CFR Parts 50 and 52 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), under control numbers 3150-0011 and 3150-0151 respectively.

Public Protection Notification

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

B. DISCUSSION

Reason for Revision

This version of RG 1.187 (Revision 1) clarifies potentially misleading statements in Section 4.3.8 of Nuclear Energy Institute (NEI) 96-07, Revision 1, “Guidelines for 10 CFR 50.59 Implementation” (Ref. 4), which was endorsed in RG 1.187, Rev 0, as acceptable guidance for how to comply with NRC regulations in 10 CFR 50.59. Because of the potentially misleading statements in Section 4.3.8 of NEI 96-07, licensees may misinterpret the definition governing the “...*departure from a method of evaluation...*” described in the FSAR (as updated).

The RG also adds clarification to statements in Section 4.3.5 of NEI 96-07, Revision 1, whereby licensees may misinterpret the last sentence in the second paragraph in Section 4.3.5 if considered in isolation of the statements earlier discussed in the paragraph.

Background

Under 10 CFR 50.59, licenses are allowed to make changes in the facility, procedures, or conduct tests not described in the FSAR (as updated) without prior NRC approval. This regulation was promulgated in 1962 and revised in 1968. As a result of lessons learned from operating experience and other initiatives related to control of conformance of facilities with their FSAR (as updated), the Commission issued a staff requirements memorandum dated March 24, 1998 (Ref. 5), directing the staff to initiate rulemaking to revise and clarify the requirements of 10 CFR 50.59 and to allow licensees to make changes involving only minimal increases in probability or consequences without prior NRC approval.

Following the NRC issuance of the revised rule, NEI submitted and requested NRC endorsement of a guidance document for the implementation of 10 CFR 50.59. In November 2000, the NRC issued RG 1.187, "Guidance for Implementation of 10 CFR 50.59, 'Changes, Tests, and Experiments'" (Ref. 6) to provide guidance to licensees on implementing requirements of 10 CFR 50.59 through its endorsement of NEI 96-07, Revision 1.

Departure from a Method of Evaluation

Recent reviews of licensees' 10 CFR 50.59 screenings and evaluations have led the NRC staff to identify a statement in NEI 96-07, Revision 1 which may be misinterpreted and lead to incorrect licensee determinations under 10 CFR 50.59 for meeting the requirements governing the "Departure from a method of evaluation..." described in the FSAR (as updated).

The intent of 10 CFR 50.59 is to reduce the applications, reviews, and approvals of changes that maintain the results of the analysis as conservative or essentially the same (50.59(a)(2)(i)), or have been previously approved through an SER for the intended application (50.59(a)(2)(ii)).

The requirements in 10 CFR 50.59(c)(1) authorize a licensee to make changes in the facility or procedures described in its FSAR (as updated), or perform tests or experiments not described in its FSAR (as updated) without first obtaining a license amendment pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit." The licensee can make these changes without a license amendment only if a change to the facility's technical specifications is not required, and if the change, test, or experiment does not meet any of the eight criteria listed in 10 CFR 50.59(c)(2). Section 50.59(c)(2) states, in part, that "[a] licensee shall obtain a license amendment pursuant to Sec. 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would..." meet any of the eight criteria listed in Sections 50.59(c)(2)(i) to (viii). Criterion (viii) states, "Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses."

The definition in 10 CFR 50.59(a)(2) states:

"Departure from a method of evaluation described in the FSAR (as update) used in establishing the design bases or in the safety analyses means:

- (i) Changing any of the elements of the method described in the FSAR (as updated) unless the results of the analysis are conservative or essentially the same; or*
- (ii) Changing from a method described in the FSAR to another method unless that method has been approved by NRC for the intended application."*

Thus, the regulation at 50.59(a)(2)(i) specifies that the determination of whether the results of the analysis are “...*conservative or essentially the same*...” consists of comparison between: (1) the results of the analysis using the method of evaluation described in the FSAR (as updated), and (2) the results of the analysis using the current method described in the FSAR (as updated) that has been revised by a proposed change to any of the elements of the method. This section of the regulation is specific to changing elements in the method of evaluation as described in a licensee’s FSAR (as updated).

This clarification ensures 10 CFR 50.59(a)(2)(i) is used only for a change to an element to a method described in a licensee’s FSAR (as updated).

Section 4.3.8 of NEI 96-07, Revision 1, states, in part:

By way of contrast, the following changes are not considered departures from a method of evaluation described in the UFSAR . . .

- *Use of a methodology revision that is documented as providing results that are essentially the same as, or more conservative than, either the previous revision of the same methodology or another methodology previously accepted by NRC through issuance of an SER [safety evaluation report].*

The above excerpt from NEI guidance is unclear in two respects. First, the NEI guidance may be misinterpreted because it evaluates the use of a “methodology revision” against both 10 CFR 50.59(a)(2)(i) and (ii) in the same sentence. The NEI 96-07 Rev. 1 guidance phrase “...*results that are essentially the same as, or more conservative than*...” relates to the definition in 10 CFR 50.59(a)(2)(i) which allows licensees to change “...*any of the elements of the method described in the FSAR (as updated)*...” without prior NRC approval provided “...*the results of the analysis are conservative or essentially the same*.” The phrase “...*another methodology previously accepted by NRC through issuance of an SER*” relates to the definition in 10 CFR 50.59(a)(2)(ii) which allows licensees to change “...*from a method described in the FSAR to another method*...” without prior NRC approval provided the method “...*has been approved by NRC [through an SER] for the intended application*.” Licensees may document a methodology revision as a change from a method described in the FSAR (as update) to another method and would not require a license amendment if the licensee can demonstrate and document that the revised method has been previously accepted by NRC through issuance of an SER for the intended application. This clarification ensures that licensees appropriately use the correct section of 50.59(a)(2) as intended.

Second, the NEI 96-07 Rev. 1 guidance phrase “...*the previous revision of the same methodology*...” could be interpreted differently than the intended corresponding phrase in definition in 10 CFR 50.59(a)(2)(i), “*Changing any of the elements of the method described in the FSAR (as updated)*,” and lead to incorrect licensee determinations under 10 CFR 50.59. Any comparison must be to the method currently described in the FSAR (as updated).

Accident of a Different Type

Section 4.3.5, “Does the Activity Create a Possibility for an Accident of a Different Type?” of NEI 96-07, Revision 1 states in part:

“Certain accidents are not discussed in the UFSAR [updated final safety analysis report] because their effects are bounded by other related events that are analyzed. For example, a postulated pipe break in a small line may not be specifically evaluated in the UFSAR because it has been determined to be less limiting than a pipe break in a larger line in the

same area. Therefore, if a proposed design change would introduce a small high energy line break into this area, postulated breaks in the smaller line need not be considered in an accident of a different type.” [emphasis added]

This paragraph contains two criteria (i.e., “bounded” and “related”) and states that a different type of accident does not exist if both criteria are met; however, it does not specifically address the condition where there are no “related events” analyzed in the UFSAR. The bounding criterion is not applicable for those new accidents which have no related events analyzed in the UFSAR. That is, the statements of consideration for the final rule for 10 CFR 50.59 in 1999 (i.e., 64 FRN 53593) states the Commission had in mind creation of accidents of the likelihood and significance of those that, had the possibility already existed, would have been a design basis accident in the FSAR. Subsequent summarization of this paragraph, in NEI 96-07, Revision 1, emphasized only the “bounded” criteria; the last sentence of Section 4.3.5 of NEI 96-07, Revision 1 states:

“Accidents of a different type are credible accidents that the proposed activity could create that are not bounded by UFSAR-evaluated accidents.”

The staff needs to clarify the above statements regarding the conditions “bounded” and “related events,” particularly since the last sentence of Section 4.3.5 could be misinterpreted because it applies the condition “bounded” but not “related events.” The quoted paragraph should be modified to read:

The UFSAR evaluates a broad spectrum of transients and accidents, or initiating events. Initiating events are categorized according to expected frequency of occurrence and by type. The type accident is defined by its effect on the plant. Categorization of initiating events by type provides a basis for comparison between events, which makes it possible to identify and evaluate in detail the limiting cases (i.e., the cases that can challenge the analysis acceptance criteria) and eliminate non-limiting cases from further consideration. Accidents that are non-limiting cases are not discussed in the UFSAR. For example, a postulated pipe break in a small line may not be specifically evaluated in the UFSAR because it has been determined to be less limiting than a pipe break in a larger line in the same area. Therefore, if a proposed design change would introduce a small high energy line break into this area, postulated breaks in the smaller line need not be considered in an accident of a different type.”

The last sentence should be modified to read:

“Accidents of a different type are credible accidents that the proposed activity could create that have an effect on the plant that is different than any previously evaluated in the UFSAR (i.e., a different accident analysis would be needed for this different type of accident).”

This NRC clarification ensures the last sentence would not be inappropriately interpreted to mean that the accident types described in the current UFSAR accident analyses properly evaluate the different effect on the plant but that the results of the analysis are not bounding.

Harmonization with International Standards

The NRC staff reviewed guidance from the International Atomic Energy Agency (IAEA) and the International Organization for Standardization (ISO) and did not identify any standards that provided useful guidance to NRC staff, applicants, or licensees.

Documents Discussed in Staff Regulatory Guidance

This RG endorses, in part, the use of a third-party guidance document. This third party guidance document may contain references to other codes, standards, or third party guidance documents that the NRC refers to as secondary references. If a secondary reference has itself been incorporated by reference into NRC regulations as a requirement, then licensees and applicants must comply with that standard as set forth in the regulation. If the secondary reference has been endorsed in a RG as an acceptable approach for meeting an NRC requirement, then the standard constitutes a method acceptable to the NRC staff for meeting that regulatory requirement as described in the specific RG. If the secondary reference has neither been incorporated by reference into NRC regulations nor endorsed in an RG, then the secondary reference is neither a legally binding requirement nor a generic, NRC-approved acceptable approach for meeting an NRC requirement. However, licensees and applicants may consider and use the information in the secondary reference, if appropriately justified, consistent with current regulatory practice, and consistent with applicable NRC requirements.

C. STAFF REGULATORY GUIDANCE

1. NEI 96-07

The NRC staff considers the guidance in NEI 96-07, Revision 1, generally acceptable as a means for complying with the requirements in 10 CFR 50.59. However, the NRC staff is providing clarification as discussed below.

a. Section 4.3.5 of NEI 96-07, Revision 1, states, in part:

“Certain accidents are not discussed in the UFSAR [updated final safety analysis report] because their effects are bounded by other related events that are analyzed. For example, a postulated pipe break in a small line may not be specifically evaluated in the UFSAR because it has been determined to be less limiting than a pipe break in a larger line in the same area. Therefore, if a proposed design change would introduce a small high energy line break into this area, postulated breaks in the smaller line need not be considered in an accident of a different type.” [emphasis added]

The last sentence of Section 4.3.5 of NEI 96-07, Revision 1, states:

“Accidents of a different type are credible accidents that the proposed activity could create that are not bounded by UFSAR-evaluated accidents.”

The above excerpts from NEI 96-07, Revision 1, are unclear regarding the conditions “bounded” and “related events,” particularly since the last sentence of Section 4.3.5 could be misinterpreted because it applies the condition “bounded” but not “related events.” The above quoted paragraph should be read as:

“The UFSAR evaluates a broad spectrum of transients and accidents, or initiating events. Initiating events are categorized according to expected frequency of occurrence and by type. The type accident is defined by its effect on the plant. Categorization of initiating events by type provides a basis for comparison between events, which makes it possible to identify and evaluate in detail the limiting cases (i.e., the cases that can challenge the analysis acceptance criteria) and eliminate non-limiting cases from further consideration. Accidents that are non-limiting cases are not discussed in the UFSAR. For example, a postulated pipe break in a small line may not be specifically evaluated in the

UFSAR because it has been determined to be less limiting than a pipe break in a larger line in the same area. Therefore, if a proposed design change would introduce a small high energy line break into this area, postulated breaks in the smaller line need not be considered in an accident of a different type.”

The last sentence of Section 4.3.5 of NEI 96-07, Revision 1, should be read as:

“Accidents of a different type are credible accidents that the proposed activity could create that have an effect on the plant that current UFSAR accident analysis do not evaluate (i.e., a different accident analysis would be needed for this different type of accident).”

b. Section 4.3.8 of NEI 96-07, Revision 1 states, in part,

“By way of contrast, the following changes are not considered departures from a method of evaluation described in the UFSAR...”

“Use of a methodology revision that is documented as providing results that are essentially the same as, or more conservative than, either the previous revision of the same methodology or another methodology previously accepted by NRC through issuance of an SER.”

The NEI guidance excerpted above may be used consistent with the following NRC staff clarifications:

- a. The NEI guidance may be misinterpreted because it evaluates the use of a “methodology revision” against both 10 CFR 50.59(a)(2)(i) and (ii) in the same sentence. The NEI guidance phrase “results that are essentially the same as, or more conservative” relates to the definition in 10 CFR 50.59(a)(2)(i) which allows licensees to change “...any of the elements of the method described in the FSAR (as updated)...” without prior NRC approval provided “...the results of the analysis are conservative or essentially the same.” The phrase “...another methodology previously accepted by NRC through issuance of an SER” relates to the definition in 10 CFR 50.59(a)(2)(ii) which allows licensees to change “...from a method described in the FSAR to another method...” without prior NRC approval provided the method has been approved by the NRC through an SER for the intended application. Licensees may document a methodology revision as a change from a method described in the FSAR to another method and would not require a license amendment if the licensee can demonstrate that the revised method has been previously accepted by NRC through issuance of an SER for the intended application.
- b. The NEI guidance phrase “the previous revision of the same methodology” could be interpreted differently than the intended corresponding phrase in definition in 10 CFR 50.59(a)(2)(i) “...method of evaluation described in the FSAR (as updated),” and lead to incorrect licensee determinations under 10 CFR 50.59.
- c. A licensee that replaces the methodology as currently specified in the FSAR (as updated) with another methodology not used at the licensee’s plant as a basis for determining that there is no departure under 10 CFR 50.59, shall ensure that the demonstration of applicability of the other methodology becomes part of the licensing basis for licensee’s facility and is specific to the intended function as approved through an NRC SER.

2. Other Documents and Examples Referenced in NEI 96-07

As discussed in the paragraph above titles, “Documents Discussed in Staff Regulatory Guidance,” Revision 1 of NEI 96-07 references other documents, but NRC’s endorsement of Revision 1 should not be considered an endorsement of the referenced documents. Additionally, Revision 1 of NEI 96-07 includes examples to supplement the guidance. While appropriate for illustrating and reinforcing the guidance in Revision 1 of NEI 96-07, the NRC’s endorsement of Revision 1 should not be considered a determination that the examples are applicable for all licensees. A licensee should ensure that an example is applicable to its particular circumstances before implementing the guidance as described in an example.

3. Guidance for FSAR Supplements for License Renewal

The guidance in Revision 1 of NEI 96-07 and in this RG is applicable to information added to the FSAR in accordance with 10 CFR 54.21(d) (i.e., for summary descriptions of the programs and activities for managing the effects of aging and the evaluation of time-limited aging analyses).

4. Applicability to Non-power Reactors

While most of the examples and specific discussion focuses on power reactors, the guidance contained in Revision 1 of NEI 96-07 is also applicable to evaluations performed by Class 104 licensees for medical therapy and research and development facilities (non-power production or utilization facilities). Certain provisions in the guidance that discuss the relationship of other regulatory requirements to 10 CFR 50.59 may not be fully applicable to non-power production or utilization facilities. For example, non-power production or utilization facilities are not subject to requirements for monitoring the effectiveness of maintenance at nuclear power plants (10 CFR 50.65), and thus, the guidance concerning use of risk assessments for temporary alterations associated with maintenance in lieu of 10 CFR 50.59 reviews would not be applicable to non-power production or utilization facilities.

5. Applicability to 10 CFR 72.48 Evaluations

The guidance contained in Revision 1 of NEI 96-07 is also generally applicable to evaluations performed by licensees of independent spent fuel storage facilities (ISFSIs) or spent fuel storage cask design certificate holders for implementation of the revised 10 CFR 72.48, “Changes, Tests, and Experiments.”

6. Applicability of Past NRC Communications

The NRC has issued a number of communications such as generic letters or bulletins that discussed or referred to 10 CFR 50.59. In considering whether the information in those documents remains applicable, it should be noted that those documents were based on the rule requirements that existed at the time of issuance. To the extent that the discussion therein relates to specific aspects of the rule, such as evaluation criteria that have been revised, these past documents may no longer be fully consistent and the new rule requirements would prevail. The status is unchanged of other parts of these documents that are not affected by the revisions to the rule.

D. IMPLEMENTATION

The purpose of this section is to provide information on how applicants and licensees² may use this guide and information regarding the NRC's plans for using this regulatory guide. 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 Licensees

Licensees may voluntarily³ use the guidance in this document to demonstrate compliance with the underlying NRC regulations. Methods or solutions that differ from those described in this regulatory guide 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. Licensees may use the information in this regulatory guide for actions which do not require NRC review and approval such as changes to a facility design under 10 CFR 50.59, "Changes, Tests, and Experiments," that do not require prior NRC review and approval. Licensees may use the information in this regulatory guide 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 regulatory guide. The NRC staff does not expect any existing licensee to use or commit to using the guidance in this regulatory guide, 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 regulatory guide 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 regulatory guide. Examples of such unplanned NRC regulatory actions include 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 regulatory discussions on plant specific operational issues, the staff may discuss with licensees various actions consistent with staff positions in this regulatory guide, 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 regulatory guide are part of the licensing basis of the facility. However, unless this regulatory guide is part of the licensing basis for a facility, the staff may not represent to the licensee that the licensee's failure to comply with the positions in this regulatory guide constitutes a violation.

If an existing licensee voluntarily seeks a license amendment or change 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 the staff may request that the licensee either follow the guidance in this regulatory guide or provide an equivalent alternative process that

2 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.

3 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.

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.

If a licensee believes that the NRC is either using this regulatory guide or requesting or requiring the licensee to implement the methods or processes in this regulatory guide 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 NUREG-1409, "Backfitting Guidelines," (Ref. 7) and the NRC Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection" (Ref. 8).

Pre-Decisional

REFERENCES⁴

1. *U.S. Code of Federal Regulations* (CFR), “Domestic Licensing of Production and Utilization Facilities,” Part 50, Chapter 1, Title 10, “Energy” (10 CFR Part 50).
2. CFR, “Licenses, Certifications, and Approvals of Nuclear Power Plants,” Part 52, Chapter 1, Title 10, “Energy,” (10 CFR Part 52).
3. CFR, “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste,” Part 72, Chapter 1, Title 10, “Energy,” (10 CFR Part 72).
4. Nuclear Energy Institute (NEI) 96-07, Revision 1, “Guidelines for 10 CFR 50.59 Implementation,” Washington, DC, November 2000. Agencywide Documents Access and Management System (ADAMS) Accession No. ML003771157.⁵
5. U.S. Nuclear Regulatory Commission (NRC), Staff Requirements Memorandum (SRM): SECY-97-205, “Integration and Evaluation of Results From Recent Lessons Learned Reviews,” Washington, DC, March 1998. ADAMS Accession No. ML003752091.
6. NRC, Regulatory Guide (RG) 1.187, Revision 0, “Guidance for Implementation of 10 CFR 50.59, ‘Changes, Tests, and Experiments’,” Washington, DC, November 2000. ADAMS Accession No. ML003759710.
7. NRC, NUREG-1409, “Backfitting Guidelines,” Washington, DC, June 1990. ADAMS Accession No. ML032230247.
8. NRC, Management Directive 8.4, “Management of Facility-Specific Backfitting and Information Collection,” Washington, DC, October 2013. ADAMS Accession No. ML12059A460.

4 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.

5 Publications from the Nuclear Energy Institute (NEI) are available at their Web site: <http://www.nei.org/> or by contacting the headquarters at Nuclear Energy Institute, 1776 I Street NW, Washington DC 20006-3708, Phone: 202-739-800, Fax 202-785-4019.