U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

14.3.4 REACTOR SYSTEMS - INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

REVIEW RESPONSIBILITIES

Primary - Organization responsible for the review of pressurized-water reactor (PWR) and boiling-water reactor (BWR) reactor systems

Secondary - None

I. AREAS OF REVIEW

This section provides technical review guidance for both evolutionary and passive safety-system designs to ensure that (1) the top-level design information regarding the reactor systems in the design control document (DCD) Tier 2 is appropriately included in Tier 1 and (2) appropriate inspections, tests, analyses, and acceptance criteria (ITAAC) are developed for each top-level system, structure, and component (SSC) within the scope of reactor systems to ensure acceptability of the as-built facility to meet the requirements of Title 10, *Code of Federal Regulations* (10 CFR), Part 52. The scope of "reactor systems" encompasses the reactor core, fuel, control rods, reactor vessel, reactor coolant system, loose parts monitoring system, and emergency core cooling systems (active and passive) that are significantly related to normal operation, transients, and accidents.

The Tier 1 design certification material as submitted by the applicant in its DCD includes the top-level design features and performance standards that pertain to the safety of the plant and include descriptive text and supporting figures. The top-level design features and performance standards are those that are most important to safety, including safety-related and defense-in-

depth features and functions, and non-safety-related systems that potentially impact safety. The Tier 1 information is derived from Tier 2. (See Appendix A of SRP 14.3 for definitions of Tier 1 and Tier 2). In general, many of the reactor and core cooling systems are classified as safety-related, and therefore, many of the characteristics and features of these systems are judged to have safety significance. This is reflected in a relatively higher level of detail in Tier 1 for these systems than other systems of the standard design. Thus, the Tier 1 portion of the DCD as derived from Tier 2 information is the focus for this review for the aforementioned SSCs for Reactor Systems identified as Tier 1.

ITAAC include (1) design commitments; (2) identification of those inspections, tests, and analyses (observations, tests, or examinations) to determine if the commitment was met; and (3) acceptance criteria that demonstrate that the design commitment was, in fact, met. Successful completion of all ITAAC will demonstrate that the plant was constructed in accordance with a certified design, regulations, and the license.

The specific fuel, control rod and core designs presented in Tier 2 will constitute an approved design that may be used for the COL first cycle core loading, without further NRC review. If any other core design is requested for the first cycle, the COL applicant or licensee will be required to submit for staff review that specific fuel, control rod and core design analyses. No ITAAC are required for Tier 1 information in the fuel, control rod, and core design areas because of the requirement for prior Nuclear Regulatory Commission (NRC) approval of any proposed changes to the approved design. Post-fuel-load testing programs (e.g., startup and power-ascension testing) verify that the actual core performs in accordance with the analyzed core design.

The specific areas of review are as follows:

1. Tier 1 information identified as such in the DCD and the process by which the applicant identified this information from its Tier 2 SSC descriptions. Tier 1 should include those SSCs that could affect the operation of the reactor and core cooling systems [e.g., the following chapters of the Standard Review Plan (SRP): Chapter 4–Reactor, Chapter 5–Reactor Coolant Systems and Connected Systems, Chapter 6–Section 6.3 on Emergency Core Cooling Systems, Chapter 9–Section 9.3.6 on the standby liquid control system, Chapter 15–Transients and Accidents Analyses].

2. The design features and functions of those SSCs for the reactor and core cooling systems determined to be safety-significant from probabilistic risk assessment (PRA) insights and other sources.

3. Those systems that might be classified as non-safety-related by the designer or applicant but are important to safety or otherwise provide defense-in-depth functions.

4. Policy, technical, and licensing issues for evolutionary and passive designs as identified by NRC generically and for a given design, including, as an example, the use of design acceptance criteria (DAC), for a limited set of technical issues, as acceptance criteria for ITAAC.

5. ITAAC format and content.

6. For a DC application:

   A. The staff reviews the proposed 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 Atomic Energy Act, and the NRC regulations.

   B. The staff reviews the justification that compliance with the interface requirements is verifiable through ITAAC. The staff also reviews the method that is to be used for verification of the interface requirements.

7. For a COL application:

   A. The staff reviews the proposed ITAAC 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 Atomic Energy Act, and the NRC regulations.

   B. If the application references a standard design certification, the staff verifies that the ITAAC contained in the certified design apply to those portions of the facility design that are approved in the design certification.

8. 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.

Review Interfaces

Other SRP sections interface with this section as follows:

1. The identification of those design features and functions of the SSCs that should be addressed in Tier 1 based on severe accident, PRA, and shutdown safety evaluations, respectively, is evaluated and determined under SRP Section 19.

2. SRP Section 14.3 provides general guidance on ITAAC information.

3. Acceptability of ITAAC information regarding the ability of SSCs to withstand various natural phenomena is reviewed under SRP Sections 14.3.1 and 14.3.2.

4. Acceptability of ITAAC information for piping design is reviewed under SRP Section 14.3.3.

5. Acceptability of ITAAC information for Instrumentation and Controls is reviewed under SRP Section 14.3.5.

6. Acceptability of ITAAC information for electrical systems and components is reviewed under SRP Section 14.3.6.

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. 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;

2. 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 criteria acceptable to meet the relevant requirements of the Commission's regulations identified above are as follows for each review area 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. Appendix A of SRP 14.3 describes and provides guidance relative to the content of the DCD for a design certification application and defines Tier 1 and Tier 2 design-related information that is to be ultimately incorporated by reference into the design certification rules. The basis for identifying Tier 1 information as derived from Tier 2 information, which is essentially the same information as is required for a design certification application, is that the top-level design features and performance standards (Tier 1) are those that are most important to safety, including safety-related and defense-in-depth features and functions, and non-safety-related systems that potentially impact safety.

   Tier 1 should be reviewed to verify that plant safety analyses, such as for core cooling, transients, overpressure protection, steam generator tube rupture, and anticipated transients without scram (ATWS), are adequately addressed. Applicants should provide tables in DCD Tier 2 Section 14.3 to show how the important input parameters used in

the transient and accident analyses for the design are verified by the ITAAC. For intersystem LOCAs, the design pressure of the piping of the systems that interface with the reactor coolant pressure boundary should be specified in the design descriptions or figures.

The specific fuel, control rod, and core designs presented in Tier 2 constitute an approved design that may be used for the COL first-cycle core loading without further NRC staff review. If any other core design is requested for the first cycle, the COL applicant or licensee will be required to submit for staff review those specific fuel, control rod, and core design analyses as described in DCD Tier 2 Chapters 4, 6, and 15. Much of the detailed supporting information in Tier 2 for the nuclear fuel, fuel channel, and control rods, if considered for a change by a COL applicant or licensee that references the certified standard design, would require prior NRC approval. Therefore, for the evolutionary and passive designs, the staff concluded that this information should be designated as Tier 2* information (see Appendix A of SRP Section 14.3 for a definition). However, staff will allow some of the Tier 2* designations to expire after the first full-power operation of the facility when the detailed design has been completed and the core performance characteristics are known from the startup and power-ascension test programs. The NRC bears the final responsibility for designating which material in Tier 2 is Tier 2*.

The following issues are identified to ensure comprehensive and consistent treatment of Tier 1 based on the safety significance of the system being reviewed:

a. System purpose and functions
b. Location/functional arrangement of system
c. Key design features of the system
d. System operation in various modes
e. Seismic and ASME code classifications
f. Materials—weld quality and pressure-boundary integrity
g. Controls, alarms, and displays
h. Logic
i. Interlocks
j. Class 1E electrical power sources and divisions
k. Equipment to be qualified for harsh environments
l. Valve qualification and operation
m. Interface requirements with other systems
n. Numeric performance values (flow rates, capacities, etc.)
o. Accuracy and quality of figures
p. Active systems that provide defense-in-depth functions designated as non-safety systems

Appendix C to SRP 14.3 provides “checklists” for the fluid systems as an aid for establishing consistency and comprehensiveness in the review of the system.

2. The source of information used to determine safety significance of SSCs for the design of reactor and core cooling systems include applicable rules and regulations, general design criteria, unresolved safety issues, and generic safety issues, NRC generic correspondence, PRA, insights from the standard design's safety and severe accident analyses, and operating experience.

   Inputs from the PRA review, including shutdown safety evaluations, and severe accident analyses ensure important insights and design features from these analyses are incorporated into Tier 1. For both PRA and severe accident analyses, although large uncertainties and unknowns may be associated with the event phenomena, design features important for severe accident prevention and mitigation resulting from these analyses should be selected for treatment in Tier 1.

3. The passive-designed reactors use safety systems that employ passive means (natural forces), such as gravity, natural circulation, condensation and evaporation, and stored energy, for accident mitigation. These designs also include active systems that provide defense-in-depth capabilities for reactor-coolant makeup and decay heat removal. These active systems are the first line of defense to reduce challenges to the passive systems in the event of transients or plant upsets. SECY-95-132, "Policy and Technical Issues Associated with Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084)" provides certain guidance and positions for ensuring consistent and complete treatment of those systems that might be classified as non-safety-related by the designer or applicant but are important to safety or otherwise provide defense-in-depth functions.

4. Applicable regulatory guidance from the Commission for selected policy and technical issues related to particular design should be followed. For the severe accident analyses, the basis for the staff's review for the evolutionary and passive standard designs was the Commission guidance related to SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements." SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor Designs" generically presents guidance and NRC positions on evolutionary and passive LWR design certification issues. For guidance, positions, and issues related to specific designs, guidance is available in such documents as SECY-97-044, "Policy and Key Technical Issues Pertaining to the Westinghouse AP600 Standardized Passive Reactor Design" or SECY-92-137, "Reviews of Inspections, Test, Analyses, and Acceptance Criteria (ITAAC) Requirements for the General Electric (GE) Advanced Boiling Water Reactor (ABWR)." Regarding DAC, SECY-02-059, "Use of Design Acceptance Criteria for the AP1000 Standard Plant Design," presents staff conclusions on acceptable use of DAC for I&C, control room, and piping design areas, contingent upon Westinghouse's and the staff's agreeing on adequate DAC during the design certification review. In SECY-92-053, "Use of Design Acceptance Criteria During 10 CFR Part 52 Design Certification Process," the staff noted that DAC is defined as "a set of prescribed limits, parameters, procedures, and attributes upon which the NRC relies, in a limited number of technical areas, in making a final safety determination to support a design certification."

   In some instances, an applicant may employ DAC to provide the staff with information to support its safety determination process. In SECY-92-053, the staff noted that "the concept of DAC would enable the staff to make a final safety determination, subject only

to satisfactory design implementation and verification by the COL licensee through appropriate use of ITAAC." The staff defined DAC as "a set of prescribed limits, parameters, procedures, and attributes upon which the NRC relies, in a limited number of technical areas, in making a final safety determination to support a design certification. The DAC are to be objective (measurable, testable, or subject to analysis using pre-approved methods), and must be verified as part of the ITAAC performed to demonstrate that the as-built facility conforms to the certified design. That is, the acceptance criteria for DAC become the acceptance criteria for ITAAC, which are part of the design certification." The use of DAC by applicants use for I&C is considered acceptable given the rapidly changing technology for digital I&C systems.
For many of the design features, it might be impractical to test their functionality because of the absence of simulated severe accident conditions. An example might be the ability of the reactor cavity to absorb the heat and radiation effects of a molten core. Consequently, the existence of the feature on a figure, subject to a basic configuration walkdown and confirmatory test reports or analysis, may be considered sufficient Tier 1 treatment. Another example in which passive designs would be difficult to verify prior to fuel loading as related to normal operations involves natural circulation. Passive designs, compared to previous designs, can include elongated-reactor-core designs to create the pressure differential for establishing natural circulation. Evidence of prior testing and analysis providing conclusive results may have to suffice for suitable acceptance criteria for ITAAC purposes.

5. Appendix D of SRP 14.3 lists acceptable "Standard ITAAC Entries" in the standard three-column format for ITAAC entries for configuration of systems, hydrostatic tests, net positive suction head for pumps, divisional power supply, etc., that should be contained in the overall set of ITAAC entries, as appropriate.

   RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," contains guidance for developing ITAAC assuming that a COL applicant does not reference a certified design and/or an early site permit. Guidance in Section III for COLs referencing a certified design notes that the ITAAC contained in the certified design must apply to those portions of the facility design that have been approved. Appendix C.II.2-A provides "general ITAAC development guidance" on fluid, I&C, and electrical systems.

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 paragraphs:

1. Application of 10 CFR 52.47(b)(1), as it relates to ITAAC (for design certification) provides reasonable assurance that the SSCs in this area of review will operate in accordance with the design certification, the provisions of the Atomic Engery Act, and NRC's regulations.

2. Application of 10 CFR 52.80(a), as it relates to ITAAC (for combined licenses) provides reasonable assurance that the SSCs in this area of review have been constructed and will be operated in conformity with the combined license, the provisions of the Atomic Energy Act, and the NRC's regulations.

3. Tier 1 should be reviewed for treatment of design information proportional to the safety significance of the SSC for that system. SSCs involving the reactor and core-cooling systems, such as the overpressure protection system, may be classified or judged to be important to safety and thus should be included in Tier 1.

4. NRC rules and regulations, generic correspondence, PRA insights, and operating experiences provide important sources for identifying significant design and features for inclusion in Tier 1.

5. Those active systems classified as non-safety systems are potentially the first line of defense to reduce challenges to the passive systems in the event of transients or plant upsets. While the passive systems are designed to perform their safety functions independently of operator action or off-site support for 72 hours after an event, these non-safety or active systems are capable of supplying water to the passive systems or directly performing core and containment heat removal functions and, therefore, should be considered as Tier 1. RTNSS evaluations provide a systematic determination of non-safety systems' impact that should be included in Tier 1.

6. The Commission provides applicable guidance for selected policy and technical issues related to a particular design that should be used by the reviewer. Examples of such guidance are contained in SECY-93-087.

7. Where a COL applicant references a certified standard design, the ITAAC, as contained in the standard certified design, must apply to those portions of the design that are covered by the design certification rule, as contained in the appendices to 10 CFR 52 (e.g., Appendix A for the ABWR, Appendix B for the System 80+, Appendix C for the AP-600) "Standard ITAAC" entries, as presented in Appendix D of SRP 14.3, have been developed to verify selected design aspects across all designs.

III. REVIEW PROCEDURES

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

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.

1. Follow the general procedures for review of Tier 1 contained in Section III, "Review Procedures" of SRP Section 14.3, including those for "Preparation for the Review" as well as the "General Review Procedures." Ensure that the DCD is consistent with the guidance and definitions as presented in Appendix A to SRP Section 14.3. Review the functional review responsibilities for Tier 1 as presented in Appendix B to SRP Section 14.3 to provide additional guidance on primary and secondary review assignments.

2. Ensure that an applicant for a COL referencing a certified design appropriately adopts the ITAAC for the certified portion of the design in the application.

3. Ensure that all Tier 1 information is consistent with Tier 2 information since all Tier 1 information is derived from Tier 2. Figures and diagrams should be reviewed to ensure that they accurately depict the functional arrangement, location, and requirements of the systems. Reviewers should use the review checklists in Appendix C to SRP Section 14.3 as an aid in establishing consistent and comprehensive treatment of systems. Additionally, Tier 1 should be reviewed for consistency with the initial test program as described in DCD Tier 2 Chapter 14.

4. Ensure that the reactor systems are clearly described in Tier 1, including the key performance characteristics and safety-related functions of SSCs based on their safety significance.

5. Ensure that appropriate ITAAC are specified for those SSCs performing safety-related functions for Tier 1 Reactor Systems in the prescribed format as presented in Appendix A to SRP Section 14.3.

6. Ensure that appropriate ITAAC are specified for verifying elevation differences between the reactor core and storage pools and tanks that provide core cooling for passive plants.

7. Ensure that appropriate ITAAC are specified for verifying design pressures of piping systems that interface with the reactor coolant boundary used to validate intersystem LOCA analyses.

8. Ensure that appropriate guidance is provided to other branches such that reactor and core-cooling-systems issues in Tier 1 are treated in a consistent manner among branches.

9. Ensure that inputs from other branches regarding (a) PRA, including shutdown safety evaluations, and (b) severe accident analyses are appropriately treated in Tier 1.

10. Ensure that appropriate ITAAC are specified for verifying those important input parameters used in transient and accident analyses.

11. Ensure that standard ITAAC entries in Appendix D to SRP Section 14.3 related to reactor systems are included, where appropriate, in the systems of the standard design. The reviewer should ensure consistent application and treatment of the standard ITAAC, and in particular for the basic-configuration ITAAC and the net-positive-suction-head ITAAC (for safety-related pumps).

12. Ensure that design features from the resolutions of selected policy and technical issues are adequately addressed in Tier 1 based on the safety significance of the design features. Ensure that the appropriate Commission guidance, requirements, bases, and resolutions for these items are clearly documented in the safety evaluation report (SER).

13. Ensure that any Tier 2* information is clearly designated in Tier 2, and consider expiration of these items at first full power, if appropriate. The staff's basis for designating the information as Tier 2* and the rationale for its decision, which requires prior NRC approval to change, should be specified in the SER. (See also the discussion in Appendix A to SRP Section 14.3.)

14. Review Tier 1 definitions, legends, interface requirements, and site parameters to ensure that reactor-systems issues are treated consistently and appropriately.

15. Review Appendix C.II.2-A of RG 1.206 to understand the guidance and related rationale provided to applicants in developing ITAAC for fluid, I&C, and electrical systems as might be applicable to Reactor Systems.

16. 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.

    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).

17. 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.

18. Implementation of ITAAC will be inspected in accordance with NRC Inspection Manual Chapter IMC-2503, “Construction Inspection Program - ITAAC Inspections.”

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.

The reviewer verifies that sufficient information has been provided to satisfy the requirements of SRP Section 14.3 and this SRP section, and concludes that the ITAAC is acceptable. A finding similar to that in the Evaluation Findings section of SRP Section 14.3 should be provided in a separate section of the SER.

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.

In addition, to the extent that the review is not discussed in other SER sections, the findings will summarize the staff's evaluation of the ITAAC, including design acceptance criteria, as applicable.

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

1. 10 CFR Part 52, Section 47, Standard Design Certifications, "Contents of Applications."

2. 10 CFR Part 52, Section 79, Combined Licenses, "Contents of Applications; Technical Information."

3. 10 CFR Part 52, Section 97, Combined Licenses, "Issuance of Combined Licenses."

4. SECY-02-0059, "Use of Design Acceptance Criteria for the AP1000 Standard Plant Design," April 2002.

5. SECY-97-044, "Policy and Key Technical Issues Pertaining to the Westinghouse AP600 Standardized Passive Reactor Design," February 1997.

6. SECY-95-132, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084)," April 1993.

7. SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," April 1993.

8. SECY-92-137, "Reviews of Inspections, Test, Analyses, and Acceptance Criteria (ITACC) Requirements for the General Electric (GE) Advanced Boiling Water Reactor (ABWR)," September 1992.

9. SECY-92-053, " Use of Design Acceptance Criteria During 10 CFR Part 52 Design Certification Reviews," February 1992.

10. SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," January 1990.

11. NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," September 2004.

12. NUREG-1512, "Final Safety Evaluation Report Related to Certification of the AP600 Standard Design," September 1998.

13. NUREG-1462, "Final Safety Evaluation Report Related to Certification of the System 80+ Design," August 1994.

14. NUREG-1503, "Final Safety Evaluation Report Related to Certification of the Advance Boiling Water Reactor," Volumes 1 and 2, July 1994.

15. Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

16. NRC Inspection Manual Chapter IMC-2503, “Construction Inspection Program - ITAAC Inspections,” issued April 26, 2006.

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 14.3.4
Description of Changes

This SRP section affirms the technical accuracy and adequacy of the guidance previously provided in (Draft) Revision 0 dated April 1996 of this SRP. See ADAMS accession number ML052070662.

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 0, dated [Month] 2007:

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

I. AREAS OF REVIEW

None.

II. ACCEPTANCE CRITERIA

None.

III. REVIEW PROCEDURES

None.

IV. EVALUATION FINDINGS

None.

V. IMPLEMENTATION

None.

VI. REFERENCES

1. Identified in general terms the scope of review for this SRP section followed by a delineation of specific areas of review for "Reactor Systems (Tier 1)."

2. Described Tier 1 and Tier 2 information as related to the DCD emphasizing the "top-level" design features and performance standards that serve as the focus for this SRP section.

3. Added review interfaces for SRP Sections 14.3.1, 14.3.2, 14.3.3, 14.3.5, 14.3.6, and 19.

4. Added 10 CFR 52.79 (c) to the list of acceptance criteria.

5. Added discussion and reference (SECY-95-132) for RTNSS for those systems that might be classified as non-safety-related by the designer or applicant but are important to safety or otherwise provde defense-in-depth functions.

6. Added discussion and references (SECY-02-059 and SECY-92-053) on the use of DAC as part of ITAAC.

7. Added discussion and reference on general guidance on development of ITAAC as contained in DG-1145 (September 2006 draft).

8. Added review steps for ensuring appropriate adoption of ITAAC when a COL references a certified design, submission of ITAAC in proper format, verification of elevation differences between storage pools and cores for passive designs, verification of design pressures of piping systems that interface with reactor coolant boundary, verification of important input parameters used in transient and accident analyses, and review of guidance provided in DG-1145 for developing ITAAC for fluid, I&C, and electrical systems.

9. Added guidance for the staff on the development of evaluation findings as to the completeness and adequacy of the Tier 1 information provided in the DCD and of the ITAAC providing reasonable assurance that the plant can be constructed and operated in conformance with its license and applicable regulations.

10. Added references concerning policy and licensing issues for new designs (SECY-97-044, SECY-93-087, and SECY-90-016).

11. Added reference for review of ITAAC for ABWR (SECY-92-137).

12. Added references for Final Safety Evaluation Reports for the AP1000 (NUREG-1793) and AP600 (NUREG-1512).