U.S. NUCLEAR REGULATORY COMMISSION

REGULATORY GUIDE 1.187, REVISION 1

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

A. INTRODUCTION

Purpose

This regulatory guide (RG) provides licensees 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, under certain conditions, may make changes to their facilities and procedures as described in the final safety analysis report (FSAR) (as updated) (also referred to as updated final safety analysis report (UFSAR)), and conduct tests or experiments not described in the FSAR (as updated), without prior NRC approval.

Applicability

This RG applies to each holder of an operating license issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" (Ref. 1), or a combined license issued under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Ref. 2), including the holder of a license authorizing operation of a nuclear power reactor that has submitted the certification of permanent cessation of operations required under 10 CFR 50.82(a)(1) or 10 CFR 50.110 or a reactor licensee whose license has been amended to allow possession of nuclear fuel but not operation of the facility.

Applicable Regulations

- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," provides regulations for licensing production and utilization facilities.
    - 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 FSAR (as updated), and conduct tests or experiments not described in the FSAR (as updated) without prior NRC approval.

Written suggestions regarding this guide or development of new guides may be submitted 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/contactus.html.

Electronic copies of this RG, previous versions RGs, 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/. 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 No. ML17195A655. The regulatory analysis may be found in ADAMS under Accession No. ML16089A379 and the staff responses to the public comments on DG-1334 may be found under ADAMS Accession No. ML17142A453.

- 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," contains requirements for applicants requesting an amendment to a license or permit under 10 CFR Part 50 or 10 CFR Part 52.

- 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," in the Appendices containing certified designs, Section VIII.B, "Processes for Changes and Departures," provides the process by which applicants and holders of combined licenses may, under certain conditions, make changes to the Tier 2 information for their facilities and procedures as described in the plant-specific Design Control Document (as updated) without prior NRC approval.

Related Guidance

- Nuclear Energy Institute (NEI) 96-07, Appendix A, "Text of 10 CFR 50.59," dated November 2000 (Ref. 3). Appendix A is the text of the 10 CFR 50.59 rule as it existed in November 2000 and has not been updated for the revisions to 10 CFR 50.59 issued in 2001 and 2007. These rules are described in the background section of this regulatory guide.

- NEI 96-07, Appendix B, "Guidelines for 10 CFR 72.48 Implementation," dated March 5, 2001 (Ref. 4). RG 3.72, "Guidance for Implementation of 10 CFR 72.48, Changes, Tests, and Experiments" (Ref. 5). Through its endorsement of NEI 96-07, Appendix B, provides guidance for licensees of independent spent fuel storage installations (ISFSIs) or spent fuel storage system design certificate holders in conducting changes, tests, and experiments to their facilities. NEI 96-07, Appendix B is undergoing a separate revision effort by NEI that will be issued as NEI 12-04, "Guidelines for Title 10 of the Code of Federal Regulations 72.48 Implementation," and is not affected by Revision 1 to RG 1.187.

- NEI 96-07, Appendix C, Revision 0 - Corrected, "Guideline for Implementation of Change Control Processes for New Nuclear Power Plants Licensed under 10 CFR Part 52," dated March 2014 (Ref. 6). NRC Letter to NEI Russell J. Bell, "Acceptance for Endorsement of Nuclear Energy Institute 96-07, Appendix C, Revision 0 - Corrected: Guideline for Implementation of Change Control Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52," dated July 2, 2014 (Ref. 7), states that NRC finds NEI 96-07, Appendix C, "acceptable for use by licensees during formal NRC endorsement via the NRC's regulatory guide process."

- NEI 96-07, Appendix D, "Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications," November 2018 (Ref. 8). Appendix D provides focused application of the 10 CFR 50.59 guidance to activities involving digital modifications. Appendix D has been submitted to the NRC for endorsement.

- NEI 96-07, Appendix E, "User's Guide for NEI 96-07, Revision 1, 'Guidelines for 10 CFR 50.59 Implementation,'" October 2011 (Ref. 9). Appendix E was issued by NEI without request for NRC endorsement and provides focused guidance for specific 10 CFR 50.59 related topics that are commonly encountered. It is not publicly available in the NRC document control system.

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 guidance for implementing the mandatory information collections in 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. Send comments regarding this information collection to the Information Services Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011, 3150-0151), Office of Management and Budget, Washington, DC 20503.

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

In November 2000, RG 1.187 (Revision 0), "Guidance for Implementation of 10 CFR 50.59, 'Changes, Tests, and Experiments'" (Ref. 11), endorsed Nuclear Energy Institute (NEI) 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation" (Ref. 10), as acceptable for complying with the NRC regulations in 10 CFR 50.59. This revision to RG 1.187 clarifies certain ambiguous language in NEI 96-07, Revision 1, which NRC staff determined could be interpreted inconsistently with 10 CFR 50.59 requirements.

Specifically, this revision of RG 1.187 clarifies statements in Section 4.3.8 of NEI 96-07, Revision 1, regarding the definition in 10 CFR 50.59(a)(2) of "departure from a method of evaluation described in the FSAR (as updated)," and statements in Section 4.3.5 of NEI 96-07, Revision 1, regarding the meaning in 10 CFR 50.59(c)(2)(v) of "an accident of a different type than any previously evaluated in the final safety analysis report (as updated)." This revision of RG 1.187 explains how licensees should apply these NEI guidelines to ensure they are meeting the requirements of 10 CFR 50.59.

Background

Under 10 CFR 50.59, licensees may make changes in the facility and procedures as described in the FSAR (as updated), and conduct tests or experiments not described in the FSAR (as updated), without obtaining a license amendment pursuant to 10 CFR 50.90 provided specific criteria are met. Following the NRC issuance of a 1999 revised rule for 10 CFR 50.59 in Volume 64 of the *Federal Register* (64 FR 53582; October 4, 1999) (Ref. 12), NEI submitted a guidance document to the NRC for review and implementation of 10 CFR 50.59. In November 2000, the NRC issued RG 1.187(Revision 0), to endorse NEI 96-07, Revision 1.

Following issuance of RG 1.187, Revision 0, the NRC promulgated two rules that affected 10 CFR 50.59, which were published in Volume 66 of the *Federal Register* (66 FR 64737; December 14, 2001) (Ref. 13) and Volume 72 of the *Federal Register* (72 FR 49352, August 28, 2007) (Ref. 14). The 2001 rulemaking revised 10 CFR 50.59(b) to correct minor errors in the regulatory text. The 2007 rulemaking amended 10 CFR Part 52 and made associated conforming changes to 10 CFR 50.59(b), 50.59(d)(2) and (3). The rulemakings caused portions of NEI 96-07, Revision 1, to be obsolete. In particular, the text of 10 CFR 50.59 in Appendix A to NEI 96-07, Revision 1, "Text of 10 CFR 50.59" was no longer current, and NEI 96-07, Revision 1, pre-dated the current version of 10 CFR Part 52.

However, to address the 10 CFR Part 52 rulemakings, NEI developed NEI 96-07, Appendix C, "Guideline for Implementation of Change Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52," dated March 2014. By NRC letter dated July 2, 2014, the NRC found NEI 96-07, Appendix C, "acceptable for use by licensees during formal NRC endorsement via the NRC's regulatory guide process." NEI 96-07, Appendix C, Section 1.4.2.1, states that licensees should screen and evaluate changes using NEI 96-07, Revision 1, Sections 4.2 and 4.3, except as updated to reflect new NRC requirements and/or regulatory guidance.

The affected specific statements in Section 4.3.8 and Section 4.3.5 of NEI 96-07, Revision 1, discussed in this revision of RG 1.187 are not readdressed in NEI 96-07, Appendix C; rather, Appendix C references the body of NEI 96-07, Revision 1. Therefore, the NEI 96-07, Appendix C, submittal described in the NRC letter to NEI dated July 2, 2014, remains acceptable for use by licensees, subject to the

clarifications to NEI 96-07, Revision 1, Section 4.3.8 and Section 4.3.5 described in this revision of RG 1.187.

As described in NRC Report "Review of Lessons Learned from the San Onofre Steam Generator Tube Degradation Event," dated March 6, 2015 (Ref. 15), the NRC staff identified clarifications needed to the guidance in NEI 96-07, Revision 1, for meeting the requirements governing the "departure from a method of evaluation described in the FSAR (as updated)," as defined in 10 CFR 50.59(a)(2) and used in 10 CFR 50.59(c)(2)(viii). In developing this clarification, the staff also identified the need for clarification of the NEI 96-07, Revision 1, guidance related to the "possibility of an accident of a different type" as used in 10 CFR 50.59(c)(2)(v).

Paragraph (c)(1) of 10 CFR 50.59 authorizes a licensee to make changes in the facility or procedures described in its FSAR (as updated), or to 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).

Paragraph 50.59(c)(2) states, in part, "A licensee shall obtain a license amendment pursuant to § 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 Paragraphs 50.59(c)(2)(i) to (viii). Paragraph (viii) provides that a license amendment is required for a change that would "[r]esult in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses." Paragraph (v) provides that a license amendment is required for a change that would "[c]reate a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated)."

Departure from a Method of Evaluation

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

> *Departure from a method of evaluation described in the FSAR (as updated) 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.

Section 4.3.8 of NEI 96-07, Revision 1, provides the following as one of several examples of changes that "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 above guidance in Section 4.3.8 of NEI 96-07, Revision 1, appears to merge the concepts in 10 CFR 50.59(a)(2)(i) and (ii), which, correctly interpreted, are two distinct provisions. The regulation allows licensees to document a methodology revision either (1) as a change to any of the elements of the methodology described in the UFSAR (i.e., paragraph 50.59(a)(2)(i) of the departure definition), or (2) as

a change from the methodology described in the UFSAR to another method (i.e., paragraph of the 10 CFR 50.59(a)(2)(ii) departure definition). If a methodology revision is documented as a change from the methodology described in the UFSAR to another method using paragraph 10 CFR 50.59(a)(2)(ii) of the departure definition, then paragraph 10 CFR 50.59(a)(2)(i) of the departure definition (i.e., "the results of the analysis are conservative or essentially the same") is not applicable.

Accident of a Different Type

Section 4.3.5, of NEI 96-07, Revision 1, "Does the Activity Create a Possibility for an Accident of a Different Type?" states in part (emphasis added):

> Certain accidents are not discussed in the UFSAR [updated final safety analysis report (i.e., FSAR (as updated))] 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 an accident of a different type.

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. The statement of considerations for the 1999 final rule for 10 CFR 50.59 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" (64 FR at 53593). It does not mention "bounded" as a consideration. Discussion in Section 4.3.5 of NEI 96-07, Revision 1, subsequent to the above-quoted paragraph emphasizes only the "bounded" criteria. Specifically, 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 UFSAR evaluates a broad spectrum of transients and accidents, or initiating events. Accidents are categorized by type based on its effect on the plant. For example, one type of accident will cause the reactor coolant system (RCS) to pressurize and possibly jeopardize RCS integrity. Categorizing accidents by type provides a basis for comparison between events, which makes it possible to identify and evaluate the limiting cases (i.e., the cases that can challenge the analysis acceptance criteria) and eliminate non-limiting cases from further consideration. To assist in identifying accidents of a different type, licensees should consider that plant UFSAR analyses were based on credible failure modes of existing equipment and determine whether a proposed modification would change the basis for the most limiting scenario. Accidents that are non-limiting cases are not discussed in the UFSAR.

An accident of a different type is any new accident, distinct from any previously evaluated in the UFSAR but of similar frequency and significance. When implementing a 10 CFR 50.59 process, licensees should ensure that they do not interpret the last sentence of Section 4.3.5 of NEI 96-07, Revision 1, to mean that the accident types described in the current UFSAR accident analyses could be used to evaluate the effect on the plant of the newly created, but distinct and dissimilar, accident sequence.

Harmonization with International Standards

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

Documents Discussed in Staff Regulatory Guidance

This RG endorses the use of a third-party guidance document, NEI 96-07, Revision 1. 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 a 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, Revision 1

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 for certain statements as discussed below.

a. Section 4.3.8 of NEI 96-07, Revision 1, provides the following as one of several examples of changes that "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 regulation allows licensees to document a methodology revision either (1) as a change to any of the elements of the methodology described in the UFSAR (i.e., paragraph 50.59(a)(2)(i) of the departure definition), or (2) as a change from the methodology described in the UFSAR to another method (i.e., paragraph of the 10 CFR 50.59(a)(2)(ii) departure definition). If a methodology revision is documented as a change from the methodology described in the UFSAR to another method using paragraph 10 CFR 50.59(a)(2)(ii) of the departure definition, then paragraph 10 CFR 50.59(a)(2)(i) of the departure definition (i.e., "the results of the analysis are conservative or essentially the same") is not applicable.

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

> Certain accidents are not discussed in the UFSAR 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 an accident of a different type.

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 UFSAR evaluates a broad spectrum of transients and accidents, or initiating events. Accidents are categorized by type based on its effect on the plant. For example, one type of accident will cause the reactor coolant system (RCS) to pressurize and possibly jeopardize RCS integrity. Categorizing accidents by type provides a basis for comparison between events, which makes it possible to identify and evaluate the limiting cases (i.e., the cases that can challenge the analysis acceptance criteria) and eliminate non-limiting cases from further consideration. To assist in identifying accidents of a different type, consider that plant UFSAR analyses were based on credible failure modes of existing equipment and determine whether a proposed modification would change the basis for the most limiting scenario. Accidents that are non-limiting cases are not discussed in the UFSAR.

An accident of a different type is any new accident, distinct from any previously evaluated in the UFSAR but of similar frequency and significance. A different accident analysis, not simply a revision of an existing analysis, would be needed for this different type of accident.

2. Other Documents and Examples Referenced in NEI 96-07, Revision 1

As discussed in Section B above, in the paragraph titled, "Documents Discussed in Staff Regulatory Guidance," Revision 1 of NEI 96-07 references other documents, but NRC's endorsement of Revision 1 of NEI 96-07 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 10 CFR Part 50 Licensees other than Power Reactors

While most of the examples and specific discussion focuses on power reactors, 10 CFR Part 50 licensees other than power reactors may use the guidance contained in Revision 1 of NEI 96-07. However, certain aspects of the guidance discuss regulatory requirements that may not fully apply to these licensees (e.g., Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants").

D. IMPLEMENTATION

The purpose of this section is to provide information on how licensees 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 Licensees

Licensees may voluntarily [1] 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. 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. 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 communication, or promulgation of a rule requiring the use of this RG 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 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.

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 RG and (2) the specific subject matter of this RG 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 RG or provide an equivalent alternative process 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.

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. 16), and NUREG-1409, "Backfitting Guidelines" (Ref. 17).

1 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.

REFERENCES [2]

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. Nuclear Energy Institute (NEI) 96-07, Appendix A, "Text of 10 CFR 50.59," dated November 2000. (ADAMS Accession No. ML003771157)[3]

4. NEI 96-07, Appendix B, "Guidelines for 10 CFR 10 CFR 72.48 Implementation," dated March 5, 2001. (ADAMS Accession No. ML010670023)

5. U.S. Nuclear Regulatory Commission (NRC), Regulatory Guide (RG) 3.72, "Guidance for Implementation of 10 CFR 72.48, Changes, Tests, and Experiments," Washington, DC.

6. NEI 96-07, Appendix C, Revision 0-Corrected, "Guideline for Implementation of Change Control Processes for New Nuclear Power Plants Licensed under 10 CFR Part 52," dated March 2014

7. NRC Letter to NEI Russell J. Bell, "Acceptance for Endorsement of Nuclear Energy Institute 96-07, Appendix C, Revision 0-Corrected: Guideline for Implementation of Change Control Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52," July 2, 2014. (ADAMS Accession No. ML14113A529)

8. NEI 96-07, Appendix D, "Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications," November 2018. (ADAMS Accession No. ML18338A389)

9. NEI 96-07, Appendix E, "User's Guide for NEI 96-07, Revision 1, 'Guidelines for 10 CFR 50.59 Implementation,'" October 2011. (Not Publically Available)

10. NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation," Washington, DC, November 2000. (ADAMS Accession No. ML003771157)

11. NRC, RG 1.187, Revision 0, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," Washington, DC, November 2000.

12. 64 FR 53582, *Federal Register*, Volume 64, p. 53582, Washington, DC, October 4, 1999.

13. 66 FR 64737, *Federal Register*, Volume 66, p. 64737, Washington, DC, December 14, 2001.

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2 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.

3 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.

14. 72 FR 49352, *Federal Register*, Volume 72, p. 49352, Washington, DC, August 28, 2007.

15. NRC Report "Review of Lessons Learned from the San Onofre Steam Generator Tube Degradation Event," dated March 6, 2015. (ADAMS Accession No. ML15062A125)

16. NRC, Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection," Washington, DC, October 2013.

17. NRC, NUREG-1409, "Backfitting Guidelines," Washington, DC, June 1990.