



U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

5.4.2.2 STEAM GENERATOR PROGRAM

REVIEW RESPONSIBILITIES

Primary - Organization responsible for the review of steam generator tube integrity issues

Secondary - None

I. AREAS OF REVIEW

The purpose of this review is to (1) ensure that the design of the steam generator is adequate for implementing a steam generator program and (2) verify that the steam generator program will result in maintaining tube integrity during operation and postulated accident conditions. The steam generator program is intended to ensure that the structural and leakage integrity of the tubes is maintained at a level comparable to that of the original design requirements.

The specific areas of review are as follows:

1. The design of the primary and secondary side of the steam generator is reviewed to ensure that it permits implementation of a steam generator program.

Rev. 2 - [Month] 2007

USNRC STANDARD REVIEW PLAN

This Standard Review Plan, NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The Standard Review Plan is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The standard review plan sections are numbered in accordance with corresponding sections in the Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of the standard format have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) will be based on Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," until the SRP itself is updated.

These documents are made available to the public as part of the NRC's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by email to NRR_SRP@nrc.gov.

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2. The steam generator program is reviewed to ensure that it provides reasonable assurance that the structural and leakage integrity of the steam generator tubes will be maintained.
3. For a combined license (COL) application, the staff reviews the operational program description and the proposed implementation milestone for the portion of the inservice inspection (ISI) operational program that addresses steam generators.
4. Inspection, Test, Analysis, and Acceptance Criteria (ITAAC). For design certification (DC) and combined license (COL) reviews, the applicant's proposed information on the ITAAC associated with the systems, structures, and components (SSCs) related to this SRP section is reviewed in accordance with SRP Section 14.3, "Inspections, Tests, Analyses, and Acceptance Criteria - Design Certification." The staff recognizes that the review of ITAAC is performed after review of the rest of this portion of the application against acceptance criteria contained in this SRP section. Furthermore, the ITAAC are reviewed to assure that all SSCs in this area of review are identified and addressed as appropriate in accordance with SRP Section 14.3.
5. COL Action Items and Certification Requirements and Restrictions. COL action items may be identified in the NRC staff's final safety evaluation report (FSER) for each certified design to identify information that COL applicants must address in the application. Additionally, DCs contain requirements and restrictions (e.g., interface requirements) that COL applicants must address in the application. For COL applications referencing a DC, the review performed under this SRP section includes information provided in response to COL action items and certification requirements and restrictions pertaining to this SRP section, as identified in the FSER for the referenced certified design.
6. Operational Program Description and Implementation. For a COL application, the staff reviews the final safety analysis report (FSAR) Table 13.x to ensure the steam generator program is included. The staff reviews the operational program description and the proposed implementation milestones. Specific to this SRP section are the steam generator program based on the requirements of 10 CFR 50.36, 10 CFR 50, Appendix B, 10 CFR 50.55a and 10 CFR 50.65.

Review Interfaces

The listed SRP sections interface with this section as follows:

1. The ISI and testing of other areas of the reactor coolant pressure boundary (RCPB) (e.g., steam generator primary channel head) are reviewed under SRP Section 5.2.4.
2. The ISI of Class 2 and 3 components (e.g., steam generator shell) is reviewed under SRP Section 6.6.
3. The inspection of bolting and threaded fasteners is reviewed under SRP Section 3.13.
4. The acceptability of any American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code) cases that the applicant may have invoked in connection with the steam generator program is reviewed under SRP Section 5.2.1.2.

5. The acceptability of the classification of systems and components is reviewed under SRP Section 3.2.2. The classification of the systems and components may affect the steam generator program requirements.
6. The acceptability of the steam generator design and materials is reviewed under SRP Section 5.4.2.1.
7. The acceptability of the Technical Specifications is reviewed under SRP Sections 16 and 16.1; however, the acceptability of the technical requirements listed in the steam generator portion of the Technical Specifications in the latest revisions of NUREG-1430, NUREG-1431, and NUREG-1432 is reviewed under this SRP section.
8. The acceptability of the quality assurance program is reviewed under SRP Section 17.5.
9. For COL reviews of operational programs, the review of the applicant's implementation plan is performed under SRP Section 13.4.

The specific acceptance criteria and review procedures are contained in the referenced SRP sections.

II. ACCEPTANCE CRITERIA

Requirements

Acceptance criteria are based on meeting the relevant requirements of the following Commission regulations:

1. General Design Criterion (GDC) 32 of Appendix A to 10 CFR Part 50. GDC 32 requires, in part, that the designs of all components that are part of the RCPB permit periodic inspection and testing of critical areas and features to assess their structural and leaktight integrity.
2. 10 CFR 50.55a(g) requires that ISI programs meet the applicable inspection requirements in Section XI of the ASME Code. The steam generator program is a portion of the ISI program. In addition, 10 CFR 50.55a(b)(2)(iii) specifically addresses steam generator tubes and states that if the plant Technical Specifications include inspection requirements that differ from those in Article IWB-2000 of Section XI of the ASME Code, the Technical Specifications govern.
3. 10 CFR 50.36 applies to the steam generator program in the Technical Specifications.
4. Appendix B to 10 CFR Part 50 applies to the implementation of the steam generator program. Of particular note are Criteria IX, XI, and XVI. Criterion IX requires, in part, that measures shall be established to ensure that special processes, including nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures. Criterion XI requires, in part, the establishment of a test program to ensure that all testing required to demonstrate that SSCs will perform satisfactorily in service is identified and performed in accordance with written test procedures that incorporate the requirements and acceptance limits in applicable design documents. Criterion XVI requires, in part, that measures shall be established to ensure the prompt identification and correction of conditions that are adverse to quality.

5. 10 CFR 50.65 requires that licensees monitor the performance or condition of SSCs against goals to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.
6. 10 CFR 52.47(a)(1)(vi), as it relates to ITAAC (for design certification) sufficient to assure that the SSCs in this area of review will operate in accordance with the certification.
7. 10 CFR 52.97(b)(1), as it relates to ITAAC (for combined licenses) sufficient to assure that the SSCs in this area of review have been constructed and will be operated in conformity with the license and the Commission's regulations.

SRP Acceptance Criteria

Specific SRP acceptance criteria acceptable to meet the relevant requirements of the NRC's regulations identified above are as follows for the review described in Subsection I of this SRP section. The SRP is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide acceptable methods of compliance with the NRC regulations.

1. Steam generator tubes are susceptible to degradation. This degradation can occur anywhere along the length of the tube. As a result, each tube is required to be accessible for inspection along its entire length and removable from service if unacceptable flaws are observed. The entire length of each tube must be inspectable using currently available nondestructive examination methods and techniques capable of finding the forms of degradation that may occur during the service life of the steam generators. The design of the steam generators should permit tubes with unacceptable flaws to be removed from service to ensure that tube integrity will be maintained. Tubes with unacceptable flaws should also be capable of being stabilized if it is determined that a plugged tube potentially may sever (as a result of continued degradation) and subsequently affect the integrity of an active tube.

Access to both the primary and secondary sides of the steam generator tubes is required because conditions may exist on either side of the steam generator tubes that could affect their structural and leakage integrity. This should include, for example, access to the secondary face of the tubesheet, open tube lanes, feedwater inlet area (e.g., J-tubes or preheater inlet), and other locations that may impair tube integrity. Degradation of secondary side internals can result in the generation of loose parts, inadequate tube support, and mechanical damage to the tubes. In addition, the introduction of foreign objects (including loose parts) into the steam generator during fabrication, maintenance, or operation of the steam generators could impact tube integrity. Sludge buildup and deposits on the tubes can increase the susceptibility of the tubing to corrosion and make it more difficult to inspect the tubing (e.g., because of noise in eddy current data or obstructions in a visual inspection).

As a result, the design of the steam generators is considered acceptable for the purposes of implementing the steam generator program if it (1) ensures that all steam generator tubes are accessible for periodic inspection, testing, and repair (including plugging and stabilizing), (2) permits an inspection of the full length of every tube, using currently available nondestructive examination methods and techniques, (3) allows access to the tubes from the primary side, (4) permits access to the secondary side of

the steam generator for assessing the condition of SSCs that may affect tube integrity and for taking appropriate corrective action if adverse/anomalous conditions are identified, (4) permits inspection for, and removal of, foreign objects (including loose parts), and (5) allows the removal of each tube from service.

2. A steam generator program is needed to ensure the effective monitoring and management of tube degradation and degradation precursors (so as to ensure steam generator tube integrity). This permits prompt preventive and corrective actions to ensure that the structural and leakage integrity of the steam generator tubes is maintained. The steam generator program should include elements such as an assessment of degradation, inspection requirements for the tubes and any repairs to the tubes (including plugging), integrity assessment procedures, tube plugging and repairs, primary-to-secondary leak monitoring, foreign material exclusion (including management of loose parts), maintenance of steam generator secondary side integrity, contractor oversight, self assessment, and reporting. For light water reactors (LWRs), Nuclear Energy Institute (NEI) 97-06 discusses many of the elements of a steam generator program. The water chemistry portion of the steam generator program is reviewed under SRP Section 5.4.2.1.
3. The latest revisions of NUREG-1430, NUREG-1431, and NUREG-1432 provide for the establishment and implementation of a steam generator program to ensure that tube integrity is maintained for the operating interval between tube inspections, consistent with the requirements of GDC 32. The Technical Specifications provide the objectives of the steam generator program, maximum limits on the quantity of primary-to-secondary leakage permitted during operation, maximum time interval between inspections, objectives of the techniques used to inspect the tubes, tube repair criteria, and tube repair methods. References 10 and 11 include the staff's evaluation of these Technical Specifications. The intention of implementing this program is to ensure tube integrity consistent with the original design criteria for the tubes.

Certain aspects of the steam generator portion of the Standard Technical Specifications specify a plant-specific evaluation. For example, the tube repair criteria and tube repair methods are evaluated on a plant-specific basis.

4. With respect to the steam generator tube repair criteria, Regulatory Guide (RG) 1.121 describes a methodology acceptable to the NRC staff for determining the repair criteria specified in the Technical Specifications. Specifically, RG 1.121 describes a methodology for determining the minimum acceptable steam generator tube wall thickness. This methodology accounts for flaw growth and the uncertainty in measuring the size of the flaw (i.e., nondestructive examination uncertainty). The general principles of RG 1.121 can also be used to evaluate the acceptability of alternate tube repair criteria, that is, to assess tube repair criteria based on inspection parameters (e.g., flaw length) other than the depth of the flaw (i.e., other than a minimum wall-thickness repair criterion). Tubes with flaws that exceed the repair criteria, as determined by the steam generator program, are removed from service consistent with the objective of the steam generator program to maintain tube integrity.
5. With respect to tube repair methods, the review of these methods ensures that the repair is accessible for inspection and that techniques are available to find the forms of degradation to which the repair may be susceptible. The acceptability of any materials used in the repair is evaluated under SRP Section 5.4.2.1. The review of the acceptability of the mechanical design of the repair is consistent with the design requirements of the ASME Code and the steam generator performance criteria in the

Standard Technical Specifications. The repair criteria for the repair method are reviewed under the guidance in RG 1.121.

6. The latest revisions of NUREG-1430, NUREG-1431, and NUREG-1432 address ISI; however, preservice inspections are essential in assessing the nature and significance of indications detected during ISI. As a result, it is important to inspect all tubes before placing the steam generators in service, using techniques that should be used during subsequent inspections (i.e., ISI). Although preservice inspections should use techniques that are expected to be employed during ISI, this expectation should not be construed to inhibit the use of new technology or to imply that the techniques used during the preservice inspection will always remain acceptable (i.e., different techniques may be appropriate based on operating experience).
7. 10 CFR 50.55a(b)(2)(iii) specifically addresses the inspection of steam generator tubes and states that if the plant Technical Specifications include inspection requirements that differ from those in Article IWB-2000 of Section XI of the ASME Code, the Technical Specifications govern. This requirement is intended to resolve any conflict between the requirements in the ASME Code and the Technical Specifications. If a conflict (i.e., difference) does not exist pertaining to a specific requirement, both the requirements of the ASME Code and the Technical Specifications must be met. In general, the requirements in the ASME Code and the Technical Specifications are complementary.
8. For applicants referencing a certified design, the Standard Technical Specifications associated with the referenced design will specify the guidelines for periodic inspection and testing of the steam generator tube portion of the RCPB.
9. ITAAC: Compliance with 10 CFR 52.47(a)(1)(iv) requires that applications for DCs contain proposed technical resolutions of the unresolved safety issues and the medium- and high-priority generic safety issues that are identified in the version of NUREG-0933 current on the date 6 months before application and that are technically relevant to the design. Compliance with 10 CFR 52.47(a)(1)(vi) and 10 CFR 52.97(b)(1) requires that the Commission identify in a DC and COL, respectively, under 10 CFR Part 52, the inspections, tests, and analyses that the licensee shall perform and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission's rules and regulations.
10. Operational Program Implementation Milestones: For COL applications, in addition to the acceptance criteria on the steam generator program described above, in SECY-05-0197, dated February 22, 2006, the Commission approved the use of a license condition for operational program implementation milestones that are fully described or referenced In the final safety analysis report (FSAR).
11. Operational Programs. For COL reviews, the description of the operational program and proposed implementation milestone(s) for the Steam Generator Program are reviewed in accordance with 10 CFR 50.55a(g) as it relates to periodic inspection and testing of the steam generator tubes as detailed in Section XI of the ASME Code. The implementation milestone is the establishment and completion of an acceptable Steam Generator Program per Article IWA-2430(b) of Section XI of the ASME Code before placing the plant into commercial service.

The steam generator program is acceptable if it:

- A. Complies with 10 CFR 50.55a as it relates to periodic inspection and testing of the steam generator tubes as detailed in Section XI of the ASME Code.
- B. Complies with 10 CFR 50.65 as it relates to monitoring SSCs and establishing goals to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.
- C. Incorporates the steam generator program requirements in the latest revisions of the Standard Technical Specifications, NUREG-1430, NUREG-1431, and NUREG-1432, into the facility's Technical Specifications (the steam generator program in the Standard Technical Specifications meets the requirements of 10 CFR 50.36).
- D. Verifies that all potential conflicts between the Technical Specifications and the ASME Code are identified.
- E. Verifies that the steam generator program includes the elements discussed above.
- F. Ensures that all tubes are inspected before being placed in service, using techniques that are expected to be used during subsequent inspections.

Technical Rationale

The technical rationale for application of these requirements and/or SRP acceptance criteria to the areas of review addressed by this SRP section is discussed in the following paragraph:

The steam generators serve as the boundary between the primary and secondary sides of a pressurized-water reactor. As a result, they serve both as the RCPB and as the containment. Primary leakage into the secondary system could lead to the direct release of radioactivity to the environment. The steam generators are also relied on to perform safety functions such as removing decay heat (emergency core cooling) or supplying steam to engineered safety feature pumps.

III. REVIEW PROCEDURES

The reviewer will select such material from the procedures described below, as may be appropriate for a particular case.

For each area of review specified in Subsection I of this SRP section, the review procedure is identified below. These review procedures are based on the identified SRP acceptance criteria. For deviations from these specific acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives to the SRP criteria provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II.

1. The reviewer verifies that the design of the steam generator meets the acceptance criteria specified in Subsection II of this SRP.
2. The reviewer verifies that the steam generator program meets the acceptance criteria specified in Subsection II of this SRP.
3. For reviews of DC and COL applications under 10 CFR Part 52, the reviewer should follow the above procedures to verify that the design set forth in the safety analysis

report, and if applicable, site interface requirements meet the acceptance criteria. For DC applications, the reviewer should identify necessary COL action items. With respect to COL applications, the scope of the review is dependent on whether the COL applicant references a DC, an ESP or other NRC-approved material, applications, and/or reports.

After this review, SRP Section 14.3 should be followed for the review of Tier I information for the design, including the postulated site parameters, interface criteria, and ITAAC.

4. For a COL application, the staff reviews the operational program description and the proposed implementation milestone for the steam generator program required by 10 CFR 50.55a(g).
5. Operational Programs. The reviewer verifies that the steam generator operational program is fully described and that implementation milestones have been identified. The reviewer verifies that the program and implementation milestones are included in FSAR Table 13.x.

The staff reviews the discussion on the specific operational program and its implementation. The implementation description should contain one or more milestones, depending on whether the program will be implemented all at once or in a phased approach. The staff will obtain a reasonable assurance finding on each program and its proposed implementation, including the adequacy of the implementation milestones. The Evaluation Findings section of the staff's safety evaluation report (SER) will document these findings. In addition, the staff proposes a license condition that will link program implementation milestones to the license.

6. For the review of amendments to existing operating licenses, construction permits, or COLs, the current configuration of the steam generators will be considered (e.g., presence of loose parts, as-built configuration of the steam generator). These reviews are intended to verify that any proposed modification to the steam generator or the conditions under which it operates will continue to ensure that the tubes or tube repairs remain accessible for inspection and that the steam generator program (including the Technical Specifications) remains sufficient for ensuring steam generator tube integrity (consistent with the above).

For license amendment reviews pertaining to steam generators, the NRC staff determines which if any of the above areas are impacted by the amendment and ensures that the acceptance criteria for those areas are still satisfied. For example, sleeves proposed for repairing steam generator tubes should be reviewed to verify that the sleeve design permits an inspection and that inspection techniques exist for finding the forms of degradation that could potentially affect the sleeves. In the case of power uprate amendments, the effect of changes in operating parameters (e.g., differential pressure, temperature, and flow rates) on the tube repair limits and on the ability of the ISI to ensure tube integrity for the operating interval between inspections should be reviewed. Consideration should be given to the actual condition of the steam generator at the time that the amendment is approved (e.g., presence of loose parts, extent of degradation).

The level of detail to which the reviewer verifies the above acceptance criteria is to be determined on a case-by-case basis consistent with a risk-informed, performance-based regulatory approach. Previous operating experience should be used in determining the level of detail for the review (e.g., review of qualification data for inspection techniques to be used).

IV. EVALUATION FINDINGS

The reviewer verifies that the applicant has provided sufficient information and that the review and calculations (if applicable) support conclusions of the following type to be included in the staff's safety evaluation report. The reviewer also states the bases for those conclusions.

1. To ensure that no deleterious defects develop during service, steam generator tubes will be inspected before plant startup and periodically throughout the life of the plant. The applicant (licensee) has stated that the steam generator program will comply (complies) with the rules published in 10 CFR 50.55a, 10 CFR 50.65, and the applicant's (licensee's) Technical Specifications. The applicant (licensee) has stated that the steam generator program includes the tubes, tube repairs (including plugs), and steam generator secondary side internals that can affect the integrity of the tubes. In addition, the licensee has indicated that the program addresses the inspection for, and removal of, foreign objects (loose parts) that can affect tube integrity.
2. The applicant (licensee) has stated that the entire length of each tube can be inspected with currently available methods and techniques. These methods and techniques are capable of finding the forms of degradation that could potentially occur during the service life of the steam generators. If unacceptable flaws are identified during the course of an inspection, each tube is accessible and can be removed from service and stabilized, as necessary. The design of the steam generator includes provisions for access to both the primary and secondary sides of the steam generator. Access to the secondary side includes the secondary face of the tubesheet, open tube lanes, feedwater inlet area (e.g., J-tubes or preheater inlet), and other components that could affect steam generator tube integrity.
3. The steam generator program is (will be) consistent with the latest revisions of the Standard Technical Specifications, NUREG-1430, NUREG-1431, and NUREG-1432. In addition, the steam generator tube repair criteria specified in the Technical Specifications were (will be) determined by using the methodology specified in Regulatory Guide 1.121.
4. The applicant (licensee) has identified all instances in which the inspection (surveillance) requirements in the plant Technical Specifications differ (will differ) from those in Article IWB-2000 of Section XI of the ASME Code. In these instances, the requirements of the plant Technical Specifications will govern, consistent with the requirements in 10 CFR 50.55a(b)(2)(iii).
5. The applicant (licensee) has indicated that the steam generator program will be implemented in accordance with the requirements of Appendix B to 10 CFR Part 50.
6. The staff concludes that the steam generator program is acceptable and meets the requirements of GDC 32, 10 CFR 50.55a, 10 CFR 50.36, 10 CFR Part 50, Appendix B and 10 CFR 50.65. This conclusion is based on the design of the steam generator being accessible for inspection and the implementation of a steam generator program to maintain the structural and leakage integrity of the steam generator tubes.

For a COL review, the findings include a specific conclusion regarding the implementation, “The applicant described the steam generator operational program, and its implementation milestone (milestones) is (are) adequate to meet 10 CFR 50.55a.” In addition, the findings will include a license condition as follows:

The licensee should implement the programs (or portions of programs) identified in Table____ on or before the associated milestones in Table____.

For DC and COL reviews, the findings will also summarize (to the extent that the review is not discussed in other SER sections) the staff’s evaluation of the ITAAC, including design acceptance criteria, as applicable, and interface requirements and COL Action Items relevant to this SRP section.

V. IMPLEMENTATION

The staff will use this SRP section in performing safety evaluations of DC applications and license applications submitted by applicants pursuant to 10 CFR Part 50 or 10 CFR Part 52. Except when the applicant proposes an acceptable alternative method for complying with specified portions of the Commission’s regulations, the staff will use the method described herein to evaluate conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications docketed six months or more after the date of issuance of this SRP section, unless superseded by a later revision.

The referenced regulatory guides contain implementation schedules for conformance to the parts of the method discussed herein.

VI. REFERENCES

1. 10 CFR 50.36, “Technical Specifications.”
2. 10 CFR 50.55a, “Codes and Standards.”
3. 10 CFR Part 50, Appendix A, General Design Criterion 32, “Inspection of Reactor Coolant Pressure Boundary.”
4. 10 CFR Part 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.”
5. 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.”
6. Regulatory Guide 1.121, “Bases for Plugging Degraded PWR Steam Generator Tubes.”
7. NUREG-1430, “Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors.”
8. NUREG-1431, “Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors.”
9. NUREG-1432, “Standard Technical Specifications for Westinghouse Pressurized Water Reactors.”

10. "Notice of Availability of Model Application Concerning Technical Specification Improvement To Modify Requirements Regarding Steam Generator Tube Integrity Using the Consolidated Line Item Improvement Process," ADAMS Accession No. ML051160106, May 2, 2005.
11. "Notice of Opportunity To Comment on Model Safety Evaluation on Technical Specification Improvement To Modify Requirements Regarding the Addition of LCO 3.4.[17] on Steam Generator Tube Integrity Using the Consolidated Line Item Improvement Process," ADAMS Accession No. ML050310015, February 22, 2005.
12. SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria."
13. Nuclear Energy Institute, NEI 97-06, Revision 2, "Steam Generator Program Guidelines," ADAMS Accession No. ML052710007, September 9, 2005.
14. ASME Boiler and Pressure Vessel Code, Section II, "Materials Specifications."
15. ASME Boiler and Pressure Vessel Code, Section III, "Rules for Construction of Nuclear Facility Components."
16. ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components."
17. NRC Inspection Manual Chapter IMC-2504, "Construction Inspection Program - Non-ITAAC Inspections," issued April 25, 2006.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in the draft Standard Review Plan are covered by the requirements of 10 CFR Part 50 and 10 CFR Part 52, and were approved by the Office of Management and Budget, approval number 3150-0011 and 3150-0151.

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.

SRP Section 5.4.2.2

Description of Changes

This SRP section affirms the technical accuracy and adequacy of the guidance previously provided in (Draft) Revision 3, dated July 2006 of this SRP. See ADAMS accession number ML062620004.

In addition this SRP section was administratively updated in accordance with NRR Office Instruction, LIC-200, Revision 1, "Standard Review Plan (SRP) Process." The revision also adds standard paragraphs to extend application of the updated SRP section to prospective submittals by applicants pursuant to 10 CFR Part 52.

The technical changes are incorporated in Revision 2, dated [month] 2007:

The entire SRP section was revised to remove the redundancy throughout the document, incorporate all of the applicable Commission regulations, expand on acceptable approaches for satisfying the applicable regulations, and remove reference to Regulatory Guide 1.83. The pertinent recommendations from Regulatory Guide 1.83 were incorporated directly into the SRP.

Review Responsibilities - Reflects changes in review branches resulting from reorganization and branch consolidation. Change is reflected throughout the SRP.

I. AREAS OF REVIEW

Updated section to remove duplication with other sections of the SRP and to reflect the scope and purpose of the review.

II. ACCEPTANCE CRITERIA

1. Updated section to reflect all regulations pertinent to the steam generator program. Specifically, added reference to (1) 10 CFR 50.55a because the ASME Code contains requirements that apply to the performance of steam generator tube inspections, (2) 10 CFR 50.36 addresses the content of the steam generator Technical Specifications, (3) Appendix B to 10 CFR Part 50, which contains requirements pertinent to the performance of nondestructive examination and requires corrective actions under specific circumstances, (4) 10 CFR 50.65 because the steam generator tubes are safety related, and (5) 10 CFR Part 52 because licensing can occur under 10 CFR Part 50 or 10 CFR Part 52.
2. Expanded the technical basis for determining the acceptability of the design of the steam generator, steam generator program, and operational program. Specifically, removed reference to the outdated steam generator Technical Specifications and RG 1.83 because operating experience has indicated that the previous steam generator Technical Specifications (and the guidance in Regulatory Guide 1.83) may not ensure tube integrity consistent with the design and licensing basis. The new steam generator tube integrity Technical Specifications are risk informed and performance based.
3. Added clarifying information that the design of the steam generator should permit access to both the primary and secondary sides of the steam generator and should permit plugging, stabilization, and inspection. Clarified the intent of the steam generator program.

4. Added discussion pertaining to 10 CFR Part 52 licenses.

III. REVIEW PROCEDURES

Removed duplication with other sections of the SRP. Added discussion pertaining to 10 CFR Part 52 licenses.

IV. EVALUATION FINDINGS

Updated section to provide more details on what constitutes an acceptable steam generator program consistent with the changes to the acceptance criteria. Added discussion indicating that the SRP will be used for applications filed under 10 CFR Part 50 and 10 CFR Part 52.

V. IMPLEMENTATION

Clarified how the staff will use this SRP section.

VI. REFERENCES

Modified section to reflect applicable regulations, guidance, and technical basis.