



U.S. NUCLEAR REGULATORY COMMISSION

# STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

## 14.2 INITIAL PLANT TEST PROGRAM--~~FINAL SAFETY ANALYSIS REPORT~~<sup>1</sup>

### REVIEW RESPONSIBILITIES

Primary - ~~Procedures and Test Review Branch (PTRB)~~ Quality Assurance and Maintenance Branch (HQMB)<sup>2</sup>

Secondary - None

### I. AREAS OF REVIEW

The ~~PTRB~~HQMB<sup>3</sup> reviews items 1 through 8~~12~~ below, relating to initial plant test programs, described in Chapter 14 of the ~~final~~ safety analysis report (FSAR) submitted by the applicant as part of its operating license (OL) application<sup>4</sup>.

#### 1. Summary of Test Program and Objectives

The summary descriptions for each major phase of the test program and the specific objectives for each major phase are reviewed.

#### 2. Organization and Staffing

The description of the organizational units and any augmenting organizations or other personnel that will manage, supervise, or execute any phase of the test program is reviewed.<sup>5</sup>

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### USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

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23.<sup>6</sup> Test Procedures

The system the applicant will use to develop, review, and approve individual test procedures is reviewed. The responsibilities of the organizational units that will perform these activities, the designated functions of each organizational unit, and the general steps to be followed in conducting these activities are reviewed. The type and source of design performance information that will be, or is being, used in the development of detailed test procedures is reviewed. The format for the test procedures is also reviewed.

4. Conduct of the Test Program

The applicant's description of the administrative controls that will govern the conduct of each major phase of the initial test program is reviewed.

5. Review, Evaluation, and Approval of Test Results

The applicant's description of measures to be established for the review, evaluation, and approval of test results for each major phase of the program is reviewed.

6. Test Records

The description of the requirements to be established for disposition of test procedures and test data following completion of the test program is reviewed.<sup>7</sup>

37.<sup>8</sup> Test Program's<sup>9</sup> Conformance with Regulatory Guides

The applicant's plans pertaining to conformance with regulatory guides applicable to initial test programs (see subsection V) are reviewed to establish the extent of conformance. Exceptions to regulatory positions in applicable regulatory guides are reviewed, along with the justification provided, for each guide.

48. Utilization of Reactor Operating and Testing Experiences in the Development of the Test Program

A summary of the principal conclusions or findings from the applicant's review of operating and testing experiences at other reactor facilities and their effect on the test program are reviewed.

59. Trial Use of Plant Operating and Emergency Procedures

The information pertaining to how, and to what extent, the plant operating, emergency, and surveillance procedures will be use-tested during the test program is reviewed. This will include operator training conducted during the special low power testing program (References 29 and 30) related to the resolution of described in TMI Action Plan Item I.G.1, described in NUREG-0660, NUREG-0694, and NUREG-0737 (References 25, 26, and 27)<sup>10</sup>.

610. Initial Fuel Loading and Initial Criticality

The procedures that will guide initial fuel loading and initial criticality, including the prerequisites and precautionary measures to be used to assure safety, are reviewed.

711. Test Program Schedule and Sequence

The schedule for conducting each phase of the testing program relative to the fuel loading date, is reviewed. Information pertaining to anticipated schedule overlap of the test program with test program schedules for any other reactor facilities at the site is reviewed. The sequence for conducting the tests planned for the startup test phase is reviewed. The time available between approval of testing procedures and their intended use is reviewed.

812. Individual Test Descriptions

The individual test abstracts for each test phase are reviewed to establish the degree of conformance with applicable tests identified in Regulatory Guide 1.68, other applicable regulatory guides, and other special testing requirements for the facility, including those identified for special or unique plant features. The objectives for each test, summary of prerequisites and test method, and specific acceptance criteria for each test are reviewed to establish that the functional adequacy of those structures, systems, or components (SSCs)<sup>11</sup> involved will be verified.

The PTRBHQMB<sup>12</sup> reviews the information provided to assure that the test objectives, test methods, and the acceptance criteria are acceptable and consistent with the design requirements for the facility.

Review Interfaces<sup>13</sup>

The HQMB also performs the following related reviews and coordination activities:

1. Evaluates the nuclear steam supply system (NSSS) vendor involvement in the development of the plant initial test program, including NSSS vendor review of test procedures, as part of its primary review responsibility for SRP Section 13.5.1. The acceptance criteria and review procedures related to this review are contained in SRP Section 13.5.1.<sup>14</sup>
2. In some cases, special tests may be required to verify the adequacy of the design. The PTRBHQMB<sup>15</sup> will maintain a list of all special test requirements and all tests that are reviewed wholly or in part by other branches.
3. Certain tests, such as those for the reactor systems, containment systems, the electrical power systems, and the emergency core cooling systems, security systems and related features, or those identified for design-specific or unique plant features (first-of-a-kind) are reviewed by those branches responsible for reviewing the design of that system and/or design feature.<sup>16</sup> The PTRBHQMB<sup>17</sup> is responsible for ensuring that all initial

plant tests are reviewed in accordance with this SRP section and will provide the coordination and supplementary review necessary to accomplish a complete review of all initial plant tests including those that may be referenced in a standard plant design.

For those areas of review identified above, additional acceptance criteria and/or review methods, beyond those described in this section, are specified in other SRP sections and are used in the overall evaluation of issues related to the initial test program such as the adequacy of testing proposed for specific SSCs and/or design features, the design parameters, characteristics, and performance criteria that should be satisfactorily demonstrated by test, etc.<sup>18</sup>

## II. ACCEPTANCE CRITERIA

~~PTRBHQMB~~<sup>19</sup> acceptance criteria are based on meeting the relevant requirements of the following regulations:

- ~~1A.~~<sup>20</sup> 10 CFR Part 30, §30.53 as it relates to testing radiation detection equipment and monitoring instruments.
- ~~2B.~~ 10 CFR Part 50, §50.34(b)(6)(iii) as it relates to the ~~licensee~~ applicant providing information associated with preoperational testing and initial ~~startup~~<sup>21</sup> operations.
- ~~3C.~~ 10 CFR Part 50, Appendix B, Section XI as it relates to test programs to demonstrate that ~~structures, systems, and components~~ SSCs<sup>22</sup> will perform satisfactorily.
- ~~4D.~~ 10 CFR Part 50, Appendix J, Section III.A.4<sup>23</sup> as it relates to the preoperational leakage rate testing of the reactor primary containment ~~building~~.<sup>24</sup>

Regulatory Guide 1.68 provides information, recommendations and guidance, and in general describes a basis acceptable to the staff that may be used to implement the requirements of the regulations identified above. In addition, the following list of Regulatory Guides provides more detailed information pertaining to the tests<sup>25</sup> called for in Regulatory Guide 1.68 and this supplementary information is used to help determine whether the objectives of certain plant tests are likely to be accomplished by performing the tests<sup>26</sup> in the proposed manner.

- a. ~~Regulatory Guide 1.18, "Structural Acceptance Test for Concrete Primary Reactor Containments."~~<sup>27</sup> Regulatory Guide 1.9, "Selection, Design, and Qualification of Diesel-Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants."<sup>28</sup>
- b. Regulatory Guide 1.20, "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing."
- c. Regulatory Guide 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment (Safety Guide 30)."

- d. Regulatory Guide 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants."
- e. Regulatory Guide 1.41, "Preoperational Testing of Redundant Onsite Electric Power Systems to Verify Proper Load Group Assignments."
- f. Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants."
- g. Regulatory Guide 1.56, "Maintenance of Water Purity in Boiling Water Reactors."
- h. Regulatory Guide 1.68.1, "Preoperational and Initial Startup Testing of Feedwater and Condensate Systems for Boiling Water Reactor Power Plants."<sup>29</sup>
- i. Regulatory Guide 1.68.2, "Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water-Cooled Nuclear Power Plants."<sup>30</sup>
- j. Regulatory Guide 1.68.3, "Preoperational Testing of Instrument and Control Air Systems."<sup>31</sup>
- hk.<sup>32</sup> Regulatory Guide 1.72, "Spray Pond Piping Made from Fiberglass-Reinforced Thermosetting Resin."
- il. Regulatory Guide 1.79, "Preoperational Testing of Emergency Core Cooling Systems for Pressurized Water Reactors."
- ~~j. Regulatory Guide 1.80, "Preoperational Testing of Instrument Air Systems."<sup>33</sup>~~
- km. Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release."
- ln. Regulatory Guide 1.108, "Periodic Testing of Diesel Generators Used as Onsite Electric Power Systems at Nuclear Power Plants."
- mo. Regulatory Guide 1.116, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems."
- np. Regulatory Guide 1.128, "Installation Design and Installation of Large Lead Storage Batteries for Nuclear Power Plants."
- q. Regulatory Guide 1.136, "Materials, Construction, and Testing of Concrete Containments (Articles CC-1000, -2000, and 4000 through 6000 of the "Code for Concrete Reactor Vessels and Containments")."<sup>34</sup>

- or. Regulatory Guide 1.139, "Guidance for Residual Heat Removal (For Comment)." <sup>35</sup>
- ps. Regulatory Guide 1.140, "Design, Testing, and Maintenance Criteria for Normal Ventilation Exhaust System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants."

Specific criteria necessary to meet the relevant requirements of §30.53, §50.34, and Appendices B and J to 10 CFR Part 50 are as follows:

1. Summary of Test Program and Objectives

The applicant's description should establish that the major phases of the program and the objectives for each phase are consistent with the general guidelines and applicable regulatory positions contained in Regulatory Guide 1.68 or the justification provided for any exceptions should be found to be acceptable by the reviewer.

2. Organization and Staffing

The initial test program organization and staffing description should address the organizational authorities and responsibilities, the adequacy of personnel experience and qualifications, and the adequacy of participation in each major test phase of identified organizational units and principal participants including the applicant's plant operating and technical staff. Information pertaining to the experience and qualification of supervisory personnel and other principal participants that will be responsible for management, development, or conduct of each test phase should be provided or referenced. <sup>36</sup>

23. <sup>37</sup> Test Procedures

The format for the test procedures should be similar to the format contained in Regulatory Guide 1.68 or the justification for exceptions should be found to be acceptable by the reviewer.

4. Conduct of the Test Program

Administrative controls should address adherence to approved test procedures during the conduct of the test program and the methods for effecting changes to approved test procedures. Administrative controls should also ensure that necessary prerequisites are satisfied for each major phase and for individual tests, that plant modifications or maintenance identified as necessary during the test program are initiated, that design organizations and the applicant will be appropriately involved in the review and approval of proposed plant modifications, and that appropriate retesting is performed following such modifications or maintenance.

5. Review, Evaluation, and Approval of Test Results

Specific controls should be established to ensure review, evaluation, and approval of test results by appropriate personnel/organizations and notification of affected and responsible organizations or personnel when test acceptance criteria are not met. Controls should also be established to resolve failures to meet test acceptance criteria. The applicant should address the approval of test data for each major test phase before proceeding to the next test phase and the approval of test data at each power test plateau (during the power-ascension phase) before increasing power level.

6. Test Records

The applicant should address the disposition of test procedures and test data as records.<sup>38</sup>

37.<sup>39</sup> Test Program's Conformance with Regulations and Regulatory Guides

The applicant should establish and describe an initial test program that is consistent with regulatory positions in Regulatory Guide 1.68. If exceptions to regulatory positions are taken, the applicant should specifically identify all exceptions, and provide suitable justification. Exceptions to regulatory positions will be reviewed for acceptability on a case-by-case basis. The applicant should address all applicable regulatory guides and identify them by guide number and revision number.

48. Utilization of Reactor Operating and Testing Experiences in the Development of the Test Program

The applicant's review of operating and testing experiences at other facilities should have recognized categories of reportable occurrences that are repeatedly being experienced and other operating experiences of safety concern. The applicant should describe how this was utilized in its initial test program.

59. Trial Use of Plant Operating and Emergency Procedures

The applicant should incorporate the plant operating, emergency, and surveillance procedures into the test program or otherwise verify these procedures through use to the extent practicable during the test program. In addition to verifying the adequacy of plant operating and emergency procedures to the extent practicable during the startup program, the licensee shall also provide additional operator training during the performance of certain initial tests. This will include training for plant cooldown by means of natural circulation. An acceptable program will satisfy the requirements described in TMI Action Plan Item I.G.1 of NUREG-0660, NUREG-0694, and NUREG-0737. Generic Letter 83-24 (Reference 28) provides information regarding implementation of TMI Action Plan Item I.G.1. References 29 and 30 describe the special low power testing programs acceptable to the staff for BWRs and PWRs respectively.<sup>40</sup>

610. Initial Fuel Loading and Initial Criticality

The procedures that will guide initial fuel loading and initial criticality should include precautions, prerequisites, and measures consistent with the guidelines and regulatory positions contained in Regulatory Guide 1.68 or exceptions should be found to be acceptable by the reviewer.

711. Test Program Schedule and Sequence

- a. At least nine months should be allowed for conducting preoperational testing.
- b. At least three months should be allowed for conducting startup testing including fuel loading, low power tests, and power ascension tests.
- c. Overlapping test program schedules (for multi-unit sites) should not result in significant divisions of responsibilities or dilutions of the staff provided to implement the test program.
- d. The sequential schedule for individual startup tests should establish, insofar as practicable, that test requirements will be completed prior to exceeding 25% power for all plant ~~structures, systems, and components~~ SSCs<sup>41</sup> that are relied upon to prevent, to limit, or to mitigate the consequences of postulated accidents.

The schedule should also establish that, insofar as practicable, testing will be accomplished as early in the test program as feasible and that the safety of the plant will not be totally dependent on the performance of untested systems, components, or features.

- e. Approved test procedures should be in a form suitable for review by regulatory inspectors at least 60 days prior to their intended use, and for fuel loading and startup test procedures, at least 60 days prior to fuel loading.

812. Individual Test Descriptions/Abstracts

The applicant should provide abstracts of planned tests for ~~structures, systems, components, SSCs~~<sup>42</sup> and design features that will provide assurance of testing of those items that meet any of the criteria listed below. Abstracts should be provided for those ~~structures, systems, components~~ SSCs<sup>43</sup> or design features that:

- a. Will be used for safe shutdown and cooldown of the reactor under normal plant conditions and for maintaining the reactor in a safe condition for an extended shutdown period; or
- b. Will be used for safe shutdown and cooldown of the reactor under transient (infrequent or moderately frequent events) conditions and postulated accident conditions and for maintaining the reactor in a safe condition for an extended shutdown period following such conditions; or



- c. Will be used for establishing conformance with safety limits or limiting conditions for operation that will be included in the facility technical specifications; or
- d. Are classified as engineered safety features or will be used to support or ensure the operations of engineered safety features within design limits; or
- e. Are assumed to function or for which credit is taken in the accident analysis for the facility, as described in the FSAR<sup>44</sup>; or
- f. Will be used to process, store, control, measure, or limit the release of radioactive materials; or<sup>45</sup>
- g. Will be used in special low power testing program to be conducted at power levels no greater than 5 percent for the purposes of providing meaningful technical information beyond that obtained in the normal startup test program as required for the resolution of TMI Action Item I.G.1 (see References 29 and 30); or<sup>46</sup>
- h. Are identified as risk significant in the design-specific probabilistic risk assessment (PRA).<sup>47</sup>

The abstracts should include objectives, prerequisites, test methods, significant parameters and plant performance characteristics to be monitored, and acceptance criteria in sufficient detail to establish that the functional adequacy of ~~structures, systems, components, SSCs~~<sup>48</sup> and design features will be demonstrated by tests.

If the method for testing of a ~~structure, system, or component~~<sup>49</sup> SSC will not subject the item or system under test to representative design operating conditions, the test abstract should contain sufficient information to justify the test method to be used.

#### Technical Rationale<sup>50</sup>

The technical rationale for application of the above acceptance criteria to the review of the initial test program is discussed in the following paragraphs:

1. 10 CFR 30.53, as it relates to this SRP Section, requires that each licensee (licensee in this context is licensed to receive and possess byproduct material) perform, or permit the Commission to perform tests of radiation detection and monitoring instruments. In nuclear power plants, radiation detection and monitoring instruments are used for ambient monitoring related to worker radiation protection, effluent monitoring, automatic initiation of features to mitigate accidental releases of radioactive materials, and automatic initiation of engineered safety features to mitigate the consequences of design basis accidents. Application of 10 CFR 30.53 to the initial test program ensures that capabilities to perform these functions are adequately verified initially and that deficiencies are identified and corrected. This provides increased assurance of reliable

radiation detection/monitoring and instrument response to any detected adverse radiological conditions.

2. 10 CFR 50.34(b)(6)(iii) requires that each application for a license to operate a facility include a final safety analysis report. The final safety analysis report is required to include information concerning facility operation including plans for preoperational testing and initial operations. A major purpose of the initial test program (including preoperational testing and testing during initial operation) is to verify that SSCs are capable of performing their safety functions as specified in the design and assumed/credited in safety analyses. Application of 10 CFR 50.34(b)(6)(iii) to the initial test program ensures that the applicant submits adequate information, commitments, and plans demonstrating that capability will exist for initial operation within the bounds of the design and safety analyses and that initial testing activities will be conducted in a sequence and manner which minimizes operational reliance on untested SSCs/safety functions.
3. Appendix B to 10 CFR 50 requires, in Section XI, that a test program be established to assure that all testing required to demonstrate that SSCs will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program is required to include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests of SSCs. Test procedures are required to include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results are required to be documented and evaluated to assure that test requirements have been satisfied. Regulatory Guide 1.68 describes the general scope and depth acceptable to the NRC staff of the initial test program required by Section XI of Appendix B for light-water-cooled nuclear power plants.

The SSCs which are subject to initial testing perform safety functions including fission product containment and/or control; reactivity monitoring and control; reactor safe shutdown (including maintaining safe shutdown); core cooling; accident prevention; and consequence mitigation as specified in the design and assumed/credited in safety analyses. Application of 10 CFR 50 Appendix B, Section XI to the initial test program ensures that SSC capabilities to perform these specified/analyzed functions are initially verified with adequate precision and accuracy, that necessary SSC and plant baseline performance data is obtained, that deficiencies are identified and corrected, and that activities are conducted in a sequence and manner which minimizes operational reliance on untested SSCs/safety functions. This provides high degrees of assurance of SSC and overall plant readiness for safe operation within the bounds of the design and safety analyses, assurance against unexpected or unanalyzed SSC/plant behavior, and assurance against early SSC/safety function failures in service.

4. Appendix J to 10 CFR 50 requires that upon completion of construction of the primary reactor containment, preoperational leakage rate tests be conducted as specified therein (e.g., in Section III.A). The primary reactor containment provides a barrier against the

release of fission products following accidents. The extent of overall containment leakage at pressures attendant with accident conditions affects the public dose and environmental damage consequences of accidents. Application of 10 CFR 50, Appendix J to the initial test program ensures that the performance of the containment as a leakage barrier is as specified in the design and assumed/credited in safety analyses which evaluate public dose and environmental consequences of design basis accidents.

### III. REVIEW PROCEDURES

Preparation for the review of Chapter 14 of the applicant's FSAR<sup>51</sup> should include the following:

1. Review of ~~the Commission's~~ any related Safety Evaluation Report(s) ~~that was issued~~ upon review of a referenced standard design and/or the Construction Permit application<sup>52</sup>. This review is conducted for the purpose of familiarization with the principal design criteria for the facility and to identify any specific staff or ACRS concerns or unique design features that may warrant special test consideration.
2. Review of Chapters 1 through 12 of the FSAR<sup>53</sup> for the purpose of familiarization with the facility design and the nomenclature that is applied to ~~structures, systems, and components~~ SSCs<sup>54</sup> within the facility.
3. Review of Chapter 13 of the FSAR<sup>55</sup> for the purpose of familiarization with the applicant's organizational structure, qualifications, and administrative controls as these apply to or impact on the initial test program.
4. Review of Chapter 13 of the SAR and the applicant's security plan as they apply to the initial testing of security systems and related features.<sup>56</sup>
- 45<sup>57</sup>. Review of Chapter 15 of the FSAR<sup>58</sup> to identify assumptions pertaining to performance characteristics that can and should be verified by testing and to identify all ~~structures, systems, components, SSCs~~<sup>59</sup> and design features that are assumed to function (either explicitly or implicitly) in the accident analysis that can and should be tested.
56. Review the results of studies by the Office for Analysis and Evaluation of Operational Data (AEOD) and ~~OEGB~~ the Events Assessment and Generic Communications Branch (OECB) of Licensee Event Reports for operating reactors of similar design to identify potentially serious events and chronic or generic problems that warrant special test consideration. Computerized information on Licensee Event Reports can be obtained ~~through the Office of Management and Program Analysis~~ in office databases.<sup>60</sup>
67. Review of the Standard Technical Specifications for the type of facility under review<sup>61</sup> to identify all ~~structures, systems, and components~~ SSCs<sup>62</sup> that will be relied upon for establishing conformance with safety limits or limiting conditions for operation.
78. The reviewer should be familiar with the results of startup tests for reactors of similar design (reported to the Commission in Startup Test Reports) to assure that problem areas will be appropriately factored into the review of the initial test program.

89. The reviewer should be familiar with regulatory guides that are applicable to initial test programs.

The review consists of comparison of the information in Chapter 14 or, if applicable, other chapters in the FSAR<sup>63</sup> with the acceptance criteria provided in subsection II above. Each element of the SAR information is to be reviewed against this SRP section. Although plant test programs are not rigidly fixed, experience has shown that certain elements are common to and necessary for all plants. The reviewer's judgment during the review is to be based on an inspection of the material presented, whether items of special safety significance are involved, and the magnitude and uniqueness of the project. The reviewer should recognize that certain ~~structures, systems, and components~~SSCs<sup>64</sup> are more important to safety than others. The review of individual tests should be conducted in a graded manner to assure that the most emphasis is placed on ~~structures, systems, and components~~SSCs<sup>65</sup> that are considered to be engineered safety features. Any exceptions or alternatives are to be carefully reviewed to assure that they are clearly defined and that an adequate basis exists for acceptance. The reviewer confirms that initial testing of security systems and related features is appropriately considered and addressed under the initial test program.<sup>66</sup> Coordination of the review with the assigned reviewers for Chapter 13 may be necessary for items 3 and 4 or with the project manager and other branches for other initial testing issues as deemed necessary by the reviewer.<sup>67</sup> In general, the appropriate branch will be requested by the PTRBHQMB<sup>68</sup> to review proposed testing for special, unique, or first-of-a-kind design features to establish the adequacy of proposed testing including the validity of test methods.

The PTRBHQMB<sup>69</sup> reviewer is responsible for review and evaluation of all ~~subsequent~~ amendments to the FSAR up to the time the ~~Operating License is issued~~initial test program is completed to assure that any changes in design or commitments that impact on the initial test program continue to satisfy the acceptance criteria described in subsection II above.<sup>70</sup>

For standard design certification reviews under 10 CFR Part 52, the procedures above should be followed, as modified by the procedures in SRP Section 14.3 (proposed), to verify that the design set forth in the standard safety analysis report, including inspections, tests, analysis, and acceptance criteria (ITAAC), site interface requirements and combined license action items, meet the acceptance criteria given in subsection II. SRP Section 14.3 (proposed) contains procedures for the review of certified design material (CDM) for the standard design, including the site parameters, interface criteria, and ITAAC.<sup>71</sup>

#### IV. EVALUATION FINDINGS

When the review of the information in the FSAR<sup>72</sup> is complete and the reviewer has determined that it is satisfactory and in accordance with the acceptance criteria in subsection II above, a statement of the following type should be provided for the staff's Safety Evaluation Report:

The staff concluded that the initial plant test program is acceptable and meets the following requirements: 10 CFR Part 30, §30.53 with regard to initial testing of radiation detection and monitoring instruments; 10 CFR Part 50, 50.34(b)(6)(iii) that requires inclusion of plans for preoperational testing and initial operations in the FSAR<sup>73</sup>; 10 CFR Part 50, Appendix B, Section XI that requires a test program to assure that all testing

required to demonstrate that structures, systems, and components (SSCs)<sup>74</sup> will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents; and 10 CFR Part 50, Appendix J, Section III.A.4 that requires a preoperational measurement of the overall integrated leak-tightness of the primary reactor containment ~~building~~<sup>75</sup> under specified pressure conditions.

The staff has reviewed the information provided in the ~~Final~~ Safety Analysis Report<sup>76</sup> on the applicant's test program in accordance with SRP Section 14.2. This review included an evaluation of: (1) The applicant's requirements pertaining to the trial-use of plant operating and emergency procedures during the test program; (2) the schedule for conducting the test program; (3) the sequence of startup testing to be followed; (4) the methods for conducting individual tests and the acceptance criteria to be used in evaluating the test results for plant ~~structures, systems, and components~~SSCs<sup>77</sup>; and (5) the test programs' conformance with applicable regulations, regulatory guides, and TMI requirements. The review also included an evaluation of the results of the applicant's review of reactor plant operating experiences, conducted to determine where improvement or emphasis was warranted in the initial test program. The staff has concluded that the information provided in the application meets the acceptance criteria in Section 14.2 of the SRP and describes an acceptable initial test program, the successful completion of which will demonstrate the functional adequacy of plant ~~structures, systems, and components~~SSCs<sup>78</sup>.

For design certification reviews, the findings will also summarize, to the extent that the review is not discussed in other safety evaluation report sections, the staff's evaluation of inspections, tests, analyses, and acceptance criteria (ITAAC), including design acceptance criteria (DAC), site interface requirements, and combined license action items that are relevant to this SRP Section.<sup>79</sup>

## V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

This SRP section will be used by the staff when performing safety evaluations of license applications submitted by applicants pursuant to 10 CFR 50 or 10 CFR 52.<sup>80</sup> Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of 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.<sup>81</sup>

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides and NUREGs.

## VI. REFERENCES<sup>82</sup>

- 201. 10 CFR Part 30, §30.53, "Tests."
- 21. 10 CFR Part 50, §50.34, "Contents of Applications; Technical Information."
- 223. 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."
- 234. 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors."<sup>83</sup>
- 4. ~~Regulatory Guide 1.18, "Structural Acceptance Test for Concrete Primary Reactor Containments."~~<sup>84</sup>
- 5. Regulatory Guide 1.9, "Selection, Design, and Qualification of Diesel-Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants."<sup>85</sup>
- 56. Regulatory Guide 1.20, "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing."
- 67. Regulatory Guide 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment (Safety Guide 30)."
- 78. Regulatory Guide 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants."
- 89. Regulatory Guide 1.41, "Preoperational Testing of Redundant Onsite Electric Power Systems to Verify Proper Load Group Assignments."
- 910. Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants."
- 101. Regulatory Guide 1.56, "Maintenance of Water Purity in Boiling Water Reactors."
- 12. Regulatory Guide 1.68, "Initial Test Programs for Water-Cooled Reactor Power Plants."
- 213. Regulatory Guide 1.68.1, "Preoperational and Initial Startup Testing of Feedwater and Condensate Systems for Boiling Water Reactor Power Plants."
- 314. Regulatory Guide 1.68.2, "Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water-Cooled Nuclear Power Plants."
- 15. Regulatory Guide 1.68.3, "Preoperational Testing of Instrument and Control Air Systems."<sup>86</sup>
- 146. Regulatory Guide 1.72, "Spray Pond Piping Made from Fiberglass-Reinforced Thermosetting Resin."

127. Regulatory Guide 1.79, "Preoperational Testing of Emergency Core Cooling Systems for Pressurized Water Reactors."
- ~~13. Regulatory Guide 1.80, "Preoperational Testing of Instrument Air Systems."~~<sup>87</sup>
148. Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release."
159. Regulatory Guide 1.108, "Periodic Testing of Diesel Generators Used as Onsite Electric Power Systems at Nuclear Power Plants."
- ~~1620.~~ Regulatory Guide 1.116, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems."
- ~~1721.~~ Regulatory Guide 1.128, "Installation Design and Installation of Large Lead Storage Batteries for Nuclear Power Plants."
22. Regulatory Guide 1.136, "Materials, Construction, and Testing of Concrete Containments (Articles CC-1000, -2000, and 4000 through 6000 of the "Code for Concrete Reactor Vessels and Containments")."<sup>88</sup>
- ~~1823.~~ Regulatory Guide 1.139, "Guidance for Residual Heat Removal."<sup>89</sup>
- ~~1924.~~ Regulatory Guide 1.140, "Design, Testing, and Maintenance Criteria for Normal Ventilation Exhaust System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants."
245. NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-2 Accident."
256. NUREG-0694, "TMI-Related Requirements for New Operating Licensees."
267. NUREG-0737, "Clarification of TMI Action Plan Requirements."
28. NRC Letter to BWR Applicants for an Operating License and Holders of Operating Licenses for Grand Gulf, LaSalle and Susquehanna, "TMI Task Action Plan Item I.G.1, "Special Low Power Testing and Training," Recommendations for BWRs," (Generic Letter No. 83-24), June 29, 1983.<sup>90</sup>
29. Letter BWROG-8120, "BWR Owner's Group Evaluation of NUREG-0737 Requirement I.G.1, Training During Low Power Testing," February 4, 1981, from D. B. Waters to D. G. Eisenhut (Appendix E of this letter describes the special low-power test program accepted by the staff for BWRs).<sup>91</sup>
30. NRC Letter to the Carolina Power & Light Company, "Shearon Harris Nuclear Power Plant Units 1, 2, 3 and 4 Special Low Power Test Program - TMI Action Plan Item I.G.1," January 21, 1982 reflects acceptance of the program for PWRs described in Attachment 4 of Letter NS-EPR-2465, "Revised Special Low Power Testing Program,"

July 8, 1981, Westinghouse Electric Corporation - Water Reactors Division, from E. P. Rahe to H. R. Denton.<sup>92</sup>



**SRP Draft Section 14.2**  
Attachment A - Proposed Changes in Order of Occurrence

Item numbers in the following table correspond to superscript numbers in the redline/strikeout copy of the draft SRP section.

Item	Source	Description
1.	Editorial	Revised title to reflect more general (and potentially different) usage of the SRP section under DC and COL processes.
2.	Current PRB names and abbreviations	Editorial change made to reflect current PRB name and abbreviation for this SRP section.
3.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
4.	Editorial	Revised to reflect that SRP Section 14.2 may be used for OL, DC, COL, and/or license amendment reviews. Also revised to reflect the addition of Areas of Review.
5.	<b>Integrated Impact 1316</b>	Added Organization and Staffing as an Area of Review to indicate that the information related to this topic requested in RG 1.70 is reviewed.
6.	Editorial	Renumbered to reflect earlier addition of an Area of Review.
7.	<b>Integrated Impact 1316</b>	Added test program conduct and test results/records dispositioning as Areas of Review to indicate that the information related to these topics requested in RG 1.70 is reviewed.
8.	Editorial	Renumbered to reflect earlier additions of Areas of Review.
9.	Editorial	Revised to reflect punctuation for possessive, singular noun.
10.	SRP-UDP format item, reference citations, reference verification, Incorporation of PRB Comment	Added identification by reference number for the first citation of these NUREG references per SRP-UDP format guidance. Also added citation of NUREG-0694 since item I.G.1, as derived from Task I.G discussed in NUREG-0660, was actually stated (and numbered as such) in NUREG-0694. Also revised as recommended by the PRB (see Memorandum from S.C. Black (TAC NUMBER M92854).
11.	Editorial	To be consistent with the remainder of the section the acronym SSC was defined for structures, systems, and components.
12.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.

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Item	Source	Description
13.	Editorial	Added Review Interfaces subsection for Areas of Review section using numbered paragraphs per SRP-UDP format guidance. Note that the standard SRP-UDP format for this subsection is modified to accommodate existing review interface information which does not reference specific PRBs, SRP sections, or criteria/procedures in other SRP sections.
14.	<b>Integrated Impact 1033</b>	Added review interface to cover verification of NSSS vendor review of startup test procedures in accordance with TMI Action Plan Item I.C.7.
15.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
16.	<b>Integrated Impact 1317</b> , Incorporation of PRB Comment	Added interface reflecting review responsibility of another PRB for the initial testing of security systems and features. Security plans which address criteria and testing for security systems and features are usually controlled separately from the SAR as a Safeguards Information. Also revised as recommended in Memorandum from C.S. Black to R.W. Borchardt (TAC NUMBER M92854).
17.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
18.	Editorial, Incorporation of PRB Comment (See TAC M92854 Memorandum from S.C. Black)	In response to a PRB comment regarding addition of a guidance document already used in another SRP Section for evaluation of security systems as acceptance criteria for review of security system initial test programs in this SRP section, it was recognized that numerous other SRP sections contain additional criteria and/or review methods used to evaluate initial test program coverage of specific SSCs or features and other related initial testing issues. An appropriate nonstandard end paragraph characterizing this situation was therefore developed for the Review Interfaces subsection.
19.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
20.	Editorial, SRP-UDP format item	Renumbered/relettered acceptance criteria to avoid conflict with numbering scheme used for the specific criteria.
21.	Editorial	Revised to reflect that technically, at the time of reviews conducted under this SRP Section, no license has been issued, thus applicant (instead of licensee) is the correct terminology. Also revised to reflect the actual wording of the cited regulation.
22.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."

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Item	Source	Description
23.	No change	Although no change is proposed in this regard, based upon its comprehensive use as Acceptance Criteria in SRP Section 6.2.6 (including reviews relating to preoperational containment leak rate testing), citation of 10 CFR 50 Appendix J in SRP Section 14.2 would appear redundant.
24.	Editorial	Deleted the word "building" since 1) Appendix J does not explicitly require testing of a "building"; and 2) primary containment may be implemented as subcompartment(s) of a building.
25.	Editorial	Added plural for improvement of grammar.
26.	Editorial	Added plural for improvement of grammar.
27.	<b>Integrated Impact 571</b>	Regulatory Guide 1.18 has been withdrawn, guidance formerly provided thereunder is now covered in Regulatory Guide 1.136. Citation of Regulatory Guide 1.18 was thus deleted.
28.	<b>Integrated Impact 572</b>	Citation of Regulatory Guide 1.9 was added to the list of Regulatory Guides providing more detailed information pertaining to the tests specified in Regulatory Guide 1.68.
29.	<b>Integrated Impact 568</b>	Citation of Regulatory Guide 1.68.1 was added to the list of Regulatory Guides providing more detailed information pertaining to the tests specified in Regulatory Guide 1.68.
30.	<b>Integrated Impact 569</b>	Citation of Regulatory Guide 1.68.2 was added to the list of Regulatory Guides providing more detailed information pertaining to the tests specified in Regulatory Guide 1.68.
31.	<b>Integrated Impact 570</b>	Citation of Regulatory Guide 1.68.3 was added to the list of Regulatory Guides providing more detailed information pertaining to the tests specified in Regulatory Guide 1.68.
32.	Editorial	Relettered to reflect modified items and to maintain list order by Regulatory Guide number.
33.	<b>Integrated Impact 570</b>	As indicated in Regulatory Guide 1.68.3, Regulatory Guide 1.68.3 replaces Regulatory Guide 1.80. Regulatory Guide 1.80 has been withdrawn and all citations of Regulatory Guide 1.80 in SRP Section 14.2 are thus deleted.
34.	<b>Integrated Impact 571</b>	Citation of Regulatory Guide 1.136 was added to the list of Regulatory Guides providing more detailed information pertaining to the tests specified in Regulatory Guide 1.68.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
35.	Potential Impacts 5002, 24456, 24457, 25464, and 25465, No change proposed	In Section 14.2 of the CE System 80+ and ABWR FSERs, the staff applied RG 1.139 to reviews of proposed initial testing (see Potential Impacts 25464 and 25465). In Section 5 of the FSERs, the staff applied Branch Technical Position (BTP) RSB 5-1 in reviews of RHR and shutdown cooling systems (see Potential Impacts 24456 and 24457). RG 1.139 was issued for comment only, but has not been approved. BTP RSB 5-1 contains positions (including position E which corresponds to position C.5 of RG 1.139 related to initial testing of RHR systems) which are similar to RG 1.139 but which were issued later than the for comment RG. PNL could not confirm that the BTP supersedes the RG for all intents and purposes, therefore no change to SRP Section 14.2 to cite the BTP instead of the RG is proposed.
36.	<b>Integrated Impact 1316</b>	Added specific criteria for Organization and Staffing based upon the SAR information requested in RG 1.70.
37.	Editorial	Renumbered to reflect earlier addition of a specific criteria subsection.
38.	<b>Integrated Impact 1316</b>	Added specific criteria for test program conduct and test results/records dispositioning based upon information requested in RG 1.70.
39.	Editorial	Renumbered to reflect earlier addition of specific criteria subsections.
40.	<b>Integrated Impact 573</b>	TMI Item I.G.1 requires a special low-power testing program, consisting of tests beyond those called for in Reg. Guide 1.68, for the purposes of providing meaningful technical information beyond that obtained in the normal startup test program and to provide supplemental training. Generic Letter 83-24 provides information regarding implementation of I.G.1. The BWROG proposed resolution of TMI Item I.G.1 is described in letter BWROG-8120 (Reference 29). In the ABWR FSER, the staff requested test abstracts for tests described in Appendix E of BWROG-8120. Citation of Generic Letter 83-24 and the BWROG letter as relevant to implementation of TMI Item I.G.1 was thus added. Reference 30 describes a special low power test program acceptable to the staff for all PWR OL applicants. The staff's acceptance of this program as acceptable for PWRs to comply with TMI Item I.G.1, is discussed in NRC internal correspondence associated with licensing of the Shearon Harris Nuclear Power Plant (Docket Nos. 50-400/401/402/403). Specific criteria which cites the letter is thus also added for review of special low-power testing issues.

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Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
41.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
42.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
43.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
44.	Editorial	Revised to reflect global change to avoid explicit discussion of FSARs only.
45.	Editorial	Revised to reflect addition of subsequent items.
46.	<b>Integrated Impact 573,</b> Incorporation of PRB Comment	Added criterion to include test abstracts for special low power tests related to TMI Item I.G.1 as recommended by the PRB. See Memorandum from S.C. Black (TAC NUMBER M92854).
47.	Incorporation of PRB Comment	As recommended by the PRB, added initial test program coverage of, and test abstract criteria for risk significant items identified by the PRA.
48.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
49.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
50.	SRP-UDP format item.	Technical Rationale were developed and added for the following Acceptance Criteria: 10 CFR 30.53, 10 CFR 50.34(b)(6)(iii), 10 CFR 50 Appendix B, Section XI, and 10 CFR 50 Appendix J, Section III.A.4. The SRP-UDP program requires that Technical Rationale be developed for the Acceptance Criteria.
51.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs. Also provided identification of which SAR is evaluated.
52.	Editorial	Revised to reflect other potential NRC reviews which may support review of the proposed initial test program under consideration. Also deleted characterization of the SER as the Commission's SER. Note that SERs are usually attributed to the staff (e.g. in subsection IV, the SER is called "the staff's Safety Evaluation Report").
53.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
54.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."

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Item	Source	Description
55.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
56.	<b>Integrated Impact 1317</b>	Added reviewer preparation for review of the initial testing of security systems and related features. Security plans are usually discussed briefly in Chapter 13 of the SAR but transmitted, docketed, and controlled separately as a Safeguards Information submittal. It should be noted that the subsequent Review Procedure related to review of initial testing of security systems and features provides flexibility for coordination with other reviewers/PRBs where necessary to properly control Safeguards Information.
57.	Editorial	Renumbered to reflect addition of a prior item.
58.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
59.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
60.	Editorial	Revised to reflect current NRC organization including organization names and abbreviations for AEOD and OECB and to note the location of NRC computerized information resources.
61.	Editorial	Revised to improve grammar and clarity.
62.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
63.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
64.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
65.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
66.	<b>Integrated Impact 1317</b>	Added review procedure to verify that initial testing of security systems and related features are appropriately addressed and considered under the initial test program.
67.	Editorial	Revised to clarify and improve grammar. Added discussion of new item 4 as a review coordination issue. Also revised (added plural for "reviewers") to clarify that several PRBs/reviewers currently have review responsibility for SAR/SRP Chapter 13.

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Item	Source	Description
68.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
69.	Current PRB names and abbreviations	Editorial change made to reflect the current PRB for this SRP section.
70.	Editorial	Revised to provide coverage of license amendments which may occur under OL, design certification, and COL processes. Under the OL process, the entire startup test phase is conducted after issuance of the license. Under the COL process, the entire test program is conducted long after issuance of a license. Amendments affecting the initial test program can occur due to plant/design modifications, etc. under these licenses.
71.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard paragraph to address application of Review Procedures in design certification reviews.
72.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
73.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
74.	Editorial	Defined the acronym SSC for subsequent use in place of "structures, systems, and components."
75.	Editorial	Deleted the word "building" since 1) Appendix J does not explicitly require testing of a "building"; and 2) primary containment may be implemented as subcompartment(s) of a building.
76.	Editorial	Revised reference to the FSAR to reflect more general potential applicability of this SRP section to DC SARs, license amendments, and updated SARs.
77.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
78.	Editorial	Revised to use the acronym SSC in place of "structures, systems, and components."
79.	SRP-UDP format Item, 10 CFR 52 implementation	Standard change made to Evaluation Findings to address design certification reviews.
80.	SRP-UDP Guidance, Implementation of 10 CFR 52	Added standard sentence to address application of the SRP section to reviews of applications filed under 10 CFR Part 52, as well as Part 50.
81.	SRP-UDP Guidance	Added standard paragraph to indicate applicability of this section to reviews of future applications.

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<b>Item</b>	<b>Source</b>	<b>Description</b>
82.	Editorial	Rearranged and renumbered to reflect standard SRP-UDP ordering of references, and the addition and deletion of references based upon implementation of integrated impact recommendations.
83.	No change	Although no change is proposed in this regard, based upon its comprehensive use as Acceptance Criteria in SRP Section 6.2.6 (including reviews relating to preoperational containment leak rate testing), citation of 10 CFR 50 Appendix J in SRP Section 14.2 would appear redundant, especially in light of Review Interface 3 in subsection I.
84.	<b>Integrated Impact 571</b>	As stated in Regulatory Guide 1.136, Regulatory Guide 1.18 (cited in SRP Section 14.2, Rev. 2) has been withdrawn. Citation of Regulatory Guide 1.18 as a reference was thus deleted.
85.	<b>Integrated Impact 572</b>	Citation of Regulatory Guide 1.9 was added in subsection II, thus Regulatory Guide 1.9 is added as a reference.
86.	<b>Integrated Impact 570</b>	As indicated in Regulatory Guide 1.68.3, Regulatory Guide 1.68.3 replaces Regulatory Guide 1.80 (cited in SRP Section 14.2, Rev. 2). Regulatory Guide 1.68.3 was thus added as a reference.
87.	<b>Integrated Impact 570</b>	As indicated in Regulatory Guide 1.68.3, Regulatory Guide 1.68.3 replaces Regulatory Guide 1.80 (cited in SRP Section 14.2, Rev. 2). Citation of Regulatory Guide 1.80 as a reference was thus deleted.
88.	<b>Integrated Impact 571</b>	As stated in Regulatory Guide 1.136, Regulatory Guide 1.18 (cited in SRP Section 14.2, Rev. 2) has been withdrawn. The regulatory position of Regulatory Guide 1.18 is considered to be covered by national standard ACI 359 (ASME Section III, Division 2), "Code for Concrete Reactor Vessels and Containments," which is endorsed by Regulatory Guide 1.136. Regulatory Guide 1.136 was thus added as a reference.



**SRP Draft Section 14.2**  
Attachment A - Proposed Changes in Order of Occurrence

Item	Source	Description
89.	Potential Impacts 5002, 24456, 24457, 25464, and 25465, No change proposed	In Section 14.2 of the CE System 80+ and ABWR FSERs, the staff applied RG 1.139 to reviews of proposed initial testing (see Potential Impacts 25464 and 25465). In Section 5 of the FSERs, the staff applied Branch Technical Position (BTP) RSB 5-1 in reviews of RHR and shutdown cooling systems (see Potential Impacts 24456 and 24457). RG 1.139 was issued for comment only, but has not been approved. BTP RSB 5-1 contains positions (including position E which corresponds to position C.5 of RG 1.139 related to initial testing of RHR systems) which are similar to RG 1.139 but which were issued later than the for comment RG. PNL could not confirm that the BTP supersedes the RG for all intents and purposes, therefore no change to SRP Section 14.2 to cite the BTP instead of the RG is proposed.
90.	<b>Integrated Impact 573</b>	NRC Generic Letter 83-24 provides discussion of the staff's acceptance of the BWR Owner's Group proposed additional testing to meet TMI Item I.G.1. Specific criteria based on the letter is added for review of special low-power testing issues. Generic Letter 83-24 is thus also added as a reference.
91.	<b>Integrated Impact 573</b>	In the ABWR FSER, the staff verified that the SSAR, including applicable test abstracts, addresses the testing outlined in Appendix E of a letter dated February 4, 1981 from D.B. Waters to D.G. Eisenhut. This letter documents the BWR Owner's Group response to TMI Item I.G.1 which is acceptable to the staff as described in Generic Letter 83-24. Specific criteria which cites the letter is added for review of special low-power testing issues. The letter was thus added as a reference.
92.	<b>Integrated Impact 573</b>	Attachment 4 of the Westinghouse letter describes a special low power test program acceptable to the staff for all PWR OL applicants. The staff's acceptance of this program as acceptable for PWRs to comply with TMI Item I.G.1, is discussed in the Jan. 21, 1982 NRC internal correspondence associated with licensing of the Shearon Harris Nuclear Power Plant (Docket Nos. 50-400/401/402/403). Specific criteria which cites these letters is added for review of special low-power testing issues. The letters were thus added as a reference.

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**SRP Draft Section 14.2**  
Attachment B - Cross Reference of Integrated Impacts

<b>Integrated Impact No.</b>	<b>Issue</b>	<b>SRP Subsections Affected</b>
567	Add TMI Item I.C.7 as Acceptance Criteria and develop associated Review Procedures for review of the applicant's system for development of startup test procedures.	No changes in this proposed draft revision.
568	Revise Acceptance Criteria to cite Reg. Guide 1.68.1 as guidance for review of the initial testing of BWR feedwater and condensate systems.	Acceptance Criteria, subsection II, item h (supplementary to RG 1.68).
569	Revise Acceptance Criteria to cite Reg. Guide 1.68.2 as guidance for review of the initial startup testing of remote shutdown capabilities.	Acceptance Criteria, subsection II, item i (supplementary to RG 1.68).
570	Revise Acceptance Criteria to cite Reg. Guide 1.68.3 in place of Reg. Guide 1.80 as guidance for review of the preoperational testing of instrument and control air systems and other compressed gas systems.	Acceptance Criteria, subsection II, item j (supplementary to RG 1.68); and References subsection VI.15.
571	Revise Acceptance Criteria to cite Reg. Guide 1.136 in place of Reg. Guide 1.18 as guidance for review of the initial testing of concrete containments.	Acceptance Criteria, subsection II, item q (supplementary to RG 1.68); and References subsection VI.22.
572	Revise Acceptance Criteria to cite Reg. Guide 1.9 as guidance for review of the initial testing of diesel-generator units.	Acceptance Criteria, subsection II, item a (supplementary to RG 1.68); and References subsection VI.5.
573	Develop Review Procedures for review of BWR initial test program compliance with TMI Item I.G.1, "Special Low Power Testing and Training."	Acceptance Criteria, specific criteria subsections II.9 and II.12.g; and References subsections VI.28, VI.29, and VI.30.
574	Revise RG 1.68 to reflect recommendations of Generic Letter 89-13 related to an initial testing program coverage of service water heat exchanger testing.	No changes in this proposed draft revision.
575	Revise SRP Section 14.2 as necessary to review the COL applicant's initial test program which implements SAR initial testing commitments.	No changes in this proposed draft revision.
576	Develop a new SRP Section for review of certified design material and additional COL ITAAC material, which includes guidance for review of initial test program related items.	No changes in this proposed draft revision.
735	Revise RG 1.41 to incorporate the results of a standards comparison evaluating the suitability of the latest version of IEEE Std 308.	No changes in this proposed draft revision.
1030	SRP-UDP TMI Action Plan evaluation task ROC which evaluates citation of TMI Item I.G.1 and concludes that no SRP Section 14.2 changes are needed.	No changes in this proposed draft revision.

**SRP Draft Section 14.2**  
**Attachment B - Cross Reference of Integrated Impacts**

<b>Integrated Impact No.</b>	<b>Issue</b>	<b>SRP Subsections Affected</b>
1033	SRP-UDP TMI Action Plan evaluation task ROC which concludes that a review interface with SRP Section 13.5.1 should be added related to TMI action plan item I.C.7 regarding vendor review of initial test procedures.	Areas of Review, subsection I, Review Interface 1.
1316	Revise SRP Section 14.2 to provide review of the twelve topics related to the initial test program for which SAR information is requested in subsections of Regulatory Guide 1.70, Section 14.2.	Areas of Review, subsections I.2 and I.4 through I.6; and Acceptance Criteria, specific criteria subsections II.2 and II.4 through II.6.
1317	Add Review Procedures for verification that initial testing of security systems and related features is appropriately considered and addressed in the initial test program.	Areas of Review, subsection I, Review Interface 3; Review Procedures subsection III.4 and 1st paragraph after III.8.