October 21, 2015

TSTF-15-11
PROJ0753

Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: TSTF Comments on Draft Model Safety Evaluation of Traveler TSTF-545, "TS Inservice Testing Program & Clarify SR Usage Rule Application to Section 5.5 Testing" and Transmittal of TSTF-545, Revision 3.

REFERENCE: Letter from Michelle Honcharik (NRC) to the TSTF, "Draft Model Safety Evaluation of Technical Specifications Task Force Traveler TSTF-545, 'TS [Technical Specification] Inservice Testing Program & Clarify SR [Surveillance Requirement] Usage Rule Application to Section 5.5 Testing'," dated September 22, 2015 (ADAMS Accession No. ML15151A032).

On April 3, 2015, the TSTF submitted traveler TSTF-545, Revision 1, "TS Inservice Testing Program & Clarify SR Usage Rule Application to Section 5.5 Testing," to the Nuclear Regulatory Commission (NRC) for review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15093A470). In the referenced letter, the NRC provided for comment the draft model Safety Evaluation of TSTF-545.

Attachment 1 contains a mark-up and a summary table of the TSTF's comments on the draft model Safety Evaluation (SE).

TSTF-545 requested NRC review and approval of the proposed TS Bases changes to SR 3.0.2 and SR 3.0.3. The NRC and TSTF subsequently determined that NRC prior approval of these Bases changes is not required. Instead, the draft model SE contains an attachment that documents the NRC staff's acceptance of the proposed Bases changes to the Standard Technical Specifications, but the model SE does not evaluate the Bases changes for plant-specific amendments. The TSTF agrees with this approach. In order to make TSTF-545 and the model SE consistent, the TSTF has revised the TSTF-545 justification and model application to no longer request NRC approval of the plant-specific Bases changes.

In addition, the model SE contains three options, based on the unit's construction permit date, regarding the applicability of 10 CFR 50.55a. The model application is revised to require the licensee to provide the information needed for the NRC reviewer to select the correct option.

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TSTF-545, Revision 3, is included as Attachment 2. The revisions to the justification and model application are indicated with change bars in the right margin.

Should you have any questions, please do not hesitate to contact us.

James R. Morris (PWROG/W)

Joseph A. Clark (BWROG)

Otto W. Gustafson (PWROG/CE)

Henry L. Hegrat (PWROG/B&W)

Attachment 1 - TSTF Comments on the Model Safety Evaluation
Attachment 2 - TSTF-545, Revision 3

cc: Michelle Honcharik, Licensing Processes Branch, NRC
Robert Elliott, Technical Specifications Branch, NRC

Attachment 1
TSTF Comments on the Model Safety Evaluation

Summary Table of TSTF Comments

Page	Comment
1	Section 2.1, first paragraph, last sentence. Added the phrase "based on SR 3.0.2 and SR 3.0.3" to link the discussion into the inserted paragraph discussed in the next comment.
1	Section 2.1, after first paragraph. A new paragraph is added that discusses RIS 2012-10. The Safety Evaluation (SE) does not discuss that the NRC determined the existing Technical Specifications (TS) provisions were inappropriate. To a member of the public, the evaluation that follows would be confusing without that information.
3	Section 2.3, sixth paragraph. The paragraph is revised to state that the proposed plant-specific license amendment is consistent with the Standard Technical Specifications (STS) as modified by TSTF-545. The referenced NRC Standard Review Plan, Chapter 16, discusses the TSTF Traveler process, but the model SE should qualify that the proposed TS are consistent with the STS as modified by approved Travelers.
3	Section 2.3, eighth paragraph. The note is revised to indicate that more than one paragraph may apply. The units at a site may have different construction permit dates.
8	Section 3.2, last paragraph, second sentence. The sentence is revised to state that the ASME Code defines testing frequencies. This clarifies why the change is acceptable.
8	Section 3.2, last paragraph, fourth sentence. The paragraph states that the ASME Code does not make available test allowances similar to SR 3.0.2; however, Code Case OMN-20 provides such an allowance. The sentence is revised and two sentences are added to discuss OMN-20.
8	Section 3.2, last paragraph, fourth and sixth sentences. The sentences are revised to indicate the NRC determination that the existing STS were inappropriate, consistent with the second comment, above.
8	Section 3.2, last paragraph. Recommend adding a conclusion that the elimination of paragraph d is acceptable.
8	The second Section 3.2, titled, "Addition of Deleted Term in TS Section 1.1," is renumbered Section 3.3.
10	First paragraph, first sentence. Recommend changing "bases" to "basis." The term "basis" is less confusing given the context.
10	Second paragraph, last sentence. Revise the sentence to acknowledge that the Bases are changed to clarify the application of SR 3.0.2 to inservice tests and other testing frequencies specified in regulations, such as 10 CFR 50, Appendix J.
1, 10	References to TSTF-545, Revision 2, are changed to reference Revision 3.

Draft Model Safety Evaluation Mark-Up

PROPOSED MODEL SAFETY EVALUATION FOR PLANT-SPECIFIC ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-545, REVISION ~~3~~2, "TS INSERVICE TESTING PROGRAM REMOVAL & CLARIFY SR USAGE RULE APPLICATION TO SECTION 5.5 TESTING," USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

1.0 INTRODUCTION

By letter dated [DATE], [LICENSEE] (the licensee) requested changes to the Technical Specifications (TS) for [PLANT] (Agencywide Documents Access and Management System (ADAMS) Accession No. xxxxxxxxxx). Specifically, the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Standard Technical Specifications (STS) Change Traveler TSTF-545, Revision ~~3~~2, "TS Inservice Testing [IST] Program Removal & Clarify [Surveillance Requirement] SR Usage Rule Application to Section 5.5 Testing" (ADAMS Accession No. ML15093A470), dated April 3, 2015.

The proposed change requests a revision to the TS to eliminate TS [5.5.7 or 5.5.8], "Inservice Testing Program." A new defined term, "Inservice Testing Program (IST)," is requested to be added to TS Section 1.1, "Definitions." Also, existing uses of the term "Inservice Testing Program" in the TS are requested to be capitalized throughout to indicate that it is now a defined term.

The licensee stated that the license amendment request is consistent with NRC-approved Traveler TSTF-545, Rev. 2. The availability of this TS improvement was announced in the *Federal Register* on [date (XX FR XXXX)] as part of the consolidated line item improvement process (CLIIP).

2.0 REGULATORY EVALUATION

2.1 Background

The purpose of TS [5.5.7 or 5.5.8], "Inservice Testing Program (IST)," is to provide a table defining some of the IST frequencies and to describe the relationship between the TS and the Inservice Testing requirements. Specifically, the purpose of TS [5.5.7 or 5.5.8] is to provide controls for inservice testing of American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components including specific testing frequencies and *to provide* exceptions to these frequencies *based on Surveillance Requirement (SR) 3.0.2 and SR 3.0.3*.

On August 23, 2012, the NRC issued Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirement 3.0.2 and 3.0.3 to Administrative Controls Program Tests." The RIS stated that the NRC staff had determined that restructuring TS chapters during the development of the improved STS resulted in unintended consequences when SR 3.0.2 and SR 3.0.3 provisions were made applicable to the IST program. The NRC staff concluded that SR 3.0.2 and SR 3.0.3 cannot be applied to TS Section 5.5 tests that are not associated with an SR.

Commented [TSTF1]: To a member of the public, the change would look confusing without some explanation of what changed to necessitate the licensing action.

2.2 Technical Specifications Changes

The proposed change requests the deletion of TS [5.5.7 or 5.5.8], "Inservice Testing Program (IST)," from the licensee's TS. A new defined term, "Inservice Testing Program (IST)," is requested to be added to TS Section 1.1, "Definitions." Also, existing uses of the term "Inservice Testing Program" in the TS are requested to be capitalized to indicate that it is now a defined term.

2.3 Regulatory Requirements, Licensing Information, Guidance Documents

As described in Title 10 of the *Code of Federal* Regulations (10 CFR) Section 50.90, whenever a holder of an operating license desires to amend the license, application for an amendment must be filed with the Commission fully describing the changes desired, and following as far as applicable, the form prescribed for original applications. For TS, 10 CFR 50.36(a)(1) states that each applicant for an operating license shall include in the application proposed TS in accordance with the requirements of 10 CFR 50.36. Also, 10 CFR 50.36(a)(1) states that a summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the TS.

The categories of items required to be in the TS are provided in 10 CFR 50.36(c). As required by 10 CFR 50.36(c)(5), the TS will include items in the category of administrative controls, which are "the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner."

Pursuant to 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate. The issuance of operating licenses is addressed by 10 CFR 50.57(a), and requires the Commission to find, among other things, that "[t]here is reasonable assurance (i) that the activities authorized by the operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the regulations in this chapter." It also requires a finding that "[t]he issuance of the license will not be inimical to the common defense and security or to the health and safety of the public."

Per 10 CFR 50.36(b), each license authorizing operation of a utilization facility will include TS. The TS will be derived from the analyses and evaluations included in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34 (describing the technical information to be included in applications for an operating license). The Commission may include such additional TS as the Commission finds appropriate.

The NRC staff's guidance for review of the TS is in Chapter 16, "Technical Specifications," of NUREG-0800, "Standard Review Plan," Revision 3, dated March 2010 (ADAMS Accession No. ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STS (NUREG 1430 to NUREG 1434) for each of the light–water reactor nuclear steam supply systems (NSSSs) and associated balance–of–plant equipment systems.

Accordingly, the NRC staff's review includes consideration of whether the proposed TS are consistent with the applicable reference TS (i.e., the current STS)*, as modified by NRC approved TSTF Travelers such as TSTF-545, Revision 3*. Special attention is given to TS provisions that depart from the reference TS *and NRC approved TSTF Travelers* to determine whether proposed differences are justified by uniqueness in plant design or other considerations so that 10 CFR 50.36 is met.

Commented [TSTF2]: SRP Chapter 16 discusses the TSTF Traveler process, but the SE should qualify that the proposed TS are consistent with the STS as modified by approved Travelers.

Pursuant to 10 CFR 50.54, the applicable requirements of 10 CFR 50.55a are conditions in every nuclear power reactor operating license issued under 10 CFR Part 50. 10 CFR 50.55a(f) addresses IST and requires that systems and components of boiling and pressurized water-cooled nuclear power reactors must meet the requirements of the ASME Boiler and Pressure Vessel (BPV) Code and ASME Code for Operation and Maintenance (OM) of Nuclear Power Plants as specified in 10 CFR 50.55a(f)(1) to (f)(6).

{NOTE: Based on the plant-specific permitting, keep the paragraph*s* that ~~applies~~ *apply* and delete the ones that do not apply.}

Commented [TSTF3]: The LAR may apply to multiple units at a plant, which may have different construction permit dates.

Since [PLANT] was issued a construction permit (CP) in [DATE], the provisions of 10 CFR 50.55a(f)(1) apply, which state:

> Inservice testing requirements for older plants (pre-1971 CPs). For a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued prior to January 1, 1971, pumps and valves must meet the test requirements of paragraphs (f)(4) and (5) of this section to the extent practical. Pumps and valves that are part of the reactor coolant pressure boundary must meet the requirements applicable to components that are classified as ASME Code Class 1. Other pumps and valves that perform a function to shut down the reactor or maintain the reactor in a safe shutdown condition, mitigate the consequences of an accident, or provide overpressure protection for safety-related systems (in meeting the requirements of the 1986 Edition, or later, of the BPV or OM Code) must meet the test requirements applicable to components that are classified as ASME Code Class 2 or Class 3.

Since [PLANT] was issued a construction permit (CP) in [DATE], the provisions of 10 CFR 50.55(f)(2) apply, which state:

> Design and accessibility requirements for performing inservice testing in plants with CPs issued between 1971 and 1974. For a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued on or after January 1, 1971, but before July 1, 1974, pumps and valves that are classified as ASME Code Class 1 and Class 2 must be designed and provided with access to enable the performance of inservice tests for operational readiness set forth in editions and addenda of

> Section XI of the ASME BPV incorporated by reference in paragraph (a)(1)(ii) of this section (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, Revision 17, or Regulatory Guide 1.192, Revision 1, that are incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section, respectively) in effect 6 months before the date of issuance of the construction permit. The pumps and valves may meet the inservice test requirements set forth in subsequent editions of this Code and addenda that are incorporated by reference in paragraph (a)(1)(ii) of this section (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, Revision 17; or Regulatory Guide 1.192, Revision 1, that are incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section, respectively), subject to the applicable conditions listed therein.

Since [PLANT] was issued a construction permit (CP) in [DATE], the provisions of 10 CFR 50.55 (f)(3) apply, which state:

> Design and accessibility requirements for performing inservice testing in plants with CPs issued after 1974. For a boiling or pressurized water-cooled nuclear power facility whose construction permit under this part or design approval, design certification, combined license, or manufacturing license under part 52 of this chapter was issued on or after July 1, 1974:
>
> (i)–(ii) [Reserved]
>
> (iii) IST design and accessibility requirements: Class 1 pumps and valves. (A) Class 1 pumps and valves: First provision. In facilities whose construction permit was issued before November 22, 1999, pumps and valves that are classified as ASME Code Class 1 must be designed and provided with access to enable the performance of inservice testing of the pumps and valves for assessing operational readiness set forth in the editions and addenda of Section XI of the ASME BPV Code incorporated by reference in paragraph (a)(1)(ii) of this section (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, Revision 17, or Regulatory Guide 1.192, Revision 1, that are incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section, respectively) applied to the construction of the particular pump or valve or the summer 1973 Addenda, whichever is later.
>
> (B) Class 1 pumps and valves: Second provision. In facilities whose construction permit under this part, or design certification, design approval, combined license, or manufacturing license under part 52 of this chapter, issued on or after November 22, 1999, pumps and valves that are classified as ASME Code

Class 1 must be designed and provided with access to enable the performance of inservice testing of the pumps and valves for assessing operational readiness set forth in editions and addenda of the ASME OM Code (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.192, Revision 1, that are incorporated by reference in paragraph (a)(3)(iii) of this section), incorporated by reference in paragraph (a)(1)(iv) of this section at the time the construction permit, combined license, manufacturing license, design certification, or design approval is issued.

(iv) IST design and accessibility requirements: Class 2 and 3 pumps and valves.

(A) Class 2 and 3 pumps and valves: First provision. In facilities whose construction permit was issued before November 22, 1999, pumps and valves that are classified as ASME Code Class 2 and Class 3 must be designed and be provided with access to enable the performance of inservice testing of the pumps and valves for assessing operational readiness set forth in the editions and addenda of Section XI of the ASME BPV Code incorporated by reference in paragraph (a)(1)(ii) of this section (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147, Revision 17, that are incorporated by reference in paragraph (a)(3)(ii) of this section) applied to the construction of the particular pump or valve or the Summer 1973 Addenda, whichever is later.

(B) Class 2 and 3 pumps and valves: Second provision. In facilities whose construction permit under this part, or design certification, design approval, combined license, or manufacturing license under part 52 of this chapter, issued on or after November 22, 1999, pumps and valves that are classified as ASME Code Class 2 and 3 must be designed and provided with access to enable the performance of inservice testing of the pumps and valves for assessing operational readiness set forth in editions and addenda of the ASME OM Code (or the optional ASME OM Code Cases listed in NRC Regulatory Guide 1.192, Revision 1, that are incorporated by reference in paragraph (a)(3)(iii) of this section), incorporated by reference in paragraph (a)(1)(iv) of this section at the time the construction permit, combined license, or design certification is issued.

(v) IST design and accessibility requirements: Meeting later IST requirements. All pumps and valves may meet the test requirements set forth in subsequent editions of codes and addenda or portions thereof that are incorporated by reference in paragraph (a) of this section, subject to the conditions listed in paragraph (b) of this section.

The NRC staff's guidance for functional design, qualification, and Inservice Testing Program for pumps, valves, and dynamic restraints is in Section 3.9.6 of NUREG-0800, "Standard Review Plan," Revision 3, dated March 2007 (ADAMS Accession No. ML070720041). As part of the review for the Inservice Testing Program for pumps, the staff will review the IST frequencies and test parameters. The frequency of IST and test parameters are acceptable if the provisions of Subsection ISTB-3000 of the OM Code are met. As described therein, the licensee's IST program is found to be acceptable if the program meets the requirements of the ASME Code, Section XI, or the ASME OM Code as incorporated by reference in 10 CFR 50.55a.

The NRC staff's guidance for compliance with the codes and standards in 10 CFR 50.55a is in Section 5.2.1.1 of NUREG-0800, Rev. 3, dated March 2007 (ADAMS Accession No. ML070040003). As stated therein, acceptance criteria are based in part on meeting 10 CFR 50.55a.

The NRC staff's guidance for review of inservice inspection and testing of Class 2 and Class 3 components is in Section 6.6 of NUREG-0800, Revision 2, dated March 2007 (ADAMS Accession No. ML070550071). As stated therein, acceptance criteria are based on meeting the relevant parts of 10 CFR 50.55a as it pertains to the specification of the preservice and periodic inspection and testing requirements of the ASME Code for Class 2 and 3 systems and components.

3.0 TECHNICAL EVALUATION

To review the license amendment request, the NRC staff considered generally the guidance on acceptance criteria of the SRP sections described in Section 2.3 of this safety evaluation, and, in particular, the acceptance criteria in Chapter 16, "Technical Specifications," of NUREG-0800, Revision 3. Additionally, the NRC staff evaluated the proposed changes to the TS against what is required to be in the TS under 10 CFR 50.36(c)(5).

Last, while recognizing that the amendment request did not reduce what is required by 10 CFR 50.54 and 50.55a, the NRC staff surveyed what requirements concerning inservice testing would remain in the license if the NRC staff deleted the inservice testing program from the administrative controls section of the TS. As explained below, the NRC staff concluded that no additional license requirements beyond those imposed by 10 CFR 50.54 and 50.55a were necessary.

3.1 Requested Changes

The licensee proposed to delete TS [5.5.7 or 5.5.8], "Inservice Testing Program (IST)," which currently states:

> This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:

ASME OM Code and applicable Addenda terminology for Inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,

c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

In addition, the existing references to the IST Program are requested to be revised to reference a new TS Section 1.1 defined term, “Inservice Testing Program (IST),” which states: “The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).” This change in capitalization of the term is also requested to be made throughout the TS as referenced.

3.2 Assessment of Requested Deletion of TS [5.5.7 or 5.5.8] Inservice Testing Program

Presently, TS [5.5.7 or 5.5.8], “Inservice Testing Program (IST),” addresses inservice testing through four items. First, TS [5.5.7.a or 5.5.8.a] describes how to interpret monthly, quarterly, and other time periods used in testing. Second, TS [5.5.7.b or 5.5.8.b] describes when a licensee can avail itself of the provisions of SR 3.0.2 and thereby change the required testing schedule. Third, TS [5.5.7.c or 5.5.8.c] allows usage of SR 3.0.3, which describes how a licensee is to treat a situation where it discovers that a surveillance requirement was not performed within its specified frequency. Last, TS [5.5.7.d or 5.5.8.d] states that nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

Historically, TS [5.5.7 or 5.5.8] was added to the STS in Revision 0. Although it added operational flexibility, TS [5.5.7 or 5.5.8] was not added based upon a determination that it was

necessary to assure operation of the facility in a safe manner. The NRC staff has not identified any possibility for operation in an unsafe manner based upon the deletion of the TS.

Furthermore, the NRC staff notes that the licensee's IST, which is required by 10 CFR 50.54 and 50.55a(f), and which is outside the scope of this amendment request, already contains requirements and considerations similar to those of TS [5.5.7 or 5.5.8]. First, the NRC staff finds that the proposed deletion of TS [5.5.7.a or 5.5.8.a] is acceptable on the basis that each licensee has its self-contained IST program developed and implemented in accordance with the requirements of the ASME OM Code *which adequately defines testing frequencies*. Including testing frequencies and TS [5.5.7.a or 5.5.8.a] is duplicative of the requirements in the ASME OM Code as required by 10 CFR 50.55a(f). Second, contrary to TS [5.5.7.b or 5.5.8.b], the *NRC staff has determined that* NRC regulations ~~and ASME OM Code~~ did not make available test allowances similar to SR 3.0.2 *for inservice tests*. *In January 2013, the ASME announced the availability of Code Case OMN-20, "Inservice Test Frequency," which provides allowances similar to SR 3.0.2 for IST frequencies. The NRC is pursuing incorporation of Code Case OMN-20 into 10 CFR 50.55a(f). In the interim, a licensee may request use of Code Case OMN-20 as an alternative.* Therefore, the NRC staff finds the proposed deletion of TS [5.5.7.b or 5.5.8.b] acceptable on the basis that the changes eliminate the conflict between TS and IST program, as required by 10 CFR 50.55a and the ASME OM Code, and are in compliance with 10 CFR 50.55a(f)(5)(ii). Third, contrary to TS [5.5.7.c or 5.5.8.c], the *NRC staff has determined that* NRC regulations and *the* ASME OM Code do not make available test delays similar to SR 3.0.3. Therefore, the NRC staff finds the proposed deletion of TS [5.5.7.c or 5.5.8.c] acceptable on the basis that the changes eliminate an inconsistency between TS and IST program with regard to test delays and are in conformance with 10 CFR 50.55a(f)(5)(ii). Last, concerning any conflict between IST Code requirements and TS, 10 CFR 50.55a(f)(5)(ii) already specifies that, if a revised inservice test program for a facility conflicts with the TS, then the licensee must apply for an appropriate amendment. *Therefore, deleting the contrary statement from the TS is acceptable*.

Commented [TSTF4]: As paragraph a lists frequencies, a specific mention of frequencies clarifies why the change is acceptable.

Commented [TSTF5]: Without some indication of a change in position, it appears that the existing TS were approved in error.

Commented [TSTF6]: With OMN-20, the ASME Code does make allowances similar to SR 3.0.2 available to IST.

Commented [TSTF7]: Added a conclusion of acceptability for the elimination of paragraph d.

3.*3*~~2~~ Addition of Defined Term in TS Section 1.1

A new defined term, "Inservice Testing Program (IST)," is requested to be added to TS Section 1.1, "Definitions." It states, "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)." In addition, the existing uses of the term "Inservice Testing Program" are requested to be capitalized throughout the TS to indicate that it is a defined term. The NRC staff finds the proposed addition of the defined term, "Inservice Testing Program (IST)," acceptable on the basis that it is consistent with the format of the licensee's TS. Although the change is insignificant in terms of any actual changes to how the plant operates, the change maintains consistency throughout the TS. Accordingly, the requested change is consistent with the guidance of Chapter 16, "Technical Specifications," of NUREG-0800, "Standard Review Plan," Revision 3, dated March 2010 (ADAMS Accession No. ML100351425).

4.0 STATE CONSULTATION

{NOTE: Per LIC-101, the PM is responsible for contacting the state official and completing the bracketed information appropriately.}

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments. [If comments were provided, they should be addressed here].

5.0 ENVIRONMENTAL CONSIDERATION

{NOTE: Caution per LIC-101: The environmental consideration discussed below is written for a categorical exclusion based on 10 CFR 51.22(c)(9). The PM is responsible to ensure that this is accurate for the specific amendment being issued.}

The amendment changes requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 or changes SRs. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on [date (XX FR XXXX)]. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

{NOTE: the PM is responsible for ensuring the current LIC-101 wording is used.}

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES [Optional section to be prepared by the PM or primary reviewers.]

Principal Contributor: [Model SE prepared by C. Tilton]

Date: September 9, 2015

ATTACHMENT

PROPOSED CHANGES TO THE STANDARD TECHNICAL SPECIFICATIONS BASES

This attachment documents the NRC staff's bas~~is~~es for accepting the proposed changes to the Standard Technical Specifications (STS) Bases provided in Technical Specifications Task Force (TSTF) STS Change Traveler TSTF-545, Revision ~~2~~3, "TS Inservice Testing [IST] Program Removal & Clarify [Surveillance Requirement] SR Usage Rule Application to Section 5.5 Testing" (ADAMS Accession No. ML15093A470), dated April 3, 2015. Plant-specific safety evaluations will not include this attachment.

Commented [TSTF8]: Using "basis" instead of "bases" is less confusing given the context.

In addition to the changes described in the Model Safety Evaluation, Traveler TSTF-545, Revision ~~2~~3, proposed changes to the SR 3.0.2 and SR 3.0.3 STS Bases to clarify the application of these usage rules to testing required by the specifications in STS Section 5.5, "Programs and Manuals." The SR 3.0.2 STS Bases are also revised to clarify the application of SR 3.0.2 to inservice tests *and other testing frequencies specified in regulations*.

Commented [TSTF9]: The Bases change also discusses the Appendix J testing

In reviewing the proposed TSTF-545, Revision ~~2~~3, the NRC staff reviewed the history behind the development of the STS chapters to determine if unintended consequences were created when Section 3.0, "Surveillance Requirement Applicability," provisions were made applicable to Section 5.0. The NRC staff agrees that tests performed as part of the IST Program have specific restrictions in place for applying SR 3.0.2 and SR 3.0.3, as discussed in Section 3.2 of the model safety evaluation. However, the original versions (Revision 0, September 1992) of the STS, NUREG-1430, "Standard Technical Specifications Babcock and Wilcox Plants," NUREG-1431, "Standard Technical Specifications Westinghouse Plants," NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants," NUREG 1433, "Standard Technical Specifications General Electric Plants BWR/4," and NUREG-1434, "Standard Technical Specifications General Electric Plants, BWR/6," all had various programs under Section 5.0 where the NRC staff-approved the application of SR 3.02 and/or SR 3.0.3 to tests conducted under those programs, even though the tests were not associated with a limiting condition for operation or an SR. These programs include: "Pre-Stressed Concrete Containment Tendon Surveillance Program," "Steam Generator Tube Surveillance Program," "Ventilation System Testing Program," and "Explosive Gas and Storage Tanks Radioactivity Monitoring Program." While the language of SR 3.0.2 and SR 3.0.3 does not seem to be applicable to tests that are not related to Section 3 SRs, it is evident that the NRC staff always intended the flexibility allowed by SR 3.0.2 and SR 3.0.3 be applied to testing conducted under these STS Section 5.0 programs, and that the misapplication was limited to the IST Program.

Accordingly, TSTF-545, Revision ~~2~~3, proposes to modify the STS Bases for SR 3.0.2 and SR 3.0.3 to reflect how the NRC staff expects SR 3.0.2 and SR 3.0.3 to be used by the licensee when referenced in the Administrative Controls Program section of its TS. These STS Bases changes are acceptable. Since these STS Bases changes reflect both the NRC staff's and industry's original understanding of how SR 3.0.2 and SR 3.0.3 are applied in Section 5.0 programs, the changes simply represent a clarification of meaning, and are not a change in the TS requirement itself.

Attachment 2
TSTF-545, Revision 3

Technical Specifications Task Force
Improved Standard Technical Specifications Change Traveler

TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing

NUREGs Affected: ☑ 1430 ☑ 1431 ☑ 1432 ☑ 1433 ☑ 1434

Classification: 1) Technical Change

Recommended for CLIIP?: Yes

Correction or Improvement: Correction

NRC Fee Status: Exempt

Changes Marked on ISTS Rev: 4.0

See attached justification.

Revision History

OG Revision 0 Revision Status: Active

Revision Proposed by: NRC

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 31-May-13

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 25-Jun-13

TSTF Review Information

TSTF Received Date: 27-Jun-13 Date Distributed for Review 27-Jun-13

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:

On September 5, 2013, the TSTF provided a draft of TSTF-545 for NRC review. The TSTF had not created a Traveler with a request for an ASME Code alternative before and the NRC was asked to consider the approach. An internal NRC meeting was held on October 3 to discuss TSTF-545. The Component Branch has agreement from OGC to "fast track" a change to 10 CFR 50.55a to incorporate OMN-20 by January 2015. Therefore, the NRC recommended removing the Code Relief from the Traveler since it is unlikely that the NRC will approve TSTF-545 before then. However, after discussion, the recommendation is to remove the Code Relief from the Traveler but to keep it as an optional part of the model application in case a licensee wants to request the TS change before the CFR change is published.

The TSTF incorporated the NRC's recommended changes.

TSTF Resolution: Approved Date: 04-Nov-13

NRC Review Information

NRC Received Date: 04-Nov-13

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OG Revision 0 Revision Status: Active

NRC Comments:

At the 11/21/13 TSTF/NRC meeting, the TSTF and NRC agreed to revise the SR 3.0.2 and SR 3.0.3 Bases to discuss application of those usage rules to Section 5.5 testing in lieu of creating a different Traveler. At the January 8, 2014 TSTF meeting, the TSTF determine it was best to include these changes in TSTF-545.

TSTF Revision 1 Revision Status: Closed

Revision Proposed by: TSTF

Revision Description:
At the November 21, 2013 TSTF/NRC meeting, the TSTF and NRC agreed there was insufficient safety benefit to pursue a Traveler to eliminate the use of SR 3.0.2 and SR 3.0.3 in Section 5.5 of the TS. Instead, the TSTF and NRC agreed to revise the SR 3.02. and SR 3.0.3 Bases to describe their use in TS Section 5.5. At the January 2014 TSTF/NRC meeting, the TSTF informed the NRC that they planned to add the SR 3.0.2 and SR 3.0.3 Bases changes to TSTF-545, "TS Inservice Testing (IST) Program Removal," instead of TSTF-529 as discussed in November. This allows TSTF-545 to address all aspects of RIS 2010-12.

The SR 3.0 Bases introductory paragraph is revised to add the following: "SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification."

The SR 3.0.2 Bases are revised to add the following: "When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted."

The SR 3.0.3 Bases are revised to add the following: "When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification)."

TSTF Review Information

TSTF Received Date: 13-Feb-14 Date Distributed for Review 13-Feb-14

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 03-Mar-14

NRC Review Information

NRC Received Date: 04-Mar-14

NRC Comments:

On August 22, 2014, the NRC provided e-mailed comments from the Component Performance, NDE, and Testing Branch on TSTF-545, Revision 1 (ADAMS Accession No. ML14310A289). The comments corrected various references and statements related to the ASME Code and 10 CFR 50.55a.

Final Resolution: NRC Requests Changes: TSTF Will Revise Final Resolution Date: 22-Aug-14

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TSTF Revision 1 Revision Status: Closed

TSTF Revision 2 Revision Status: Active

Revision Proposed by: TSTF

Revision Description:
On August 22, 2014, the NRC provided e-mailed comments from the Component Performance, NDE, and Testing Branch on TSTF-545, Revision 1 (ADAMS Accession No. ML14310A289). The comments corrected various references and statements related to the ASME Code and 10 CFR 50.55a.

However, on December 11, 2014, a revision of 10 CFR 50.55(a) was issued, which altered many of the changes proposed by the NRC. Revision 2 incorporates the NRC comments as modified by the revision to 10 CFR 50.55a. The justification of TSTF-545 is revised to address the NRC comments. In addition, references to the NRC's operability and functionality determination guidance announced in RIS 2005-20 are replaced with references to Inspection Manual Chapter (IMC) 0326, and the proposed change to the SR 3.0.2 Bases is altered to explicitly reference the pump and valve testing required by the ASME Operation and Maintenance Code.

Owners Group Review Information

Date Originated by OG: 27-Jan-15

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 18-Feb-15

TSTF Review Information

TSTF Received Date: 16-Mar-15 Date Distributed for Review 16-Mar-15

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
(No Comments)

TSTF Resolution: Approved Date: 03-Apr-15

NRC Review Information

NRC Received Date: 03-Apr-15

NRC Comments: Date of NRC Letter: 22-Sep-15

TSTF-545 will be revised to be consistent with the model Safety Evaluation.

Final Resolution: Superceded by Revision

TSTF Revision 3 Revision Status: Active

Revision Proposed by: TSTF

Revision Description:
TSTF-545 requested NRC review and approval of the proposed TS Bases changes to SR 3.0.2 and SR 3.0.3 as the TSTF concluded that such changes required prior approval under the TS Bases Control Program. The NRC and TSTF subsequently determined that NRC prior approval of these Bases changes is not required.

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TSTF Revision 3 Revision Status: Active

Instead, the draft model Safety Evaluation contains an attachment that documents the NRC staff's acceptance of the proposed Bases changes to the Standard Technical Specifications, but the model Safety Evaluation does not evaluate the Bases changes for plant-specific amendments. The TSTF agrees with this approach. In order to make TSTF 545 and the model Safety Evaluation consistent, the TSTF has revised the TSTF 545 justification and model application to no longer request NRC approval of the plant-specific Bases changes. In addition, the model SE contains three discussions of the applicability of 10 CFR 50.55a based on the unit's construction permit date. The model application is revised to require the licensee to provide the information needed for the NRC reviewer to select the correct discussion.

TSTF Review Information

TSTF Received Date: 13-Oct-15 Date Distributed for Review 13-Oct-15

OG Review Completed: ☐ BWOG ☐ WOG ☐ CEOG ☐ BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Date:

Affected Technical Specifications

1.1	Definitions Change Description: Added definition of INSERVICE TESTING PROGRAM	
SR 3.0 Bases	SR Applicability	
SR 3.0.2 Bases	SR Applicability	
SR 3.0.3 Bases	SR Applicability	
LCO 3.0.6	LCO Applicability	
LCO 3.0.6 Bases	LCO Applicability	
Bkgnd 3.8.6 Bases	Battery Parameters	
LCO 3.8.6 Bases	Battery Parameters	
Action 3.8.6.C Bases	Battery Parameters	
SR 3.8.6.2 Bases	Battery Parameters	
Action 3.8.9.A Bases	Distribution Systems - Operating	
SR 3.4.10.1	Pressurizer Safety Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.4.10.1 Bases	Pressurizer Safety Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.4.14.1 Bases	RCS Pressure Isolation Valve (PIV) Leakage	NUREG(s)- 1430 1431 1432 Only
SR 3.5.2.4	ECCS - Operating	NUREG(s)- 1430 1431 1432 Only

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SR 3.5.2.4 Bases	ECCS - Operating	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.5	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
SR 3.6.3.5 Bases	Containment Isolation Valves	NUREG(s)- 1430 1431 1432 Only
LCO 3.7.1 Bases	MSSVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.1.1	MSSVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.1.1 Bases	MSSVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.2.1	MSIVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.2.1 Bases	MSIVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.3.1	MFSVs, MFCVs, and Associated SFCVs	NUREG(s)- 1430 1431 1432 Only
SR 3.7.3.1 Bases	MFSVs, MFCVs, and Associated SFCVs	NUREG(s)- 1430 1431 1432 Only
5.5.8	Inservice Testing Program Change Description: Deleted	NUREG(s)- 1430 1431 1432 Only
5.5.9	Steam Generator (SG) Program Change Description: Renamed 5.5.8	NUREG(s)- 1430 1431 1432 Only
5.5.10	Secondary Water Chemistry Program Change Description: Renamed 5.5.9	NUREG(s)- 1430 1431 1432 Only
5.5.11	Ventilation Filter Testing Program (VFTP) Change Description: Renamed 5.5.10	NUREG(s)- 1430 1431 1432 Only
5.5.12	Explosive Gas and Storage Tank Radioactivity Monitoring Program Change Description: Renamed 5.5.11	NUREG(s)- 1430 1431 1432 Only
5.5.13	Diesel Fuel Oil Testing Program Change Description: Renamed 5.5.12	NUREG(s)- 1430 1431 1432 Only
5.5.14	Technical Specifications (TS) Bases Control Program Change Description: Renamed 5.5.13 and revision to Paragraph d	NUREG(s)- 1430 1431 1432 Only
5.5.15	Safety Function Determination Program (SFDP) Change Description: Renamed 5.5.14	NUREG(s)- 1430 1431 1432 Only
5.5.16	Containment Leakage Rate Testing Program Change Description: Renamed 5.5.15	NUREG(s)- 1430 1431 1432 Only
5.5.17	Battery Monitoring and Maintenance Program Change Description: Renamed 5.5.16	NUREG(s)- 1430 1431 1432 Only
5.5.18	Control Room Envelope (CRE) Habitability Program Change Description: Renamed 5.5.17	NUREG(s)- 1430 1431 1432 Only

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5.5.19	Setpoint Control Program Change Description: Renamed 5.5.18	NUREG(s)- 1430 1431 1432 Only
5.5.20	Surveillance Frequency Control Program Change Description: Renamed 5.5.19	NUREG(s)- 1430 1431 1432 Only
Bkgnd 3.4.17 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1430 Only
LCO 3.4.17 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1430 Only
SR 3.4.17.1 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1430 Only
SR 3.4.17.2 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1430 Only
SR 3.5.2.5 Bases	ECCS - Operating	NUREG(s)- 1430 Only
SR 3.6.6.4	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
SR 3.6.6.4 Bases	Containment Spray and Cooling Systems	NUREG(s)- 1430 Only
SR 3.7.5.2	EFW System	NUREG(s)- 1430 Only
SR 3.7.5.2 Bases	EFW System	NUREG(s)- 1430 Only
SR 3.9.3.2 Bases	Containment Penetrations	NUREG(s)- 1430 Only
SR 3.4.14.1	RCS Pressure Isolation Valve (PIV) Leakage	NUREG(s)- 1431 1432 Only
SR 3.6.12.1	Vacuum Relief Valves (Atmospheric and Ice Condenser)	NUREG(s)- 1431 1432 Only
SR 3.6.12.1 Bases	Vacuum Relief Valves (Atmospheric and Ice Condenser)	NUREG(s)- 1431 1432 Only
SR 3.7.5.2	AFW System	NUREG(s)- 1431 1432 Only
SR 3.7.5.2 Bases	AFW System	NUREG(s)- 1431 1432 Only
SR 3.4.12.4	LTOP System	NUREG(s)- 1431 Only
SR 3.4.12.4 Bases	LTOP System	NUREG(s)- 1431 Only
SR 3.4.12.7	LTOP System	NUREG(s)- 1431 Only
SR 3.4.12.7 Bases	LTOP System	NUREG(s)- 1431 Only
Bkgnd 3.4.20 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1431 Only
LCO 3.4.20 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1431 Only
SR 3.4.20 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1431 Only
SR 3.4.20.2 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1431 Only
SR 3.6.3.6 Bases	Containment Isolation Valves	NUREG(s)- 1431 Only

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SR 3.6.6C.2	Containment Spray System (Ice Condenser)	NUREG(s)- 1431 Only
SR 3.6.6D.2	QS System (Subatmospheric)	NUREG(s)- 1431 Only
SR 3.6.6C.2 Bases	Containment Spray System (Ice Condenser)	NUREG(s)- 1431 Only
SR 3.6.6D.2 Bases	QS System (Subatmospheric)	NUREG(s)- 1431 Only
SR 3.6.6A.4	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
SR 3.6.6B.4	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
SR 3.6.6A.4 Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
SR 3.6.6B.4 Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1431 Only
SR 3.6.6E.5	RS System (Subatmospheric)	NUREG(s)- 1431 Only
SR 3.6.6E.5 Bases	RS System (Subatmospheric)	NUREG(s)- 1431 Only
SR 3.6.9.1 Bases	HMS (Atmospheric, Ice Condenser, and Dual)	NUREG(s)- 1431 Only
SR 3.9.4.2 Bases	Containment Penetrations	NUREG(s)- 1431 Only
Bkgnd 3.4.18 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1432 Only
LCO 3.4.18 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1432 Only
SR 3.4.18.1 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1432 Only
SR 3.4.18.2 Bases	Steam Generator (SG) Tube Integrity	NUREG(s)- 1432 Only
SR 3.5.2.5	ECCS - Operating	NUREG(s)- 1432 Only
SR 3.5.2.5 Bases	ECCS - Operating	NUREG(s)- 1432 Only
SR 3.5.2.8 Bases	ECCS - Operating	NUREG(s)- 1432 Only
SR 3.6.6B.5	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
SR 3.6.6A.5	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
SR 3.6.6A.5 Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
SR 3.6.6B.5 Bases	Containment Spray and Cooling Systems (Atmospheric and Dual)	NUREG(s)- 1432 Only
SR 3.6.7.4	Spray Additive System (Atmospheric and Dual)	NUREG(s)- 1432 Only

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SR 3.6.7.4 Bases	Spray Additive System (Atmospheric and Dual)	NUREG(s)- 1432 Only
SR 3.1.7.7	SLC System	NUREG(s)- 1433 1434 Only
SR 3.1.7.7 Bases	SLC System	NUREG(s)- 1433 1434 Only
SR 3.5.1.2 Bases	ECCS - Operating	NUREG(s)- 1433 1434 Only
SR 3.5.2.5	ECCS - Shutdown	NUREG(s)- 1433 1434 Only
SR 3.5.2.5 Bases	ECCS - Shutdown	NUREG(s)- 1433 1434 Only
SR 3.5.3.2 Bases	RCIC System	NUREG(s)- 1433 1434 Only
SR 3.5.3.4 Bases	RCIC System	NUREG(s)- 1433 1434 Only
5.5.7	Inservice Testing Program Change Description: Deleted	NUREG(s)- 1433 1434 Only
5.5.8	Ventilation Filter Testing Program (VFTP) Change Description: Renumbered 5.5.7	NUREG(s)- 1433 1434 Only
5.5.9	Explosive Gas and Storage Tank Radioactivity Monitoring Program Change Description: Renumbered 5.5.8	NUREG(s)- 1433 1434 Only
5.5.10	Diesel Fuel Oil Testing Program Change Description: Renumbered 5.5.9	NUREG(s)- 1433 1434 Only
5.5.11	Technical Specifications (TS) Bases Control Program Change Description: Renumbered 5.5.10	NUREG(s)- 1433 1434 Only
5.5.12	Safety Function Determination Program (SFDP) Change Description: Renumbered 5.5.11	NUREG(s)- 1433 1434 Only
5.5.13	Primary Containment Leakage Rate Testing Program Change Description: Renumbered 5.5.12	NUREG(s)- 1433 1434 Only
5.5.14	Battery Monitoring and Maintenance Program Change Description: Renumbered 5.5.13	NUREG(s)- 1433 1434 Only
5.5.15	Control Room Envelope (CRE) Habitability Program Change Description: Renumbered 5.5.14	NUREG(s)- 1433 1434 Only
5.5.16	Setpoint Control Program Change Description: Renumbered 5.5.15	NUREG(s)- 1433 1434 Only
5.5.17	Surveillance Frequency Control Program Change Description: Renumbered 5.5.16	NUREG(s)- 1433 1434 Only
SR 3.4.3.1	S/RVs	NUREG(s)- 1433 Only
SR 3.4.3.1 Bases	S/RVs	NUREG(s)- 1433 Only

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SR 3.4.5.1	RCS PIV Leakage	NUREG(s)- 1433 Only
SR 3.4.5.1 Bases	RCS PIV Leakage	NUREG(s)- 1433 Only
SR 3.5.1.6 Bases	ECCS - Operating	NUREG(s)- 1433 Only
SR 3.5.1.7	ECCS - Operating	NUREG(s)- 1433 Only
SR 3.5.1.7 Bases	ECCS - Operating	NUREG(s)- 1433 Only
SR 3.6.1.3.6	PCIVs	NUREG(s)- 1433 Only
SR 3.6.1.3.6 Bases	PCIVs	NUREG(s)- 1433 Only
SR 3.6.1.3.8	PCIVs	NUREG(s)- 1433 Only
SR 3.6.1.3.8 Bases	PCIVs	NUREG(s)- 1433 Only
SR 3.6.1.3.10 Bases	PCIVs	NUREG(s)- 1433 Only
SR 3.6.1.7.2 Bases	Reactor Building-to-Suppression Chamber Vacuum Breakers	NUREG(s)- 1433 Only
SR 3.6.1.8.2 Bases	Suppression Chamber-to-Drywell Vacuum Breakers	NUREG(s)- 1433 Only
SR 3.6.2.3.2	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
SR 3.6.2.3.2 Bases	RHR Suppression Pool Cooling	NUREG(s)- 1433 Only
SR 3.6.2.4.2	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
SR 3.6.2.4.2 Bases	RHR Suppression Pool Spray	NUREG(s)- 1433 Only
SR 3.6.3.1.1 Bases	Drywell Cooling System Fans	NUREG(s)- 1433 Only
SR 3.6.4.2.2	SCIVs	NUREG(s)- 1433 Only
SR 3.6.4.2.2 Bases	SCIVs	NUREG(s)- 1433 Only
SR 3.4.4.1	S/RVs	NUREG(s)- 1434 Only
SR 3.4.4.1 Bases	S/RVs	NUREG(s)- 1434 Only
SR 3.4.6.1	RCS PIV Leakage	NUREG(s)- 1434 Only
SR 3.4.6.1 Bases	RCS PIV Leakage	NUREG(s)- 1434 Only
SR 3.5.1.4	ECCS - Operating	NUREG(s)- 1434 Only
SR 3.5.1.4 Bases	ECCS - Operating	NUREG(s)- 1434 Only
SR 3.6.1.3.5	PCIVs	NUREG(s)- 1434 Only
SR 3.6.1.3.5 Bases	PCIVs	NUREG(s)- 1434 Only

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SR 3.6.1.3.7	PCIVs	NUREG(s)- 1434 Only
SR 3.6.1.3.7 Bases	PCIVs	NUREG(s)- 1434 Only
SR 3.6.1.7.2	RHR Containment Spray System	NUREG(s)- 1434 Only
SR 3.6.1.7.2 Bases	RHR Containment Spray System	NUREG(s)- 1434 Only
SR 3.6.2.3.2	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
SR 3.6.2.3.2 Bases	RHR Suppression Pool Cooling	NUREG(s)- 1434 Only
SR 3.6.3.2.1 Bases	Drywell Purge System	NUREG(s)- 1434 Only
SR 3.6.4.2.2	SCIVs	NUREG(s)- 1434 Only
SR 3.6.4.2.2 Bases	SCIVs	NUREG(s)- 1434 Only
SR 3.6.5.3.4	Drywell Isolation Valves	NUREG(s)- 1434 Only
SR 3.6.5.3.4 Bases	Drywell Isolation Valves	NUREG(s)- 1434 Only

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1. SUMMARY DESCRIPTION

On August 23, 2012, the NRC issued Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirement 3.0.2 and 3.0.3 to Administrative Controls Program Tests." The RIS stated that the NRC staff had determined that restructuring Technical Specifications (TS) chapters during the development of the Improved Standard Technical Specifications (ISTS) resulted in unintended consequences when Section 3.0, "Surveillance Requirement Applicability," provisions were made applicable to Section 5.0 TS. The NRC staff concluded that Surveillance Requirement (SR) 3.0.2 and SR 3.0.3 cannot be applied to TS 5.5 for tests that are not associated with a TS SR.

In order to provide time for licensees to address the NRC position, the NRC issued Enforcement Guidance Memorandum (EGM) 2012-001, "Dispositioning Noncompliance with Administrative Controls Technical Specifications Programmatic Requirements that Extend Test Frequencies and Allow Performance of Missed Tests," on February 24, 2012. The EGM states the NRC staff position that SR 3.0.2 and SR 3.0.3 cannot be applied to Inservice Tests. The Inservice Testing (IST) Program requirements, including the associated testing intervals, are provided in the American Society of Mechanical Engineers (ASME) Code for Operations and Maintenance of Nuclear Power Plants (OM Code), which licensees are required to follow by 10 CFR 50.55a(f), "Inservice testing requirements." The staff evaluation of IST requirements under 10 CFR 50.55a determined that, if a licensee finds that the requirements of the TS conflict with the requirements of 10 CFR 50.55a, then the licensee must amend their TS to comply with 10 CFR 50.55a. Also, with regard to the ASME OM Code and 10 CFR 50.55a, the OM Code, at the time, did not make available test allowances similar to either SR 3.0.2 or SR 3.0.3 under Title 10 of the Code of Federal Regulations (10 CFR), Part 50, paragraph 50.55a(f). Therefore, these allowances could not be applied to Inservice Tests. The EGM provided enforcement discretion to licensees to apply SR 3.0.2 to Inservice Tests and guidance on addressing missed Inservice Tests, pending revision to the ASME OM Code and the TS.

The EGM stated that the generic resolution of this issue will include a proposed Technical Specifications Task Force (TSTF) Traveler for revising the ISTS, and will include a model license amendment request, model Safety Evaluation, and model No Significant Hazards Consideration Determination. The TSTF Traveler will be made available using the NRC Consolidated Line Item Improvement Process (CLIIP) by issuance of a Notice of Availability (NOA) for the model, to allow timely processing of license amendments by the NRC. This Traveler was developed to facilitate generic resolution of this issue.

The proposed change requests a revision to the TS to eliminate the Chapter 5.0, "Administrative Controls," specification, "Inservice Testing Program." The ASME has made available a Code Case, OMN-20, "Inservice Test Frequency," which provides similar definitions and allowances as in the current TS IST Program. A new defined term, "Inservice Testing Program," is added to TS Section 1.1, "Definitions." Existing uses of the term "Inservice Testing Program" in the TS and TS Bases are capitalized to indicate it is now a defined term.

The SR 3.0.2 and SR 3.0.3 Bases are revised to clarify the application of these usage rules to testing required by TS Section 5.5, "Programs and Manuals," specifications. The SR 3.0.2 Bases are also revised to clarify the application of SR 3.0.2 to inservice tests. The regulation at Title

10 of the Code of Federal Regulations (10 CFR), Part 50.36, states, "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the technical specifications." A licensee may make changes to the TS Bases without prior NRC staff review and approval in accordance with the Technical Specifications Bases Control Program. Therefore, the Bases changes are provided for information and approval of the Bases is not requested.

A model application is included in the proposed change. The model may be used by licensees desiring to adopt this change following NRC approval of the Traveler.

The proposed TS and TS Bases changes are included as Enclosure 2.

2. DETAILED DESCRIPTION

2.1 Background

Title 10 of the Code of Federal Regulations, Part 50, Section 50.55a, paragraph (a), "Documents approved for incorporation by reference," references the approved documents required to be followed for systems and components of nuclear power reactors. 10 CFR 50.55a, paragraph (a)(1)(iv), references the ASME OM Code. 10 CFR 50.55a, paragraph (b)(6), "Conditions on Operation and Maintenance of Nuclear Power Plants Code Cases," allows licensees to apply the ASME Code Cases listed in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," without prior NRC approval subject to the conditions listed in 10 CFR 50.55a(b)(6), paragraphs (i) through (iii). 10 CFR 50.55a, paragraph (z), "Alternatives to codes and standards requirements," allows licensees to request the use of ASME Code Cases that are not referenced in the current version of Regulatory Guide 1.192.

The OM Code was developed and is maintained by the ASME OM Committee. The ASME OM Committee publishes a new edition of the OM Code every two years on even years. The latest editions and addenda of the OM Code that have been approved for use by the NRC are referenced in 10 CFR 50.55a(a). Note that the latest editions and addenda of the OM Code that have been incorporated by reference in 10 CFR 50.55a(a) are normally not the latest editions and addenda of the OM Code that have been approved and published by ASME. New approved or modified Code Cases are published every two years along with the new edition of the OM Code. Code Cases provide alternatives developed and approved by ASME or explain the intent of existing Code requirements.

The TS IST Program in Section 5.5, "Programs and Manuals," provides a table defining some of the IST frequencies and describes the relationship between the TS and the Inservice Testing requirements. The program states:

> 5.5.X Inservice Testing Program
>
> This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:

ASME OM Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,

c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

SR 3.0.2 states that an SR is considered met within its specified Frequency if the Surveillance is performed within 1.25 times the interval specified. SR 3.0.3 states that if a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater.

In January 2013, the ASME announced the availability of Code Case OMN-20, "Inservice Test Frequency." The Code Case states:

> *Inquiry*: What alternative(s) may be applied to the test frequencies for pumps and valves specified in ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and all earlier editions and addenda of ASME OM Code?
>
> *Reply*: It is the opinion of the [ASME OM] Committee that for the test frequencies for pumps and valves specified in ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and all earlier editions and addenda of ASME OM Code, the below requirements may be applied.
>
> ASME OM Division: 1 Section IST and earlier editions and addenda of ASME OM Code specify component test frequencies based either on elapsed time periods (e.g., quarterly,

2 years, etc.) or based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.).

a) Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in Section IST with a specified time period between tests as shown in the table below. The specified time period between tests may be reduced or extended as follows:

1) For periods specified as less than 2 years, the period may be extended by up to 25% for any given test.

2) For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

3) All periods specified may be reduced at the discretion of the owner (i.e., there is no minimum period requirement).

Period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified.

Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range) and other less than two year test frequencies not specified in the table below.

Period extensions may not be applied to the test frequency requirements specified in Subsection ISTD, *Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-water Reactor Nuclear Power Plants*, as Subsection ISTD contains its own rules for period extensions.

Frequency	Specified Time Period Between Tests
Quarterly (or every 3 months)	92 days
Semiannually (or every 6 months)	184 days
Annually (or every year)	366 days
x Years	x calendar years where ‘x’ is a whole number of years ≥ 2

b) Components whose test frequencies are based on the occurrence of plant conditions or events may not have their period between tests extended except as

allowed by ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and earlier editions and addenda of ASME OM Code.

The Code Case differs from the current TS requirements in the following aspects:

- The Code Case does not define the periods "Weekly," "Monthly," or "Every 9 months."
- The Code Case allows tests required to be performed at periods greater than 2 years to be extended up to 6 months. The ISTS does not allow test periods greater than 2 years to be extended.
- The Code Case does not address failure to perform an Inservice Test within its required period.
- The Code Case does not include the statement in the TS that the ASME OM Code may not supersede the requirements of any TS.

The proposed change eliminates the TS Inservice Testing Program. The TS contain Surveillances that require testing or test intervals in accordance with the Inservice Testing Program. The elimination of the TS Inservice Testing Program from Section 5.5 of the TS could result in uncertainty regarding the correct application of these Surveillance Requirements. Therefore, a new defined term, "Inservice Testing Program," is added to Section 1.1, "Definitions," in the Technical Specifications. It is defined as, "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)." Following the Note in Section 1.1 of the TS, the existing uses of the term "Inservice Testing Program" are capitalized throughout the TS and TS Bases to indicate it is a defined term.

The SR 3.0.2 Bases are revised to expand the existing discussion of frequencies specified in regulations to include inservice tests. At the November 21, 2013 TSTF / NRC public meeting, the TSTF and NRC agreed that revising the TS Section 5.5 specifications to no longer refer to SR 3.0.2 or SR 3.0.3 is not sufficiently beneficial to warrant the expenditure of industry and NRC resources, and should not be pursued. This decision was based on agreement that:

- The presentation has been used for 20 years with no significant misinterpretation (with the exception of the IST program requirements, which are addressed in this Traveler);
- The NRC and industry agree that the allowances are appropriate; and
- Any change would simply restate the existing allowances in a different way.

As an alternative, the TSTF agreed to revise TSTF-545 to include changes to the SR 3.0.2 and SR 3.0.3 Bases which describes the appropriate application of the usage rules to TS Section 5.5 testing requirements.

The NRC is currently pursing publication of OMN-20 in the regulations so that it may be used without plant-specific approval. Should the NRC approve this Traveler and a licensee desire to adopt the Traveler prior to NRC incorporation of OMN-20 into the regulations, the model

application in Enclosure 1 contains an optional request for a plant-specific alternative to the ASME O&M Code to utilize OMN-20.

2.2 Proposed Change

2.2.1 Changes to the Technical Specifications

The proposed change eliminates the Inservice Testing Program from TS Section 5.5, including the removal of the following:

a. Reference of ASME OM Code and applicable Addenda for Inservice Testing activities and frequencies applicable to the ASME OM Code and applicable Addenda,

b. Application of the provisions of SR 3.0.2 applicable to the required frequencies and to other normal and accelerated frequencies specified as 2 years or less in the Inservice Testing program for performing Inservice Testing activities,

c. Application of the provisions of SR 3.0.3 applicable to Inservice Testing activities, and

d. TS requirements that conflict with the requirements of 10 CFR 50.55a, i.e., nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

Subsequent programs are renumbered to reflect elimination of the program and references to the renumbered programs are revised. It is anticipated that plant-specific requests to adopt this Traveler will mark the Section 5.5 program deleted and will not renumber the subsequent programs.

A new defined term, "Inservice Testing Program," is added to TS Section 1.1, "Definitions." It states, "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)."

The existing uses of the term "Inservice Testing Program" are capitalized to indicate it is a defined term. The phrase "Inservice Testing Program" may appear in different locations in plant-specific TS. Revising this phrase to be capitalized wherever it may appear is within the scope of this proposed change.

2.2.2 Changes to the Technical Specifications Bases for SR 3.0.2 and SR 3.0.3

In order to address all aspects of RIS 2012-10 and EGM 2012-001, the SR 3.0.2 Bases discussion of frequencies specified in the regulation is expanded to discuss inservice tests. This is a proposed change to the ISTS and will not be included in plant-specific requests to adopt the Traveler. Licensees may adopt these clarifications under the Technical Specifications Bases Control Program.

Words in italics are added. Words that are struck-through are deleted.

> The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An e~~*E*xample*s* of where SR 3.0.2 does not apply ~~is in~~ *are* the Containment Leakage Rate

> Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a.* ~~This~~ *These* program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

The SR 3.0 Bases are modified to discuss the application of SR 3.0.2 and SR 3.0.3 to Section 5.5 testing requirements.

> SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*

The SR 3.0.2 Bases are modified to discuss the application of SR 3.0.2 to Section 5.5 testing requirements.

> *When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.*

The SR 3.0.3 Bases are modified to discuss the application of SR 3.0.3 to Section 5.5 testing requirements.

> *When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).*

3. TECHNICAL EVALUATION

3.1 Technical Evaluation of the Proposed Change to the Technical Specifications

The proposed change eliminates TS Section 5.5, "Programs and Manuals," "Inservice Testing Program." This removes the following:

a. Reference of ASME OM Code and applicable Addenda for Inservice Testing activities and frequencies applicable to the ASME OM Code and applicable Addenda,

b. Application of the provisions of SR 3.0.2 applicable to the required frequencies and to other normal and accelerated frequencies specified as 2 years or less in the Inservice Testing program for performing Inservice Testing activities,

c. Application of the provisions of SR 3.0.3 applicable to Inservice Testing activities, and

d. TS requirements that conflict with the requirements of 10 CFR 50.55a, i.e., nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

These changes are evaluated in the sub-sections below.

3.1.1 Removal of Reference of ASME OM Code and applicable Addenda for Inservice Testing activities and frequencies applicable to the ASME OM Code and applicable Addenda

The existing references to the IST Program are revised to reference a new TS Section 1.1 defined term, "Inservice Testing Program," which states:

> "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)."

Plant operation under the proposed alternative in OMN-20 and the proposed TS will differ from the current TS requirements in the following aspects:

<u>The Code Case does not define the periods "Weekly," "Monthly," or "Every 9 months."</u>

Unlike the existing TS IST Program, the OMN-20 Code Case does not define the periods "weekly," "monthly," or "every 9 months." As the ASME OM Committee specifies the pump and valve testing frequencies in the OM Code, we defer to that Committee regarding the need to define these testing periods in the Code Case or in the TS.

<u>The Code Case allows tests required to be performed at periods greater than 2 years to be extended up to 6 months. The ISTS does not allow test periods greater than 2 years to be extended.</u>

The ASME OM Committee determined that allowing a 6-month extension to testing periods greater than 2 years is appropriate. The 6-month extension will have minimal impact on component reliability considering that the most probable result of performing any inservice test is satisfactory verification of the test acceptance criteria. As such, pumps and valves will continue to be adequately assessed for operational readiness when tested in accordance with the requirements specified in 10 CFR 50.55a(f) with the frequency extensions allowed by Code Case OMN-20.

The proposed change to the TS eliminates the redundancy between the TS and 10 CFR 50.55a(f) and OMN-20 regarding IST.

3.1.2 Removal of Application of the provisions of SR 3.0.2 applicable to the required frequencies and to other normal and accelerated frequencies specified as 2 years or less in the Inservice Testing program for performing Inservice Testing activities

Inservice testing frequencies are specified in the ASME OM Code, as modified by OMN-20, and 10 CFR 50.55a(f) requires licensees to implement the ASME OM Code. The Technical Specifications cannot supersede regulations and, therefore, SR 3.0.2 may not be used to extend the testing frequencies specified in the ASME OM Code. The existing SR 3.0.2 Bases discussion regarding the inability of SR 3.0.2 to alter frequencies specified in regulations is expanded to discuss inservice testing. OMN-20 adds test scheduling flexibility to the ASME OM Code, so a reference of SR 3.0.2 is redundant and not needed.

Plant operation under the proposed alternative (OMN-20) and the proposed changes to the TS will have no significant effect on component reliability.

3.1.3 Removal of Application of the provisions of SR 3.0.3 applicable to Inservice Testing activities

The current TS allow SR 3.0.3 to be used when an Inservice Test is not performed within its required testing period. SR 3.0.3 states that if a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. RIS 2012-10 stated licensees cannot use TS 5.5.6 to apply SR 3.0.3 to an inservice test under 10 CFR 50.55a(f) that is not associated with a TS surveillance.

In EGM 2012-001, the NRC stated that failure to either perform or meet an inservice test required only by 10 CFR 50.55a(f) results in a nonconformance with the OM Code requirements and should be resolved, as the TS cannot take precedence over a regulation. The EGM stated failure to either perform or meet an inservice test should be resolved as discussed in RIS 2005-20, Revision 1. RIS 2005-20, Revision 1, announced the availability of NRC Inspection Manual Part 9900, Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded and Nonconforming Conditions Adverse to Quality or Safety" (herein referred to as the "OD Process")[1]. In other words, if it is discovered that an inservice test was not performed within the specified period, the effect on equipment Operability must be assessed.

The guidance in EGM 2012-001 is consistent with Section 6.2 of the OD Process, which states, "In some cases a licensee may discover a noncompliance with a regulation. The noncompliance with the regulation should be treated as a degraded or nonconforming condition, and the operability or functionality of affected SSCs assessed." Therefore, following adoption of the proposed Code Case and the proposed change to the TS, failure to perform an inservice test within the period specified in the OM Code as modified by Code Case OMN-20 will be treated as a degraded or nonconforming condition and the effect on the Operability of the affected components will be assessed. Should it be determined that the affected components are inoperable, the appropriate TS Actions will be taken.

The proposed change to delete the SR 3.0.3 allowance is considered more restrictive since the OM Code, applicable addenda, and Regulatory Guide 1.192 incorporated by reference in 10 CFR 50.55a(a) do not provide an equivalent allowance to generically delay performance of an inservice test due to discovery of a missed test. Although SR 3.0.3 will continue to apply to TS LCOs and associated surveillance requirements that reference the IST Program, the SR 3.0.3 allowance will not apply to non-TS inservice testing requirements. If a surveillance requirement with a frequency of "In accordance with the INSERVICE TESTING PROGRAM" is missed,

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[1] RIS 2005-20, which announced the availability of NRC Inspection Manual Part 9900, Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded and Nonconforming Conditions Adverse to Quality or Safety," has been superseded by Inspection Manual Chapter (IMC) 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety."

SR 3.0.3 may be used to defer declaring the LCO not met. However, the noncompliance with the ASME Code must be also be assessed for any effect on operability.

3.1.4 Removal of TS requirements that conflict with the requirements of 10 CFR 50.55a, i.e., nothing in the ASME OM Code shall be construed to supersede the requirements of any TS

The current TS IST Program, Paragraph d, states, "Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS." This statement has been in the ISTS since Revision 0 was issued in 1992, and in the pre-ISTS equivalent requirement (4.0.5) since 1978, or earlier.

EGM 2012-001 stated, "the staff evaluation of inservice testing requirements under 10 CFR 50.55a determined that, if a licensee finds that the requirements of TS conflict with the requirements of 10 CFR 50.55a, then the licensee must amend their TS to comply with 10 CFR 50.55a." The NRC position is that the statement in Paragraph d should be removed, and that change is incorporated in the proposed change.

3.2 Technical Evaluation of the Proposed Change to the Technical Specifications SR 3.0.2 and SR 3.0.3 Bases

The SR 3.0 Applicability specifications apply to Chapter 3 of the TS and apply to testing requirements in Chapter 5, "Administrative Controls," Section 5.5, "Programs and Manuals," only when explicitly stated in the Section 5.5 Specification.

The TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," (NRC Agencywide Documents Access and Management System (ADAMS) Accession Number ML12046A089), Section 2.1.1, "Technical Specifications Format," states that TS Chapter 5 requirements, such as 5.1.1 and 5.2.1, are referred to as "specifications."

The introductory paragraph of the Bases to SR 3.0, "SR Applicability," states, "SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated." To clarify that the SR 3.0 usage rules are applicable when invoked by a Section 5.5 testing requirement, the SR 3.0 introductory paragraph is revised to state,

> "SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification*."

The SR 3.0.2 Bases are revised to add the following after the third paragraph (i.e., as a separate paragraph before "As stated in SR 3.0.2,..."):

> *When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.*

Some Section 5.5 programs reference documents, such as Regulatory Guides, which contain testing intervals. Hence, the discussion of testing intervals incorporated by reference was included.

The SR 3.0.3 Bases are revised to add the following after the first paragraph:

> *When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).*

The changes to the SR 3.0 Bases are consistent with the historical application of SR 3.0 usage rules to Section 5.5 testing requirements and serve to explain their application in a readily accessible location.

In order to facilitate operator understanding of the revised TS requirements related to the IST Program, the existing SR 3.0.2 discussion of Frequencies specified in the regulations is expanded to address ITS program testing intervals:

> The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An example~~ *Examples* of where SR 3.0.2 does not apply *are* ~~is in~~ the [Primary] Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the IST of pumps and valves in accordance with applicable ASME OM Code as required by 10 CFR 50.55a*. *These* ~~This~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot, in and of themselves, extend a test interval specified in the regulations *directly or by reference*.

4. REGULATORY EVALUATION OF THE PROPOSED TS CHANGE

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.55a(a), "Documents approved for incorporation by reference," references the approved standards required to be followed for systems and components of nuclear power reactors. 10 CFR 50.55a, paragraph (a)(1)(iv), references the ASME OM Code. 10 CFR 50.55a, paragraph (b)(6), "Conditions on Operation and Maintenance of Nuclear Power Plants Code Cases," allows licensees to apply the ASME Code Cases listed in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," without prior NRC approval subject to the conditions listed in 10 CFR 50.55a(b)(6), paragraphs (i) through (iii). 10 CFR 50.55a, paragraph (z) allows licensees to request the use of ASME Code Cases that are

not referenced in the current version of Regulatory Guide 1.192. The use of the approved ASME OM Code Case OMN-20 is consistent with these regulations.

10 CFR 50.36(c)(5), "Administrative controls," states, "Administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner. Each licensee shall submit any reports to the Commission pursuant to approved technical specifications as specified in § 50.4." The proposed change to the TS Inservice Testing Program does not affect compliance with this requirement.

Therefore, the proposed change to the TS does not affect plant compliance with these regulations.

4.2 No Significant Hazards Consideration Analysis

The Technical Specification Task Force (TSTF) has evaluated the proposed change to the Technical Specifications (TS) against the criteria of 10 CFR 50.92(c) to determine if any significant hazards consideration is involved. The TSTF has concluded that the proposed change does not involve a significant hazards consideration. The following is a discussion of how each of the 10 CFR 50.92(c) criteria is satisfied.

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change revises TS Chapter 5, "Administrative Controls," Section 5.5, "Programs and Manuals," by eliminating the "Inservice Testing Program" specification. Most requirements in the Inservice Testing Program are removed, as they are duplicative of requirements in the ASME OM Code, as clarified by Code Case OMN-20, "Inservice Test Frequency." The remaining requirements in the Section 5.5 IST Program are eliminated because the NRC has determined their inclusion in the TS is contrary to regulations. A new defined term, "Inservice Testing Program," is added to the TS, which references the requirements of 10 CFR 50.55a(f).

   Performance of inservice testing is not an initiator to any accident previously evaluated. As a result, the probability of occurrence of an accident is not significantly affected by the proposed change. Inservice test frequencies under Code Case OMN-20 are equivalent to the current testing period allowed by the TS with the exception that testing frequencies greater than 2 years may be extended by up to 6 months to facilitate test scheduling and consideration of plant operating conditions that may not be suitable for performance of the required testing. The testing frequency extension will not affect the ability of the components to mitigate any accident previously evaluated as the components are required to be operable during the testing period extension. Performance of inservice tests utilizing the allowances in OMN-20 will not significantly affect the reliability of the tested components. As a result, the availability of the affected

components, as well as their ability to mitigate the consequences of accidents previously evaluated, is not affected.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No

The proposed change does not alter the design or configuration of the plant. The proposed change does not involve a physical alteration of the plant; no new or different kind of equipment will be installed. The proposed change does not alter the types of inservice testing performed. In most cases, the frequency of inservice testing is unchanged. However, the frequency of testing would not result in a new or different kind of accident from any previously evaluated since the testing methods are not altered.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change eliminates some requirements from the TS in lieu of requirements in the ASME Code, as modified by use of Code Case OMN-20. Compliance with the ASME Code is required by 10 CFR 50.55a. The proposed change also allows inservice tests with frequencies greater than 2 years to be extended by 6 months to facilitate test scheduling and consideration of plant operating conditions that may not be suitable for performance of the required testing. The testing frequency extension will not affect the ability of the components to respond to an accident as the components are required to be operable during the testing period extension. The proposed change will eliminate the existing TS SR 3.0.3 allowance to defer performance of missed inservice tests up to the duration of the specified testing frequency, and instead will require an assessment of the missed test on equipment operability. This assessment will consider the effect on a margin of safety (equipment operability). Should the component be inoperable, the Technical Specifications provide actions to ensure that the margin of safety is protected. The proposed change also eliminates a statement that nothing in the ASME Code should be construed to supersede the requirements of any TS. The NRC has determined that statement to be incorrect. However, elimination of the statement will have no effect on plant operation or safety.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the TSTF concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION OF THE PROPOSED TS CHANGE

A review has determined that the proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

6. REFERENCES

1. Regulatory Issue Summary 2012-10, "NRC Staff Position on Applying Surveillance Requirement 3.0.2 and 3.0.3 to Administrative Controls Program Tests," dated August 23, 2012. (ADAMS Accession Number ML12079A393.)

2. Enforcement Guidance Memorandum 2012-001, "Dispositioning Noncompliance with Administrative Controls Technical Specifications Programmatic Requirements that Extend Test Frequencies and Allow Performance of Missed Tests," dated February 24, 2012. (ADAMS Accession Number ML11258A243.)

3. American Society of Mechanical Engineers Code Case OMN-20, "Inservice Test Frequency," issued January 2013.

4. NRC Inspection Manual Part 9900, Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded and Nonconforming Conditions Adverse to Quality or Safety," Revision 1, dated April 16, 2008 (ADAMS Accession Number ML073440103).

5. NRC Inspection Manual Chapter (IMC) 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety," dated January 31, 2014.

6. Regulatory Guide 1.192, Revision 1, "Operation and Maintenance Code Case Acceptability, ASME OM Code," August 2014. (ADAMS Accession Number ML13340A034).

7. TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications."

Enclosure 1
Model Application

NOTE: Discussion of adopting an alternative to the ASME Code is in braces ({}). If OMN-20 has been previously adopted by a licensee, or if OMN-20 has been incorporated into the regulations such that a request for alternative is not required, the information in braces should be removed.

[DATE]

10 CFR 50.90
{10 CFR 50.55a}

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

DOCKET NO. PLANT NAME
50-[xxx]

SUBJECT: Application To Revise Technical Specifications to Adopt TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," {and to Request an Alternative to the ASME Code}

Pursuant to 10 CFR 50.90, [LICENSEE] is submitting a request for an amendment to the Technical Specifications (TS) for [PLANT NAME, UNIT NOS.]. The proposed change revises the Technical Specifications (TS) to eliminate the Section 5.5, "Inservice Test Program." A new defined term, "Inservice Testing Program," is added to the TS Definitions section. This request is consistent with TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing."

{Pursuant to 10 CFR 50.55a(z), the application also proposes an alternative to the testing frequencies in the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code, by adoption of approved Code Case OMN-20, "Inservice Test Frequency," for the current 10 year Inservice Testing (IST) interval.}

Attachment 1 provides a description and assessment of the proposed TS changes.
Attachment 2 provides the existing TS pages marked up to show the proposed changes.
Attachment 3 provides revised (clean) TS pages.
Attachment 4 provides TS Bases pages marked up to show the associated TS Bases changes and is provided for information only. {Preparer's Note: Do not include the Bases changes to SR 3.0.2 and SR 3.0.3 as these are not discussed in the NRC's model Safety Evaluation.}
{Attachment 5 provides the request for an alternative to the ASME Code.}

Approval of the proposed amendment {and relief request} is requested by [date]. Once approved, the amendment shall be implemented within [xx] days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated [STATE] Official.

[In accordance with 10 CFR 50.30(b), a license amendment request must be executed in a signed original under oath or affirmation. This can be accomplished by attaching a notarized affidavit confirming the signature authority of the signatory, or by including the following statement in the cover letter: "I declare under penalty of perjury that the foregoing is true and correct. Executed on (date)." The alternative statement is pursuant to 28 USC 1746 and does not require notarization.]

If you should have any questions regarding this submittal, please contact [NAME, TELEPHONE NUMBER].

Sincerely,

[Name, Title]

Attachments:
1. Description and Assessment of Technical Specifications Changes
2. Proposed Technical Specification Changes (Mark-Up)
3. Revised Technical Specification Pages
4. Proposed Technical Specification Bases Changes (Mark-Up) – Information Only

{5. Description and Assessment of the Proposed Alternative to the ASME Code}

Note: Attachments 2, 3 and 4 are not included in the model application.

cc: NRC Project Manager
NRC Regional Office
NRC Resident Inspector
State Contact

ATTACHMENT 1

DESCRIPTION AND ASSESSMENT OF TECHNICAL SPECIFICATIONS CHANGES

1.0 DESCRIPTION

The proposed change eliminates the Technical Specifications (TS), Section 5.5, "Inservice Test (IST) Program," to remove requirements duplicated in American Society of Mechanical Engineers (ASME) Code for Operations and Maintenance of Nuclear Power Plants (OM Code), Case OMN-20, "Inservice Test Frequency." A new defined term, "Inservice Testing Program," is added to TS Section 1.1, "Definitions. The proposed change to the TS is consistent with TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing."

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

[LICENSEE] has reviewed the model safety evaluation provided [in the Federal Register Notice of Availability dated [DATE] / to the Technical Specifications Task Force in a letter dated [DATE] (NRC ADAMS Accession No. XXXXXXXX)]. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-545. [LICENSEE] concluded that the justifications presented in TSTF-545, and the model safety evaluation prepared by the NRC staff are applicable to [PLANT, UNIT NOS.] and justify this amendment for the incorporation of the changes to the [PLANT] TS.

[PLANT] Unit [X] was issued a construction permit on [DATE] and the provisions of 10 CFR 50.55a(f)([1, 2, or 3]) are applicable. {Repeat this sentence for each unit included in the amendment request.}

2.2 Variations

[LICENSEE is not proposing any variations from the TS changes described in the TSTF-545 or the applicable parts of the NRC staff's model safety evaluation dated [DATE].] [LICENSEE is proposing the following variations from the TS changes described in the TSTF-545 or the applicable parts of the NRC staff's model safety evaluation dated [DATE]. These variations do not affect the applicability of TSTF-545 or the NRC staff's model safety evaluation to the proposed license amendment.]

[The [PLANT] TS utilize different [numbering][and][titles] than the Standard Technical Specifications on which TSTF-545 was based. Specifically, [describe differences between the plant-specific TS numbering and/or titles and the TSTF-545 numbering and titles.] These differences are administrative and do not affect the applicability of TSTF-545 to the [PLANT] TS.]

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

[LICENSEE] requests adoption of the Technical Specification (TS) changes described in TSTF-545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," which is an approved change to the Improved Standard Technical Specifications (ISTS), into the [PLANT NAME, UNIT NOS] TS. The proposed change revises the TS Chapter 5, "Administrative Controls," Section 5.5, "Programs and Manuals," to delete the "Inservice Testing (IST) Program" specification. Requirements in the IST Program are removed, as they are duplicative of requirements in the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) Code, as clarified by Code Case OMN-20, "Inservice Test Frequency." Other requirements in Section 5.5 are eliminated because the Nuclear Regulatory Commission (NRC) has determined their appearance in the TS is contrary to regulations. A new defined term, "Inservice Testing Program," is added, which references the requirements of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, paragraph 50.55a(f). [LICENSEE] has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change revises TS Chapter 5, "Administrative Controls," Section 5.5, "Programs and Manuals," by eliminating the "Inservice Testing Program" specification. Most requirements in the Inservice Testing Program are removed, as they are duplicative of requirements in the ASME OM Code, as clarified by Code Case OMN-20, "Inservice Test Frequency." The remaining requirements in the Section 5.5 IST Program are eliminated because the NRC has determined their inclusion in the TS is contrary to regulations. A new defined term, "Inservice Testing Program," is added to the TS, which references the requirements of 10 CFR 50.55a(f).

   Performance of inservice testing is not an initiator to any accident previously evaluated. As a result, the probability of occurrence of an accident is not significantly affected by the proposed change. Inservice test frequencies under Code Case OMN-20 are equivalent to the current testing period allowed by the TS with the exception that testing frequencies greater than 2 years may be extended by up to 6 months to facilitate test scheduling and consideration of plant operating conditions that may not be suitable for performance of the required testing. The testing frequency extension will not affect the ability of the components to mitigate any accident previously evaluated as the components are required to be operable during the testing period extension. Performance of inservice tests utilizing the allowances in OMN-20 will not significantly affect the reliability of the tested components. As a result, the availability of the affected components, as well as their ability to mitigate the consequences of accidents previously evaluated, is not affected.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No

The proposed change does not alter the design or configuration of the plant. The proposed change does not involve a physical alteration of the plant; no new or different kind of equipment will be installed. The proposed change does not alter the types of inservice testing performed. In most cases, the frequency of inservice testing is unchanged. However, the frequency of testing would not result in a new or different kind of accident from any previously evaluated since the testing methods are not altered.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change eliminates some requirements from the TS in lieu of requirements in the ASME Code, as modified by use of Code Case OMN-20. Compliance with the ASME Code is required by 10 CFR 50.55a. The proposed change also allows inservice tests with frequencies greater than 2 years to be extended by 6 months to facilitate test scheduling and consideration of plant operating conditions that may not be suitable for performance of the required testing. The testing frequency extension will not affect the ability of the components to respond to an accident as the components are required to be operable during the testing period extension. The proposed change will eliminate the existing TS SR 3.0.3 allowance to defer performance of missed inservice tests up to the duration of the specified testing frequency, and instead will require an assessment of the missed test on equipment operability. This assessment will consider the effect on a margin of safety (equipment operability). Should the component be inoperable, the Technical Specifications provide actions to ensure that the margin of safety is protected. The proposed change also eliminates a statement that nothing in the ASME Code should be construed to supersede the requirements of any TS. The NRC has determined that statement to be incorrect. However, elimination of the statement will have no effect on plant operation or safety.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, [LICENSEE] concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.0 ENVIRONMENTAL EVALUATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

Note: Attachments 2, 3 and 4 are not included in the model application.

NOTE: This attachment is not required if OMN-20 has been previously adopted by a licensee, or if OMN-20 has been incorporated into the regulations such that a request for alternative is not required.

{ **ATTACHMENT 4**

DESCRIPTION AND ASSESSMENT OF THE PROPOSED ALTERNATIVE TO THE ASME CODE

Request in Accordance with 10 CFR 50.55a(z)(2)

Alternative Due To Hardship Without a Compensating Increase in Quality and Safety

1.0 DESCRIPTION

The request is to adopt a proposed alternative to the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code by adoption of approved Code Case OMN-20, "Inservice Test Frequency."

2.0 ASSESSMENT

Technical Evaluation of the Proposed Alternative to the OM Code

Section IST of Division 1 of the OM Code, which is incorporated by reference in 10 CFR 50.55a(a), specifies component test frequencies based either on elapsed time periods (e.g., quarterly, 2 years) or on the occurrence of a plant condition or event (e.g., cold shutdown, refueling outage).

ASME Code Case OMN-20, "Inservice Test Frequency," has been approved for use by the ASME OM committee as an alternative to the test frequencies for pumps and valves specified in ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda, and all earlier editions and addenda of ASME OM Code.

Code Case OMN-20 is not referenced in the latest revision of Regulatory Guide 1.192 (August 2014) as an acceptable OM Code Case to comply with 10 CFR 50.55a(f) requirements as allowed by 10 CFR 50.55a(b)(6). The proposed alternative is to use Code Case OMN-20 to extend or reduce the IST frequency requirements for the [XX] 10 year IST interval or until OMN-20 is incorporated into the next revision of Regulatory Guide 1.192.

ASME Code Components Affected

The Code Case applies to pumps and valves specified in ASME OM Division: 1 Section IST 2009 Edition through OMa-2011 Addenda and all earlier editions and addenda of ASME OM Code. Frequency extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range) as specified in OMN-20.

For pumps and valves with test periods of 2 years of less, the test frequency allowed by OMN-20 and the current TS Inservice Testing Program (as modified by SR 3.0.2 and EGM 2012-001) are the same. For pumps and valves with test frequencies greater than 2 years, OMN-20 allows the

test frequency to be extended by 6 months. The current TS Inservice Testing Program does not allow extension of test frequencies that are greater than 2 years.

Applicable Code Edition and Addenda

ASME Code Case OMN-20 applies to ASME OM Division: 1 Section IST 2009 Edition through OMa-2011Addenda and all earlier editions and addenda of ASME OM Code.

The [PLANT] Code Edition and Addenda that are applicable to the program interval are [Provide the plant-specific Code Edition and Addenda that are applicable to the program interval for the request.] The [PLANT] current interval ends [DATE].

Applicable Code Requirement

This request is made in accordance with 10 CFR 50.55a(z)(2), and proposes an alternative to the requirements of 10 CFR 50.55a(f), which requires pumps and valves to meet the test requirements set forth in specific documents incorporated by reference in 10 CFR 50.55a(a). ASME Code Case OMN-20 applies to Division 1, Section IST of the ASME OM Code and associated addenda incorporated by reference in 10 CFR 50.55a(a).

Reason for Request

The IST Program controls specified in Section 5.5 of TS provide: a) a table specifying certain IST frequencies; b) an allowance to apply SR 3.0.2 to inservice tests required by the OM Code and with frequencies of two years or less; c) an allowance to apply SR 3.0.3 to inservice tests required by the OM Code; and d) a statement that, "Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS." In Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirement 3.0.2 and 3.0.3 to Administrative Controls Program Tests," and Enforcement Guidance Memorandum (EGM) 2012-001, "Dispositioning Noncompliance with Administrative Controls Technical Specifications Programmatic Requirements that Extend Test Frequencies and Allow Performance of Missed Tests," the NRC stated that items b, c, and d of the TS IST Program were inappropriately added to the TS and may not be applied (although the EGM allows licensees to continue to apply those paragraphs pending a generic resolution of the issue).

In RIS 2012-10 and EGM 2012-001, the NRC stated that the current TS allowance to apply SR 3.0.2 and SR 3.0.3 to the Inservice Testing Program would no longer be permitted. In response, OMN-20, which provides allowances similar to SR 3.0.2, was approved and is proposed to be used as an alternative to the test periods specified in the OM code. The proposed alternative substitutes an approved Code Case for the existing TS requirements that the NRC has determined are not legally acceptable as a TS allowance. This proposed alternative provides an equivalent level of safety as the existing TS allowance, while maintaining consistency with 10 CFR 50.55a and the ASME OM Code.

Proposed Alternative and Basis for Use

The proposed alternative is OMN-20, "Inservice Test Frequency," which addresses testing periods for pumps and valves specified in ASME OM Division 1, Section IST, 2009 Edition through OMa-2011 Addenda, and all earlier editions and addenda of ASME OM Code.

This request is being made in accordance with 10 CFR 50.55a(z)(2), in that the existing requirements are considered a hardship without a compensating increase in quality and safety for the following reasons:

1) For IST testing periods up to and including 2 years, Code Case OMN-20 provides an allowance to extend the IST testing periods by up to 25%. The period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified. The test period extension and the statements regarding the appropriate use of the period extension are equivalent to the existing TS SR 3.0.2 allowance and the statements regarding its use in the SR 3.0.2 Bases. Use of the SR 3.0.2 period extension has been a practice in the nuclear industry for many decades and elimination of this allowance would place a hardship on [LICENSEE] when there is no evidence that the period extensions affect component reliability.

2) For IST testing periods of greater than 2 years, OMN-20 allows an extension of up to 6 months. The ASME OM Committee determined that such an extension is appropriate. The 6-month extension will have a minimal impact on component reliability considering that the most probable result of performing any inservice test is satisfactory verification of the test acceptance criteria. As such, pumps and valves will continue to be adequately assessed for operational readiness when tested in accordance with the requirements specified in 10 CFR 50.55a(f) with the frequency extensions allowed by Code Case OMN-20.

3) As stated in EGM 2012-001, if an Inservice Test is not performed within its frequency, SR 3.0.3 will not be applied. The effect of a missed Inservice Test on the Operability of TS equipment will be assessed under the licensee's Operability Determination Program.

Duration of Proposed Alternative

The proposed alternative is requested for the current 10 year IST interval or until Code Case OMN-20 is incorporated into a future revision of Regulatory Guide 1.192, referenced by a future revision of 10 CFR 50.55a, whichever occurs first.

Precedents

The NRC approved the use of OMN-20 for North Anna on March 27, 2014 (NRC ADAMS Accession Number ML14084A407). }

Enclosure 2
Traveler Technical Specification Markup

Enclosure 2
Traveler Technical Specification Markup

1.1 Definitions

EMERGENCY FEEDWATER INITIATION AND CONTROL (EFIC) RESPONSE TIME	The EFIC RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its EFIC actuation setpoint at the channel sensor until the emergency feedwater equipment is capable of performing its function (i.e., valves travel to their required positions, pumps discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
INSERVICE TESTING PROGRAM	*The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).*
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except RCP seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank, 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, or 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE), b. <u>Unidentified LEAKAGE</u>

3.0 LCO Applicability

LCO 3.0.4 (continued)

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs [3.1.9, 3.1.10, 3.1.11, and 3.4.19] allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*. Following testing, lift settings shall be within ± 1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the DHR flow path when in the DHR mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. ----------	
	Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ [2215] psia and ≤ [2255] psia.	[In accordance with the *INSERVICE TESTING PROGRAM* I~~nservice Testing Program~~ OR [[18] months] OR In accordance with the Surveillance Frequency Control Program] AND Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	[Verify the following valves are in the listed position with power to the valve operator removed. Valve Number / Position / Function [ ] / [ ] / [ ] [ ] / [ ] / [ ] [ ] / [ ] / [ ]	[12 hours OR In accordance with the Surveillance Frequency Control Program]]
SR 3.5.2.2	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.3	[Verify ECCS piping is full of water.	[31 days OR In accordance with the Surveillance Frequency Control Program]]
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.3.4	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ <u>OR</u> [92 days] <u>OR</u> In accordance with the Surveillance

	Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	Operate each [required] containment cooling train fan unit for ≥ 15 minutes.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6.3	Verify each [required] containment cooling train cooling water flow rate is ≥ [1780] gpm.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each required MSSV lift setpoint per Table 3.7.1-1 in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Following testing, lift settings shall be within ± 1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify isolation time of each MSIV is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable for one or more flow paths.	D.1 Isolate affected flow path.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [AND E.2 Be in MODE 4.	6 hours 12 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each [MFSV], [MFCV], and [SFCV] is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.3.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each [MFSV], [MFCV], and [SFCV] actuates to the isolation position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required EFW train inoperable in MODE 4.	F.1 Initiate action to restore EFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each EFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pumps, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven EFW pumps, until [24] hours after reaching [800] psig in the steam generators. ---------- Verify the developed head of each EFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

5.5 Programs and Manuals

5.5.6 Pre-Stressed Concrete Containment Tendon Surveillance Program (continued)

accordance with Section XI, Subsection IWL of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR50.55a, except where an alternative, exemption, or relief has been authorized by the NRC.

The provisions of SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.]

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendation of Regulatory position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

~~5.5.8 Inservice Testing Program~~

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:~~

~~a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Codes) and applicable Addenda as follows:~~

~~ASME OM Code and applicable Addenda terminology for inservice testing activities~~	~~Required Frequencies for performing inservice testing activities~~
~~Weekly~~	~~At least once per 7 days~~
~~Monthly~~	~~At least once per 31 days~~
~~Quarterly or every 3 months~~	~~At least once per 92 days~~
~~Semiannually or every 6 months~~	~~At least once per 184 days~~
~~Every 9 months~~	~~At least once per 276 days~~
~~Yearly or annually~~	~~At least once per 366 days~~
~~Biennially or every 2 years~~	~~At least once per 731 days~~

~~b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,~~

~~c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and~~

~~d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.~~

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following provisions:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging [or repair] of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected, plugged, [or repaired] to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

   1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

   2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed [1 gpm] per SG [, except for specific types of degradation at specific locations as described in paragraph c of the Steam Generator Program].

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding [40%] of the nominal tube wall thickness shall be plugged [or repaired].

----------REVIEWER'S NOTE----------
Alternate tube repair criteria currently permitted by plant technical specifications are listed here. The description of these alternate tube repair criteria should be equivalent to the descriptions in current technical specifications and should also include any allowed accident induced leakage rates for specific types of degradation at specific locations associated with tube repair criteria.

[The following alternate tube repair criteria may be applied as an alternative to the 40% depth based criteria:

1. . . .]

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment of degradation shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

----------REVIEWER'S NOTE----------
Plants are to include the appropriate Frequency (e.g., select the appropriate Item 2.) for their SG design. The first Item 2 is applicable to SGs with Alloy 600 mill annealed tubing. The second Item 2 is applicable to SGs with Alloy 600 thermally treated tubing. The third Item 2 is applicable to SGs with Alloy 690 thermally treated tubing.
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1. Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement.

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

[2. Inspect 100% of the tubes at sequential periods of 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. No SG shall operate for more than 24 effective full power months or one refueling outage (whichever is less) without being inspected.]

[2. Inspect 100% of the tubes at sequential periods of 120, 90, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 48 effective full power months or two refueling outages (whichever is less) without being inspected.]

[2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.]

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

[f. Provisions for SG tube repair methods. Steam generator tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

----------REVIEWER'S NOTE----------
Tube repair methods currently permitted by plant technical specifications are to be listed here. The description of these tube repair methods should be equivalent to the descriptions in current technical specifications. If there are no approved tube repair methods, this section should not be used.
---

1. . . .]

5.5.~~10~~9 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables,

b. Identification of the procedures used to measure the values of the critical variables,

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage,

d. Procedures for the recording and management of data,

e. Procedures defining corrective actions for all off control point chemistry conditions, and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.~~10~~11 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (continued)

ESF Ventilation System	Flowrate
[ ]	[ ]

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below.

ESF Ventilation System	Penetration	RH	Face Velocity
[ ]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

----------REVIEWER'S NOTE----------
The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiently * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

Safety factor ≥ 2 for systems with or without humidity control.

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (continued)

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst-case design-basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

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d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 10%] when tested in accordance with [ASME N510-1989].

ESF Ventilation System	Wattage]
[ ]	[ ]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.*11*~~12~~ [Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

5.5 Programs and Manuals

5.5.*11*~~12~~ Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion),

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.]

5.5.*11*~~13~~ Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits,

5.5 Programs and Manuals

5.5.*12*~~13~~ Diesel Fuel Oil Testing Program (continued)

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies.

5.5.*13*~~14~~ Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of 5.5.1*3.4*~~3~~b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.*14*~~15~~ Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

5.5 Programs and Manuals

5.5.*14*~~15~~ Safety Function Determination Program (continued)

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable, or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable, or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.*15*~~16~~ Containment Leakage Rate Testing Program

[OPTION A]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.

b. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

c. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and < 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

d. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION B]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C][Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60\ L_a$ for the Type B and C tests and [$< 0.75\ L_a$ for Option A Type A tests] [$\leq 0.75\ L_a$ for Option B Type A tests].

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is $\leq$ [$0.05\ L_a$] when tested at $\geq P_a$.

b) For each door, leakage rate is $\leq$ [$0.01\ L_a$] when pressurized to [$\geq$ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J

5.5 Programs and Manuals

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program

----------REVIEWER'S NOTE----------
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

   1. Battery temperature correction may be performed before or after conducting discharge tests.

   2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

   3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

   4 In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

   5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration", the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

   1. Actions to restore battery cells with float voltage < [2.13] V;

5.5 Programs and Manuals

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program (continued)

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Air Cleanup System (CREACS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

   [The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. ;and]

5.5 Programs and Manuals

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program (continued)

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.*18*~~19~~ [Setpoint Control Program

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

a. The program shall list the Functions in the following specifications to which it applies:

1. LCO 3.3.1, “Reactor Protection System (RPS) Instrumentation;”
2. LCO 3.3.3, “Reactor Protection System (RPS) - Reactor Trip Module (RTM);”
3. LCO 3.3.4, “CONTROL ROD Drive (CRD) Trip Devices;”
4. LCO 3.3.5, “Engineered Safety Feature Actuation System (ESFAS) Instrumentation;”
5. LCO 3.3.8, “Emergency Diesel Generator (EDG) Loss of Power Start (LOPS);”
6. LCO 3.3.9, “Source Range Neutron Flux;”
7. LCO 3.3.10, “Intermediate Range Neutron Flux;”

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

8. LCO 3.3.11, “Emergency Feedwater Initiation and Control (EFIC) System Instrumentation;”
9. LCO 3.3.15, “Reactor Building (RB) Purge Isolation - High Radiation;”
10. LCO 3.3.16, “Control Room Isolation - High Radiation.”

b. The program shall require the [Limiting Trip Setpoint (LTSP)], [Nominal Trip Setpoint (NTSP)], Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the [LTSP], [NTSP], AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

---------- Reviewer's Note ----------
List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.
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1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

d. ----------REVIEWER’S NOTE----------
A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Protection System and Engineered Safety Feature Actuation System specifications unless one or more of the following exclusions apply:

1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.

2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The [LTSP] of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS and CHANNEL FUNCTIONAL TESTS that verify the [LTSP or NTSP].

1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified [LTSP or NTSP].

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified [LTSP or NTSP] by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [LTSP or NTSP] at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the [LTSP or NTSP] provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5 Programs and Manuals

5.5.*19*~~20~~ [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

BASES

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for supported systems that have a support system LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the unit is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*
SR 3.0.1	SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps. Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when: a. The systems or components are known to be inoperable, although still meeting the SRs or b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances. Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a Special Test Exception (STE) LCO are only applicable when the STE LCO is used as an allowable exception to the requirements of a Specification. Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition.

BASES

SR 3.0.1 (continued)

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Emergency feedwater (EFW) pump turbine maintenance during refueling that requires testing at steam pressures > 800 psi. However, if other appropriate testing is satisfactorily completed, the EFW System can be considered OPERABLE. This allows startup and other necessary testing to proceed until the plant reaches the steam pressure required to perform the EFW pump testing.

b. High pressure injection (HPI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per ..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

BASES

SR 3.0.2 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs.

The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An e~~*E*xample*s* of where SR 3.0.2 does not apply *are* ~~is in~~ the Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a.* The*se*~~is~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance

with SR 3.0.2, and not at the time that the specified Frequency was not met.

BASES

SR 3.0.3 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).

This delay period provides an adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through

BASES

LCO (continued)

condition. Only one valve at a time will be removed from service for testing. The [36] hour exception is based on an 18 hour outage time for each of the two valves. The 18 hour period is derived from operating experience that hot testing can be performed in this timeframe.

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes. The Completion Time of 15 minutes reflects the importance of maintaining the RCS overpressure protection system. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the RCPB.

B.1 and B.2

If the Required Action cannot be met within the required Completion Time or if both pressurizer safety valves are inoperable, the plant must be brought to a MODE in which the requirement does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 with any RCS cold leg temperature ≤ [283]°F within 12 hours. The 6 hours allowed is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. Similarly, the [24] hours allowed is reasonable, based on operating experience, to reach MODE 4 without challenging plant systems. With any RCS cold leg temperature at or below [283]°F, overpressure protection is provided by LTOP. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer insurges, and thereby removes the need for overpressure protection by two pressurizer safety valves.

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 1), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)

For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

Testing is to be performed every 9 months, but may be extended, if the plant does not go into MODE 5 for at least 7 days.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM*~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of [18] months or the reference to the Surveillance Frequency Control Program should be used.

[The [18 month] Frequency is consistent with 10 CFR 50.55a(g) (Ref. 8) as contained in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, is within frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 7), and is based on the need to perform such surveillances under conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the plant at power.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[In addition, testing must be performed once after the valve has been opened by flow or exercised to ensure tight reseating. PIVs disturbed in the performance of this Surveillance should also be tested unless documentation shows that an infinite testing loop cannot practically be avoided. Testing must be performed within 24 hours after the valve has been reseated. Within 24 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve.]

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.17 Steam Generator (SG) Tube Integrity

BASES

BACKGROUND

Steam generator (SG) tubes are small diameter, thin walled tubes that carry primary coolant through the primary to secondary heat exchangers. The SG tubes have a number of important safety functions. Steam generator tubes are an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied on to maintain the primary system's pressure and inventory. The SG tubes isolate the radioactive fission products in the primary coolant from the secondary system. In addition, as part of the RCPB, the SG tubes are unique in that they act as the heat transfer surface between the primary and secondary systems to remove heat from the primary system. This Specification addresses only the RCPB integrity function of the SG. The SG heat removal function is addressed by LCO 3.4.4, "RCS Loops – MODES 1 and 2," LCO 3.4.5, "RCS Loops – MODE 3," LCO 3.4.6, "RCS Loops – MODE 4," and LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled."

SG tube integrity means that the tubes are capable of performing their intended RCPB safety function consistent with the licensing basis, including applicable regulatory requirements.

Steam generator tubing is subject to a variety of degradation mechanisms. Steam generator tubes may experience tube degradation related to corrosion phenomena, such as wastage, pitting, intergranular attack, and stress corrosion cracking, along with other mechanically induced phenomena such as denting and wear. These degradation mechanisms can impair tube integrity if they are not managed effectively. The SG performance criteria are used to manage SG tube degradation.

Specification 5.5.*8*~~9~~, "Steam Generator (SG) Program," requires that a program be established and implemented to ensure that SG tube integrity is maintained. Pursuant to Specification 5.5.*8*~~9~~, tube integrity is maintained when the SG performance criteria are met. There are three SG performance criteria: structural integrity, accident induced leakage, and operational LEAKAGE. The SG performance criteria are described in Specification 5.5.*8*~~9~~. Meeting the SG performance criteria provides reasonable assurance of maintaining tube integrity at normal and accident conditions.

The processes used to meet the SG performance criteria are defined by the Steam Generator Program Guidelines (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

The steam generator tube rupture (SGTR) accident is the limiting design basis event for SG tubes and avoiding an SGTR is the basis for this Specification. The analysis of a SGTR event assumes a bounding primary to secondary LEAKAGE rate equal to the operational LEAKAGE rate limits in LCO 3.4.13, "RCS Operational LEAKAGE," plus the leakage rate associated with a double-ended rupture of a single tube. The accident analysis for a SGTR assumes the contaminated secondary fluid is only briefly released to the atmosphere via safety valves and the majority is discharged to the main condenser.

The analysis for design basis accidents and transients other than a SGTR assume the SG tubes retain their structural integrity (i.e., they are assumed not to rupture.) In these analyses, the steam discharge to the atmosphere is based on the total primary to secondary LEAKAGE from all SGs of [1 gallon per minute] or is assumed to increase to [1 gallon per minute] as a result of accident induced conditions. For accidents that do not involve fuel damage, the primary coolant activity level of DOSE EQUIVALENT I-131 is assumed to be equal to the LCO 3.4.16, "RCS Specific Activity," limits. For accidents that assume fuel damage, the primary coolant activity is a function of the amount of activity released from the damaged fuel. The dose consequences of these events are within the limits of GDC 19 (Ref. 2), 10 CFR 100 (Ref. 3) or the NRC approved licensing basis (e.g., a small fraction of these limits).

Steam generator tube integrity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that SG tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the repair criteria be plugged [or repaired] in accordance with the Steam Generator Program.

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. If a tube was determined to satisfy the repair criteria but was not plugged [or repaired], the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall [and any repairs made to it], between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not considered part of the tube.

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 5.5.~~8~~9, "Steam Generator Program," and describe acceptable SG tube performance. The Steam Generator Program also provides the evaluation process for determining conformance with the SG performance criteria.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube repair criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a function of existing and potential degradation locations. The Steam Generator Program also specifies the inspection methods to be used to find potential degradation. Inspection methods are a function of degradation morphology, non-destructive examination (NDE) technique capabilities, and inspection locations.

The Steam Generator Program defines the Frequency of SR 3.4.17.1. The Frequency is determined by the operational assessment and other limits in the SG examination guidelines (Ref. 6). The Steam Generator Program uses information on existing degradations and growth rates to determine an inspection Frequency that provides reasonable assurance that the tubing will meet the SG performance criteria at the next scheduled inspection. In addition, Specification 5.5.*8*~~9~~ contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections.

SR 3.4.17.2

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. The tube repair criteria delineated in Specification 5.5.*8*~~9~~ are intended to ensure that tubes accepted for continued service satisfy the SG performance criteria with allowance for error in the flaw size measurement and for future flaw growth. In addition, the tube repair criteria, in conjunction with other elements of the Steam Generator Program, ensure that the SG performance criteria will continue to be met until the next inspection of the subject tube(s). Reference 1 provides guidance for performing operational assessments to verify that the tubes remaining in service will continue to meet the SG performance criteria.

[Steam generator tube repairs are only performed using approved repair methods as described in the Steam Generator Program.]

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the repair criteria are plugged [or repaired] prior to subjecting the SG tubes to significant primary to secondary pressure differential.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.3

With the exception of systems in operation, the ECCS pumps are normally in a standby, nonoperating mode. As such, the flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent water hammer, pump cavitation, and pumping of noncondensible gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an ESFAS signal or during shutdown cooling. [The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the existence of procedural controls governing system operation.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.2.4

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code (Ref. 6). This type of testing may be accomplished by measuring the pump's developed head at only one point of the pump's characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the plant accident analysis. SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ of the ASME Code. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.5 and SR 3.5.2.6

These SRs demonstrate that each automatic ECCS valve actuates to the required position on an actual or simulated ESFAS signal and that each ECCS pump starts on receipt of an actual or simulated ESFAS signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. [The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 18 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

The actuation logic is tested as part of the ESFAS testing, and equipment performance is monitored as part of the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.5.2.7

This Surveillance ensures that these valves are in the proper position to prevent the HPI pump from exceeding its runout limit. [This 18 month Frequency is based on the same reasons as those stated for SR 3.5.2.5 and SR 3.5.2.6.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

required to meet the SR during the time they are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

The Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

SR 3.6.3.5

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of [92] days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is in accordance with [the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]]

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6.3

Verifying that each [required] containment cooling train provides an essential raw water cooling flow rate of ≥ [1780] gpm to each cooling unit provides assurance that the design flow rate assumed in the safety analyses will be achieved (Ref. 1). [The Frequency was developed considering the known reliability of the Cooling Water System, the two train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6.4

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 7). Since the Containment Spray System pumps cannot be tested with flow through the

BASES

SURVEILLANCE REQUIREMENTS (continued)

spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6.5 and SR 3.6.6.6

These SRs require verification that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated actuation signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6.7

This SR requires verification that each [required] containment cooling train actuates upon receipt of an actual or simulated actuation signal. [The [18] month Frequency is based on engineering judgment and has been shown to be acceptable through operating experience. See SR 3.6.6.5 and SR 3.6.6.6, above, for further discussion of the basis for the [18] month Frequency.

BASES

LCO

The MSSVs setpoints are established to prevent overpressurization as discussed in the Applicable Safety Analysis section of these Bases. The LCO requires all MSSVs to be OPERABLE to ensure compliance with the ASME Code following DBAs initiated at full power. Operation with less than a full complement of MSSVs requires limitations on unit THERMAL POWER and adjustment of the Reactor Protection System (RPS) trip setpoints. This effectively limits the Main Steam System steam flow while the MSSV relieving capacity is reduced due to valve inoperability. To be OPERABLE, lift setpoints must remain within limits, according to Table 3.7.1-1 in the accompanying LCO.

The OPERABILITY of the MSSVs is defined as the ability to open within the setpoint tolerances, relieve steam generator overpressure, and reseat when pressure has been reduced.

The OPERABILITY of the MSSVs is determined by periodic surveillance testing in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

The lift settings, according to Table 3.7.1-1 in the accompanying LCO, correspond to ambient conditions of the valve at nominal operating temperature and pressure.

This LCO provides assurance that the MSSVs will perform the design safety function to mitigate the consequences of accidents that could result in a challenge to the RCPB.

APPLICABILITY

In MODE 1 above [18]% RTP, the number of MSSVs per steam generator required to be OPERABLE must be within the acceptable region, according to Figure 3.7.1-1 in the accompanying LCO. Below [18]% RTP in MODES 1, 2, and 3, only two MSSVs are required OPERABLE per steam generator.

In MODES 4 and 5, there is no credible transient requiring the MSSVs.

The steam generators are not normally used for heat removal in MODES 5 and 6, and thus cannot be overpressurized; there is no requirement for the MSSVs to be OPERABLE in these MODES.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each MSSV.

BASES

ACTIONS (continued)

reduce the setpoints. The Completion Time of 36 hours for Required Action A.2 is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period.

B.1 and B.2

With one or more MSSVs inoperable, a verification by administrative means that at least [two] required MSSVs per steam generator are OPERABLE, with each valve from a different lift setting range, is performed.

If the MSSVs cannot be restored to OPERABLE status in the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSSVs by the verification of each MSSV lift setpoint in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. The ASME Code (Ref. 4) requires that safety and relief valve tests be performed in accordance with ANSI/ASME OM-1-1987 (Ref. 5). According to Reference 5, the following tests are required for MSSVs:

a. Visual examination,

b. Seat tightness determination,

c. Setpoint pressure determination (lift setting),

d. Compliance with owner's seat tightness criteria, and

e. Verification of the balancing device integrity device on balanced valves.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is within the limit given in Reference 5 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage, because the MSIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As the MSIVs are not to be tested at power, they are exempt from the ASME Code (Ref. 6) requirements during operation in MODES 1 and 2.

The Frequency for this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

This test is conducted in MODE 3, with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows delaying testing until MODE 3 in order to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. [The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each [MFSV], [MFCV], and [associated SFCV] is within the limit given in Reference 2 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage. The [MFSV], [MFCV], and [associated SFCV] should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 3) requirements during operation in MODES 1 and 2.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR.

The Frequency for this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.7.3.2

This SR verifies that each [MFSV, MFCV, and associated SFCV] can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage.

[The Frequency for this SR is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position.

[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.7.5.2

Verifying that each EFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that EFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of pump performance required by the ASME Code (Ref. 3). Because it is undesirable to introduce cold EFW into the steam generators while they are operating, this test is performed on recirculation flow.

This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing *as discussed* in the ASME Code (Ref. 3) *and the INSERVICE TESTING PROGRAM*~~, at 3 month intervals,~~ satisfies this requirement.

This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power subsystem batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.*16*~~17~~ for monitoring various battery parameters.

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one subsystem of DC sources OPERABLE during accident conditions, in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power and

b. A worst-case single failure.

Battery parameters satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the [licensee controlled program] is conducted as specified in Specification 5.5.*16*~~17~~.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystems. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With one or more cells in one or more batteries in one subsystem < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

B.1 and B.2

One or more batteries in one subsystem with float current > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is operating in the current limit mode. Condition A addresses charger inoperability. If the charger is operating in the current limit mode after

BASES

ACTIONS (continued)

C.1, C.2, and C.3

With one or more batteries in one subsystem with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.*16*~~17~~, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.*16*~~17~~.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from IEEE Standard 450. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced.

D.1

With one or more batteries in one subsystem with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

E.1

With one or more batteries in redundant subsystems with battery parameters not within limits there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved this potential could result in a

BASES

SURVEILLANCE REQUIREMENTS (continued)

is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.*16*~~17~~. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. [The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.8.6.3

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. [The Frequency of 31 days is consistent with IEEE-450 (Ref. 1).

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

As such, this Surveillance ensures that a postulated fuel handling accident [involving handling recently irradiated fuel] that releases fission product radioactivity within the containment will not result in a release of significant fission product radioactivity to the environment in excess of those recommended by Standard Review Plan Section 15.7.4 (Ref. 3).

SR 3.9.3.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. [The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.15, "RB Purge Isolation - High Radiation," the isolation instrumentation requires a CHANNEL CHECK every 12 hours and a CHANNEL FUNCTIONAL TEST every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements. These Surveillances performed during MODE 6 will ensure that the valves are

1.1 Definitions

ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	*The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).*
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank, 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, or 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE); b. <u>Unidentified LEAKAGE</u> All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE, and c. <u>Pressure Boundary LEAKAGE</u> LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

3.0 LCO Applicability

LCO 3.0.4 (continued)

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs [3.1.8 and 3.4.19] allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be within ± 1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. ----------	
	Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ [2215] psig and ≤ [2255] psig.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, and [[18] months OR In accordance with the Surveillance Frequency Control Program] AND Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months AND

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		Within 24 hours following valve actuation due to automatic or manual action or flow through the valve
SR 3.4.14.2	----------NOTE---------- [Not required to be met when the RHR System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify RHR System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.4.14.3	----------NOTE---------- [Not required to be met when the RHR System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify RHR System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	[Verify the following valves are in the listed position with power to the valve operator removed. Number / Position / Function [ ] / [ ] / [ ] [ ] / [ ] / [ ] [ ] / [ ] / [ ]	[12 hours OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.2	Verify each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.3	[Verify ECCS piping is full of water.	[31 days OR In accordance with the Surveillance Frequency Control Program]]
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ---------- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.3.6	[Cycle each weight or spring loaded check valve testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.	[92 days OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6A.3	Verify each [required] containment cooling train cooling water flow rate is ≥ [700] gpm.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.6.6A.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6B.2	Operate each [required] containment cooling train fan unit for ≥ 15 minutes.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.3	Verify each [required] containment cooling train cooling water flow rate is ≥ [700] gpm.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.6.6B.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6C.2	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.6.6C.3	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6C.4	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6C.5	Verify each spray nozzle is unobstructed.	[At first refueling] AND [10 years OR In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.6D Quench Spray (QS) System (Subatmospheric)

LCO 3.6.6D Two QS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One QS train inoperable.	A.1 Restore QS train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6D.1	Verify each QS manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6D.2	Verify each QS pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING*

SURVEILLANCE	FREQUENCY
	PROGRAM ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6E.5	Verify each RS [and casing cooling] pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.6.6E.6	Verify on an actual or simulated actuation signal(s): a. Each RS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position, b. Each RS pump starts automatically, and c. [Each casing cooling pump starts automatically.]	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6E.7	Verify each spray nozzle is unobstructed.	[At first refueling] AND [10 years OR In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Atmospheric and Ice Condenser)

LCO 3.6.12 [Two] vacuum relief lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vacuum relief line inoperable.	A.1 Restore vacuum relief line to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.12.1	Verify each vacuum relief line is OPERABLE in accordance with the Inservice Testing Program.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2 ----------NOTE---------- Only required in MODE 1. ---------- Reduce the Power Range Neutron Flux - High reactor trip setpoint to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.	36 hours
C. Required Action and associated Completion Time not met. OR One or more steam generators with ≥ [4] MSSVs inoperable.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Following testing, lift setting shall be within ±1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MSIV is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two valves in the same flow path inoperable.	D.1 Isolate affected flow path.	8 hours
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. [AND E.2 Be in MODE 4.	6 hours 12 hours]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the isolation time of each MFIV, MFRV[, and associated bypass valve] is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.3.2	Verify each MFIV, MFRV[, and associated bypass valves] actuates to the isolation position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required AFW train inoperable in MODE 4.	F.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	----------NOTE---------- [AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.] ---------- Verify each AFW manual, power operated, and automatic valve in each water flow path, [and in both steam supply flow paths to the steam turbine driven pump,] that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.5.2	----------NOTE---------- [Not required to be performed for the turbine driven AFW pump until [24 hours] after ≥ [1000] psig in the steam generator.] ---------- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

5.5 Programs and Manuals

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

In lieu of Position C.4.b(1) and C.4.b(2), a qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (MT and/or PT) of exposed surfaces of the removed flywheels may be conducted at 20 year intervals.

----------REVIEWER'S NOTE----------
The inspection interval and scope for RCP flywheels stated above can be applied to plants that satisfy the requirements in WCAP-15666, "Extension of Reactor Coolant Pump Motor Flywheel Examination."

~~5.5.8 Inservice Testing Program~~

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:~~

~~a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:~~

~~ASME OM Code and applicable Addenda terminology for inservice testing activities~~	~~Required Frequencies for performing inservice testing activities~~
~~Weekly~~	~~At least once per 7 days~~
~~Monthly~~	~~At least once per 31 days~~
~~Quarterly or every 3 months~~	~~At least once per 92 days~~
~~Semiannually or every 6 months~~	~~At least once per 184 days~~
~~Every 9 months~~	~~At least once per 276 days~~
~~Yearly or annually~~	~~At least once per 366 days~~
~~Biennially or every 2 years~~	~~At least once per 731 days~~

~~b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,~~

~~c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and~~

5.5 Programs and Manuals

~~5.5.8 Inservice Testing Program (continued)~~

~~d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.~~

5.5.~~8~~9 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following provisions:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the “as found” condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging [or repair] of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected, plugged, [or repaired] to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

exceed [1 gpm] per SG [, except for specific types of degradation at specific locations as described in paragraph c of the Steam Generator Program.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding [40%] of the nominal tube wall thickness shall be plugged [or repaired].

----------REVIEWER'S NOTE----------
Alternate tube repair criteria currently permitted by plant technical specifications are listed here. The description of these alternate tube repair criteria should be equivalent to the descriptions in current technical specifications and should also include any allowed accident induced leakage rates for specific types of degradation at specific locations associated with tube repair criteria.

[The following alternate tube repair criteria may be applied as an alternative to the 40% depth based criteria:

1. . . .]

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment of degradation shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

----------REVIEWER'S NOTE----------
Plants are to include the appropriate Frequency (e.g., select the appropriate Item 2.) for their SG design. The first Item 2 is applicable to SGs with Alloy 600 mill annealed tubing. The second Item 2 is applicable to SGs with Alloy 600 thermally treated tubing. The third Item 2 is applicable to SGs with Alloy 690 thermally treated tubing.
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1. Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement.

[2. Inspect 100% of the tubes at sequential periods of 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. No SG shall operate for more than 24 effective full power months or one refueling outage (whichever is less) without being inspected.]

[2. Inspect 100% of the tubes at sequential periods of 120, 90, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 48 effective full power months or two refueling outages (whichever is less) without being inspected.]

[2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.]

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

[f. Provisions for SG tube repair methods. Steam generator tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

----------REVIEWER'S NOTE----------
Tube repair methods currently permitted by plant technical specifications are to be listed here. The description of these tube repair methods should be equivalent to the descriptions in current technical specifications. If there are no approved tube repair methods, this section should not be used.
---

1. . . .]

5.5.~~9~~10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables,

b. Identification of the procedures used to measure the values of the critical variables,

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage,

d. Procedures for the recording and management of data,

e. Procedures defining corrective actions for all off control point chemistry conditions, and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below.

ESF Ventilation System	Penetration	RH	Face Velocity (fps)
[ ]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

----------REVIEWER'S NOTE----------
The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (continued)

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiency * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

Safety factor ≥ 2 for systems with or without humidity control.

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst-case design-basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

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d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 10%] when tested in accordance with [ASME N510-1989].

ESF Ventilation System	Wattage]
[ ]	[ ]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5 Programs and Manuals

5.5.*11*~~12~~ Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion),

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5 Programs and Manuals

5.5.*12*~~13~~ Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits.

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

5.5.*13*~~14~~ Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

   1. A change in the TS incorporated in the license or

   2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

5.5 Programs and Manuals

5.5.*13*~~14~~ Technical Specifications (TS) Bases Control Program (continued)

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.13~~4~~.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.*14*~~15~~ Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable, or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable, or

5.5 Programs and Manuals

5.5.*14*~~15~~ Safety Function Determination Program (SFDP) (continued)

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.*15*~~16~~ Containment Leakage Rate Testing Program

[OPTION A]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.

b. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

c. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and < 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

d. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

[OPTION B]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C][Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and [< 0.75 L_a for Option A Type A tests] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program

----------REVIEWER'S NOTE----------
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

   1. Battery temperature correction may be performed before or after conducting discharge tests.

   2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

5.5 Programs and Manuals

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program (continued)

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4 In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < [2.13] V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration System (CREFS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total

5.5 Programs and Manuals

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program (continued)

effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

   [The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. ;and]

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5 Programs and Manuals

5.5.*18*~~19~~ [Setpoint Control Program

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

a. The program shall list the Functions in the following specifications to which it applies:

   1. LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation;"
   2. LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation Functions;"
   3. LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation;"
   4. LCO 3.3.6, "Containment Purge and Exhaust Isolation Instrumentation;"
   5. LCO 3.3.7, "Control Room Emergency Filtration System (CREFS) Actuation Instrumentation;"
   6. LCO 3.3.8, "Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation;" and
   7. LCO 3.3.9, "Boron Dilution Protection System (BDPS)."

b. The program shall require the Nominal Trip Setpoint (NTSP), Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the NTSP, AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

   ----------Reviewer's Note----------
   List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.
   ----

   1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

d. ----------REVIEWER'S NOTE----------
A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Trip System and Engineered Safety Feature Actuation System specifications unless one or more of the following exclusions apply:

1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.

2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.

3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The NTSP of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS, CHANNEL OPERATIONAL TESTS, and TRIP ACTUATING DEVICE OPERATIONAL TESTS that verify the NTSP.

1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified NTSP.

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified NTSP by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the NTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the NTSP provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.*19*~~20~~ [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

BASES

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for supported systems that have a support system LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the unit is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the unit is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*
SR 3.0.1	SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps. Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when: a. The systems or components are known to be inoperable, although still meeting the SRs; or b. The requirements of the Surveillance(s) are known not to be met between required Surveillance performances. Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a test exception are only applicable when the test exception is used as an allowable exception to the requirements of a Specification. Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition. Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have

to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

BASES

SR 3.0.1 (continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Auxiliary feedwater (AFW) pump turbine maintenance during refueling that requires testing at steam pressures > 800 psi. However, if other appropriate testing is satisfactorily completed, the AFW System can be considered OPERABLE. This allows startup and other necessary testing to proceed until the plant reaches the steam pressure required to perform the testing.

b. High pressure safety injection (HPI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs.

BASES

SR 3.0.2 (continued)

The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An~~ ~~E~~example*s* of where SR 3.0.2 does not apply *are*~~is~~ ~~in~~ the Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a*. Th*ese*~~is~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 4), which provides the activities and Frequencies necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.
2. FSAR, Chapter [15].
3. WCAP-7769, Rev. 1, June 1972.
4. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The [HPI] pump[s] and charging pump[s] are rendered incapable of injecting into the RCS through removing the power from the pumps by racking the breakers out under administrative control. An alternate method of LTOP control may be employed using at least two independent means to prevent a pump start such that a single failure or single action will not result in an injection into the RCS. This may be accomplished through the pump control switch being placed in [pull to lock] and at least one valve in the discharge flow path being closed.

[The Frequency of 12 hours is sufficient, considering other indications and alarms available to the operator in the control room, to verify the required status of the equipment.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.4.12.4

Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valves are open and by testing it in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. (Refer to SR 3.4.12.7 for the RHR suction isolation valve Surveillance.) This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO.

The RHR suction valve is verified to be opened. [The Frequency of 12 hours is considered adequate in view of other administrative controls such as valve status indications available to the operator in the control room that verify the RHR suction valve remains open.

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

The ASME Code (Ref. 8), test per *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ verifies OPERABILITY by proving proper relief valve mechanical motion and by measuring and, if required, adjusting the lift setpoint.]

SR 3.4.12.5

The RCS vent of ≥ [2.07] square inches is proven OPERABLE by verifying its open condition [either:

a. Once every 12 hours for a valve that is not locked (valves that are sealed or secured in the open position are considered "locked" in this context) or

b. Once every 31 days for other vent path(s) (e.g., a vent valve that is locked, sealed, or secured in position). A removed pressurizer safety valve or open manway also fits this category.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

The passive vent path arrangement must only be open to be OPERABLE. This Surveillance is required to be met if the vent is being used to satisfy the pressure relief requirements of the LCO 3.4.12d.

SR 3.4.12.6

The PORV block valve must be verified open to provide the flow path for each required PORV to perform its function when actuated. The valve must be remotely verified open in the main control room. [This Surveillance is performed if the PORV satisfies the LCO.]

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required removed, and the manual operator is not required locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

[The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in the control room, such as valve position indication, that verify that the PORV block valve remains open.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.4.12.7

Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valve are open and by testing it in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. (Refer to SR 3.4.12.4 for the RHR suction valve Surveillance and for a description of the requirements of the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program.~~) This Surveillance is only performed if the RHR suction relief valve is being used to satisfy this LCO.]

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1

Performance of leakage testing on each RCS PIV or isolation valve used to satisfy Required Action A.1 and Required Action A.2 is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition.

For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

Testing is to be performed every [9] months, but may be extended, if the plant does not go into MODE 5 for at least 7 days. [The [18 month] Frequency is consistent with 10 CFR 50.55a(g) (Ref. 8) *and the INSERVICE TESTING PROGRAM* ~~as contained in the Inservice Testing Program~~, is within frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 7), and is based on the need to perform such surveillances under the conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

In addition, testing must be performed once after the valve has been opened by flow or exercised to ensure tight reseating. PIVs disturbed in the performance of this Surveillance should also be tested unless documentation shows that an infinite testing loop cannot practically be avoided. Testing must be performed within 24 hours after the valve has been reseated. Within 24 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.20 Steam Generator (SG) Tube Integrity

BASES

BACKGROUND

Steam generator (SG) tubes are small diameter, thin walled tubes that carry primary coolant through the primary to secondary heat exchangers. The SG tubes have a number of important safety functions. Steam generator tubes are an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied on to maintain the primary system's pressure and inventory. The SG tubes isolate the radioactive fission products in the primary coolant from the secondary system. In addition, as part of the RCPB, the SG tubes are unique in that they act as the heat transfer surface between the primary and secondary systems to remove heat from the primary system. This Specification addresses only the RCPB integrity function of the SG. The SG heat removal function is addressed by LCO 3.4.4, "RCS Loops – MODES 1 and 2," LCO 3.4.5, "RCS Loops – MODE 3," LCO 3.4.6, "RCS Loops – MODE 4," and LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled."

SG tube integrity means that the tubes are capable of performing their intended RCPB safety function consistent with the licensing basis, including applicable regulatory requirements.

Steam generator tubing is subject to a variety of degradation mechanisms. Steam generator tubes may experience tube degradation related to corrosion phenomena, such as wastage, pitting, intergranular attack, and stress corrosion cracking, along with other mechanically induced phenomena such as denting and wear. These degradation mechanisms can impair tube integrity if they are not managed effectively. The SG performance criteria are used to manage SG tube degradation.

Specification 5.5.*8*~~9~~, "Steam Generator (SG) Program," requires that a program be established and implemented to ensure that SG tube integrity is maintained. Pursuant to Specification 5.5.*8*~~9~~, tube integrity is maintained when the SG performance criteria are met. There are three SG performance criteria: structural integrity, accident induced leakage, and operational LEAKAGE. The SG performance criteria are described in Specification 5.5.*8*~~9~~. Meeting the SG performance criteria provides reasonable assurance of maintaining tube integrity at normal and accident conditions.

The processes used to meet the SG performance criteria are defined by the Steam Generator Program Guidelines (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

The steam generator tube rupture (SGTR) accident is the limiting design basis event for SG tubes and avoiding an SGTR is the basis for this Specification. The analysis of a SGTR event assumes a bounding primary to secondary LEAKAGE rate equal to the operational LEAKAGE rate limits in LCO 3.4.13, "RCS Operational LEAKAGE," plus the leakage rate associated with a double-ended rupture of a single tube. The accident analysis for a SGTR assumes the contaminated secondary fluid is only briefly released to the atmosphere via safety valves and the majority is discharged to the main condenser.

The analysis for design basis accidents and transients other than a SGTR assume the SG tubes retain their structural integrity (i.e., they are assumed not to rupture.) In these analyses, the steam discharge to the atmosphere is based on the total primary to secondary LEAKAGE from all SGs of [1 gallon per minute] or is assumed to increase to [1 gallon per minute] as a result of accident induced conditions. For accidents that do not involve fuel damage, the primary coolant activity level of DOSE EQUIVALENT I-131 is assumed to be equal to the LCO 3.4.16, "RCS Specific Activity," limits. For accidents that assume fuel damage, the primary coolant activity is a function of the amount of activity released from the damaged fuel. The dose consequences of these events are within the limits of GDC 19 (Ref. 2), 10 CFR 100 (Ref. 3) or the NRC approved licensing basis (e.g., a small fraction of these limits).

Steam generator tube integrity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that SG tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the repair criteria be plugged [or repaired] in accordance with the Steam Generator Program.

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. If a tube was determined to satisfy the repair criteria but was not plugged [or repaired], the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall [and any repairs made to it], between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not considered part of the tube.

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 5.5.8~~9~~, "Steam Generator Program," and describe acceptable SG tube performance. The Steam Generator Program also provides the evaluation process for determining conformance with the SG performance criteria.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube repair criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a function of existing and potential degradation locations. The Steam Generator Program also specifies the inspection methods to be used to find potential degradation. Inspection methods are a function of degradation morphology, non-destructive examination (NDE) technique capabilities, and inspection locations.

The Steam Generator Program defines the Frequency of SR 3.4.20.1. The Frequency is determined by the operational assessment and other limits in the SG examination guidelines (Ref. 6). The Steam Generator Program uses information on existing degradations and growth rates to determine an inspection Frequency that provides reasonable assurance that the tubing will meet the SG performance criteria at the next scheduled inspection. In addition, Specification 5.5.*8*~~9~~ contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections.

SR 3.4.20.2

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. The tube repair criteria delineated in Specification 5.5.*8*~~9~~ are intended to ensure that tubes accepted for continued service satisfy the SG performance criteria with allowance for error in the flaw size measurement and for future flaw growth. In addition, the tube repair criteria, in conjunction with other elements of the Steam Generator Program, ensure that the SG performance criteria will continue to be met until the next inspection of the subject tube(s). Reference 1 provides guidance for performing operational assessments to verify that the tubes remaining in service will continue to meet the SG performance criteria.

[Steam generator tube repairs are only performed using approved repair methods as described in the Steam Generator Program.]

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the repair criteria are plugged [or repaired] prior to subjecting the SG tubes to significant primary to secondary pressure differential.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.3

With the exception of the operating centrifugal charging pump, the ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent water hammer, pump cavitation, and pumping of noncondensible gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SI signal or during shutdown cooling. [The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the procedural controls governing system operation.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.2.4

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code. This type of testing may be accomplished by measuring the pump developed head at only one point of the pump characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the plant safety analysis. SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program of the ASME Code~~. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.5 and SR 3.5.2.6

These Surveillances demonstrate that each automatic ECCS valve actuates to the required position on an actual or simulated SI signal and that each ECCS pump starts on receipt of an actual or simulated SI signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The 18 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment. The actuation logic is tested as part of ESF Actuation System testing, and equipment performance is monitored as part of the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.2.7

Realignment of valves in the flow path on an SI signal is necessary for proper ECCS performance. These valves have stops to allow proper positioning for restricted flow to a ruptured cold leg, ensuring that the other cold legs receive at least the required minimum flow. This Surveillance is not required for plants with flow limiting orifices. [The 18 month Frequency is based on the same reasons as those stated in SR 3.5.2.5 and SR 3.5.2.6.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

This Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4, for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

SR 3.6.3.5

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The [isolation time and] Frequency of this SR is in accordance with [the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]]

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.6.3.6

In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere

BASES

SURVEILLANCE REQUIREMENTS (continued)

returns to subatmospheric conditions following a DBA. SR 3.6.3.6 requires verification of the operation of the check valves that are testable during unit operation. [The Frequency of 92 days is consistent with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirement for valve testing on a 92 day Frequency.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

[SR 3.6.3.7

For containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option [A][B], is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. [Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 5).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the

BASES

SURVEILLANCE REQUIREMENTS (continued)

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6A.4

Verifying each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by abnormal performance. The Frequency of the SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6A.5 and SR 3.6.6A.6

These SRs require verification that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated actuation of a containment High-3 pressure signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6B.3

Verifying that each [required] containment cooling train ESW cooling flow rate to each cooling unit is ≥ [700] gpm provides assurance that the design flow rate assumed in the analyses will be achieved (Ref. 3). [The Frequency of 31 days was developed considering the known reliability of the Cooling Water System, the two train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6B.4

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice

BASES

SURVEILLANCE REQUIREMENTS (continued)

inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6B.5 and SR 3.6.6B.6

These SRs require verification that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated containment High-3 pressure signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

The surveillance of containment sump isolation valves is also required by SR 3.5.2.5. A single surveillance may be used to satisfy both requirements.

BASES

SURVEILLANCE REQUIREMENTS (continued)

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6.2

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref. 5). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6.3 and SR 3.6.6.4

These SRs require verification that each automatic containment spray valve actuates to its correct position and each containment spray pump starts upon receipt of an actual or simulated containment spray actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6D.2

Verifying that each QS pump's developed head at the flow test point is greater than or equal to the required developed head ensures that QS pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref. 4). Since the QS System pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6D.3 and SR 3.6.6D.4

These SRs ensure that each QS automatic valve actuates to its correct position and each QS pump starts upon receipt of an actual or simulated containment spray actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at an [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.6E.5

Verifying that each RS [and casing cooling] pump's developed head at the flow test point is greater than or equal to the required developed head ensures that these pumps' performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref. 4). Since the QS System pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6E.6

These SRs ensure that each automatic valve actuates and that the RS System and casing cooling pumps start upon receipt of an actual or simulated High-High containment pressure signal. Start delay times are also verified for the RS System pumps. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating

BASES

ACTIONS (continued)

----------REVIEWER'S NOTE----------
The following is to be used if a non-Technical Specification alternate hydrogen control function is used to justify this Condition: In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability.

[Both] the [initial] verification [and all subsequent verifications] may be performed as an administrative check, by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two HMS trains inoperable for up to 7 days. Seven days is a reasonable time to allow two HMS trains to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

C.1

If an inoperable HMS train cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.9.1

Operating each HMS train for ≥ 15 minutes ensures that each train is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan and/or motor failure, or excessive vibration can be detected for corrective action. [The 92 day Frequency is consistent with *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ Surveillance Frequencies, operating experience, the known reliability of the fan motors and controls, and the two train redundancy available.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.9.2

Verifying that each HMS train flow rate on slow speed is ≥ [4000] cfm ensures that each train is capable of maintaining localized hydrogen concentrations below the flammability limit. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.9.3

This SR ensures that each HMS train responds properly to a containment cooling actuation signal. The Surveillance verifies that each fan starts on slow speed from the nonoperating condition and that each fan shifts to slow speed from fast operating condition. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if

BASES

SURVEILLANCE REQUIREMENTS	SR 3.6.12.1 This SR cites the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, which establishes the requirement that inservice testing of the ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the ASME Code (Ref. 2). Therefore, SR Frequency is governed by the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.
REFERENCES	1. FSAR, Section [6.2]. 2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

APPLICABLE SAFETY ANALYSES (continued)

an RCS heatup event (e.g., turbine trip). Thus, for any number of inoperable MSSVs, it is necessary to reduce the trip setpoint if a positive MTC may exist at partial power conditions, unless it is demonstrated by analysis that a specified reactor power reduction alone is sufficient to prevent overpressurization of the steam system.]

The MSSVs are assumed to have two active and one passive failure modes. The active failure modes are spurious opening, and failure to reclose once opened. The passive failure mode is failure to open upon demand.

The MSSVs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The accident analysis requires that [five] MSSVs per steam generator be OPERABLE to provide overpressure protection for design basis transients occurring at 102% RTP. The LCO requires that [five] MSSVs per steam generator be OPERABLE in compliance with Reference 2, and the DBA analysis.

The OPERABILITY of the MSSVs is defined as the ability to open upon demand within the setpoint tolerances, to relieve steam generator overpressure, and reseat when pressure has been reduced. The OPERABILITY of the MSSVs is determined by periodic surveillance testing in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

This LCO provides assurance that the MSSVs will perform their designed safety functions to mitigate the consequences of accidents that could result in a challenge to the RCPB, or Main Steam System integrity.

APPLICABILITY

In MODES 1, 2, and 3, [five] MSSVs per steam generator are required to be OPERABLE to prevent Main Steam System overpressurization.

In MODES 4 and 5, there are no credible transients requiring the MSSVs. The steam generators are not normally used for heat removal in MODES 5 and 6, and thus cannot be overpressurized; there is no requirement for the MSSVs to be OPERABLE in these MODES.

BASES

ACTIONS (continued)

The maximum THERMAL POWER corresponding to the heat removal capacity of the remaining OPERABLE MSSVs is determined via a conservative heat balance calculation as described in the attachment to Reference 6, with an appropriate allowance for Nuclear Instrumentation System trip channel uncertainties.

----------REVIEWER'S NOTE----------
To determine the Table 3.7.1-1 Maximum Allowable Power for Required Actions B.1 and B.2 (%RTP), the Maximum NSSS Power calculated using the equation in the Reviewer's Note above is reduced by [9]% RTP to account for Nuclear Instrumentation System trip channel uncertainties.

Required Action B.2 is modified by a Note, indicating that the Power Range Neutron Flux-High reactor trip setpoint reduction is only required in MODE 1. In MODES 2 and 3 the reactor protection system trips specified in LCO 3.3.1, "Reactor Trip System Instrumentation," provide sufficient protection.

The allowed Completion Times are reasonable based on operating experience to accomplish the Required Actions in an orderly manner without challenging unit systems.

C.1 and C.2

If the Required Actions are not completed within the associated Completion Time, or if one or more steam generators have ≥ [4] inoperable MSSVs, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSSVs by the verification of each MSSV lift setpoint in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. The ASME Code (Ref. 4), requires that safety and relief valve tests be performed in accordance with ANSI/ASME OM-1-1987 (Ref. 5). According to Reference 5, the following tests are required:

a. Visual examination,

BASES

ACTIONS (continued)

C.1 and C.2

Condition C is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The [8] hour Completion Time is consistent with that allowed in Condition A.

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIVs must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure that these valves are in the closed position.

D.1 and D.2

If the MSIVs cannot be restored to OPERABLE status or are not closed within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is within the limit given in Reference 5 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of a valve closure when the unit is generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code (Ref. 6), requirements during operation in MODE 1 or 2.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Frequency is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

This test is conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. [The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

REFERENCES

1. FSAR, Section [10.3].
2. FSAR, Section [6.2].
3. FSAR, Section [15.1.5].
4. 10 CFR 100.11.
5. [Technical Requirements Manual.]
6. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

ACTIONS (continued)

E.1 and E.2

If the MFIV(s) and MFRV(s) and the associated bypass valve(s) cannot be restored to OPERABLE status, or closed, or isolated within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours [, and in MODE 4 within 12 hours]. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each MFIV, MFRV, and [associated bypass valve] is within the limit given in Reference 2 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 3), quarterly stroke requirements during operation in MODES 1 and 2.

The Frequency for this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.7.3.2

This SR verifies that each MFIV, MFRV, and [associated bypass valves] can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage.

[The Frequency for this SR is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW System, OPERABILITY (i.e., the intended safety function) continues to be maintained.]

[The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.7.5.2

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by the ASME Code (Ref 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing *as* discussed in the ASME Code (Ref. 2) *and the INSERVICE TESTING PROGRAM* ~~(only required at 3 month intervals)~~ satisfies this requirement.

[This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.]

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power subsystem batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.*16*~~17~~ for monitoring various battery parameters.

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one subsystem of DC sources OPERABLE during accident conditions, in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power and

b. A worst-case single failure.

Battery parameters satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the [licensee controlled program] is conducted as specified in Specification 5.5.*16*~~17~~.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystems. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With one or more cells in one or more batteries in one subsystem < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

B.1 and B.2

One or more batteries in one subsystem with float current > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is

BASES

ACTIONS (continued)

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

With one or more batteries in one subsystem with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.*16*~~17~~, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.*16*~~17~~.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from IEEE Standard 450. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced.

D.1

With one or more batteries in one subsystem with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.*16*~~17~~. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. [The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The Surveillance is performed every 7 days during movement of [recently] irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide two or three surveillance verifications during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident [involving handling recently irradiated fuel] that releases fission product radioactivity within the containment will not result in a release of significant fission product radioactivity to the environment in excess of those recommended by Standard Review Plan Section 15.7.4 (Reference 3).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.9.4.2

This Surveillance demonstrates that each containment purge and exhaust valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. [The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.6, the Containment Purge and Exhaust Isolation instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS.
SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements. These Surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident [involving handling recently irradiated fuel] to limit a release of fission product radioactivity from the containment.

1.1 Definitions

Ē - AVERAGE DISINTEGRATION ENERGY	Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > [15] minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	*The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).*
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank, 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, or 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE), b. <u>Unidentified LEAKAGE</u> All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE, and

3.0 LCO Applicability

LCO 3.0.4 (continued)

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Special test exception (STE) LCOs [in each applicable LCO section] allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with STE LCOs is optional. When an STE LCO is desired to be met but is not met, the ACTIONS of the STE LCO shall be met. When an STE LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

LCO 3.0.8

When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Following testing, lift settings shall be within ± 1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTES---------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the SDC flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. ----------	
	Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ [2215] psia and ≤ [2255] psia.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, and [[18] months OR In accordance with the Surveillance Frequency Control Program] AND Prior to entering MODE 2 determine the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 9 months AND

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
		Within 24 hours following valve actuation due to automatic or manual action or flow through the valve
SR 3.4.14.2	----------NOTE---------- [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify SDC System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.4.14.3	----------NOTE---------- [Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify SDC System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	[Verify ECCS piping is full of water.	[31 days OR In accordance with the Surveillance Frequency Control Program]]
SR 3.5.2.4	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.5.2.5	[Verify each charging pump develops a flow of ≥ [36] gpm at a discharge pressure of ≥ [2200] psig.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~]
SR 3.5.2.6	Verify each ECCS automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.7	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	[[18] months OR In accordance with the

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.3.6	Perform leakage rate testing for containment purge valves with resilient seals.	[184 days OR In accordance with the Surveillance Frequency Control Program] AND Within 92 days after opening the valve
SR 3.6.3.7	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6A.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.3	Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.6A.4	[Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	[31 days OR In accordance with the Surveillance Frequency Control Program]]
SR 3.6.6A.5	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6B.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.3	Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.6B.4	[Verify the containment spray piping is full of water to the [100] ft level in the containment spray header.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]]
SR 3.6.6B.5	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify spray additive tank solution volume is ≥ [816] gal [90%] and ≤ [896] gal [100%].	[184 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.7.3	Verify spray additive tank [N_2H_4] solution concentration is ≥ [33]% and ≤ [35]% by weight.	[184 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.7.4	[Verify each spray additive pump develops a differential pressure of [100] psid on recirculation flow.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~]
SR 3.6.7.5	Verify each spray additive automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

3.6 CONTAINMENT SYSTEMS

3.6.12 Vacuum Relief Valves (Dual)

LCO 3.6.12 Two vacuum relief lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One vacuum relief line inoperable.	A.1 Restore vacuum relief line to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.12.1	Verify each vacuum relief line OPERABLE in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Following testing, lift settings shall be within ± 1%.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MSIV is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	[[18] months <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the isolation time of each MFIV [and [MFIV] bypass valve] is within limits.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~
SR 3.7.3.2	Verify each MFIV [and [MFIV] bypass valve] actuates to the isolation position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required AFW train inoperable in MODE 4.	F.1 ----------NOTE---------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ----------	
	Initiate action to restore one AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each AFW manual, power operated, and automatic valve in each water flow path and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until [24] hours after reaching [800] psig in the steam generators. ----------	
	Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~

5.5 Programs and Manuals

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendation of Regulatory position c.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

~~5.5.8 Inservice Testing Program~~

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:~~

~~a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:~~

~~ASME OM Code and applicable Addenda terminology for inservice testing activities~~	~~Required Frequencies for performing inservice testing activities~~
~~Weekly~~	~~At least once per 7 days~~
~~Monthly~~	~~At least once per 31 days~~
~~Quarterly or every 3 months~~	~~At least once per 92 days~~
~~Semiannually or every 6 months~~	~~At least once per 184 days~~
~~Every 9 months~~	~~At least once per 276 days~~
~~Yearly or annually~~	~~At least once per 366 days~~
~~Biennially or every 2 years~~	~~At least once per 731 days~~

~~b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,~~

~~c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and~~

~~d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.~~

5.5.~~8~~9 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following provisions:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging [or repair] of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected, plugged, [or repaired] to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed [1 gpm] per SG [, except for specific types of degradation at specific locations as described in paragraph c of the Steam Generator Program.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding [40%] of the nominal tube wall thickness shall be plugged [or repaired].

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

----------REVIEWER'S NOTE----------
Alternate tube repair criteria currently permitted by plant technical specifications are listed here. The description of these alternate tube repair criteria should be equivalent to the descriptions in current technical specifications and should also include any allowed accident induced leakage rates for specific types of degradation at specific locations associated with tube repair criteria.

[The following alternate tube repair criteria may be applied as an alternative to the 40% depth based criteria:

1. . . .]

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment of degradation shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

----------REVIEWER'S NOTE----------
Plants are to include the appropriate Frequency (e.g., select the appropriate Item 2.) for their SG design. The first Item 2 is applicable to SGs with Alloy 600 mill annealed tubing. The second Item 2 is applicable to SGs with Alloy 600 thermally treated tubing. The third Item 2 is applicable to SGs with Alloy 690 thermally treated tubing.
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1. Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement.

[2. Inspect 100% of the tubes at sequential periods of 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. No SG shall operate for more than 24 effective full power months or one refueling outage (whichever is less) without being inspected.]

5.5 Programs and Manuals

5.5.~~8~~9 Steam Generator (SG) Program (continued)

[2. Inspect 100% of the tubes at sequential periods of 120, 90, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 48 effective full power months or two refueling outages (whichever is less) without being inspected.]

[2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.]

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

[f. Provisions for SG tube repair methods. Steam generator tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

----------REVIEWER'S NOTE----------
Tube repair methods currently permitted by plant technical specifications are to be listed here. The description of these tube repair methods should be equivalent to the descriptions in current technical specifications. If there are no approved tube repair methods, this section should not be used.
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1. . . .]

5.5 Programs and Manuals

5.5.~~9~~10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables,

b. Identification of the procedures used to measure the values of the critical variables,

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage,

d. Procedures for the recording and management of data,

e. Procedures defining corrective actions for all off control point chemistry conditions, and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.~~10~~11 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1] at the system flowrate specified below [± 10%].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (continued)

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below.

ESF Ventilation System	Penetration	RH	Face Velocity
[ ]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

----------REVIEWER'S NOTE----------
The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiency * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

Safety factor ≥ 2 for systems with or without humidity control.

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst case design basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

5.5 Programs and Manuals

5.5.*10*~~11~~ Ventilation Filter Testing Program (continued)

d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 10%] when tested in accordance with [ASME N510-1989].

ESF Ventilation System	Wattage]
[ ]	[ ]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.*11*~~12~~ Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion),

5.5 Programs and Manuals

5.5.*11*~~12~~ Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.*12*~~13~~ Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits,

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

5.5 Programs and Manuals

5.5.*12*~~13~~ Diesel Fuel Oil Testing Program (continued)

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

5.5.*13*~~14~~ Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

   1. A change in the TS incorporated in the license or

   2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of 5.5.*13.*~~14~~b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.*14*~~15~~ Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,

5.5 Programs and Manuals

5.5.*14*~~15~~ Safety Function Determining Program (continued)

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable, or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable, or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.*15*~~16~~ Containment Leakage Rate Testing Program

[OPTION A]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.

b. The maximum allowable containment leakage rate, L_a at P_a, shall be [ ]% of containment air weight per day.

c. Leakage rate acceptance criteria are:

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and < 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

d. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION B]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

   1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

   2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

   [3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a is [45 psig]. The containment design pressure is [50 psig].

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

c. The maximum allowable containment leakage rate, L_a at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C] [Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

5.5 Programs and Manuals

5.5.*15*~~16~~ Containment Leakage Rate Testing Program (continued)

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and [< 0.75 L_a for Option A Type A tests] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5 Programs and Manuals

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program

----------REVIEWER'S NOTE----------
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

   1. Battery temperature correction may be performed before or after conducting discharge tests.

   2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

   3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

   4 In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

   5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

   1. Actions to restore battery cells with float voltage < [2.13] V;

5.5 Programs and Manuals

5.5.*16*~~17~~ Battery Monitoring and Maintenance Program (continued)

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Air Cleanup System (CREACS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

   [The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. ;and]

5.5 Programs and Manuals

5.5.*17*~~18~~ Control Room Envelope (CRE) Habitability Program (continued)

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.*18*~~19~~ [Setpoint Control Program

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

a. The program shall list the Functions in the following specifications to which it applies:

1. LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating [(Analog)] [(Digital)];"
2. LCO 3.3.2, "Reactor Protective System (RPS) Instrumentation - Shutdown [(Analog)] [(Digital)];"
3. LCO [3.3.3, "Control Element Assembly Calculators (CEACs) (Digital)];"
4. [LCO 3.3.4,"Engineered Safety Features Actuation System (ESFAS) Instrumentation (Analog);"] [LCO 3.3.5, "Engineered Safety Features Actuation System (ESFAS) Instrumentation (Digital);"]

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

5. [LCO 3.3.6, "Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Analog);"] [LCO 3.3.7, "Diesel Generator (DG) - Loss of Voltage Start (LOVS) (Digital);"]

6. [LCO 3.3.7, "Containment Purge Isolation Signal (CPIS) (Analog);"] [LCO 3.3.8, "Containment Purge Isolation Signal (CPIS) (Digital);"]
7. [LCO 3.3.8, "Control Room Isolation Signal (CRIS) (Analog);"] [LCO 3.3.9, "Control Room Isolation Signal (CRIS) (Digital);"];
8. [LCO 3.3.9, "Chemical and Volume Control System (CVCS) Isolation Signal (Analog);"]
9. [LCO 3.3.10, "Fuel Handling Isolation Signal (FHIS) (Digital);"]
10. LCO 3.3.13, "[Logarithmic] Power Monitoring Channels [(Analog)."] [(Digital)."]

b. The program shall require the [Limiting Trip Setpoint (LTSP)], [Nominal Trip Setpoint (NTSP)], Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the [LTSP], [NTSP], AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

---------- Reviewer's Note ----------
List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.
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1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

d. ----------REVIEWER'S NOTE----------
A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Protection System and Engineered Safety Feature Actuation System specifications unless one or more of the following exclusions apply:

1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.

2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.

3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The [LTSP] of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS and CHANNEL FUNCTIONAL TESTS that verify the [LTSP or NTSP].

1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified [LTSP or NTSP].

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified [LTSP or NTSP] by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [LTSP or NTSP] at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the [LTSP or NTSP] provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

5.5 Programs and Manuals

5.5.*18*~~19~~ Setpoint Control Program (continued)

e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.*19*~~20~~ [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

BASES

LCO 3.0.6 (continued)

some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.*14*~~15~~, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

The following examples use Figure B 3.0-1 to illustrate loss of safety function conditions that may result when a TS support system is inoperable. In this figure, the fifteen systems that comprise Train A are independent and redundant to the fifteen systems that comprise Train B. To correctly use the figure to illustrate the SFDP provisions for a cross train check, the figure establishes a relationship between support and supported systems as follows: the figure shows System 1 as a support system for System 2 and System 3; System 2 as a support system for System 4 and System 5; and System 4 as a support system for System 8 and System 9. Specifically, a loss of safety function may exist when a support system is inoperable and:

a. A system redundant to system(s) supported by the inoperable support system is also inoperable (EXAMPLE B 3.0.6-1),

b. A system redundant to system(s) in turn supported by the inoperable supported system is also inoperable (EXAMPLE B 3.0.6-2), or

c. A system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable (EXAMPLE B 3.0.6-3).

For the following examples, refer to Figure B 3.0-1.

<u>EXAMPLE B 3.0.6-1</u>

If System 2 of Train A is inoperable and System 5 of Train B is inoperable, a loss of safety function exists in Systems 5, 10, and 11.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*
SR 3.0.1	SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps. Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when either: a. The systems or components are known to be inoperable, although still meeting the SRs or b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances. Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a special test exception (STE) are only applicable when the STE is used as an allowable exception to the requirements of a Specification. Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition. Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have

to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

BASES

SR 3.0.1 (continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Auxiliary feedwater (AFW) pump turbine maintenance during refueling that requires testing at steam pressures > 800 psi. However, if other appropriate testing is satisfactorily completed, the AFW System can be considered OPERABLE. This allows startup and other necessary testing to proceed until the plant reaches the steam pressure required to perform the testing.

b. High pressure safety injection (HPSI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPSI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

BASES

SR 3.0.2 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs.

The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An~~ ~~E~~example*s* of where SR 3.0.2 does not apply *are* ~~is in~~ the Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a.* The*se*~~is~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance

with SR 3.0.2, and not at the time that the specified Frequency was not met.

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

BASES

SR 3.0.3 (continued)

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.” This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant

BASES

ACTIONS

A.1

With one pressurizer safety valve inoperable, restoration must take place within 15 minutes. The Completion Time of 15 minutes reflects the importance of maintaining the RCS overpressure protection system. An inoperable safety valve coincident with an RCS overpressure event could challenge the integrity of the RCPB.

B.1 and B.2

If the Required Action cannot be met within the required Completion Time or if two or more pressurizer safety valves are inoperable, the plant must be brought to a MODE in which the requirement does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR within [24] hours. The 6 hours allowed is reasonable, based on operating experience, to reach MODE 3 from full power without challenging plant systems. Similarly, the [24] hours allowed is reasonable, based on operating experience, to reach MODE 4 without challenging plant systems. With any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR, overpressure protection is provided by LTOP. The change from MODE 1, 2, or 3 to MODE 4 reduces the RCS energy (core power and pressure), lowers the potential for large pressurizer insurges, and thereby removes the need for overpressure protection by [two] pressurizer safety valves.

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME Code (Ref. 1), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valve setpoint is ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

REFERENCES

1. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1

Performance of leakage testing on each RCS PIV or isolation valve used to satisfy Required Action A.1 or A.2 is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition.

For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

Testing is to be performed every 9 months, but may be extended if the plant does not go into MODE 5 for at least 7 days. [The [18] month Frequency is consistent with 10 CFR 50.55a(g) (Ref. 8) *and* ~~, as contained in~~ the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~,*and* is within frequency allowed by the American Society of Mechanical Engineers (ASME) Code (Ref. 7), and is based on the need to perform the Surveillance under conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

In addition, testing must be performed once after the valve has been opened by flow or exercised to ensure tight reseating. PIVs disturbed in the performance of this Surveillance should also be tested unless documentation shows that an infinite testing loop cannot practically be avoided. Testing must be performed within 24 hours after the valve has been reseated. Within 24 hours is a reasonable and practical time limit for performing this test after opening or reseating a valve.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.18 Steam Generator (SG) Tube Integrity

BASES

BACKGROUND

Steam generator (SG) tubes are small diameter, thin walled tubes that carry primary coolant through the primary to secondary heat exchangers. The SG tubes have a number of important safety functions. Steam generator tubes are an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied on to maintain the primary system's pressure and inventory. The SG tubes isolate the radioactive fission products in the primary coolant from the secondary system. In addition, as part of the RCPB, the SG tubes are unique in that they act as the heat transfer surface between the primary and secondary systems to remove heat from the primary system. This Specification addresses only the RCPB integrity function of the SG. The SG heat removal function is addressed by LCO 3.4.4, "RCS Loops – MODES 1 and 2," LCO 3.4.5, "RCS Loops – MODE 3," LCO 3.4.6, "RCS Loops – MODE 4," and LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled.

SG tube integrity means that the tubes are capable of performing their intended RCPB safety function consistent with the licensing basis, including applicable regulatory requirements.

Steam generator tubing is subject to a variety of degradation mechanisms. Steam generator tubes may experience tube degradation related to corrosion phenomena, such as wastage, pitting, intergranular attack, and stress corrosion cracking, along with other mechanically induced phenomena such as denting and wear. These degradation mechanisms can impair tube integrity if they are not managed effectively. The SG performance criteria are used to manage SG tube degradation.

Specification 5.5.*8*~~9~~, "Steam Generator (SG) Program," requires that a program be established and implemented to ensure that SG tube integrity is maintained. Pursuant to Specification 5.5.*8*~~9~~, tube integrity is maintained when the SG performance criteria are met. There are three SG performance criteria: structural integrity, accident induced leakage, and operational LEAKAGE. The SG performance criteria are described in Specification 5.5.*8*~~9~~. Meeting the SG performance criteria provides reasonable assurance of maintaining tube integrity at normal and accident conditions.

The processes used to meet the SG performance criteria are defined by the Steam Generator Program Guidelines (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

The steam generator tube rupture (SGTR) accident is the limiting design basis event for SG tubes and avoiding an SGTR is the basis for this Specification. The analysis of a SGTR event assumes a bounding primary to secondary LEAKAGE rate equal to the operational LEAKAGE rate limits in LCO 3.4.13, "RCS Operational LEAKAGE," plus the leakage rate associated with a double-ended rupture of a single tube. The accident analysis for a SGTR assumes the contaminated secondary fluid is only briefly released to the atmosphere via safety valves and the majority is discharged to the main condenser.

The analysis for design basis accidents and transients other than a SGTR assume the SG tubes retain their structural integrity (i.e., they are assumed not to rupture.) In these analyses, the steam discharge to the atmosphere is based on the total primary to secondary LEAKAGE from all SGs of [1 gallon per minute] or is assumed to increase to [1 gallon per minute] as a result of accident induced conditions. For accidents that do not involve fuel damage, the primary coolant activity level of DOSE EQUIVALENT I-131 is assumed to be equal to the LCO 3.4.16, "RCS Specific Activity," limits. For accidents that assume fuel damage, the primary coolant activity is a function of the amount of activity released from the damaged fuel. The dose consequences of these events are within the limits of GDC 19 (Ref. 2), 10 CFR 100 (Ref. 3) or the NRC approved licensing basis (e.g., a small fraction of these limits).

Steam generator tube integrity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that SG tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the repair criteria be plugged [or repaired] in accordance with the Steam Generator Program.

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. If a tube was determined to satisfy the repair criteria but was not plugged [or repaired], the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall [and any repairs made to it], between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not considered part of the tube.

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 5.5.~~8~~9, "Steam Generator Program," and describe acceptable SG tube performance. The Steam Generator Program also provides the evaluation process for determining conformance with the SG performance criteria.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube repair criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a function of existing and potential degradation locations. The Steam Generator Program also specifies the inspection methods to be used to find potential degradation. Inspection methods are a function of degradation morphology, non-destructive examination (NDE) technique capabilities, and inspection locations.

The Steam Generator Program defines the Frequency of SR 3.4.18.1. The Frequency is determined by the operational assessment and other limits in the SG examination guidelines (Ref. 6). The Steam Generator Program uses information on existing degradations and growth rates to determine an inspection Frequency that provides reasonable assurance that the tubing will meet the SG performance criteria at the next scheduled inspection. In addition, Specification 5.5.*8*~~9~~ contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections.

SR 3.4.18.2

During an SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is [repaired or] removed from service by plugging. The tube repair criteria delineated in Specification 5.5.*8*~~9~~ are intended to ensure that tubes accepted for continued service satisfy the SG performance criteria with allowance for error in the flaw size measurement and for future flaw growth. In addition, the tube repair criteria, in conjunction with other elements of the Steam Generator Program, ensure that the SG performance criteria will continue to be met until the next inspection of the subject tube(s). Reference 1 provides guidance for performing operational assessments to verify that the tubes remaining in service will continue to meet the SG performance criteria.

[Steam generator tube repairs are only performed using approved repair methods as described in the Steam Generator Program.]

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the repair criteria are plugged [or repaired] prior to subjecting the SG tubes to significant primary to secondary pressure differential.

BASES

SURVEILLANCE REQUIREMENTS (continued)

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.2.4

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code. This type of testing may be accomplished by measuring the pump developed head at only one point of the pump characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the unit safety analysis. SRs are specified in the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ of the ASME Code. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

SR 3.5.2.5

Discharge head at design flow is a normal test of charging pump performance required by the ASME Code *and the INSERVICE TESTING PROGRAM*. A quarterly Frequency for such tests is a Code requirement. Such inservice inspections detect component degradation and incipient failures.

SR 3.5.2.6, SR 3.5.2.7, and SR 3.5.2.8

These SRs demonstrate that each automatic ECCS valve actuates to the required position on an actual or simulated SIAS and on an RAS, that each ECCS pump starts on receipt of an actual or simulated SIAS, and that the LPSI pumps stop on receipt of an actual or simulated RAS. This Surveillance is not required for valves that are locked, sealed, or

BASES

SURVEILLANCE REQUIREMENTS (continued)

otherwise secured in the required position under administrative controls. [The 18 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for unplanned transients if the Surveillances were performed with the reactor at power. The 18 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

The actuation logic is tested as part of the Engineered Safety Feature Actuation System (ESFAS) testing, and equipment performance is monitored as part of the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.5.2.9

Realignment of valves in the flow path on an SIAS is necessary for proper ECCS performance. The safety injection valves have stops to position them properly so that flow is restricted to a ruptured cold leg, ensuring that the other cold legs receive at least the required minimum flow. This SR is not required for units with flow limiting orifices. [The 18 month Frequency is based on the same factors as those stated above for SR 3.5.2.6, SR 3.5.2.7, and SR 3.5.2.8.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate, since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. Containment isolation valves that are open under administrative controls are not required to meet the SR during the time that they are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

The Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

SR 3.6.3.5

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of [18 months] or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is in accordance with [the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6A.5

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.6.6A.6 and SR 3.6.6A.7

These SRs verify that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

The surveillance of containment sump isolation valves is also required by SR 3.5.2.5. A single surveillance may be used to satisfy both requirements.

BASES

SURVEILLANCE REQUIREMENTS (continued)

description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.6.6B.4

Verifying the containment spray header is full of water to the [100] ft level minimizes the time required to fill the header. This ensures that spray flow will be admitted to the containment atmosphere within the time frame assumed in the containment analysis. [The 31 day Frequency is based on the static nature of the fill header and the low probability of a significant degradation of the water level in the piping occurring between surveillances.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

SR 3.6.6B.5

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by the ASME Code (Ref. 7). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.7.3

This SR provides verification of the N_2H_4 concentration in the spray additive tank and is sufficient to ensure that the spray solution being injected into containment is at the correct pH level. The concentration of N_2H_4 in the spray additive tank must be determined by chemical analysis. [The 184 day Frequency is sufficient to ensure that the concentration level of N_2H_4 in the spray additive tank remains within the established limits. This is based on the low likelihood of an uncontrolled change in concentration (the tank is normally isolated) and the probability that any substantial variance in tank volume will be detected.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.6.7.4

The chemical addition pump must be verified to provide the flow rate assumed in the accident analysis to the Containment Spray System. The Spray Additive System is not operated during normal operations. This prevents periodically subjecting systems, structures, and components within containment to a caustic spray solution. Therefore, this test must be performed on recirculation with the discharge flow path from each spray chemical addition pump aligned back to the spray additive tank. The differential pressure obtained by the pump on recirculation is analogous to the full spray additive flow provided to the Containment Spray System on an actual CSAS. The Frequency of this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ and is sufficient to identify component degradation that may affect flow rate.]

BASES

ACTIONS (continued)

C.1

If an inoperable HMS train cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.9.1

Operating each HMS train for ≥ 15 minutes ensures that the train is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan and/or motor failure, or excessive vibration can be detected for corrective action. [The 92 day Frequency is consistent with *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ Surveillance Frequencies, operating experience, the known reliability of the fan motors and controls, and the two train redundancy available.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.9.2

Verifying that each HMS train flow rate on slow speed is ≥ [37,000] cfm ensures that each train is capable of maintaining localized hydrogen concentrations below the flammability limit. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

ACTIONS (continued)

B.1 and B.2

If the vacuum relief line cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.12.1

This SR references the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, which establishes the requirement that inservice testing of the ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the ASME Boiler and Pressure Vessel Code and applicable Addenda (Ref. 2). Therefore, SR Frequency is governed by the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

REFERENCES

1. FSAR, Section [6.2].

2. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The limiting accident for peak RCS pressure is the full power feedwater line break (FWLB), inside containment, with the failure of the backflow check valve in the feedwater line from the affected steam generator. Water from the affected steam generator is assumed to be lost through the break with minimal additional heat transfer from the RCS. With heat removal limited to the unaffected steam generator, the reduced heat transfer causes an increase in RCS temperature, and the resulting RCS fluid expansion causes an increase in pressure. The RCS pressure increases to ≤ 2730 psig, with the pressurizer safety valves providing relief capacity. The maximum relieving rate of the MSSVs during the FWLB event is ≤ 2.5 E6 lb/hour, which is less than the rated capacity of two MSSVs.

Using conservative analysis assumptions, a small range of FWLB sizes less than a full double ended guillotine break produce an RCS pressure of 2765 psig for a period of 20 seconds; exceeding 110% (2750 psig) of design pressure. This is considered acceptable as RCS pressure is still well below 120% of design pressure where deformation may occur. The probability of this event is in the range of 4 E-6/year.

The MSSVs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires all MSSVs to be OPERABLE in compliance with Reference 2, even though this is not a requirement of the DBA analysis. This is because operation with less than the full number of MSSVs requires limitations on allowable THERMAL POWER (to meet Reference 2 requirements), and adjustment to the Reactor Protection System trip setpoints. These limitations are according to those shown in Table 3.7.1-1, Required Action A.1, and Required Action A.2 in the accompanying LCO. An MSSV is considered inoperable if it fails to open upon demand.

The OPERABILITY of the MSSVs is defined as the ability to open within the setpoint tolerances, relieve steam generator overpressure, and reseat when pressure has been reduced. The OPERABILITY of the MSSVs is determined by periodic surveillance testing in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

The lift settings, according to Table 3.7.1-2 in the accompanying LCO, correspond to ambient conditions of the valve at nominal operating temperature and pressure.

This LCO provides assurance that the MSSVs will perform their designed safety function to mitigate the consequences of accidents that could result in a challenge to the RCPB.

BASES

ACTIONS (continued)

109.2 = Ratio of MSSV relieving capacity at 110% steam generator design pressure to calculated steam flow rate at 100% RTP + 2% instrument uncertainty expressed as a percentage (see text above).

9.8 = Band between the maximum THERMAL POWER and the variable overpower trip setpoint ceiling (Table 3.7.1-1).

The operator should limit the maximum steady state power level to some value slightly below this setpoint to avoid an inadvertent overpower trip.

The 4 hour Completion Time for Required Action A.1 is a reasonable time period to reduce power level and is based on the low probability of an event occurring during this period that would require activation of the MSSVs. An additional 32 hours is allowed in Required Action A.2 to reduce the setpoints. The Completion Time of 36 hours for Required Action A.2 is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period.

B.1 and B.2

If the MSSVs cannot be restored to OPERABLE status in the associated Completion Time, or if one or more steam generators have less than two MSSVs OPERABLE, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSSVs by the verification of each MSSV lift setpoints in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. The ASME Code (Ref. 4), requires that safety and relief valve tests be performed in accordance with ANSI/ASME OM-1-1987 (Ref. 5). According to Reference 5, the following tests are required for MSSVs:

BASES

ACTIONS (continued)

D.1 and D.2

If the MSIVs cannot be restored to OPERABLE status, or closed, within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within [12] hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is within the limit given in Reference 5 and is within that assumed in the accident and containment analyses. This SR also verifies the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage. The MSIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As the MSIVs are not tested at power, they are exempt from the ASME Code (Ref. 6), requirements during operation in MODES 1 and 2.

The Frequency for this SR is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

This test is conducted in MODE 3, with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, in order to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. [The Frequency of MSIV testing is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

BASES

ACTIONS (continued)

C.1 and [C.2]

If the MFIVs and their bypass valves cannot be restored to OPERABLE status, closed, or isolated in the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours [, and in MODE 4 within [12] hours]. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each MFIV [and [MFIV] bypass valve] is within the limit given in Reference 2 and is within that assumed in the accident and containment analyses. This SR also verifies that the valve closure time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~. This SR is normally performed upon returning the unit to operation following a refueling outage. The MFIVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. As these valves are not tested at power, they are exempt from the ASME Code (Ref. 3) requirements during operation in MODES 1 and 2.

The Frequency is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

SR 3.7.3.2

This SR verifies that each MFIV [and [MFIV] bypass valve] can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage.

[The Frequency for this SR is every [18] months. The [18] month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.5.2

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of pump performance required by the ASME Code (Ref. 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing *as*~~,~~ discussed in the ASME Code (Ref. 2), *and the INSERVICE TESTING PROGRAM* ~~at 3 month intervals~~ satisfies this requirement.

This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is an insufficient steam pressure to perform the test.

SR 3.7.5.3

This SR ensures that AFW can be delivered to the appropriate steam generator, in the event of any accident or transient that generates an EFAS signal, by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 18 month Frequency is acceptable, based on the design reliability and operating experience of the equipment.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power subsystem batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.*16*~~17~~ for monitoring various battery parameters.

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one subsystem of DC sources OPERABLE during accident conditions, in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power and

b. A worst-case single failure.

Battery parameters satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the [licensee controlled program] is conducted as specified in Specification 5.5.*16*~~17~~.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystems. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With one or more cells in one or more batteries in one subsystem < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is no assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

B.1 and B.2

One or more batteries in one subsystem with float current > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is

BASES

ACTIONS (continued)

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

With one or more batteries in one subsystem with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.*16*~~17~~, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.*16*~~17~~.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from IEEE Standard 450. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced.

D.1

With one or more batteries in one subsystem with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.*16*~~17~~. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. [The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

operations. Every 18 months a CHANNEL CALIBRATION is performed. The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

These surveillances performed during MODE 6 will ensure that the valves are capable of closing after a postulated fuel handling accident [involving handling recently irradiated fuel] to limit a release of fission product radioactivity from the containment.

The SR is modified by a Note stating that this Surveillance is not required to be met for valves in isolated penetrations. The LCO provides the option to close penetrations in lieu of requiring automatic actuation capability.

REFERENCES

1. GPU Nuclear Safety Evaluation SE-0002000-001, Rev. 0, May 20, 1988.

2. FSAR, Section [ ].

3. NUREG-0800, Section 15.7.4, Rev. 1, July 1981.

1.1 Definitions

END OF CYCLE RECIRCULATION PUMP TRIP (EOC RPT) SYSTEM RESPONSE TIME	The EOC RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by [the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint] to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured, [except for the breaker arc suppression time, which is not measured but is validated to conform to the manufacturer's design value].
INSERVICE TESTING PROGRAM	*The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).*
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE into the drywell, such as that from pump seals or valve packing that is captured and conducted to a sump or collecting tank, or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, b. <u>Unidentified LEAKAGE</u> All LEAKAGE into the drywell that is not identified LEAKAGE, c. <u>Total LEAKAGE</u>

LCO Applicability

LCO 3.0.4 (continued)

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.7	Verify each pump develops a flow rate ≥ [41.2] gpm at a discharge pressure ≥ [1190] psig.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	[[18] months on a STAGGERED TEST BASIS OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	----------NOTE---------- ≤ [2] [required] S/RVs may be changed to a lower setpoint group. ---------- Verify the safety function lift setpoints of the [required] S/RVs are as follows: Number of S/RVs — Setpoint (psig) [4] — [1090 ± 32.7] [4] — [1100 ± 33.0] [3] — [1110 ± 33.3] Following testing, lift settings shall be within ± 1%.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [[18] months] OR In accordance with the Surveillance Frequency Control Program]
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each [required] S/RV opens when manually actuated.	[[18] months [on a STAGGERED TEST BASIS for each valve solenoid OR In accordance with the Surveillance Frequency Control Program]]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, de-activated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	----------NOTE---------- Not required to be performed in MODE 3. ---------- Verify equivalent leakage of each RCS PIV is ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure ≥ [ ] and ≤ [ ] psig.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [[18] months] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	[Verify each LPCI inverter output voltage is ≥ [570] V and ≤ [630] V while supplying the respective bus.	[31 days OR In accordance with the Surveillance Frequency Control Program]]
SR 3.5.1.6	----------NOTE---------- Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve [and bypass valve] cycles through one complete cycle of full travel [or is de-energized in the closed position].	 Once each startup prior to exceeding 25% RTP
SR 3.5.1.7	Verify the following ECCS pumps develop the specified flow rate [against a system head corresponding to the specified reactor pressure]. System / Flow Rate / No. of Pumps / [System Head Corresponding to a Reactor Pressure of] Core Spray: ≥ [4250] gpm, [1], ≥ [113] psig LPCI: ≥ [17,000] gpm, [2], ≥ [20] psig	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]. System / Flow Rate / No. of Pumps / [System Head Corresponding to a Reactor Pressure of] CS / ≥ [4250] gpm / [1] / ≥ [113] psig LPCI / ≥ [7700] gpm / [1] / ≥ [20] psig	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.6	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify continuity of the traversing incore probe (TIP) shear isolation valve explosive charge.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.1.3.6	Verify the isolation time of each power operated automatic PCIV, [except for MSIVs], is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ <u>OR</u> [92 days] <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.7	----------NOTE---------- [Only required to be met in MODES 1, 2 and 3.] ---------- Perform leakage rate testing for each primary containment purge valve with resilient seals.	[184 days <u>OR</u> In accordance with the Surveillance Frequency Control Program] <u>AND</u> Once within 92 days after opening the valve
SR 3.6.1.3.8	Verify the isolation time of each MSIV is ≥ [2] seconds and ≤ [8] seconds.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ <u>OR</u> [[18] months] <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate > [7700] gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR suppression pool spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.2.4.2	[Verify each RHR pump develops a flow rate ≥ [400] gpm through the heat exchanger while operating in the suppression pool spray mode.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

5.5 Programs and Manuals

5.5.6 Pre-Stressed Concrete Containment Tendon Surveillance Program (continued)

The provisions of SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.]

~~5.5.7 Inservice Testing Program~~

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:~~

~~a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plans (ASME OM Code) and applicable Addenda as follows:~~

~~ASME OM Code and applicable Addenda terminology for inservice testing activities~~	~~Required Frequencies for performing inservice testing activities~~
~~Weekly~~	~~At least once per 7 days~~
~~Monthly~~	~~At least once per 31 days~~
~~Quarterly or every 3 months~~	~~At least once per 92 days~~
~~Semiannually or every 6 months~~	~~At least once per 184 days~~
~~Every 9 months~~	~~At least once per 276 days~~
~~Yearly or annually~~	~~At least once per 366 days~~
~~Biennially or every 2 years~~	~~At least once per 731 days~~

~~b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,~~

~~c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and~~

~~d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.~~

5.5.~~7~~8 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system

5.5 Programs and Manuals

5.5.~~8~~7 Ventilation Filter Testing Program (continued)

bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below.

ESF Ventilation System	Penetration	RH	Face Velocity (fps)
[ ]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

----------REVIEWER'S NOTE----------
The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiently * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

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5.5.~~7~~8 Ventilation Filter Testing Program (continued)

Safety factor ≥ 2 for systems with or without humidity control.

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst-case design-basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

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d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 10%] when tested in accordance with [ASME N510-1989].

ESF Ventilation System	Wattage]
[ ]	[ ]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.~~8~~9 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

5.5 Programs and Manuals

5.5.~~8~~9 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion).

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.~~9~~10 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits,

5.5 Programs and Manuals

5.5.~~9~~10 Diesel Fuel Oil Testing Program (continued)

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test frequencies.

5.5.10~~11~~ Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.10.~~11~~b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.11~~12~~ Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

5.5 Programs and Manuals

5.5.*11*~~12~~ Safety Function Determination Program (continued)

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable,

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable, or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program

[OPTION A]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

b. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

c. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and < 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

d. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION B]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C][Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and [< 0.75 L_a for Option A Type A tests] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to ≥ [10] psig.

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.*13*~~14~~ Battery Monitoring and Maintenance Program

----------REVIEWER'S NOTE----------
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

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5.5.*13*~~14~~ Battery Monitoring and Maintenance Program (continued)

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4 In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < [2.13] V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5.5 Programs and Manuals

5.5.*13*~~14~~ Battery Monitoring and Maintenance Program (continued)

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.*14*~~15~~ Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE [Main Control Room Environmental Control (MCREC)] System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

   [The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. ;and]

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the [MCREC] System, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c.

5.5 Programs and Manuals

5.5.*14*~~15~~ Control Room Envelope (CRE) Habitability Program (continued)

The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.*15*~~16~~ [Setpoint Control Program

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

a. The program shall list the Functions in the following specifications to which it applies:

1. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation;"
2. LCO 3.3.1.2, "Source Range Monitor (SRM) Instrumentation;"
3. LCO 3.3.2.1, "Control Rod Block Instrumentation;"
4. LCO 3.3.2.2, "Feedwater and Main Turbine High Water Level Trip Instrumentation;"
5. LCO 3.3.4.1, "End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation;"
6. LCO 3.3.4.2, "Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation;"
7. LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation;"
8. LCO 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation;"
9. LCO 3.3.6.1, "Primary Containment Isolation Instrumentation;"
10. LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation;"
11. LCO 3.3.6.3, "Low-Low Set (LLS) Instrumentation;"
12. LCO 3.3.7.1, "[Main Control Room Environmental Control (MCREC)] System Instrumentation;"
13. LCO 3.3.8.1, "Loss of Power (LOP) Instrumentation;"
14. LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring."

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5.5.*15*~~16~~ Setpoint Control Program (continued)

b. The program shall require the [Limiting Trip Setpoint (LTSP)], [Nominal Trip Setpoint (NTSP)], Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the [LTSP], [NTSP], AV, AFT, and ALT (as applicable) for each Function described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

---------- Reviewer's Note ----------
List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.
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1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

d. ---------- REVIEWER'S NOTE ----------
A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Protection System (RPS) Instrumentation, Control Rod Block Instrumentation, End of Cycle-Recirculation Pump Trip (EOC-RPT) Instrumentation, Emergency Core Cooling System (ECCS) Instrumentation, and Reactor Core Isolation Cooling (RCIC) Instrumentation specifications unless one or more of the following exclusions apply:

1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.

2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.

5.5 Programs and Manuals

5.5.*15*~~16~~ Setpoint Control Program (continued)

3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The [LTSP] of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS, trip unit calibrations and CHANNEL FUNCTIONAL TESTS that verify the [LTSP or NTSP].

1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified [LTSP or NTSP].

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified [LTSP or NTSP] by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [LTSP or NTSP] at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the [LTSP or NTSP] provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.*16*~~17~~ [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

5.5 Programs and Manuals

5.5.*16*~~17~~ Surveillance Frequency Control Program (continued)

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

BASES

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for supported systems that have a support system LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*
SR 3.0.1	SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps. Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when: a. The systems or components are known to be inoperable, although still meeting the SRs or b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances. Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a Special Operations LCO are only applicable when the Special Operations LCO is used as an allowable exception to the requirements of a Specification. Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition.

BASES

SR 3.0.1 (continued)

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Control Rod Drive maintenance during refueling that requires scram testing at > [800 psi]. However, if other appropriate testing is satisfactorily completed and the scram time testing of SR 3.1.4.3 is satisfied, the control rod can be considered OPERABLE. This allows startup to proceed to reach [800 psi] to perform other necessary testing.

b. High pressure coolant injection (HPCI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPCI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

BASES

SR 3.0.2 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs.

The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An e~~*E*xample*s* of where SR 3.0.2 does not apply *are* ~~is in~~ the Primary Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a*. The*se*~~is~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance

with SR 3.0.2, and not at the time that the specified Frequency was not met.

BASES

SR 3.0.3 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.7

Demonstrating that each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1190 psig ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this Surveillance is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. The

BASES

ACTIONS (continued)

The allowed Completion Time is reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1 and C.2

If [three] or more [required] S/RVs are inoperable, a transient may result in the violation of the ASME Code limit on reactor pressure. The plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the [required] S/RVs will open at the pressures assumed in the safety analysis of Reference 1. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, [to be done in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~]. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint is ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift. [A Note is provided to allow up to [two] of the required [11] S/RVs to be physically replaced with S/RVs with lower setpoints. This provides operational flexibility which maintains the assumptions in the over-pressure analysis.]

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 18 months or the reference to the Surveillance Frequency Control Program should be used.

[The 18 month Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

OR

BASES

ACTIONS (continued)

B.1 and B.2

If leakage cannot be reduced or the system isolated, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and MODE 4 within 36 hours. This action may reduce the leakage and also reduces the potential for a LOCA outside the containment. The Completion Times are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

Performance of leakage testing on each RCS PIV is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition. For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 18 months or the reference to the Surveillance Frequency Control Program should be used.

[The 18 month Frequency required by the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ is within the ASME Code Frequency requirement and is based on the need to perform this Surveillance during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

OR

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. [The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

[The 31 day Frequency of this SR was derived from the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.1.6

Cycling the recirculation pump discharge [and bypass] valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps. De-energizing the valve in the closed position will also ensure the proper flow path for the LPCI subsystem. Acceptable methods of de-energizing the valve include de-energizing breaker control power, racking out the breaker or removing the breaker.

The specified Frequency is once during reactor startup before THERMAL POWER is > 25% RTP. However, this SR is modified by a Note that states the Surveillance is only required to be performed if the last performance was more than 31 days ago. Therefore, implementation of this Note requires this test to be performed during reactor startup before exceeding 25% RTP. Verification during reactor startup prior to reaching > 25% RTP is an exception to the normal *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ generic valve cycling Frequency, but is considered acceptable due to the demonstrated reliability of these valves. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of Reference 10. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and

BASES

SURVEILLANCE REQUIREMENTS (continued)

RPV pressure present during a LOCA. These values may be established during preoperational testing.

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is tested at both the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Reactor steam pressure must be ≥ [920] psig to perform SR 3.5.1.8 and ≥ [150] psig to perform SR 3.5.1.9. Adequate steam flow is represented by [at least 1.25 turbine bypass valves open, or total steam flow ≥ 10^6 lb/hr]. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.8 and SR 3.5.1.9 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of [92 days] or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency for SR 3.5.1.7 is [92 days] [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~]. The Frequency for SR 3.5.1.8 is in accordance with the Inservice Testing Program requirements. The 18 month Frequency for SR 3.5.1.9 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

[The 31 day Frequency of this SR was derived from the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system.

BASES

SURVEILLANCE REQUIREMENTS (continued)

when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ [920] psig to perform SR 3.5.3.3 and ≥ [150] psig to perform SR 3.5.3.4. Adequate steam flow is represented by [at least 1.25 turbine bypass valves open, or total steam flow ≥ 10^6 lb/hr]. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

[A 92 day Frequency for SR 3.5.3.3 is consistent with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements. The 18 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence; that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.5

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. [The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.1.3.6

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.7. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time is in accordance with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*, the Frequency "In accordance with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the requirements of the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*] [92 days

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

are required to be capable of closing (e.g., during handling of [recently] irradiated fuel), pressurization concerns are not present and the purge valves are not required to meet any specific leakage criteria.]

SR 3.6.1.3.8

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 100 limits.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*, the Frequency "In accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*" should be used. Otherwise, the periodic Frequency of 18 months or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the requirements of the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*] [18 months

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]].

SR 3.6.1.3.9

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The

BASES

SURVEILLANCE REQUIREMENTS (continued)

Frequency was developed considering it is prudent that this Surveillance be performed only during a unit outage since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating experience has shown that these components usually pass this Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.6.1.3.10

----------REVIEWER'S NOTE----------
The Surveillance is only allowed for those plants for which NEDO-32977-A, "Excess Flow Check Valve Testing Relaxation," June 2000, is applicable. In addition, the licensee must develop EFCV performance criteria and basis to ensure that their corrective action program can provide meaningful feedback for appropriate corrective actions. The EFCV performance criteria and basis must be found acceptable by the technical staff. If required, an ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM* relief request pursuant to 10 CFR 50.55a needs to be approved by the Technical Staff in order to implement this Surveillance. Otherwise, each EFCV shall be verified to actuate on an [18] month Frequency. The bracketed portions of these Bases apply to the representative sample as discussed in NEDO-32977-A.

This SR requires a demonstration that each [a representative sample of] reactor instrumentation line excess flow check valves (EFCV) is OPERABLE by verifying that the valve [reduces flow to ≤ 1 gph on a simulated instrument line break]. [The representative sample consists of an approximately equal number of EFCVs, such that each EFCV is tested at least once every 10 years (nominal). In addition, the EFCVs in the sample are representative of the various plant configurations, models, sizes and operating environments. This ensures that any potentially

BASES

ACTIONS (continued)

plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.7.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of [0.5] psid is maintained between the reactor building and suppression chamber. [The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

Two Notes are added to this SR. The first Note allows reactor-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers. The second Note is included to clarify that vacuum breakers open due to an actual differential pressure are not considered as failing this SR.

SR 3.6.1.7.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. [The [92] day Frequency of this SR was developed based upon *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements to perform valve testing at least once every [92] days.

OR

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.8.2

Each required vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. [The 31 day Frequency of this SR was developed, based on *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements to perform valve testing at least once every 92 days. A 31 day Frequency was chosen to provide additional assurance that the vacuum breakers are OPERABLE, since they are located in a harsh environment (the suppression chamber airspace).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

In addition, this functional test is required within 12 hours after either a discharge of steam to the suppression chamber from the safety/relief valves or after an operation that causes any of the vacuum breakers to open.

SR 3.6.1.8.3

Verification of the vacuum breaker opening setpoint is necessary to ensure that the safety analysis assumption regarding vacuum breaker full open differential pressure of [0.5] psid is valid. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. For this facility, the [18] month Frequency has been shown to be acceptable, based on operating experience, and is further justified

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ [7700] gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME Code (Ref. 3). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*, the Frequency "In accordance with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM*] [92 days]

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]].

REFERENCES

1. FSAR, Section [6.2].

2. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*, the Frequency "In accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*, but the Frequency must not exceed 92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

REFERENCES

1. FSAR, Section [6.2].

2. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.3.1.1

Operating each [required] [Drywell Cooling System fan] for ≥ 15 minutes ensures that each subsystem is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. [The 92 day Frequency is consistent with the ~~Inservice Testing Program~~ *INSERVICE TESTING PROGRAM* Frequencies, operating experience, the known reliability of the fan motors and controls, and the two redundant fans available.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

[SR 3.6.3.1.2

Verifying that each [required] [Drywell Cooling System fan] flow rate is ≥ [500] scfm ensures that each fan is capable of maintaining localized hydrogen concentrations below the flammability limit. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open.

SR 3.6.4.2.2

Verifying that the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time is in accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*, the Frequency "In accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the ~~Inservice Testing Program~~*INSERVICE TESTING PROGRAM*] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

SR 3.6.4.2.3

Verifying that each automatic SCIV closes on a secondary containment isolation signal is required to prevent leakage of radioactive material from [secondary] containment following a DBA or other accidents. This SR ensures that each automatic SCIV will actuate to the isolation position on

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC electrical power subsystems batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.*13*~~14~~ for monitoring various battery parameters.

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power subsystems provide normal and emergency DC electrical power for the diesel generators (DGs), emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one subsystem of DC sources OPERABLE during accident conditions, in the event of:

a. An assumed loss of all offsite AC or all onsite AC power and

b. A worst case single failure.

Since battery parameters support the operation of the DC electrical power subsystems, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the [licensee controlled program] is conducted as specified in Specification 5.5.*13*~~14~~.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussions in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With one or more cells in one or more batteries in one subsystem < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

B.1 and B.2

One or more batteries in one subsystem with float > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is

BASES

ACTIONS (continued)

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

With one or more batteries in one subsystem with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.*13*~~14~~, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.*13*~~14~~.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from IEEE Standard 450. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced.

D.1

With one or more batteries in one subsystem with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.*13*~~14~~. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. [The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

ACTIONS (continued)

a. There is a potential for decreased safety if the unit operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the unit to shutdown within this time limit.

b. The potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP).")

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC divisions made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

[B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer].

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected AC vital buses.

1.1 Definitions

END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by [the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint] to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured, [except for the breaker arc suppression time, which is not measured but is validated to conform to the manufacturer's design value].
INSERVICE TESTING PROGRAM	*The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).*
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.
LEAKAGE	LEAKAGE shall be: a. <u>Identified LEAKAGE</u> 1. LEAKAGE into the drywell such as that from pump seals or valve packing that is captured and conducted to a sump or collecting tank, or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, b. <u>Unidentified LEAKAGE</u> All LEAKAGE into the drywell that is not identified LEAKAGE, c. <u>Total LEAKAGE</u>

LCO Applicability

LCO 3.0.4 (continued)

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6 When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7 Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain LCO 3.0.7 unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

LCO 3.0.8 When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.7	Verify each pump develops a flow rate ≥ [41.2] gpm at a discharge pressure ≥ [1300] psig.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.1.7.8	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	[[18] months on a STAGGERED TEST BASIS OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.4.1	----------NOTE---------- ≤ [2] [required] S/RVs may be changed to a lower setpoint group. ---------- Verify the safety function lift setpoints of the [required] S/RVs are as follows: Number of S/RVs — Setpoint (psig) [8] — [1165 ± 34.9] [6] — [1180 ± 35.4] [6] — [1190 ± 35.7] Following testing, lift settings shall be within ± 1%.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [[18] months] OR In accordance with the Surveillance Frequency Control Program]
SR 3.4.4.2	----------NOTE---------- Valve actuation may be excluded. ---------- Verify each [required] relief function S/RV actuates on an actual or simulated automatic initiation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	----------NOTE---------- Not required to be performed in MODE 3. ---------- Verify equivalent leakage of each RCS PIV is ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm, at an RCS pressure ≥ [1040] psig and ≤ [1060] psig.	[In accordance with *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.1.3	Verify ADS [air receiver] pressure is ≥ [150] psig.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.1.4	Verify each ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]. System / Flow Rate / [System Head Corresponding to a Reactor Pressure of] LPCS / ≥ [7115] gpm / ≥ [290] psig LPCI / ≥ [7450] gpm / ≥ [125] psig HPCS / ≥ [7115] gpm / ≥ [445] psig	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate [against a system head corresponding to the specified reactor pressure]. System — Flow Rate — [System Head Corresponding to a Reactor Pressure of] LPCS — ≥ [7115] gpm — ≥ [290] psig LPCI — ≥ [7450] gpm — ≥ [125] psig HPCS — ≥ [7115] gpm — ≥ [445] psig	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.5.2.6	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV[, except MSIVs,] is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.1.3.6	----------NOTE---------- [[Only required to be met in MODES 1, 2, and 3.] ---------- Perform leakage rate testing for each primary containment purge valve with resilient seals.	[184 days OR In accordance with the Surveillance Frequency Control Program] AND Once within 92 days after opening the valve]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.7	Verify the isolation time of each MSIV is ≥ [3] seconds and ≤ [5] seconds.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [[18] months] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.1.3.8	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.1.3.9	----------NOTE---------- [[Only required to be met in MODES 1, 2, and 3.] ---------- Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ [ ] L_a when pressurized to ≥ [ ] psig.	In accordance with the Primary Containment Leakage Rate Testing Program]
SR 3.6.1.3.10	----------NOTE---------- [Only required to be met in MODES 1, 2, and 3.] ----------	[In accordance with the Primary Containment

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.7.1	----------NOTE---------- RHR containment spray subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below [the RHR cut in permissive pressure in MODE 3] if capable of being manually realigned and not otherwise inoperable. ---------- Verify each RHR containment spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	[31 days <u>OR</u> In accordance with the Surveillance Frequency Control Program]
SR 3.6.1.7.2	Verify each RHR pump develops a flow rate of ≥ [5650] gpm on recirculation flow through the associated heat exchanger to the suppression pool.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ <u>OR</u> [92 days] <u>OR</u> In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ [7450] gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.2	Verify the isolation time of each power operated, automatic SCIV is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated automatic isolation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.5.3.4	Verify the isolation time of each power operated, automatic drywell isolation valve is within limits.	[In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ OR [92 days] OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.5.3.5	Verify each automatic drywell isolation valve actuates to the isolation position on an actual or simulated isolation signal.	[[18] months OR In accordance with the Surveillance Frequency Control Program]
SR 3.6.5.3.6	[Verify each [ ] inch drywell purge isolation valve is blocked to restrict the valve from opening > [50]%.	[[18] months OR In accordance with the Surveillance Frequency Control Program]]

5.5 Programs and Manuals

~~5.5.7 Inservice Testing Program~~

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:~~

~~a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:~~

~~ASME OM Code and applicable Addenda terminology for inservice testing activities~~	~~Required Frequencies for performing inservice testing activities~~
~~Weekly~~	~~At least once per 7 days~~
~~Monthly~~	~~At least once per 31 days~~
~~Quarterly or every 3 months~~	~~At least once per 92 days~~
~~Semiannually or every 6 months~~	~~At least once per 184 days~~
~~Every 9 months~~	~~At least once per 276 days~~
~~Yearly or annually~~	~~At least once per 366 days~~
~~Biennially or every 2 years~~	~~At least once per 731 days~~

~~b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities,~~

~~c. The provisions of SR 3.0.3 are applicable to inservice testing activities, and~~

~~d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.~~

5.5.~~7~~8 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2; ASME N510-1989; and AG-1].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%]:

5.5 Programs and Manuals

5.5.~~78~~ Ventilation Filter Testing Program (continued)

ESF Ventilation System	Flowrate
[ ]	[ ]

b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%]:

ESF Ventilation System	Flowrate
[ ]	[ ]

c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in [Regulatory Guide 1.52, Revision 2], shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below:

ESF Ventilation System	Penetration	RH	Face Velocity (fps)
[ ]	[See Reviewer's Note]	[See Reviewer's Note]	[See Reviewer's Note]

----------REVIEWER'S NOTE----------
The use of any standard other than ASTM D3803-1989 to test the charcoal sample may result in an overestimation of the capability of the charcoal to adsorb radioiodine. As a result, the ability of the charcoal filters to perform in a manner consistent with the licensing basis for the facility is indeterminate.

ASTM D 3803-1989 is a more stringent testing standard because it does not differentiate between used and new charcoal, it has a longer equilibration period performed at a temperature of 30°C (86°F) and a relative humidity (RH) of 95% (or 70% RH with humidity control), and it has more stringent tolerances that improve repeatability of the test.

Allowable Penetration = [(100% - Methyl Iodide Efficiently * for Charcoal Credited in Licensee's Accident Analysis) / Safety Factor]

When ASTM D3803-1989 is used with 30°C (86°F) and 95% RH (or 70% RH with humidity control) is used, the staff will accept the following:

Safety factor ≥ 2 for systems with or without humidity control.

5.5 Programs and Manuals

5.5.~~7~~8 Ventilation Filter Testing Program (continued)

Humidity control can be provided by heaters or an NRC-approved analysis that demonstrates that the air entering the charcoal will be maintained less than or equal to 70 percent RH under worst-case design basis conditions.

If the system has a face velocity greater than 110 percent of 0.203 m/s (40 ft/min), the face velocity should be specified.

*This value should be the efficiency that was incorporated in the licensee's accident analysis which was reviewed and approved by the staff in a safety evaluation.

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d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is less than the value specified below when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%]:

ESF Ventilation System	Delta P	Flowrate
[ ]	[ ]	[ ]

[e. Demonstrate that the heaters for each of the ESF systems dissipate the value specified below [± 10%] when tested in accordance with [ASME N510-1989]:

ESF Ventilation System	Wattage]
[ ]	[ ]

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.~~8~~9 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the [Waste Gas Holdup System], [the quantity of radioactivity contained in gas storage tanks or fed into the offgas treatment system, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks]. The gaseous radioactivity quantities shall be determined following the methodology in [Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure"]. The liquid radwaste quantities shall be determined in accordance with [Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures"].

The program shall include:

5.5 Programs and Manuals

5.5.~~8~~9 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

a. The limits for concentrations of hydrogen and oxygen in the [Waste Gas Holdup System] and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion),

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents], and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.~~9~~10 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,

   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits,

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

5.5 Programs and Manuals

5.5.~~9~~10 Diesel Fuel Oil Testing Program (continued)

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies.

5.5.10~~11~~ Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

   1. A change in the TS incorporated in the license or

   2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of 5.5.10.~~11~~b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.11~~12~~ Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected,

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists,

5.5 Programs and Manuals

5.5.*11*~~12~~ Safety Function Determination Program (continued)

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities, and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, no concurrent loss of offsite power, or no concurrent loss of onsite diesel generator(s), a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable,

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable, or

c. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program

[OPTION A]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option A, as modified by approved exemptions.

b. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

c. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60\ L_a$ for the Type B and C tests and $< 0.75\ L_a$ for Type A tests.

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

d. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

e. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION B]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

[3. . . .]

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and ≤ 0.75 L_a for Type A tests.

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05] L_a when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01] L_a when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

[OPTION A/B Combined]

a. A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J. [Type A][Type B and C] test requirements are in accordance with 10 CFR 50, Appendix J, Option A, as modified by approved exemptions. [Type B and C][Type A] test requirements are in accordance with 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. The 10 CFR 50, Appendix J, Option B test requirements shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:

   1. The visual examination of containment concrete surfaces intended to fulfill the requirements of 10 CFR 50, Appendix J, Option B testing, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWL, except where relief has been authorized by the NRC.

   2. The visual examination of the steel liner plate inside containment intended to fulfill the requirements of 10 CFR50, Appendix J, Option B, will be performed in accordance with the requirements of and frequency specified by the ASME Section XI Code, Subsection IWE, except where relief has been authorized by the NRC.

   [3. . . .]

5.5 Programs and Manuals

5.5.*12*~~13~~ Primary Containment Leakage Rate Testing Program (continued)

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is [45 psig]. The containment design pressure is [50 psig].

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be [ ]% of containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and [< 0.75 L_a for Option A Type A tests] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥ 10 psig].

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.*13*~~14~~ Battery Monitoring and Maintenance Program

----------REVIEWER'S NOTE----------
This program and the corresponding requirements in LCO 3.8.4, LCO 3.8.5, and LCO 3.8.6 require providing the information and verifications requested in the Notice of Availability for TSTF-500, Revision 2, "DC Electrical Rewrite - Update to TSTF-360," (76FR54510).

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

5.5 Programs and Manuals

5.5.*13*~~14~~ Battery Monitoring and Maintenance Program (continued)

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4 In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < [2.13] V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.*14*~~15~~ Control Room Envelope (CRE) Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an

5.5 Programs and Manuals

5.5.*14*~~15~~ Control Room Envelope (CRE) Habitability Program (continued)

OPERABLE [Main Control Room Environmental Control (MCREC)] System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

   [The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. ;and]

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the [MCREC] System, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the [18] month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring

5.5 Programs and Manuals

5.5.*14*~~15~~ Control Room Envelope (CRE) Habitability Program (continued)

CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.*15*~~16~~ [Setpoint Control Program

This program shall establish the requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses, provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program shall ensure that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required.

a. The program shall list the Functions in the following specifications to which it applies:

1. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation;"
2. LCO 3.3.1.2, "Source Range Monitor (SRM) Instrumentation;"
3. LCO 3.3.2.1, "Control Rod Block Instrumentation;"
4. LCO 3.3.2.2, "Feedwater and Main Turbine High Water Level Trip Instrumentation;"
5. LCO 3.3.4.1, "End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation;"
6. LCO 3.3.4.2, "Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation;"
7. LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation;"
8. LCO 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation;"
9. LCO 3.3.6.1, "Primary Containment Isolation Instrumentation;"
10. LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation;"
11. LCO 3.3.6.3, "Low-Low Set (LLS) Instrumentation;"
12. LCO 3.3.7.1, "[Main Control Room Environmental Control (MCREC)] System Instrumentation;"
13. LCO 3.3.8.1, "Loss of Power (LOP) Instrumentation;"
14. LCO 3.3.8.2, "Reactor Protection System (RPS) Electric Power Monitoring."

b. The program shall require the [Limiting Trip Setpoint (LTSP)], [Nominal Trip Setpoint NTSP], Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) (as applicable) of the Functions described in paragraph a. are calculated using the NRC approved setpoint methodology, as listed below. In addition, the program shall contain the value of the [LTSP], [NTSP], AV, AFT, and ALT (as applicable) for each Function

5.5 Programs and Manuals

5.5.*15*~~16~~ Setpoint Control Program (continued)

described in paragraph a. and shall identify the setpoint methodology used to calculate these values.

---------- Reviewer's Note ----------
List the NRC safety evaluation report by letter, date, and ADAMS accession number (if available) that approved the setpoint methodologies.
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1. [Insert reference to NRC safety evaluation that approved the setpoint methodology.]

c. The program shall establish methods to ensure that Functions described in paragraph a. will function as required by verifying the as-left and as-found settings are consistent with those established by the setpoint methodology.

d. ---------- REVIEWER'S NOTE ----------
A license amendment request to implement a Setpoint Control Program must list the instrument functions to which the program requirements of paragraph d. will be applied. Paragraph d. shall apply to all Functions in the Reactor Protection System (RPS) Instrumentation, Control Rod Block Instrumentation, End of Cycle-Recirculation Pump Trip (EOC-RPT) Instrumentation, Emergency Core Cooling System (ECCS) Instrumentation, and Reactor Core Isolation Cooling (RCIC) Instrumentation specifications unless one or more of the following exclusions apply:

1. Manual actuation circuits, automatic actuation logic circuits or to instrument functions that derive input from contacts which have no associated sensor or adjustable device, e.g., limit switches, breaker position switches, manual actuation switches, float switches, proximity detectors, etc. are excluded. In addition, those permissives and interlocks that derive input from a sensor or adjustable device that is tested as part of another TS function are excluded.

2. Settings associated with safety relief valves are excluded. The performance of these components is already controlled (i.e., trended with as-left and as-found limits) under the ASME Code for Operation and Maintenance of Nuclear Power Plants testing program.

3. Functions and Surveillance Requirements which test only digital components are normally excluded. There is no expected change in result between SR performances for these components. Where separate as-left and as-found tolerance is established for digital component SRs, the requirements would apply.

5.5 Programs and Manuals

5.5.*15*~~16~~ Setpoint Control Program (continued)

The program shall identify the Functions described in paragraph a. that are automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A). The [LTSP] of these Functions are Limiting Safety System Settings. These Functions shall be demonstrated to be functioning as required by applying the following requirements during CHANNEL CALIBRATIONS, trip unit calibrations and CHANNEL FUNCTIONAL TESTS that verify the [LTSP or NTSP].

1 The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified [LTSP or NTSP].

2. If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified [LTSP or NTSP] by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated before declaring the SR met and returning the instrument channel to service. This condition shall be entered in the plant corrective action program.

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.

4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [LTSP or NTSP] at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the [LTSP or NTSP] provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).

e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.*16*~~17~~ [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

5.5 Programs and Manuals

5.5.*16*~~17~~ Surveillance Frequency Control Program (continued)

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

BASES

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for supported systems that have a support system LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs	SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated. *SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.*
SR 3.0.1	SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps. Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when: a. The systems or components are known to be inoperable, although still meeting the SRs or b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances. Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a Special Operations LCO are only applicable when the Special Operations LCO is used as an allowable exception to the requirements of a Specification. Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition.

BASES

SR 3.0.1 (continued)

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed. Some examples of this process are:

a. Control Rod Drive maintenance during refueling that requires scram testing at > [800 psi]. However, if other appropriate testing is satisfactorily completed and the scram time testing of SR 3.1.4.3 is satisfied, the control rod can be considered OPERABLE. This allows startup to proceed to reach [800 psi] to perform other necessary testing.

b. Reactor Core Isolation Cooling (RCIC) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with RCIC considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

BASES

SR 3.0.2 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs.

The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. ~~An~~ ~~E~~example*s* of where SR 3.0.2 does not apply *are* ~~is in~~ the Primary Containment Leakage Rate Testing Program *required by 10 CFR 50, Appendix J, and the inservice testing of pumps and valves in accordance with applicable American Society of Mechanical Engineers Operation and Maintenance Code, as required by 10 CFR 50.55a*. Th*ese*~~is~~ program*s* establish~~es~~ testing requirements and Frequencies in accordance with the requirements of regulations. The TS cannot*,* in and of themselves*,* extend a test interval specified in the regulations *directly or by reference*.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance

with SR 3.0.2, and not at the time that the specified Frequency was not met.

BASES

SR 3.0.3 (continued)

When a Section 5.5, "Programs and Manuals," specification states that the provisions of SR 3.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 3.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 3.0.2 if invoked by the Section 5.5 specification).

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements. When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, “Assessing and

BASES

SURVEILLANCE REQUIREMENTS (continued)

inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

The Frequency of this Surveillance is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
---]]

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. [The pump and explosive valve tested should be alternated such that both complete flow paths are tested every 36 months, at alternating 18 month intervals. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance test when performed at the 18 month Frequency;

BASES

ACTIONS (continued)

Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 4) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state.

Required Action B.1 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 3. This Note prohibits the use of LCO 3.0.4.a to enter MODE 3 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 3, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

C.1 and C.2

If [two] or more [required] S/RVs are inoperable, a transient may result in the violation of the ASME Code limit on reactor pressure. The plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.4.1

This Surveillance demonstrates that the [required] S/RVs will open at the pressures assumed in the safety analysis of Reference 2. The demonstration of the S/RV safety function lift settings must be performed during shutdown, since this is a bench test[, and in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~]. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint is ± [3]% for OPERABILITY; however, the valves are reset to ± 1% during

the Surveillance to allow for drift. [A Note is provided to allow up to [two] of the required [11] S/RVs to be physically

BASES

SURVEILLANCE REQUIREMENTS (continued)

replaced with S/RVs with lower setpoints. This provides operational flexibility which maintains the assumptions in the over-pressure analysis.]

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 18 months or the reference to the Surveillance Frequency Control Program should be used.

[The [18 month] Frequency was selected because this Surveillance must be performed during shutdown conditions and is based on the time between refuelings.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
---]

SR 3.4.4.2

The [required] relief function S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to verify the mechanical portions of the automatic relief function operate as designed when initiated either by an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.5.4 overlaps this SR to provide complete testing of the safety function.

[The [18 month] Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

ACTIONS (continued)

reduces the potential for a LOCA outside the containment. The Completion Times are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

Performance of leakage testing on each RCS PIV is required to verify that leakage is below the specified limit and to identify each leaking valve. The leakage limit of 0.5 gpm per inch of nominal valve diameter up to 5 gpm maximum applies to each valve. Leakage testing requires a stable pressure condition. For the two PIVs in series, the leakage requirement applies to each valve individually and not to the combined leakage across both valves. If the PIVs are not individually leakage tested, one valve may have failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 18 months or the reference to the Surveillance Frequency Control Program should be used.

[The 18 month Frequency required by the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ is within the ASME Code Frequency requirement and is based on the need to perform this Surveillance under the conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The 31 day Frequency of this SR was derived from the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve alignment would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.1.3

Verification that ADS air receiver pressure is ≥ [150] psig assures adequate air pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The designed pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least two valve actuations can occur with the drywell at 70% of design pressure (Ref. 15). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. This minimum required pressure of [150] psig is provided by the ADS Instrument Air Supply System. [The 31 day Frequency takes into consideration administrative control over operation of the Instrument Air Supply System and alarms for low air pressure.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.

----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.4

The performance requirements of the ECCS pumps are determined through application of the 10 CFR 50, Appendix K, criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of 10 CFR 50.46 (Ref. 10).

The pump flow rates are verified against a system head that is equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during LOCAs. These values may be established during pre-operational testing.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[A 92 day Frequency for this Surveillance is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.1.5

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.5.3.2

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

[The 31 day Frequency of this SR was derived from the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements for performing valve testing at least every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ [920] psig to perform SR 3.5.3.3 and ≥ [150] psig to perform SR 3.5.3.4. Adequate steam flow is represented by [at least 1.25 turbine bypass valves open, or total steam flow ≥ 10^6 lb/hr. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

[A 92 day Frequency for SR 3.5.3.3 is consistent with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ requirements. The 18 month Frequency for SR 3.5.3.4 is based on the need to perform this Surveillance under the conditions that apply just prior to or during startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

is low. A second Note is included to clarify that PCIVs that are open under administrative controls are not required to meet the SR during the time that the PCIVs are open.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time is in accordance with the Inservice Testing Program.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

[SR 3.6.1.3.6

For primary containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option [A][B] (Ref. 7), is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[Based on this observation, and the importance of maintaining this penetration leak tight (due to the direct path between primary containment and the environment), a Frequency of 184 days was established.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the valve could introduce additional seal degradation (beyond that which occurs to a valve that has not been opened). Thus, decreasing the interval is a prudent measure after a valve has been opened.

The SR is modified by a Note stating that the primary containment purge valves are only required to meet leakage rate testing requirements in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, purge valve leakage must be minimized to ensure offsite radiological release is within limits. At other times when the purge valves are required to be capable of closing (e.g., during handling of [recently] irradiated fuel), pressurization concerns are not present and the purge valves are not required to meet any specific leakage criteria.]

SR 3.6.1.3.7

Verifying that the full closure isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The full closure isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [18 months.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]]

SR 3.6.1.3.8

Automatic PCIVs close on a primary containment isolation signal to prevent leakage of radioactive material from primary containment following a DBA. This SR ensures that each automatic PCIV will actuate to its isolation position on a primary containment isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass this Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

BASES

SURVEILLANCE REQUIREMENTS (continued)

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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SR 3.6.1.7.3

This SR verifies that each RHR containment spray subsystem automatic valve actuates to its correct position upon receipt of an actual or simulated automatic actuation signal. Actual spray initiation is not required to meet this SR. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.3.6 overlaps this SR to provide complete testing of the safety function. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying each RHR pump develops a flow rate ≥ [7450] gpm, while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME (Ref. 3). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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REFERENCES

1. FSAR, Section [6.2].

2. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

ACTIONS (continued)

the ability to perform the hydrogen control function is maintained, continued operation is permitted with two [drywell purge] subsystems inoperable for up to 7 days. Seven days is a reasonable time to allow two [drywell purge] subsystems to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of an accident that would generate hydrogen in amounts capable of exceeding the flammability limit.

C.1

If any Required Action and the required Completion Time cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2.1

Operating each [drywell purge] subsystem for ≥ 15 minutes ensures that each subsystem is OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, compressor failure, or excessive vibration can be detected for corrective action. [The 92 day Frequency is consistent with *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~ Frequencies, operating experience, the known reliability of the compressor and controls, and the two redundant subsystems available.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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[SR 3.6.3.2.2

BASES

SURVEILLANCE REQUIREMENTS (continued)

Two Notes have been added to this SR. The first Note applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, and 3 for ALARA reasons. Therefore, the probability of misalignment of these SCIVs, once they have been verified to be in the proper position, is low.

A second Note has been included to clarify that SCIVs that are open under administrative controls are not required to meet the SR during the time the SCIVs are open.

SR 3.6.4.2.2

Verifying the isolation time of each power operated, automatic SCIV is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the SCIV will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time is in accordance with the Inservice Testing Program.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.5.3.4

Verifying that the isolation time of each power operated, automatic drywell isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analysis. The isolation time is in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~.

----------REVIEWER'S NOTE----------
If the testing is within the scope of the licensee's *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~, the Frequency "In accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.

[The Frequency of this SR is [in accordance with the *INSERVICE TESTING PROGRAM* ~~Inservice Testing Program~~] [92 days.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
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SR 3.6.5.3.5

Verifying that each automatic drywell isolation valve closes on a drywell isolation signal is required to prevent bypass leakage from the drywell following a DBA. This SR ensures each automatic drywell isolation valve will actuate to its isolation position on a drywell isolation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.6.1.6 overlaps this SR to provide complete testing of the safety function. [The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power, since isolation of penetrations would eliminate cooling water flow and disrupt the normal operation of many critical components. Operating

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND	This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power source batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5.*13*~~14~~ for monitoring various battery parameters. The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.25] Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of [2.22] Vpc corresponds to a total float voltage output of [128.8] V for a [58] cell battery as discussed in the FSAR, Chapter [8] (Ref. 2).
APPLICABLE SAFETY ANALYSES	The initial conditions of Design Basis Accident (DBA) and transient analyses in FSAR, Chapter [6] (Ref. 3) and Chapter [15] (Ref. 4), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power subsystems provide normal and emergency DC electrical power for the diesel generators, emergency auxiliaries, and control and switching during all MODES of operation. The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one subsystem of DC sources OPERABLE during accident conditions, in the event of: a. An assumed loss of all offsite AC power or all onsite AC power and b. A worst case single failure. Since battery parameters support the operation of the DC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the [licensee controlled program] is conducted as specified in Specification 5.5.*13*~~14~~.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

A.1, A.2, and A.3

With one or more cells in one or more batteries in one subsystem < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours.

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

B.1 and B.2

One or more batteries in one subsystem with float > [2] amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is operating in the current limit mode. Condition A addresses charger

BASES

ACTIONS (continued)

C.1, C.2, and C.3

With one or more batteries in one subsystem with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established.

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.*13*~~14~~, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.*13*~~14~~.b item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from IEEE Standard 450. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced.

D.1

With one or more batteries in one subsystem with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

E.1

With one or more batteries in redundant subsystems with battery parameters not within limits there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved this potential could result in a

BASES

SURVEILLANCE REQUIREMENTS (continued)

taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of [2] amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained.

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to [130.5] V at the battery terminals, or [2.25] Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than [2.07] Vpc, are addressed in Specification 5.5.*13*~~14~~. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of [2.07] V. [The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

----------REVIEWER'S NOTE----------
Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.
----------]

SR 3.8.6.3

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. [The Frequency is consistent with IEEE-450 (Ref. 1).

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS (continued)

a. There is potential for decreased safety if the unit operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the unit to shutdown within this time limit.

b. The potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.*11*~~12~~, "Safety Function Determination Program (SFDP).")

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC divisions made inoperable by inoperable power distribution subsystems. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components. Inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

[B.1

With one or more Division 1 and 2 AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down and maintain the unit in the safe shutdown condition. Overall reliability is reduced, however, because an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated [inverter via inverted DC, inverter using internal AC source, or Class 1E constant voltage transformer].

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source nonfunctioning. In this situation, the plant is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected vital bus.