



U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

5.4 REACTOR COOLANT SYSTEM COMPONENT AND SUBSYSTEM DESIGN

REVIEW RESPONSIBILITIES

The organization responsible for review of reactor thermal-hydraulic systems in pressurized-water reactors (PWRs) or the organization responsible for review of reactor thermal-hydraulic systems in boiling-water reactors (BWRs) has overall responsibility for the reviews performed under this standard review plan (SRP). Primary and Secondary organizations responsible for the review of various components and subsystems associated with the reactor coolant system (RCS) are shown under Areas of Review below. RCS design bases, descriptions, evaluations, and necessary tests and inspections for the components or subsystems (including radiological considerations from the viewpoint of how radiation affects operation, and the viewpoint of how radiation levels affect the operators and capabilities of operation and maintenance) are to be evaluated for each of the specific Areas of Review below. Additional required evaluations are also specified under Areas of Review.

I. AREAS OF REVIEW

This section pertains to various components and subsystems within, or associated with, the RCS out to, and including, isolation valves. This is normally called the reactor coolant pressure boundary, as defined in Title 10, Section 50.2(v), of the Code of Federal Regulations. These components and subsystems differ for various types and designs of reactors. Principal components or subsystems might include the following:

- reactor coolant pumps (RCPs) / circulation pumps [BWR]
- steam generators
- RCS piping and valves

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 Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of Regulatory Guide 1.70 have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) are based on Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

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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- main steamline flow restriction
- pressurizer
- reactor core isolation cooling (RCIC) system [BWR] / isolation condenser system (Economic Simplified BWR [ESBWR])
- residual heat removal (RHR) system / passive residual heat removal system (Advanced Light-water Reactor [ALWR]) / shutdown cooling mode of the reactor water cleanup system [ESBWR]
- reactor water cleanup system (RWCS) [BWR] / reactor water cleanup/shutdown cooling system [ESBWR]
- RCS pressure relief devices / reactor coolant depressurization systems
- RCS component supports
- pressurizer relief discharge system
- RCS high-point vents
- main steam isolation valve leakage control (MSIVLC) system [BWR]
- main steam line, feedwater, and auxiliary feedwater piping

As appropriate to the specific reactor type and design, certain SRP subsections may, or may not, apply, and additional SRP subsections might be necessary to address other components and subsystems (e.g., core makeup tanks, passive residual heat removal heat exchangers, isolation condenser systems, gravity-driven cooling systems, passive containment cooling systems, etc.).

The specific areas of review, and interfaces with other SRP sections, are provided below. The specific acceptance criteria and review procedures are contained in the specified SRP sections.

1. Reactor Coolant Pumps or Circulation Pumps [BWR]

- A. The organization responsible for review of reactor thermal-hydraulic systems in PWRs or BWRs (primary reviewer), and other organizations responsible for the review analyses related to thermal and hydraulic design (secondary reviewers), assess the RCP process design parameters (e.g., RCP startup characteristics, design flow rate, developed head, synchronous speed, flow coastdown capability, etc.). The reviews are performed under SRP Sections 3.9.2, “Dynamic Testing and Analysis of Systems, Components, and Equipment,” and 3.9.6, “Functional Design, Qualification, and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints.”
- B. The organization responsible for the review of cooling water systems associated with balance of plant reviews the RCP bearing and seal cooling water systems under SRP Sections 9.2.2, “Reactor Auxiliary Cooling Water Systems.”
- C. The organization responsible for the review of the mechanical effects of missiles on structures, systems, and components reviews the potential for RCP and motor missiles under SRP Section 3.5.1.2, “Internally Generated Missiles (Inside Containment).”
- D. The organization responsible for mechanical engineering reviews evaluates methods of analysis, and inservice testing (IST) for RCP components and supports, including both those designated as American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section III, Class 1,

2, and 3, and those not covered by the ASME Code, under SRP Section 3.9.1, "Special Topics for Mechanical Components."

- E. The organization responsible for mechanical engineering reviews assesses the criteria, testing procedures, and dynamic analyses employed to ensure the structural and functional integrity of RCPs and their supports (including supports for conduit and cable trays, and ventilation ducts) undergoing vibratory loadings under SRP Section 3.9.2.
- F. The organization responsible for mechanical engineering reviews evaluates structural integrity of RCP pressure-retaining components, and their supports, which are designed in accordance with the rules of the ASME Code, Section III, Division 1 under SRP Section 3.9.3, "ASME Code Class 1, 2, and 3 Components, Component Supports, and Core Support Structures." This includes installation of pressure relief devices.
- G. The organization responsible for the review of component performance and testing reviews the functional design and qualification provisions and IST programs for RCPs SRP Section 3.9.6.
- H. The organization responsible for mechanical engineering reviews (primary reviewer), and the organization responsible for electrical engineering reviews (secondary reviewer), and the organization responsible for the review of instrumentation and control systems (secondary reviewer), assess the methods of test and analysis used to ensure the function of RCPs, associated electrical equipment, and instrumentation and controls, under SRP Section 3.10, "Seismic and Dynamic Qualification of Mechanical and Electrical Equipment."
- I. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary (primary reviewer), the organization responsible for review of component integrity issues related to reactor vessels (secondary reviewer), the organization responsible for review of component integrity issues related to steam generator tubes (secondary reviewer), and the organization responsible for review of chemical engineering issues (secondary reviewer), assess RCP materials under SRP Section 5.2.3, "Reactor Coolant Pressure Boundary Materials."
- J. The organization responsible for the review of component integrity issues related to reactor coolant pressure boundary evaluates periodic inspection and testing of RCPs to assess their structural and leaktight integrity. These evaluations are performed under SRP Section 5.2.4, "Reactor Coolant Pressure Boundary Inservice Inspection and Testing."
- K. The organization responsible for review of component integrity issues related to reactor vessels evaluates RCP flywheel integrity under SRP Section 5.4.1.1, "Pump Flywheel Integrity (PWR)."
- L. The organization responsible for the review of instrumentation and controls assesses the instrumentation and control aspects to confirm that reactor and plant protection and safeguard controls and instrumentation systems will function as assumed in the safety analysis under SRP Sections 7.2 through 7.5.

- M. The organization responsible for review of reactor thermal-hydraulic systems in PWRs or BWRs reviews expected transients under SRP Sections 15.3.1-15.3.2, "Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions," and RCP rotor seizure or shaft break under SRP Sections 15.3.3 - 15.3.4, "Reactor Coolant Pump Rotor Seizure and Reactor Coolant Pump Shaft Break."

2. Steam Generators

- A. The organization responsible for mechanical engineering reviews assesses methods of analysis (e.g., seismic and vibratory loadings [including those due to fluid flow and adverse flow conditions], and dynamic analyses), and the structural and functional integrity of steam generators under SRP Sections 3.9.1, 3.9.2, and 3.9.3.
- B. The organization responsible for the review of component integrity issues related to steam generator tubes evaluates the materials used to fabricate the steam generator, and the steam generator tube inservice inspection operational program. This evaluation of materials and design provisions is performed under SRP Section 5.4.2.1, "Steam Generator Materials," while the evaluation of the steam generator tube inservice inspection operational program is performed under SRP Section 5.4.2.2, "Steam Generator Program." The organization responsible for the review of component integrity issues related to reactor vessels assesses the inservice inspection of the steam generator shells under SRP Section 5.2.4.
- C. The organization responsible for review of reactor thermal-hydraulic systems in PWRs reviews the steam generator configuration and process design parameters and the response to various anticipated operational occurrences under SRP Sections 15.1.1 - 15.1.4, "Decrease in Feedwater Temperature, Increase in Feedwater Flow, Increase in Steam Flow, and Inadvertent Opening of a Steam Generator Relief or Safety Valve," and various other SRP Sections of Chapter 15.
- D. The organization responsible for the review of transient and accident analyses reviews the steam generator response to various anticipated operational occurrences and postulated accidents under the following, and various other, SRP Sections of Chapter 15:
- 15.1.5, "Steam System Piping Failures Inside and Outside of Containment (PWR)"
 - 15.2.8, "Feedwater System Pipe Break Inside and Outside Containment (PWR)"
- E. The organization responsible for the review of design basis accident radiological consequence analyses reviews the steam generator response to various postulated accidents under SRP Section 15.0.3, "Design Basis Accident Radiological Consequence Analyses For Advanced Light Water Reactors," and various other SRP Sections of Chapter 15.

3. Reactor Coolant System Piping and Valves

- A. The organization responsible for review of reactor thermal-hydraulic systems in PWRs or BWRs reviews the piping and instrumentation diagrams, process flow features, and equipment arrangements of RCS piping and valves.
- B. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary assesses the design and analysis, and the preoperational testing, of the RCS piping, and associated piping supports, under SRP Section 3.12, "ASME Code Class 1, 2, and 3 Piping Systems, Piping Components and Their Associated Supports."
- C. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary (primary reviewer), the organization responsible for review of component integrity issues related to reactor vessels (secondary reviewer), the organization responsible for review of component integrity issues related to steam generator tubes (secondary reviewer), and the organization responsible for review of chemical engineering issues (secondary reviewer), assess reactor coolant piping materials, including valves, under SRP Section 5.2.3.
- D. The organization responsible for the review of component integrity issues related to reactor coolant pressure boundary evaluates periodic inspection and testing of ASME Code Class 1 RCS piping and valves (other than steam generator tubes) to assess their structural and leaktight integrity. These evaluations are performed under SRP Section 5.2.4.
- E. The organization responsible for the review of cooling water systems associated with balance of plant reviews design features, analytical techniques, and procedural measures associated with reactor coolant pressure boundary leakage detection systems under SRP Section 5.2.5, "Reactor Coolant Pressure Boundary Leakage Detection."
- F. The organization responsible for the review of thermal-hydraulic systems in PWRs or BWRs assesses the functional aspects of valves within, and connected to, the reactor coolant pressure boundary under SRP Sections 5.4.6, "Reactor Core Isolation Cooling System, and 6.3, "Emergency Core Cooling System."
- G. The organization responsible for review of reactor thermal-hydraulic systems in PWRs assesses the functional aspects of valves within, and connected to, the reactor coolant pressure boundary under SRP Section 5.4.7, "Residual Heat Removal (RHR) System," and 6.3, "Emergency Core Cooling System."
- H. The organization responsible for mechanical engineering reviews assesses methods of analysis (e.g., seismic and vibratory loadings, and dynamic analyses), and structural integrity of RCS (and subsystem) valves under SRP Sections 3.9.1, 3.9.2, and 3.9.3.
- I. The organization responsible for the review of component performance and testing reviews the functional design and qualification provisions and IST programs for certain safety-related valves typically designated as Class 1, 2, or 3

under Section III of the ASME Code under SRP Section 3.9.6. The review may include other valves not categorized as ASME Code Class 1, 2, or 3 if the staff considers them to be safety related.

- J. The organization responsible for mechanical engineering reviews (primary reviewer), the organization responsible for electrical engineering reviews (secondary reviewer), and the organization responsible for the review of instrumentation and control systems (secondary reviewer), assess the methods of test and analysis used to ensure the function of valves (including valve operators), associated electrical equipment, and instrumentation and controls, under the full range of normal and accident loadings (including seismic). These assessments are conducted under SRP Section 3.10.
- K. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary assesses materials of fabrication for RCS valves under SRP Section 10.3.6, "Steam and Feedwater System Materials." This organization also evaluates the compatibility of fluids with valve materials under SRP Section 6.1.1, "Engineered Safety Features Materials," and the inservice inspection of ASME Code Class 2 and Class 3 valves under SRP Section 6.6, "Inservice Inspection of Class 2 and 3 Components."

4. Main Steam Line Flow Restrictions

- A. The organization responsible for mechanical engineering reviews assesses methods of analysis (e.g., seismic and vibratory loadings, and dynamic analyses), and structural and functional integrity of the main steam line flow restrictions under SRP Sections 3.9.1, 3.9.2, and 3.9.3.
- B. The organization responsible for the review of transient and accident analyses reviews the functional requirements of the main steam line flow restrictions under SRP Section 15.1.5, and various other SRP Sections of Chapter 15.

5. Pressurizer

- A. The organization responsible for review of reactor thermal-hydraulic systems in PWRs reviews the configuration and process design parameters of the pressurizer, including related safety and relief valve capacities, under SRP Section 5.2.2, "Overpressure Protection Review Responsibilities."
- B. The organization responsible for the review of transient and accident analyses reviews pressurizer system performance during anticipated operational occurrences and postulated accidents under SRP 15.6.1, "Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve," and other various SRP Sections of Chapter 15.
- C. The organization responsible for mechanical engineering reviews evaluates the structural integrity of the pressurizer and methods of analysis under SRP Sections 3.9.1, 3.9.2, and 3.9.3.
- D. The organization responsible for the review of component integrity issues related to reactor coolant pressure boundary (primary reviewer), and the organization

responsible for the review of component integrity issues related to reactor vessels (secondary reviewer), evaluate periodic inservice inspection and testing of pressurizers to assess their structural and leaktight integrity. These evaluations are performed under SRP Section 5.2.4.

- E. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary (primary reviewer), the organization responsible for review of component integrity issues related to reactor vessels (secondary reviewer), the organization responsible for review of component integrity issues related to steam generator tubes (secondary reviewer), and the organization responsible for review of chemical engineering issues (secondary reviewer), assess pressurizer materials under SRP Section 5.2.3.

6. Reactor Core Isolation Cooling System (BWR) / Isolation Condenser System [ESBWR]

The organization responsible for the review of thermal-hydraulic systems in BWRs assesses the reactor core isolation cooling system / isolation condenser system under SRP Section 5.4.6.” This organization also reviews the ESBWR isolation condenser system under SRP Section 6.3, since this system is part of the emergency core cooling system.

7. Residual Heat Removal System / Passive Residual Heat Removal System [ALWR] / Shutdown Cooling Mode of the Reactor Water Cleanup System [ESBWR]

The organization responsible for review of reactor thermal-hydraulic systems in PWRs reviews the residual heat removal system under SRP Section 5.4.7.”

8. Reactor Water Cleanup System [BWR] / Reactor Water Cleanup/Shutdown Cooling System [ESBWR]

The organization responsible for review of chemical engineering issues reviews the design parameters and features provided to ensure proper operation of the reactor water cleanup system under SRP Section 5.4.8, “Reactor Water Cleanup System (BWR).” The organization responsible for the review of instrumentation and controls assesses the instrumentation and control aspects to confirm conformance to the acceptance criteria in SRP Sections 7.1 and 7.6, and branch technical positions in SRP Appendix 7-A.

9. Reactor Coolant System Pressure Relief Devices / Reactor Coolant Depressurization Systems

- A. The organization responsible for review of reactor thermal-hydraulic systems in PWRs or BWRs reviews setpoints and capacities of RCS safety and relief valves, and low-temperature overpressure protection systems / cold overpressure mitigation systems under SRP Section 5.2.2.
- B. The organization responsible for mechanical engineering reviews evaluates the structural integrity and methods of analysis of RCS pressure relief devices / reactor coolant depressurization systems under SRP Sections 3.9.1, 3.9.2, and 3.9.3.

- C. The organization responsible for the review of component performance and testing reviews the functional design and qualification provisions and IST programs for RCS pressure relief devices / reactor coolant depressurization systems typically designated as Class 1, 2, or 3 under Section III of the ASME Code under SRP Section 3.9.6.
- D. The organization responsible for mechanical engineering reviews (primary reviewer), and the organization responsible for electrical engineering reviews (secondary reviewer), and the organization responsible for the review of instrumentation and control systems (secondary reviewer), assess the methods of test and analysis used to ensure the operability of safety and relief valves and associated electrical equipment, and instrumentation and controls, under the full range of normal and accident loadings (including seismic). These assessments are conducted under SRP Section 3.10.
- E. The organization responsible for the review of component integrity issues related to reactor coolant pressure boundary evaluates the inservice inspection of ASME Code Class 1 RCS pressure relief devices / reactor coolant depressurization systems to assess their structural and leaktight integrity. These evaluations are performed under SRP Section 5.2.4.
- F. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary assesses the inservice inspection of ASME Code Class 2 and Class 3 components under SRP Section 6.6.
- G. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary (primary reviewer), the organization responsible for review of component integrity issues related to reactor vessels (secondary reviewer), the organization responsible for review of component integrity issues related to steam generator tubes (secondary reviewer), and the organization responsible for review of chemical engineering issues (secondary reviewer), assess RCS pressure relief device / reactor coolant depressurization system materials under SRP Section 5.2.3.
- H. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary assesses the materials of fabrication for RCS pressure relief devices / reactor coolant depressurization systems under SRP Section 10.3.6.” These reviewers also evaluate the compatibility of fluids with valve materials under SRP Section 6.1.1.
- I. The organization responsible for the review of component integrity issues related to reactor coolant pressure boundary evaluates the inservice inspection program for ASME Code Class 1 RCS pressure relief devices / reactor coolant depressurization systems to assess their structural and leaktight integrity. These evaluations are performed under SRP Section 5.2.4.
- J. The organization responsible for the review of transient and accident analyses reviews RCS performance during anticipated operational occurrences and postulated accidents under SRP 15.6.1, “Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve,” and other various SRP Sections of Chapter 15.

10. RCS Component Supports

- A. The organization responsible for mechanical engineering reviews assesses methods of analysis (e.g., seismic and vibratory loadings, and dynamic analyses), and structural integrity of RCS (and subsystem) component supports under SRP Sections 3.9.1, 3.9.2, and 3.9.3.
- B. The organization responsible for the review of component performance and testing reviews the functional design and qualification provisions and IST programs for certain safety-related dynamic restraints (snubbers) typically designated as Class 1, 2, or 3 under Section III of the ASME Code under SRP Section 3.9.6. The review may include other dynamic restraints not categorized as ASME Code Class 1, 2, or 3 if the staff considers them to be safety related.

11. Pressurizer Relief Discharge System

The organization responsible for the review of reactor thermal-hydraulic systems in PWRs reviews the pressurizer relief tank (or one or more components and/or systems that perform functions similar to those of the pressurizer relief tank system) under SRP Section 5.4.11, "Pressurizer Relief Tank."

12. RCS High-Point Vents

The organization responsible for the review of reactor thermal-hydraulic systems in PWRs reviews the RCS high-point vents under SRP 5.4.12, "Reactor Coolant System High [Point] Vents."

13. Main Steam Isolation Valve Leakage Control System [BWR]

The organization responsible for the review of containment integrity reviews the main steam isolation valve leakage control system under SRP Section 6.7, "Main Steam Isolation Valve Leakage Control System."

14. Main Steam Line, Feedwater, and Auxiliary Feedwater Piping

- A. The organization responsible for the review of steam and feedwater systems reviews the functional and related requirements for the main steam line piping under SRP Section 10.3, "Main Steam Supply System."
- B. The organization responsible for the review of steam and feedwater systems reviews the functional and related requirements for feedwater under SRP Section 10.4.7, "Condensate and Feedwater System."
- C. The organization responsible for the review of steam and feedwater systems reviews the functional and related requirements for auxiliary feedwater under SRP Section 10.4.9, "Auxiliary Feedwater System (PWR)."
- D. The organization responsible for mechanical engineering reviews assesses the design and analysis and preoperational testing of the main steam line, feedwater, and auxiliary feedwater piping under SRP Section 3.12.

- E. The organization responsible for review of component integrity issues related to reactor coolant pressure boundary assess the materials of fabrication for main steam line, feedwater, and auxiliary feedwater piping under SRP Section 10.3.6.
- F. The organization responsible for mechanical engineering reviews evaluates potential adverse flow effects on reactor, steam, feedwater, and condensate systems resulting from hydrodynamic loads, acoustic pressure fluctuations, and vibrations in accordance with the guidance in SRP Sections 3.9.2 and 3.9.5.

Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) For design certification (DC) and combined license (COL) reviews, the staff reviews the applicant's proposed ITAAC associated with the structures, systems, and components (SSCs) related to this SRP section in accordance with SRP Section 14.3, "Inspections, Tests, Analyses, and Acceptance Criteria." The staff recognizes that the review of ITAAC cannot be completed until after the rest of this portion of the application has been reviewed against acceptance criteria contained in this SRP section. Furthermore, the staff reviews the ITAAC to ensure that all SSCs in this area of review are identified and addressed as appropriate in accordance with SRP Section 14.3.

COL Action Items and Certification Requirements and Restrictions. For a DC application, the review will also address COL action items and requirements and restrictions (e.g., interface requirements and site parameters).

For a COL application referencing a DC, a COL applicant must address COL action items (referred to as COL license information in certain DCs) included in the referenced DC. Additionally, a COL applicant must address requirements and restrictions (e.g., interface requirements and site parameters) included in the referenced DC.

II. ACCEPTANCE CRITERIA

Requirements

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

1. Specific requirements are identified in the applicable SRP sections.
2. 10 CFR 52.47(b)(1), which requires that a DC application contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and will operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations;
3. 10 CFR 52.80(a), which requires that a COL application contain the proposed inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will operate in conformity with the combined license, the provisions of the Atomic Energy Act, and the NRC's regulations.

SRP Acceptance Criteria

Specific SRP acceptance criteria, acceptable to meet the relevant requirements of the NRC's regulations identified in the SRP sections specified above, are provided in the specific SRP sections for the reviews 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.

Technical Rationale

The technical rationale for application of these acceptance criteria to the areas of review addressed by this SRP section are discussed in the SRP sections specified in Subsection I of this SRP section.

III. REVIEW PROCEDURES

The reviewer will select 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 contained in the specified SRP section. These review procedures are based on the identified SRP acceptance criteria. For deviations from these acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II, and in the specified SRP sections.

1. The Project Manager's (PM's) role associated with SRP 5.4 is to manage the evaluation of all Areas of Review of this SRP. Elements of this role include planning, scheduling, coordinating, monitoring, and combining safety evaluation report (SER) inputs received from technical staff. The PM needs to obtain the technical review resources necessary to perform the work in each Area of Review in concert with the responsible technical review branch chief (BC). The PM also negotiates the schedules with the appropriate BCs for performing each of the reviews. The PM then monitors progress of the reviews to help identify potential schedule problems in time to take meaningful corrective action to prevent slippage of SER due dates. Once SER input is received from technical staff, the PM is to ensure that the regulatory requirements and framework are clearly articulated in the SER, and the review, conclusion, and its basis are also clear.
2. For review of a DC application, the reviewer should follow the above procedures to verify that the design, including requirements and restrictions (e.g., interface requirements and site parameters), set forth in the final safety analysis report (FSAR) meets the acceptance criteria. DCs have referred to the FSAR as the design control document (DCD). The reviewer should also consider the appropriateness of identified COL action items. The reviewer may identify additional COL action items; however, to ensure these COL action items are addressed during a COL application, they should be added to the DC FSAR.

3. For review of a COL application, the scope of the review is dependent on whether the COL applicant references a DC, an early site permit (ESP) or other NRC approvals (e.g., manufacturing license, site suitability report or topical report).
4. For review of both DC and COL applications, SRP Section 14.3 should be followed for the review of ITAAC. The review of ITAAC cannot be completed until after the completion of this section.

IV. EVALUATION FINDINGS

The reviewer verifies that the applicant has provided sufficient information, and that the review and calculations (if applicable) support conclusions about RCS design bases, descriptions, evaluations, and necessary tests and inspections for the components or subsystems (including radiological considerations from the viewpoint of how radiation affects operation, and the viewpoint of how radiation levels affect the operators and capabilities of operation and maintenance). The reviewer will also provide the conclusions identified in Subsection IV, "Evaluation Findings," of the specified SRP Sections. These findings are to be included in the staff's safety evaluation report along with the bases for those conclusions.

For DC and COL reviews, the findings will also summarize the staff's evaluation of requirements and restrictions (e.g., interface requirements and site parameters) 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.

VI. REFERENCES

None.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in the 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

Description of Changes

This SRP section affirms the technical accuracy and adequacy of the guidance previously provided in (Draft) Revision 2, dated June 1996 of this SRP. See ADAMS accession number ML061750008.

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 2007:

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

All sub-sections of SRP Section 5.4 were changed to do the following:

- Make the format (titles and ordering of subject areas) more consistent with draft Regulatory Guide DG-1145, "Combined License Applications for Nuclear Power Plants (LWR Edition)."
- Update the organizations responsible for performing reviews of each identified SRP section.
- Add examples of components or subsystems to clarify the scope of SRP Section 5.4.
- Identify missing or incorrect references to other SRP sections, and fix these.
- Relocate old Section 5.4.8, "Valves," to Section 5.4.3, "Reactor Coolant System Piping and Valves," as items E through K.
- Add information pertaining to new-reactor designs.