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10 CFR 50.90

Serial: RA-17-0005
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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

CATAWBA NUCLEAR STATION, UNITS 1 AND 2
DOCKET NOS. 50-413 AND 50-414 / RENEWED LICENSE NOS. NPF-35 AND NPF-52

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2
DOCKET NOS. 50-369 AND 50-370 / RENEWED LICENSE NOS. NPF-9 AND NPF-17

OCONEE NUCLEAR STATION, UNIT NOS. 1, 2 AND 3
DOCKET NOS. 50-269, 50-270 AND 50-287 / RENEWED LICENSE NOS. DPR-38, DPR-47 AND DPR-55

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261 / RENEWED LICENSE NO. DPR-23

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"

Pursuant to 10 CFR 50.90, Duke Energy Progress, LLC, and Duke Energy Carolinas, LLC, collectively referred to henceforth as "Duke Energy," is submitting a request for amendments to the Technical Specifications (TS) for Catawba Nuclear Station (CNS), Units 1 and 2; McGuire Nuclear Station (MNS), Units 1 and 2; Oconee Nuclear Station (ONS), Units 1, 2 and 3; Shearon Harris Nuclear Power Plant (HNP), Unit 1; and H. B. Robinson Steam Electric Plant (RNP), Unit No. 2.

The proposed change would modify TS requirements regarding inservice testing. This request is consistent with NRC-approved Technical Specifications Task Force (TSTF) Traveler TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing."

Attachment 1 provides a description and assessment of the proposed change. Attachment 2 provides the existing TS pages marked up to show the proposed change. Attachment 3 provides existing TS Bases pages marked up to show the proposed change. Changes to the existing TS Bases will be implemented under the Technical Specification Bases Control

Program. They are provided in Attachment 3 for information only. The retyped TS pages will be provided to the NRC immediately prior to issuance of the approved amendments.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and it has been determined that the proposed change involves no significant hazards consideration. The bases for these determinations are included in Attachment 1.

This submittal contains no regulatory commitments.

Duke Energy requests approval of the proposed change by November 7, 2018. Once approved, the amendments will be implemented within 120 days.

In accordance with 10 CFR 50.91, a copy of this application, with Attachments, is being provided to the designated North Carolina and South Carolina officials.

If you should have any questions regarding this submittal, or require additional information, please contact Art Zaremba, Manager – Nuclear Fleet Licensing, at (980)373-2062.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 7, 2017.

Sincerely,

Kelvin Henderson
Senior Vice President – Nuclear Corporate

JLV

Attachments:
1. Description and Assessment of Technical Specifications Changes
2. Proposed Technical Specification Changes (Mark-up)
3. Proposed Technical Specification Bases Changes (Mark-up) – For Information Only

cc (with Attachments):

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G. A. Hutto, USNRC Senior Resident Inspector - MNS
D. Retterer, USNRC Senior Resident Inspector – HNP
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A. L. Klett, NRR Project Manager – ONS
A. Gantt, Chief, Bureau of Radiological Health (SC)
A. Wilson, Attorney General (SC)
W. L. Cox, III, Section Chief, North Carolina Department of Health and Human Services, RP Section (NC)
S. E. Jenkins, Manager, Radioactive and Infectious Waste Management (SC)

Attachment 1

Description and Assessment of Technical Specifications Changes

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"

1.0 DESCRIPTION

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

2.2 Variations

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

4.0 ENVIRONMENTAL EVALUATION

1.0 DESCRIPTION

The proposed change affects the Technical Specifications (TS) for Catawba Nuclear Station (CNS), Units 1 and 2; McGuire Nuclear Station (MNS), Units 1 and 2; Oconee Nuclear Station (ONS), Units 1, 2 and 3; Shearon Harris Nuclear Power Plant (HNP), Unit 1; and H. B. Robinson Steam Electric Plant (RNP), Unit No. 2. The proposed change eliminates the "Inservice Testing Program" from Technical Specification (TS) Section 5.5 (TS Section 6.8.4 for HNP), removing 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 (TS Section 1.0 for HNP), "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

Duke Energy has reviewed the model safety evaluation provided to the Technical Specifications Task Force in a letter dated December 11, 2015 (NRC ADAMS Accession Nos. ML15314A365 and ML15314A305). This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-545. Duke Energy has concluded that the justifications presented in TSTF-545, and the model safety evaluation prepared by the NRC staff are applicable to CNS, MNS, ONS, HNP, and RNP, and justify this amendment for the incorporation of the changes to each plant's TS.

CNS was issued a construction permit on August 7, 1975 and the provisions of 10 CFR 50.55a(f)(3) are applicable. MNS was issued a construction permit on February 28, 1973 and the provisions of 10 CFR 50.55a(f)(2) are applicable. ONS was issued a construction permit on November 6, 1967 and the provisions of 10 CFR 50.55a(f)(1) are applicable. HNP was issued a construction permit on January 27, 1978 and the provisions of 10 CFR 50.55a(f)(3) are applicable. RNP was issued a construction permit on April 13, 1967 and the provisions of 10 CFR 50.55a(f)(1) are applicable.

2.2 Variations

Duke Energy is proposing the following variations from the TS changes described in TSTF-545. These differences are administrative and do not affect the applicability of TSTF-545 or the NRC staff's model safety evaluation to the proposed license amendment.

General

- TSTF-545 eliminates the "Inservice Testing Program" from Standard TS Technical Specification (STS) Section 5.5, and renumbers subsequent sections of STS Section 5.5 accordingly. So as to eliminate administrative changes associated with deleting the Inservice Testing Program Section and renumbering numerous subsequent TS sections, the proposed change retains the header for the Inservice Testing Program Section, while replacing the content of the section with a Note that refers to the TS Definitions section for the definition of INSERVICE TESTING PROGRAM. By retaining the current program numbering and including the note, excessive administrative burden is avoided.

- The TSTF-545 changes to the NUREG-1430 and NUREG-1431 markups for STS Limiting Condition for Operation (LCO) 3.0.6 are related to the renumbering of STS Section 5.5. As noted above, the proposed change does not include this renumbering. Hence, the TSTF-545 changes related to STS LCO 3.0.6 do not apply.
- The TSTF-545 changes to the NUREG-1431 markups for STS Surveillance Requirement (SR) 3.4.10.1 include capitalization of the term "Inservice Testing Program" in the "Frequency" column, but neglect to include capitalization of the same term in the "Surveillance" column. The proposed change for CNS, MNS, and RNP corrects this oversight by including capitalization of the term in both instances.

Catawba

- TSTF-545 includes different markups for STS 3.6.6, depending upon which containment type applies. The CNS containment is of an ice condenser design; hence, the NUREG-1431 STS 3.6.6C markup included in TSTF-545 applies, and the STS 3.6.6A, 3.6.6B, 3.6.6D, and 3.6.6E markups do not apply. The CNS SR corresponding to STS 3.6.6C.2 is SR 3.6.6.2, and the proposed change includes this CNS SR in the scope.
- TSTF-545 includes a NUREG-1431 markup for SR 3.6.12.1 of STS TS 3.6.12, "Vacuum Relief Valves." CNS has no corresponding TS. Therefore, this portion of TSTF-545 is not applicable to CNS.

McGuire

- TSTF-545 includes different markups for STS 3.6.6, depending upon which containment type applies. The MNS containment is of an ice condenser design; hence, the NUREG-1431 STS 3.6.6C markup included in TSTF-545 applies, and the STS 3.6.6A, 3.6.6B, 3.6.6D, and 3.6.6E markups do not apply. The MNS SR corresponding to STS 3.6.6C.2 is SR 3.6.6.2, and the proposed change includes this MNS SR in the scope.
- TSTF-545 includes a NUREG-1431 markup for SR 3.6.12.1 of STS TS 3.6.12, "Vacuum Relief Valves." MNS has no corresponding TS. Therefore, this portion of TSTF-545 is not applicable to MNS.

Oconee

- TSTF-545 includes a NUREG-1430 markup for SR 3.4.14.1. The corresponding ONS TS SR 3.4.14.1 does not include a reference to the Inservice Testing Program. Therefore, this portion of TSTF-545 is not applicable to ONS.
- TSTF-545 includes a NUREG-1430 markups for SR 3.5.2.4. The corresponding portions of the ONS TS are SR 3.5.2.3 and SR 3.5.3.3.
- TSTF-545 includes NUREG-1430 markups for SR 3.6.3.5, SR 3.6.6.4, and TS 5.5.8. The corresponding portions of the ONS TS are SR 3.6.3.4, SR 3.6.5.3, and TS 5.5.9, respectively.
- TSTF-545 includes a NUREG-1430 markup for SR 3.7.2.1 regarding Main Steam Isolation Valves (MSIVs). ONS design has no corresponding TS. Therefore, this portion of TSTF-545 is not applicable to ONS.
- ONS TS 3.7.10, "Protected Service Water (PSW) System", includes SRs 3.7.10.3, 3.7.10.8, and 3.7.10.10, which all reference the Inservice Testing Program. Although there is not a corresponding TS in NUREG-1430, the proposed change includes changes to SR 3.7.10.3, SR 3.7.10.8, and SR 3.7.10.10 to make "Inservice Testing

Program" all capital letters. This portion of the proposed change is consistent with changes to other SRs included in the scope of TSTF-545.

- ONS TS 3.7.19, "Spent Fuel Pool Cooling (SFPC) Purification System Isolation from Borated Water Storage Tank (BWST)", includes LCO 3.7.19, SR 3.7.19.2, and SR 3.7.19.3, which all reference the Inservice Testing Program. Although there is not a corresponding TS in NUREG-1430, the proposed change includes changes to LCO 3.7.19, SR 3.7.19.2, and SR 3.7.19.3 to make "Inservice Testing Program" all capital letters. This portion of the proposed change is consistent with changes to other SRs included in the scope of TSTF-545.
- ONS TS 3.10.1, "Standby Shutdown Facility," includes SRs 3.10.1.14 and 3.10.1.15, which both reference the Inservice Testing Program. Although there is not a corresponding TS in NUREG-1430, the proposed change includes changes to SR 3.10.1.14 and SR 3.10.1.15 to make "Inservice Testing Program" all capital letters. This portion of the proposed change is consistent with changes to other SRs included in the scope of TSTF-545.

<u>Harris</u>

- HNP has not converted to the NUREG-1431 improved Standard Technical Specifications (STS). Therefore, the general format and numbering convention associated with the current TS has been retained. In particular, individual defined terms listed in TS Section 1.0 have unique numbers in the HNP TS, whereas in the STS, they do not. Therefore the new defined term, "INSERVICE TESTING PROGRAM," will be designated as TS 1.17a. Associated with this change, the HNP TS Index, page i, is revised to add the new TS 1.17a.
- TSTF-545 includes NUREG-1431 markups for SR 3.4.10.1, SR 3.5.2.4, SR 3.6.3.5, SR 3.6.12.1, SR 3.7.1.1, SR 3.7.2.1, and TS 5.5.8. The corresponding portions of the HNP TS are SR 4.4.2.1, SR 4.4.2.2, SR 4.5.2.f, SR 4.6.3.3, SR 4.6.5, SR 4.7.1.1, SR 4.7.1.5, and TS 6.8.4.m.
- TSTF-545 includes a NUREG-1431 markup for SR 3.4.14.1 regarding Reactor Coolant System (RCS) Pressure Isolation Valve (PIV) leakage. The corresponding HNP SR is SR 4.4.6.2.2. However, this SR does not include a reference to the Inservice Testing Program. Therefore, this portion of TSTF-545 is not applicable to HNP.
- TSTF-545 includes different markups for STS 3.6.6, depending upon which containment type applies. The HNP containment is an atmospheric design, with credit taken for iodine removal by the containment spray system; hence, the NUREG-1431 STS 3.6.6A markup included in TSTF-545, specifically SR 3.6.6A.4, is most applicable, and the STS 3.6.6B, 3.6.6C, 3.6.6D, and 3.6.6E markups do not apply. The HNP SR corresponding to STS 3.6.6A.4 is SR 4.6.2.1.b, and the proposed change includes this HNP SR in the scope.
- TSTF-545 includes a NUREG-1431 markup for SR 3.7.3.1 regarding Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulation Valves (MFRVs). The HNP TS do not include a corresponding SR. Therefore, this portion of TSTF-545 is not applicable to HNP.
- TSTF-545 includes a NUREG-1431 markup for SR 3.7.5.2 regarding Auxiliary Feedwater Pump developed head. The corresponding HNP SR 4.7.1.2.1.a does not include a reference to the Inservice Testing Program. Therefore, this portion of TSTF-545 is not applicable to HNP.
- HNP TSs include SR 4.1.2.3.1, SR 4.1.2.4, SR 4.4.4.1, and SR 4.7.13.a, each of which references the Inservice Testing Program. Although there is not corresponding TS SRs

in NUREG-1431, the proposed change includes changes to these HNP SRs to make "Inservice Testing Program" all capital letters. This portion of the proposed change is consistent with changes to other SRs included in the scope of TSTF-545.

Robinson

- TSTF-545 includes NUREG-1431 markups for SR 3.5.2.4, SR 3.6.3.5, and SR 3.7.3.1. The corresponding portions of the RNP TS are SR 3.5.2.3, SR 3.6.3.4, and SR 3.7.3.1/SR 3.7.3.2, respectively.
- TSTF-545 includes different markups for STS 3.6.6, depending upon which containment type applies. The RNP containment is an atmospheric design, with credit taken for iodine removal by the containment spray system; hence, the NUREG-1431 STS 3.6.6A markup included in TSTF-545, specifically SR 3.6.6A.4, is most applicable, and the STS 3.6.6B, 3.6.6C, 3.6.6D, and 3.6.6E markups do not apply. The RNP SR corresponding to STS 3.6.6A.4 is SR 3.6.6.4, and the proposed change includes this RNP SR in the scope.
- TSTF-545 includes a NUREG-1431 markup for SR 3.6.12.1 of STS TS 3.6.12, "Vacuum Relief Valves." RNP has no corresponding TS. Therefore, this portion of TSTF-545 is not applicable to RNP.
- TSTF-545 includes a NUREG-1431 markup for SR 3.7.5.2 regarding Auxiliary Feedwater Pump developed head. The corresponding RNP SR 3.7.4.2 does not include a reference to the Inservice Testing Program. Therefore, this portion of TSTF-545 is not applicable to RNP.
- RNP TSs include SR 3.6.8.3 regarding the Isolation Valve Seal Water System, which references the Inservice Testing Program. There is not a corresponding TS SR in NUREG-1431. However, the proposed change includes a change to RNP SR 3.6.8.3 to make "Inservice Testing Program" all capital letters. This portion of the proposed change is consistent with changes to other SRs included in the scope of TSTF-545.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

Duke Energy 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 (STS), into the Catawba Nuclear Station (CNS), Units 1 and 2, McGuire Nuclear Station, Units 1 and 2 (MNS), Oconee Nuclear Station (ONS), Units 1, 2 and 3, Shearon Harris Nuclear Power Plant (HNP), Unit No. 1, and H. B. Robinson Steam Electric Plant (RNP), Unit No. 2 Technical Specifications. The proposed change revises the TS Chapter 5 (TS Chapter 6 for HNP), "Administrative Controls," Section 5.5 (Section 6.8.4 for HNP), "Programs and Manuals," to replace the current contents of the "Inservice Testing (IST) Program" specification with a note referring to the TS Definition of "INSERVICE TESTING PROGRAM". 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 (Section 6.8.4 for HNP) 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).

Duke Energy 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 (TS Chapter 6 for HNP), "Administrative Controls," Section 5.5 (Section 6.8.4 for HNP), "Programs and Manuals," by replacing the current contents of the "Inservice Testing Program" specification with a note referring to the TS Definition of "INSERVICE TESTING PROGRAM". 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 (Section 6.8.4 for HNP) 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 or equal to 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 accident 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 or equal to 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, Duke Energy 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.

Attachment 2 to
RA-17-0005

Attachment 2

Proposed Technical Specification Changes (Mark-up)

1.1 Definitions (continued)

DOSE EQUIVALENT Xe-133	DOSE EQUIVALENT Xe-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT Xe-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."
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 the 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).

(continued)

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 ≥ 2460 psig and ≤ 2510 psig.	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. INSERVICE TESTING PROGRAM	In accordance with the ~~Inservice Testing Program~~, and 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 Within 24 hours following valve actuation due to automatic or manual action or flow through the valve

(continued)

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 NI162A / Open / SI Cold Leg Injection NI121A / Closed / SI Hot Leg Injection NI152B / Closed / SI Hot Leg Injection NI183B / Closed / RHR Hot Leg Injection NI173A / Open / RHR Cold Leg Injection NI178B / Open / RHR Cold Leg Injection NI100B / Open / SI Pump Suction from RWST NI147B / Open / SI Pump Mini-Flow	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.2	----------NOTE---------- Not required to be met for system vent flow paths opened under administrative control. ---------- 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.	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

(continued)

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 or annulus 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 automatic power operated containment isolation valve is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.3.6	Perform leakage rate testing for Containment Purge System, Hydrogen Purge System, and Containment Air Release and Addition System valves with resilient seals.	In accordance with the Containment Leakage Rate Testing Program
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.	In accordance with the Surveillance Frequency Control Program

(continued)

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	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~~
SR 3.6.6.3	Deleted.	
SR 3.6.6.4	Deleted.	
SR 3.6.6.5	Verify that each spray pump is de-energized and prevented from starting upon receipt of a terminate signal and is allowed to manually start upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.6	Verify that each spray pump discharge valve closes or is prevented from opening upon receipt of a terminate signal and is allowed to manually open upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each spray nozzle is unobstructed.	Following activities which could result in nozzle blockage
SR 3.6.6.8	Verify containment spray locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed prior to entry into MODE 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.~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed prior to entry into MODE 2. ---------- Verify closure time of each MSIV is within limits on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more MFIV or MFCV bypass valves inoperable.	C.1 Close or isolate bypass valve. AND C.2 Verify bypass valve is closed or isolated.	72 hours Once per 7 days
D. Two valves in the same flow path or the tempering valve 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 closure time of each MFIV, MFCV, their associated bypass valve, and the tempering valve is within limits on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	----------NOTE---------- Not applicable to automatic valves when THERMAL POWER is ≤ 10% RTP. ---------- 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.	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 ≥ 600 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~~
SR 3.7.5.3	----------NOTE---------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. ---------- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

INSERVICE TESTING PROGRAM

5.5 Programs and Manuals (continued)

5.5.8 Inservice Testing Program (Deleted)

Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM.

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports. 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 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.

5.5.9 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:

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

(continued)

1.1 Definitions (continued)

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 the methodology for verification have been previously reviewed and approved by the NRC.

LEAKAGE

INSERVICE TESTING PROGRAM

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

LEAKAGE shall be:

a. Identified LEAKAGE

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. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

(continued)

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 ≥ 2460 psig and ≤ 2510 psig.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	----------NOTE---------- 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~~, and 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 Within 24 hours following valve actuation due to automatic or manual action or flow through the valve

INSERVICE TESTING PROGRAM

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
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 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.6	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. Centrifugal Charging Pump Injection Throttle Valve Number: NI480, NI481, NI482, NI483 Safety Injection Pump Throttle Valve Number: NI488, NI489, NI490, NI491	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.8	Verify, by visual inspection, that the ECCS containment sump strainer assembly and the associated enclosure are not restricted by debris and show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control 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 controls. ---------- Verify each containment isolation manual valve and blind flange that is located inside containment or annulus 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 automatic power operated containment isolation valve is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.3.6	Perform leakage rate testing for containment purge lower and upper compartment and incore Instrument room valves with resilient seals.	In accordance with the Containment Leakage Rate Testing Program
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.	In accordance with the Surveillance Frequency control Program

(continued)

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	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~~
SR 3.6.6.3	Not Used	Not Used
SR 3.6.6.4	Not Used	Not Used
SR 3.6.6.5	Verify that each spray pump is de-energized and prevented from starting upon receipt of a terminate signal and is allowed to manually start upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.6	Verify that each spray pump discharge valve closes or is prevented from opening upon receipt of a terminate signal and is allowed to manually open upon receipt of a start permissive from the Containment Pressure Control System (CPCS).	In accordance with the Surveillance Frequency Control Program
SR 3.6.6.7	Verify each spray nozzle is unobstructed.	Following activities which could result in nozzle blockage

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met. OR One or more steam generators with less than two MSSVs OPERABLE.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed prior to entry into MODE 2. ---------- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the ~~Inservice Testing Program~~. Following testing, lift setting shall be within ±1%.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed prior to entry into MODE 2. ---------- Verify closure time of each MSIV is ≤ 8.0 seconds on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program.~~

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more MFCV's bypass valves or MFW/AFW NBVs inoperable.	C.1 Close or isolate MFCV's bypass valve or MFW/AFW NBV. AND C.2 Verify MFCV's bypass valve or MFW/AFW NBV is closed or isolated.	72 hours Once per 7 days
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 closure time of each MFIV, MFCV, MFCV's bypass valve, and MFW/AFW NBV is ≤ 10 seconds on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	----------NOTE---------- Not applicable to automatic valves when THERMAL POWER is ≤ 10% RTP. ----------	
	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.	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 ≥ 900 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~~
SR 3.7.5.3	----------NOTE---------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. ----------	
	Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

(continued)

INSERVICE TESTING PROGRAM

5.5 Programs and Manuals (continued)

5.5.8 Inservice Testing Program (Deleted)

Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM.

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

a. Testing frequencies applicable to the ASME Code for Operation 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 Boiler OM Code shall be construed to supersede the requirements of any TS.

5.5.9 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:

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 of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

(continued)

1.1 Definitions (continued)

CONTROL RODS	CONTROL RODS shall be all full length safety and regulating rods that are used to shut down the reactor and control power level during maneuvering operations.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries per gram) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using Committed Dose Equivalent (CDE) or Committed Effective Dose Equivalent (CEDE) dose conversion factors from Table 2.1 of the Environmental Protection Agency (EPA) Federal Guidance Report No. 11.
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

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 (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	Verify each HPI 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~~
SR 3.5.2.4	Verify each HPI 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.5	Verify each HPI pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.6	Verify, by visual inspection, each HPI train reactor building sump suction inlet is not restricted by debris and suction inlet strainers show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.7	Cycle each HPI discharge crossover valve and LPI-HPI flow path discharge valve.	In accordance with the Surveillance Frequency Control Program

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.3.2	Verify LPI locations susceptible to gas accumulation are sufficiently filled with water.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.3	Verify each LPI 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 3.5.3.4	Verify each LPI 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.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.5	Verify each LPI pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.5.3.6	Verify, by visual inspection, each LPI train reactor building sump suction inlet is not restricted by debris and suction inlet strainers show no evidence of structural distress or abnormal corrosion.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.3.5	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.	In accordance with the Surveillance Frequency Control Program

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1	----------NOTE---------- Not required to be met for reactor building spray system vent flow paths opened under administrative control. ---------- Verify each reactor building spray and cooling manual and non-automatic power operated valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.2	Operate each required reactor building cooling train fan unit for ≥ 15 minutes.	In accordance with the Surveillance Frequency Control Program
SR 3.6.5.3	Verify each required reactor building 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 3.6.5.4	Verify that the containment heat removal capability is sufficient to maintain post accident conditions within design limits.	In accordance with the Surveillance Frequency Control Program

(continued)

3.7 PLANT SYSTEMS

3.7.1 Main Steam Relief Valves (MSRVs)

LCO 3.7.1 Eight MSRVs shall be OPERABLE on each main steam line.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MSRVs inoperable.	A.1 Be in MODE 3.	12 hours
	AND	
	A.2 Be in MODE 4.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSRV lift setpoint in accordance with the ~~Inservice Testing Program~~	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the closure time of each MFCV and SFCV is ≤ 25 seconds on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program.~~

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each EFW manual, and non-automatic power operated valve in each water flow path and in the steam supply flow path to the turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.2	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~~
SR 3.7.5.3	----------NOTE---------- Not required to be met in MODES 3 and 4. ----------	
	Verify each EFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.4	----------NOTE---------- Not required to be met in MODES 3 and 4. ----------	
	Verify each EFW pump starts automatically on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.5.5	Verify proper alignment of the required EFW flow paths by verifying valve alignment from the upper surge tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5 or 6 for > 30 days

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify the required PSW battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.2	Verify the required Keowee Hydroelectric Station power supply can be aligned to and power the PSW electrical system.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.3	Verify developed head of PSW primary and booster pumps at flow test point is greater than or equal to the required developed head.	In accordance with the ~~Inservice Testing Program~~. INSERVICE TESTING PROGRAM
SR 3.7.10.4	Verify PSW battery capacity of the required battery is adequate to supply, and maintain in OPERABLE status, required emergency loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.5	Verify the required PSW battery charger supplies ≥ 300 amps at greater than or equal to the minimum established float voltage for > 8 hours. OR Verify the required battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding PSW event discharge state.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.6	——————NOTE—————— Both HPI pump motors are individually tested although only one (1) HPI pump motor is required to support PSW system OPERABILITY. ———————————— Verify that the required PSW switchgear and transfer switches can be aligned and power both the "A" and "B" HPI pump motors.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.7	Perform functional test of required power transfer switches used for pressurizer heaters, PSW control, electrical panels, vital I&C chargers, and valves.	In accordance with the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.10.8	——————NOTE—————— Cooling water flow to the HPI pump motors are individually tested although only flow to the HPI pump motor aligned to PSW power is required to support PSW system OPERABILITY. ———————————— Verify PSW booster pump and valves can provide adequate cooling water flow to HPI pump motor coolers.	In accordance with the ~~Inservice Testing Program.~~
SR 3.7.10.9	Verify developed head of PSW portable pump at the flow test point is greater than or equal to required developed head.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.10	Verify the required PSW valves are tested in accordance with the ~~Inservice Test Program.~~	In accordance with the ~~Inservice Testing Program.~~
SR 3.7.10.11	Perform CHANNEL CHECK for each required PSW instrument channel.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.12	Perform CHANNEL CALIBRATION for each required PSW instrument channel.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.10.13	Verify for the required PSW battery that the cells, cell plates and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	In accordance with the Surveillance Frequency Control Program.

INSERVICE TESTING PROGRAM

3.7 Plant Systems

3.7.19 Spent Fuel Pool Cooling (SFPC) Purification System Isolation from Borated Water Storage Tank (BWST)

LCO 3.7.19 a. Two SFPC Purification System BWST automatic isolation valves shall be OPERABLE.

b. SFPC Purification System branch line manual valves shall be closed and meet ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM leakage requirements.

APPLICABILITY: MODES 1, 2, 3 and 4 when the SFPC Purification System is not isolated from the BWST

ACTIONS

NOTES

1. SFPC Purification System flow path from the BWST may be unisolated intermittently under administrative controls.
2. Separate Condition entry allowed for each SFPC Purification System branch line manual valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One automatic isolation valve inoperable.	A.1 Isolate the flow path by use of at least one closed and de-activated automatic valve, one closed and de-activated non-automatic power operated valve, closed manual valve, or blind flange.	4 hours
	AND	
	A.2 Verify the flow path is isolated.	Once per 31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	Verify SFPC Purification System branch line manual valves that are not locked, sealed, or otherwise secured in position are closed.	In accordance with the Surveillance Frequency Control Program
SR 3.7.19.2	Verify SFPC Purification System branch line manual valves meet ~~Inservice Testing Program~~ Leakage Requirements.	In accordance with the ~~Inservice Testing Program~~
SR 3.7.19.3	Verify SFPC Purification System BWST automatic isolation valves are OPERABLE in accordance with the ~~Inservice Testing Program~~.	In accordance with the ~~Inservice Testing Program~~
SR 3.7.19.4	Verify each SFPC Purification System BWST automatic isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.1.11	Verify for required SSF battery that the cell to cell and terminal connections are clean, tight and coated with anti-corrosion material.	In accordance with the Surveillance Frequency Control Program
SR 3.10.1.12	Verify battery capacity of required battery is adequate to supply, and maintain in OPERABLE status, the required maximum loads for the design duty cycle when subjected to a battery service test.	In accordance with the Surveillance Frequency Control Program
SR 3.10.1.13	Perform CHANNEL CALIBRATION for each required SSF instrument channel.	In accordance with the Surveillance Frequency Control Program
SR 3.10.1.14	Verify OPERABILITY OF SSF valves in accordance with the ~~Inservice Testing Program~~.	In accordance with the ~~Inservice Testing Program~~
SR 3.10.1.15	----------NOTE---------- Not applicable to the SSF submersible pump. ---------- Verify the developed head of each required SSF pump at the flow test point is greater than or equal to the required developed head.	In accordance with the ~~Inservice Testing Program~~
SR 3.10.1.16	Verify the developed head of the SSF submersible pump at the flow test point is greater than or equal to the required developed head.	In accordance with the Surveillance Frequency Control Program

INSERVICE TESTING PROGRAM

5.5 Programs and Manuals (continued)

5.5.7 Pre-Stressed Concrete Containment Tendon Surveillance Program

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Section XI, Subsection IWL of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a, as amended by relief granted in accordance with 10 CFR 50.55a(a)(3).

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

5.5.8 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for inspection of each reactor coolant pump flywheel. At approximately three-year intervals, the bore and keyway of each reactor coolant pump flywheel shall be subjected to an inplace, volumetric examination. Whenever maintenance or repair activities necessitate flywheel removal, a surface examination of exposed surfaces and a complete volumetric examination shall be performed if the interval measured from the previous such inspection is greater than 6 2/3 years. The interval may be extended up to one year to permit inspections to coincide with a planned outage.

5.5.9 Inservice Testing Program (Deleted)

~~This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 pumps and valves:~~

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

Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM.

5.5 Programs and Manuals

5.5.9 Inservice Testing Program (continued)

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.

5.5.10 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:

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 of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

INDEX

1.0 DEFINITIONS

$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY

1.12 $\bar{E}$ 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 (MeV/d) for isotopes, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (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 the methodology for verification have been previously reviewed and approved by the NRC.

EXCLUSION AREA BOUNDARY

1.14 The EXCLUSION AREA BOUNDARY shall be that line beyond which the land is not controlled by the licensee to limit access.

FREQUENCY NOTATION

1.15 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

GASEOUS RADWASTE TREATMENT SYSTEM

1.16 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

1.17 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. 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

c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System (primary-to-secondary leakage).

INSERT HNP 1.17a

INSERT HNP 1.17a

INSERVICE TESTING PROGRAM

1.17a The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

CHARGING PUMP - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.3 One charging/safety injection pump in the boron injection flow path required by Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency power source.

APPLICABILITY: MODES 4*, 5*#, and 6*#.

ACTION:

With no charging/safety injection pump OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.3.1 The above required charging/safety injection pump shall be demonstrated OPERABLE by verifying, on recirculation flow or in service supplying flow to the reactor coolant system and reactor coolant pump seals, that a differential pressure across the pump of greater than or equal to 2446 psid is developed when tested pursuant to the ~~Inservice Testing Program~~. INSERVICE TESTING PROGRAM

4.1.2.3.2 All charging/safety injection pumps, excluding the above required OPERABLE pump, shall be demonstrated inoperable** by verifying that each pump's motor circuit breaker is secured in the open position prior to the temperature of one or more of the RCS cold legs decreasing below 325°F and at least once per 31 days thereafter, except when the reactor vessel head is removed.

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* A maximum of one charging/safety injection pump shall be OPERABLE whenever the temperature of one or more of the RCS cold legs is less than or equal to 325°F and the reactor vessel head is in place.

** An inoperable pump may be energized for testing provided the discharge of the pump has been isolated from the RCS by a closed isolation valve with power removed from the valve operator or by a manual isolation valve secured in the closed position.

\# For periods of no more than 1 hour, when swapping pumps, it is permitted that there be no OPERABLE charging/safety injection pump. No CORE ALTERATIONS or positive reactivity changes are permitted during this time.

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two charging/safety injection pumps shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

With only one charging/safety injection pump OPERABLE, restore at least two charging/safety injection pumps to OPERABLE status within 72 hours* or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN as specified in the CORE OPERATING LIMITS REPORT (COLR), plant procedure PLP-106 at 200°F within the next 6 hours; restore at least two charging/safety injection pumps to OPERABLE status within the next 7 days or be in HOT SHUTDOWN within the next 6 hours.

---------- NOTE ----------

*The 'A' Train charging/safety pump is allowed to be inoperable for a total of 14 days only to allow for the implementation of design improvements on the 'A' Train ESW pump. The 14 days will be taken one time no later than October 29, 2016. During the period in which the 'A' Train ESW pump supply from the Auxiliary Reservoir or Main Reservoir is not available, Normal Service Water will remain available and in service to supply the 'A' Train ESW equipment loads until the system is ready for post maintenance testing. Allowance of the extended Completion Time is contingent on meeting the Compensatory Measures and Conditions described in the HNP LAR submittal correspondence letter HNP-16-056.

SURVEILLANCE REQUIREMENTS

4.1.2.4 At least two charging/safety injection pumps shall be demonstrated OPERABLE by verifying, on recirculation flow or in service supplying flow to the Reactor Coolant System and reactor coolant pump seals, that a differential pressure across each pump of greater than or equal to 2446 psid is developed when tested pursuant to the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

3/4.4.2 SAFETY VALVES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.2.1 A minimum of one pressurizer Code safety valve shall be OPERABLE with a lift setting of 2485 psig ± 1%.*

APPLICABILITY: MODES 4 and 5

ACTION:

With no pressurizer Code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

SURVEILLANCE REQUIREMENTS

4.4.2.1 No additional requirements other than those required by the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure

LIMITING CONDITION FOR OPERATION

3.4.2.2 All pressurizer Code safety valves shall be OPERABLE with a lift setting of 2485 psig ± 1%.*

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

With one pressurizer Code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.2 No additional requirements other than those required by the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

SURVEILLANCE REQUIREMENTS

4.4.4.1 In addition to the requirements of the ~~Inservice Testing Program~~, each PORV shall be demonstrated OPERABLE at the frequency specified in the Surveillance Frequency Control Program by:

a. Performing a CHANNEL CALIBRATION of the actuation instrumentation, and

b. Operating the valve through one complete cycle of full travel during MODES 3 or 4, prior to going to 325°F.

4.4.4.2 Each block valve shall be demonstrated OPERABLE at the frequency specified in the Surveillance Frequency Control Program by operating the valve through one complete cycle of full travel unless the block valve is closed with power removed in order to meet the requirements of ACTION b. or c. in Specification 3.4.4.

4.4.4.3 The accumulator for the safety-related PORVs shall be demonstrated OPERABLE at the frequency specified in the Surveillance Frequency Control Program by isolating the normal air and nitrogen supplies and operating the valves through a complete cycle of full travel.

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (Continued)

d. At the frequency specified in the Surveillance Frequency Control Program by:

1. Verifying automatic interlock action of the RHR system from the Reactor Coolant System by ensuring that with a simulated or actual Reactor Coolant System pressure signal greater than or equal to 425 psig the interlocks prevent the valves from being opened.

2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or abnormal corrosion.

e. At the frequency specified in the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on safety injection actuation test signal and on safety injection switchover to containment sump from an RWST Lo-Lo level test signal, and

2. Verifying that each of the following pumps start automatically upon receipt of a safety injection actuation test signal:

a) Charging/safety injection pump,

b) RHR pump.

f. By verifying that each of the following pumps develops the required differential pressure when tested pursuant to the ~~Inservice Testing Program~~:

1. Charging/safety injection pump (Refer to Specification 4.1.2.4)

2. RHR pump ≥ 100 psid at a flow rate of at least 3663 gpm.

g. By verifying that the locking mechanism is in place and locked for the following High Head ECCS throttle valves:

1. Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS subsystems are required to be OPERABLE, and

2. At the frequency specified in the Surveillance Frequency Control Program.

INSERVICE TESTING PROGRAM

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent Containment Spray Systems shall be OPERABLE with each Spray System capable of taking suction from the RWST and transferring suction to the containment sump.

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

ACTION:

With one Containment Spray System inoperable, restore the inoperable Spray System to OPERABLE status within 72 hours** or be in at least HOT STANDBY within the next 6 hours; restore the inoperable Spray System to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours. Refer also to Specification 3.6.2.3 Action.

----------NOTE----------

**The 'A' Train Containment Spray System is allowed to be inoperable for a total of 14 days only to allow for the implementation of design improvements on the 'A' Train ESW pump. The 14 days will be taken one time no later than October 29, 2016. During the period in which the 'A' Train ESW pump supply from the Auxiliary Reservoir or Main Reservoir is not available, Normal Service Water will remain available and in service to supply the 'A' Train ESW equipment loads until the system is ready for post maintenance testing. Allowance of the extended Completion Time is contingent on meeting the Compensatory Measures and Conditions described in HNP LAR submittal correspondence letter HNP-16-056.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each Containment Spray System shall be demonstrated OPERABLE:

a. At the frequency specified in the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position*;

b. By verifying that, on an indicated recirculation flow of at least 1832 gpm, each pump develops a differential pressure of greater than or equal to 186 psi when tested pursuant to the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM;

c. At the frequency specified in the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a containment spray actuation test signal and

2. Verifying that each spray pump starts automatically on a containment spray actuation test signal.

3. Verifying that, coincident with an indication of containment spray pump running, each automatic valve from the sump and RWST actuates to its appropriate position following an RWST Lo-Lo test signal.

d. At the frequency specified in the Surveillance Frequency Control Program by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

e. At the frequency specified in the Surveillance Frequency Control Program by verifying that containment spray locations susceptible to gas accumulation are sufficiently filled with water.

* Not required to be met for system vent flow paths opened under administrative control.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.3.2 Each isolation valve shall be demonstrated OPERABLE at the frequency specified in the Surveillance Frequency Control Program by:

a. Verifying that on a Phase "A" Isolation test signal, each Phase "A" isolation valve actuates to its isolation position;

b. Verifying that on a Phase "B" Isolation test signal, each Phase "B" isolation valve actuates to its isolation position; and

c. Verifying that on a Containment Ventilation Isolation test signal, each normal, preentry purge makeup and exhaust, and containment vacuum relief valve actuates to its isolation position, and

d. Verifying that, on a Safety Injection "S" test signal, each containment isolation valve receiving an "S" signal actuates to its isolation position, and

e. Verifying that, on a Main Steam Isolation test signal, each main steam isolation valve actuates to its isolation position, and

f. Verifying that, on a Main Feedwater Isolation test signal, each feedwater isolation valve actuates to its isolation position.

4.6.3.3 The isolation time of each power-operated or automatic valve shall be determined to be within its limit specified in the Technical Specification Equipment List Program, plant procedure PLP-106, when tested pursuant to the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

3/4.6.5 VACUUM RELIEF SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.5 The containment vacuum relief system shall be OPERABLE with an Actuation Setpoint of equal to or less negative than -2.5 inches water gauge differential pressure (containment pressure less atmospheric pressure)

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

ACTION:

With one containment vacuum relief system inoperable, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5 No additional requirements other than those required by the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

3/4.7 PLANT SYSTEMS

3/4.7.1 TURBINE CYCLE

SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.1 All main steam line Code safety valves associated with each steam generator shall be OPERABLE with lift settings as specified in Table 3.7-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one or more main steam line Code safety valves inoperable, operation may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the Power Range Neutron Flux High Trip Setpoint is reduced per Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.1 No additional requirements other than those required by the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.5 Each main steam line isolation valve (MSIV) shall be OPERABLE

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

ACTION:

MODE 1:

With one MSIV inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 4 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

MODES 2, 3, and 4:

With one MSIV inoperable, subsequent operation in MODE 2, 3, or 4 may proceed provided the isolation valve is maintained closed. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.5 Each MSIV shall be demonstrated OPERABLE by verifying full closure within 5 seconds when tested pursuant to the ~~Inservice Testing Program~~. The provisions of Specification 4.0.4 are not applicable for entry into MODES 3 or 4.

INSERVICE TESTING PROGRAM

3/4.7.13 ESSENTIAL SERVICES CHILLED WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.13 At least two independent Essential Services Chilled Water System loops shall be OPERABLE.

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

ACTION:

With only one Essential Services Chilled Water System loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours* or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

NOTE

*The 'A' Train Essential Services Chilled Water System loop is allowed to be inoperable for a total of 14 days only to allow for the implementation of design improvements on the 'A' Train ESW pump. The 14 days will be taken one time no later than October 29, 2016. During the period in which the 'A' Train ESW pump supply from the Auxiliary Reservoir or Main Reservoir is not available, Normal Service Water will remain available and in service to supply the 'A' Train ESW equipment loads until the system is ready for post maintenance testing. Allowance of the extended Completion Time is contingent on meeting the Compensatory Measures and Conditions described in HNP LAR submittal correspondence letter HNP-16-056.

SURVEILLANCE REQUIREMENTS

4.7.13 The Essential Services Chilled Water System shall be demonstrated OPERABLE by:

a. Performance of surveillances as required by the ~~Inservice Testing Program~~, and

b. At the frequency specified in the Surveillance Frequency Control Program by demonstrating that:

1. Non-essential portions of the system are automatically isolated upon receipt of a Safety Injection actuation signal, and

2. The system starts automatically on a Safety Injection actuation signal.

INSERVICE TESTING PROGRAM

PROCEDURES AND PROGRAMS (Continued)

m. Inservice Testing Program (Deleted)

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

1) Testing frequencies specified in the ASME Code for Operation and Maintenance of Nuclear Power Plants and applicable Addenda as follows:

ASME Code for Operation and Maintenance of Nuclear Power Plants 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

2) The provisions of SR 4.0.2 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.

3) The provisions of SR 4.0.3 are applicable to inservice testing activities, and

4) Nothing in the ASME Code for Operation and Maintenance of Nuclear Power Plants shall be construed to supersede the requirements of any Technical Specification.

Note: See Section 1.17a for the definition of INSERVICE TESTING PROGRAM.

1.1 Definitions

Ē - AVERAGE DISINTEGRATION ENERGY (continued)	iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.
LEAKAGE	LEAKAGE shall be:

INSERVICE TESTING PROGRAM

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

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or return), 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. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or return) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning

(continued)

SURVELLANCE REQUIREMENTS

SURVELLANCE		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 less than or equal to an equivalent of 5 gpm at an RCS pressure ≥ 2235 psig, and verify the margin between the results of the previous leak rate test and the 5 gpm limit has not been reduced by ≥ 50% for valves with leakage rates > 1.0 gpm.	In accordance with the ~~Inservice Testing Program~~ and 18 months 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 (continued)

INSERVICE TESTING PROGRAM

SUREILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.3	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~~
SR 3.5.2.4	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
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.5.2.6	Verify, by visual inspection, the ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash strainers show no evidence of structural distress or abnormal corrosion.	18 months

(continued)

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.3.5	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
SR 3.6.3.6	Verify each 42 inch inboard containment purge valve is blocked to restrict the valve from opening > 70°.	18 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.2	Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days
SR 3.6.6.3	Verify cooling water flow rate to each cooling unit is ≥ 750 gpm.	31 days
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~~
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
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.7	Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	Following activities which could result in nozzle blockage

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.8.3	Verify the opening time of each air operated header injection valve is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.8.4	Verify each automatic valve in the IVSW System actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.8.5	Verify the IVSW dedicated nitrogen bottles will pressurize the IVSW tank to ≥ 46.2 psig.	18 months
SR 3.6.8.6	Verify total IVSW seal header flow rate is ≤ 124 cc/minute	18 months

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~~. Following testing, lift setting shall be within ±1%.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify closure time of each MSIV is within limits on an actual or simulated actuation signal.	 In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more bypass valves inoperable.	C.1 Close or isolate bypass valve. AND C.2 Verify bypass valve is closed or isolated.	8 hours Once per 7 days
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 closure time of each MFRV and bypass valve is within limits on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program~~
SR 3.7.3.2	Verify the closure time of each MFIV is within limits on an actual or simulated actuation signal.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

5.5 Programs and Manuals (continued)

5.5.7 Reactor Coolant Pump Flywheel Inspection Program

This program provides controls for the inspection of each reactor coolant pump flywheel in accordance with the Inservice Inspection Program.

5.5.8 Inservice Testing Program (Deleted)

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

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

ASME Boiler and Pressure Vessel 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 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 Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM.

(continued)

Attachment 3

Proposed Technical Specification Bases Changes (Mark-up)
(For Information Only)

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs

SR 3.0.1 through SR 3.0.5 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

SR 3.0.1

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 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.

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.

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).

INSERT 1 CNS Bases SR 3.0.2 (new paragraph)

INSERT 2 CNS Bases SR 3.0.2 (new paragraph)

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 of where SR 3.0.2 does not apply is in the Containment Leakage Rate Testing Program. This program establishes 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.

INSERT 1 CNS Bases 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.

INSERT 2 CNS Bases SR 3.0.2

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. Examples of where SR 3.0.2 does not apply 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. These programs establish 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.

BASES

SR 3.0.2 (continued)

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 the action 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

INSERT CNS Bases SR 3.0.3 (new paragraph)

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.

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.

INSERT CNS Bases SR 3.0.3

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).

BASES

ACTIONS (continued)

B.1 and B.2

If the Required Action of A.1 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 temperatures ≤ 210°F within 12 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. With any RCS cold leg temperatures at or below 210°F, overpressure protection is provided by the LTOP System. 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 three 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 Section XI 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% and -2% of the nominal setpoint of 2485 psig 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. UFSAR, Chapter 15.
3. UFSAR, Section 5.2.
4. ASME Code for Operation and Maintenance of Nuclear Power Plants.
5. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.12.1 and SR 3.4.12.2

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, a maximum of two pumps (charging and/or safety injection) are verified capable of injecting into the RCS and the accumulator discharge isolation valves are verified closed and power removed.

The pumps 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 two valves in the discharge flow path being closed.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.4.12.3

Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction isolation valves are open and by testing it in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM. This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO.

The RHR suction isolation valves are verified to be opened. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

The ASME Code (Ref. 9), test per ~~Inservice Testing Program~~ the INSERVICE TESTING PROGRAM verifies OPERABILITY by proving relief valve mechanical motion and by measuring and, if required, adjusting the lift setpoint.

SR 3.4.12.4

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

INSERVICE TESTING PROGRAM

SR 3.4.12.7

Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction isolation valves are open and by testing it in accordance with the ~~Inservice Testing Program~~. (Refer to SR 3.4.12.3 for the RHR suction isolation valves Surveillance and for a description of the ~~Inservice Testing Program~~.) This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO.

The RHR suction isolation valves are verified open, with power to the valve operator removed and locked in the removed position, to ensure that accidental closure will not occur. The "locked open in the removed position" power supply must be locally verified in its open position with the power supply to the valve locked in its inactive position. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. 10 CFR 50, Appendix G.
2. Generic Letter 88-11.
3. UFSAR, Section 5.2
4. 10 CFR 50, Section 50.46.
5. 10 CFR 50, Appendix K.
6. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
7. Generic Letter 90-06.
8. ASME, Boiler and Pressure Vessel Code, Section III.
9. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

SURVEILLANCE REQUIREMENTS (continued)

gas (i.e., the system is sufficiently filled with water), the Surveillance may be declared met. Accumulated gas should be eliminated or brought within the acceptance criteria limits.

ECCS locations susceptible to gas accumulation are monitored and, if gas is found, the gas volume is compared to the acceptance criteria for the location. Susceptible locations in the same system flow path which are subject to the same gas intrusion mechanisms may be verified by monitoring a representative sub-set of susceptible locations. Monitoring may not be practical for locations that are inaccessible due to radiological or environmental conditions, the plant configuration, or personnel safety. For these locations alternative methods (e.g., operating parameters, remote monitoring) may be used to monitor the susceptible location. Monitoring is not required for susceptible locations where the maximum potential accumulated gas void volume has been evaluated and determined to not challenge system OPERABILITY. The accuracy of the method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

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~~ the ASME Code. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

INSERVICE TESTING PROGRAM

BASES

SURVEILLANCE REQUIREMENTS (continued)

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. The isolation time is specified in the UFSAR and the Frequency of this SR is in accordance with the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

SR 3.6.3.6

For the Containment Purge System valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option B is required to ensure OPERABILITY. The measured leakage rate for the Containment Purge System and Hydrogen Purge System valves must be $\leq$ 0.05 L_a when pressurized to P_a. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than 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), these valves will not be placed on the maximum extended test interval. Therefore, these valves will be tested in accordance with Regulatory Guide 1.163, which allows a maximum test interval of 30 months.

The Containment Air Release and Addition System valves have a demonstrated history of acceptable leakage. The measured leakage rate for containment air release and addition valves must be $\leq$ 0.01 L_a when pressurized to P_a. These valves will be tested in accordance with Regulatory Guide 1.163, which allows a maximum test interval of 30 months.

SR 3.6.3.7

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment

BASES

SURVEILLANCE REQUIREMENTS (continued)

performance required by the ASME Code (Ref. 6). 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

Not used.

SR 3.6.6.5 and SR 3.6.6.6

These SRs require verification of proper interaction between the CPCS system and the Containment Spray System.

SR 3.6.6.5 deals solely with the containment spray pumps. It must be shown through testing that: (1) the containment spray pumps are prevented from starting in the absence of a CPCS permissive, (2) the containment spray pumps can be manually started when given a CPCS permissive, and (3) when running, the containment spray pumps stop when the CPCS permissive is removed. The "inhibit", "permit", and "terminate" parts of the CPCS interface with the containment spray pumps are verified by testing in this fashion.

SR 3.6.6.6 deals solely with containment spray header containment isolation valves NS12B, NS15B, NS29A, and NS32A. It must be shown through testing that: (1) each valve closes when the CPCS permissive is removed, OR (2) each valve is prevented from opening in the absence of a CPCS permissive. In addition to one of the above, it must also be shown that each valve can be manually opened when given a CPCS permissive.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

BASES

APPLICABLE SAFETY ANALYSES (continued)

For the peak secondary pressure case, the reactor is tripped on overtemperature ΔT. Pressurizer relief valves and MSSVs are activated and prevent overpressurization in the primary and secondary systems.

The MSSVs satisfy Criterion 3 of 10 CFR 50.36 (Ref. 4).

LCO

The accident analysis assumes five MSSVs per steam generator to provide overpressure protection for design basis transients occurring at 3479 MWt. An MSSV will be considered inoperable if it fails to open on demand. The LCO requires that five MSSVs 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 ASME Code requirements). These limitations are according to Table 3.7.1-1 in the accompanying LCO, and Required Action A.1 and A.2.

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~~.

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 functions to mitigate the consequences of accidents that could result in a challenge to the RCPB.

APPLICABILITY

In MODE 1, the number of MSSVs per steam generator required to be OPERABLE must be according to Table 3.7.1-1 in the accompanying LCO. In MODES 2 and 3, only two MSSVs per steam generator are required to be OPERABLE.

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.

INSERVICE TESTING PROGRAM

BASES

ACTIONS (continued)

B.1 and B.2

If the MSSVs cannot be restored to OPERABLE status within 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 setpoint in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM. The ASME Code (Ref. 6), requires that safety and relief valve tests be performed. According to Reference 6, the following tests are required:

a. Visual examination;

b. Seat tightness determination;

c. Setpoint pressure determination (lift setting);

d. Compliance with seat tightness criteria; and

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

All valves are required to be tested every 5 years, and a minimum of 20% of the valves are required to be tested every 24 months. The ASME Code specifies the activities and frequencies necessary to satisfy the requirements. Table 3.7.1-2 allows a ± 3% setpoint tolerance for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. The MSSVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSSVs are not tested at hot conditions, the lift setting pressure shall be corrected to ambient conditions of the valve at operating temperature and pressure.

BASES

SURVEILLANCE REQUIREMENTS (continued)

verifies the valve closure time is in accordance with the ~~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. The Frequency is in accordance with the ~~Inservice Testing Program~~.

This test is conducted in MODE 3 with the unit at operating temperature and pressure, as discussed in Reference 6 exercising requirements. 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.

REFERENCES

1. UFSAR, Section 10.3.
2. UFSAR, Section 6.2.
3. UFSAR, Section 15.1.5.
4. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
5. 10 CFR 50.67.
6. ASME Code for Operation and Maintenance of Nuclear Power Plants.

INSERVICE TESTING PROGRAM

BASES

ACTIONS (continued)

judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

D.1

With the tempering valve inoperable or two inoperable valves in the same flow path, there may be no redundant system to operate automatically and perform the required safety function. The tempering valves have no other automatic isolation valves in series to provide isolation. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFCV, or otherwise isolate the affected flow path.

E.1 and E.2

If the MFIV(s), MFCV(s), and the associated bypass valve(s) or the tempering 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, MFCV, and associated bypass valves, and the tempering valve is ≤ 12 seconds on an actual or simulated actuation signal. The MFIV and MFCV closure times are 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

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

REFERENCES

1. UFSAR, Section 10.4.7.
2. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
3. ASME Code for Operation and Maintenance of Nuclear Power Plants.

BASES

ACTIONS (continued)

E.1

In MODE 4, either the reactor coolant pumps or the RHR loops can be used to provide forced circulation. This is addressed in LCO 3.4.6, "RCS Loops—MODE 4." With one required AFW train inoperable, action must be taken to immediately restore the inoperable train to OPERABLE status. The immediate Completion Time is consistent with LCO 3.4.6.

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior 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 being mispositioned are in the correct position. The SR is also modified by a note that excludes automatic valves when THERMAL POWER is ≤ 10% RTP. Some automatic valves may be in a throttled position to support low power operation.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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. 3). 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. 3) ~~(only required at 3 month intervals)~~ and the INSERVICE TESTING PROGRAM satisfies this requirement.

BASES

SRs

SR 3.0.1 through SR 3.0.5 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

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.

SR 3.0.2 and SR 3.0.3 apply in Chapter 5 only when invoked by a Chapter 5 Specification.

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

SURVEILLANCE REQUIREMENT (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.

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).

INSERT 1 MNS Bases SR 3.0.2 (new paragraph)

INSERT 2 MNS Bases SR 3.0.2 (new paragraph)

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 of where SR 3.0.2 does not apply is in the Containment Leakage Rate Testing Program. This program establishes testing requirements and frequencies in accordance with requirements of regulations. The TS cannot in and of themselves extend a test interval specified in regulations.

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

INSERT 1 MNS Bases 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.

INSERT 2 MNS Bases SR 3.0.2

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. Examples of where SR 3.0.2 does not apply 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. These programs establish 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.

BASES

SURVEILLANCE REQUIREMENT (continued)

"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 the action 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.

INSERT MNS Bases SR 3.0.3 (new paragraph)

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

INSERT MNS Bases SR 3.0.3

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).

BASES

ACTIONS (continued)

B.1 and B.2

If the Required Action of A.1 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 temperatures ≤ 300°F within 12 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. With any RCS cold leg temperatures at or below 300°F, overpressure protection is provided by the LTOP System. 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 three pressurizer safety valves.

SURVEILLANCE REQUIREMENTS

SR 3.4.10.1

SRs are specified in the ~~Inservice Testing Program~~. Pressurizer safety valves are to be tested in accordance with the requirements of the ASME OM 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% and - 2% of the nominal setpoint of 2485 psig 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. UFSAR, Chapter 15.
3. UFSAR Section 5.2.
4. ASME Code for Operation and Maintenance of Nuclear Power Plants.
5. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

or securing. A valve that receives an actuation signal is allowed to be in a nonaccident position provided the valve will automatically reposition within the proper stroke time. This Surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.5.2.3

ECCS piping is verified to be water-filled by venting to remove gas from accessible locations susceptible to gas accumulation. Alternative means may be used to verify water-filled conditions (e.g., ultrasonic testing or high point sightglass observation). Maintaining the ECCS pumps and piping 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 Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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 OM 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~~, which encompasses the ASME OM Code. The ASME Code provides the activities and Frequencies necessary to satisfy the requirements.

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.4

This SR requires verification that each containment isolation manual valve and blind flange located inside containment or annulus and not locked, sealed, 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 of 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. The SR specifies that containment isolation valves that are open under administrative controls are not 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 the correct position upon locking, sealing, or securing.

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. The isolation time is specified in the UFSAR and Frequency of this SR are in accordance with the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

BASES

ACTIONS (continued)

B.1 and B.2

If the affected containment spray 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 and to MODE 5 within 84 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. The extended interval to reach MODE 5 allows additional time and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

SURVEILLANCE REQUIREMENTS

SR 3.6.6.1

Verifying the correct alignment of manual and power operated valves, excluding check valves, in the Containment Spray System provides assurance that the proper flow path exists for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to being secured. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown or computer status indication, that those valves outside containment and capable of potentially being mispositioned, are in the correct position. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

The surveillance includes verifying the correct alignment of the containment spray pump discharge valves.

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 OM Code (Ref. 6). 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.

APPLICABLE SAFETY ANALYSES (continued)

For the peak secondary pressure case, the reactor is tripped on overtemperature ΔT. Pressurizer relief valves and MSSVs are activated and prevent overpressurization in the primary and secondary systems.

The MSSVs satisfy Criterion 3 of 10 CFR 50.36 (Ref. 4).

LCO

The accident analysis assumes five MSSVs per steam generator to provide overpressure protection for design basis transients occurring at 3479 MWt. An MSSV will be considered inoperable if it fails to open on demand. The LCO requires that five MSSVs 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 ASME Code requirements). These limitations are according to Table 3.7.1-1 in the accompanying LCO, and Required Action A.1 and A.2.

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~~.

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 functions to mitigate the consequences of accidents that could result in a challenge to the RCPB.

APPLICABILITY

In MODE 1, the number of MSSVs per steam generator required to be OPERABLE must be according to Table 3.7.1-1 in the accompanying LCO. In MODES 2 and 3, only two MSSVs per steam generator are required to be OPERABLE.

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.

INSERVICE TESTING PROGRAM

BASES

ACTIONS (continued)

B.1 and B.2

If the MSSVs cannot be restored to OPERABLE status within 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 setpoint in accordance with the ~~Inservice Testing Program~~. The ASME OM Code (Ref. 5) requires that safety and relief valve tests be performed. According to Reference 5, the following tests are required:

a. Visual examination;

b. Seat tightness determination;

c. Setpoint pressure determination (lift setting);

d. Compliance with seat tightness criteria; and

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

The ASME Standard requires that all valves be tested every 5 years, and a minimum of 20% of the valves be tested every 24 months. The ASME OM Code specifies the activities and frequencies necessary to satisfy the requirements. Table 3.7.1-2 allows a ± 3% setpoint tolerance for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. The MSSVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSSVs are not tested at hot conditions, the lift setting pressure shall be corrected to ambient conditions of the valve at operating temperature and pressure.

INSERVICE TESTING PROGRAM

BASES

ACTIONS (contd)

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 MSIV closure time is ≤ 8.0 seconds on an actual or simulated actuation signal. The MSIV closure time is assumed in the accident and containment analyses. This Surveillance is normally performed during 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. An IST program Justification For Deferral documents the basis for performing the stroke time testing during cold shutdown instead of at power. This alternative is acceptable in accordance with the ~~Inservice Testing Program~~ and the ASME OM Code (Ref. 5).

INSERVICE TESTING PROGRAM

The Frequency is in accordance with the ~~Inservice Testing Program~~.

Separate A and B train tests are conducted at cold condition to meet the requirements of the ASME OM Code. These tests shall be performed with both spring force and the motive force provided by Instrument Air (VI) simultaneously. Leak-rate testing of the MSIV air control system shall be performed prior to returning the unit to operation following a refueling outage.

A final test is conducted in MODE 3 with the unit at operating temperature and pressure (ref. NRC Information Notice 94-44). This test also shall be performed with both spring force and the motive force provided by the Instrument Air (VI) simultaneously. This final test verifies MSIV closure time remains acceptable at system conditions consistent with those under which the MSIV is required to operate. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing this final test.

REFERENCES

1. UFSAR, Section 10.3.
2. UFSAR, Section 6.2.

BASES

ACTIONS (continued)

D.1

With two inoperable valves in the same flow path, there may be no redundant system to operate automatically and perform the required safety function. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFCV, or otherwise isolate the affected flow path.

E.1 and E.2

If the MFIV(s), MFCV(s), MFCV's bypass valve(s), and MFW/AFW NBV(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, MFCV, MFCV's bypass valve, and MFW/AFW NBV is ≤ 10 seconds on an actual or simulated actuation signal. The MFIV and MFCV closure times are assumed in the accident and containment analyses. This Surveillance 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 OM 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

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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 OM Code (Ref 3). 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 OM Code (Ref. 3) ~~(only required at 3 month intervals)~~ and the INSERVICE TESTING PROGRAM satisfies this requirement.

~~The Frequency for this SR is in accordance with the Inservice Testing Program.~~

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. The test should be conducted within 24 hours of the steam pressure exceeding 900 psig.

SR 3.7.5.3

This SR verifies that AFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates an ESFAS, 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 Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note that states the SR is not required in MODE 4. In MODE 4, the required AFW train may already be aligned and operating.

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.

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 an Exception LCO are only applicable when the Exception 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.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS

BASES

SR 3.0.1 (continued)

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 example of this process are:

a. Emergency feedwater (EFW) pump turbine maintenance during refueling that requires testing at steam pressures > 300 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 while 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.

INSERT 1
ONS Bases 3.0.2
(new paragraph)

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)

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 of where SR 3.0.2 does not apply is in the Containment Leakage Rate Testing Program. This program establishes 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.

INSERT 2 ONS Bases SR 3.0.2 (new paragraph)

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

INSERT ONS Bases SR 3.0.3 (new paragraph)

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.

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.

INSERT 1 ONS Bases 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.

INSERT 2 ONS Bases SR 3.0.2

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. Examples of where SR 3.0.2 does not apply 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. These programs establish 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.

INSERT ONS Bases SR 3.0.3

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).

BASES (continued)

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. 2), which provides the activities and the Frequency necessary to satisfy the SRs. No additional requirements are specified.

The pressurizer safety valves setpoint is ± 3% for OPERABILITY; however, the valves are reset to ±1% during the Surveillance to allow for drift. These values include instrument uncertainties.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.

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

3. 10 CFR 50.36.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.3

Periodic surveillance testing of HPI pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code (Ref. 5). SRs are specified in the ~~Inservice Testing Program~~ of the ASME Code.
INSERVICE TESTING PROGRAM

SR 3.5.2.4 and SR 3.5.2.5

These SRs demonstrate that each automatic HPI valve actuates to the required position on an actual or simulated ESPS signal and that each HPI pump starts on receipt of an actual or simulated ESPS signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. The test will be considered satisfactory if control board indication verifies that all components have responded to the ESPS actuation signal properly (all appropriate ESPS actuated pump breakers have opened or closed and all ESPS actuated valves have completed their travel). The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. The actuation logic is tested as part of the ESPS testing, and equipment performance is monitored as part of the ~~Inservice Testing Program~~.
INSERVICE TESTING PROGRAM

SR 3.5.2.6

Periodic inspections of the reactor building sump suction inlet (for LPI-HPI flow path) ensure that it is unrestricted and stays in proper operating condition. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.5.2.7

Periodic stroke testing of the HPI discharge crossover valves (HP-409 and HP-410) and LPI-HPI flow path discharge valves (LP-15 and LP-16) is required to ensure that the valves can be manually cycled from the Control Room. 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 3.5.3.2 (continued)

method used for monitoring the susceptible locations and trending of the results should be sufficient to assure system OPERABILITY during the Surveillance interval.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. The Surveillance Frequency may vary by location susceptible to gas accumulation.

SR 3.5.3.3

Periodic surveillance testing of LPI pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME Code (Ref. 5). SRs are specified in the ~~Inservice Testing Program~~ of the ASME Code.
INSERVICE TESTING PROGRAM

SR 3.5.3.4 and SR 3.5.3.5

These SRs demonstrate that each automatic LPI valve actuates to the required position on an actual or simulated ESPS signal and that each LPI pump starts on receipt of an actual or simulated ESPS signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. The test will be considered satisfactory if control board indication verifies that all components have responded to the ESPS actuation signal properly (all appropriate ESPS actuated pump breakers have opened or closed and all ESPS actuated valves have completed their travel). The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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

SR 3.5.3.6

Periodic inspections of the reactor building sump suction inlet ensure that it is unrestricted and stays in proper operating condition. 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 (continued)

SR 3.6.3.4

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time and Frequency of this SR are in accordance with the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

SR 3.6.3.5

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following an accident. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 6.2.
2. UFSAR, Section 15.14.
3. 10 CFR 50.36.
4. UFSAR, Table 6-7.
5. Generic Letter 91-08

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.5.2

Operating each required reactor building cooling train fan unit for ≥ 15 minutes ensures that all trains are 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 Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.6.5.3

Verifying that each required Reactor Building 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. 4). Since the Reactor Building Spray System 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 may detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the ~~Inservice Testing Program.~~

SR 3.6.5.4

Verifying the containment heat removal capability provides assurance that the containment heat removal systems are capable of maintaining containment temperature below design limits following an accident. This test verifies the heat removal capability of the Low Pressure Injection (LPI) Coolers and Reactor Building Cooling Units. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

INSERVICE TESTING PROGRAM

BASES

APPLICABLE SAFETY ANALYSIS (continued)

The MSRVs satisfy Criterion 3 of 10 CFR 50.36, (Ref. 5).

LCO

The MSRVs are provided to prevent overpressurization as discussed in the Applicable Safety Analysis section of these Bases. The LCO requires sixteen MSRVs, eight on each main steam line, to be OPERABLE to ensure compliance with the ASME Code following accidents and transients initiated at full power. Operation with less than a full complement of MSRVs is not permitted. To be OPERABLE, lift setpoints must remain within limits, specified in the UFSAR.

The safety function of the MSRVs is to open, relieve steam generator overpressure, and reseat when pressure has been reduced.

OPERABILITY of the MSRVs requires periodic surveillance testing in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM.

The lift settings correspond to ambient conditions of the valve at nominal operating temperature and pressure.

This LCO provides assurance that the MSRVs will perform the design safety function.

APPLICABILITY

In MODES 1, 2, and 3, the MSRVs must be OPERABLE to prevent overpressurization of the main steam system.

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

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 MSRVs to be OPERABLE in these MODES.

ACTIONS

A.1 and A.2

With one or more MSRVs inoperable, 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 12 hours, and in MODE 4 within 18 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.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSRVs by the verification of MSRV lift setpoints in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM. The safety and relief valve tests are performed in accordance with ASME Code (Ref. 6) and include the following for MSRVs:

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 on balanced valves.

The ASME Code requires the testing of all valves every 5 years, with a minimum of 20% of the valves tested every 24 months.

This SR is modified by a Note that states the surveillance is only required to be performed in MODES 1 and 2. This note allows entry into and operation in MODE 3 prior to performing the SR, provided there is no evidence that the equipment is otherwise believed to be incapable of performing its function. Also, the guidance in the TS Bases for SR 3.0.1 states that equipment may be considered OPERABLE following maintenance 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 allows operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

For example, the mode change provisions described above specifically applies to scenarios where maintenance on MSRVs is performed below the mode of applicability for LCO 3.7.1, testing has been satisfactorily completed to the extent possible, and the equipment is believed capable of performing its function. The mode change provisions permit entry into Mode 3 in order to test and adjust the set pressure, as necessary, to satisfy SR 3.7.1.1 prior to entry into Mode 2.

The MSRVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSRVs are not tested at hot conditions, the lift setting pressure must be corrected to ambient conditions of the valve at operating temperature and pressure.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each MFCV and SFCV is ≤ 25 seconds on an actual or simulated actuation signal. The 25 seconds includes a 10 second signal delay and 15 seconds for valve movement.

The MFCV and SFCV closure time is assumed in the containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The MFCV and 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. 2) 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

REFERENCES

1. 10 CFR 50.36.

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

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, and non-automatic power operated valves in the EFW water and steam supply flow paths provides assurance that the proper flow paths exist for EFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since those valves are verified to be in the correct position prior 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 Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

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 below the acceptance criteria during the cycle. Flow and differential head are normal indications 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 may be performed on a test flow path.

This test confirms OPERABILITY, trends performance, and detects incipient failures by indicating abnormal performance. Performance of inservice testing in the ASME Code (Ref. 3) ~~at 3 month intervals~~ satisfies this requirement.

as discussed

and the INSERVICE TESTING PROGRAM

SR 3.7.5.3

This SR verifies that EFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates an Emergency Feedwater System initiation signal by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative

BASES

BACKGROUND (continued)

The PSW system consists of the following:

1. PSW building and associated support systems.
2. Conduit duct bank from the Keowee Hydroelectric Station underground cable trench to the PSW building.
3. Conduit duct bank and raceway from the PSW Building to the Unit 3 AB.
4. Electrical power distribution system from breakers at the Keowee Hydroelectric Station and from the 100 kV PSW substation (supplied from the Central Tie Switchyard) to the PSW building, and from there to the AB.
5. PSW booster pump, PSW primary pump, and mechanical piping taking suction from the Unit 2 embedded CCW System to the EFW headers supplying cooling water to the respective unit's SGs and HPI pump motor bearing coolers.
6. PSW portable pumping system.

The mechanical portion of the PSW system provides decay heat removal by feeding Lake Keowee water to the secondary side of the SGs. In addition, the PSW pumping system supplies Keowee Lake water to the HPI pump motor coolers.

The PSW pumping system consists of a booster pump, a primary pump, and a portable pump. Other than the portable pump, the pumps and required valves are periodically tested in accordance with the ~~In-Service Testing (IST) Program~~ INSERVICE TESTING PROGRAM.

The PSW piping system has pump minimum flow lines that discharge back into the Unit 2 CCW embedded piping.

The PSW primary and booster pumps, motor operated valves, and solenoid valves required to bring the system into service, are controlled from the main control rooms. Check valves and manual handwheel operated valves are used to prevent back-flow, accommodate testing, or are used for system isolation.

The PSW electrical system is designed to provide power to PSW mechanical and electrical components as well as other system components needed to establish and maintain a safe shutdown condition. Normal power is provided by a transformer connected to a 100 kV overhead transmissión line that receives power from the Central Tie Switchyard located approximately eight (8) miles from the plant. Standby power is provided from the Keowee Hydroelectric Station via an underground path. The Keowee Hydro Unit (KHU) aligned to the overhead emergency power path can automatically provide power to Keowee Hydroelectric Station in-house loads for operation of the overhead KHU.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.10.2 (continued)

Electrical interlocks prevent compromise of existing redundant emergency power paths. To verify either KHU can supply the PSW electrical system, the PSW Feeder Breaker [B6T-A] or [B7T-C and the PSW switchgear tie breaker] is closed. The Surveillance Frequency is in accordance with the Surveillance Frequency Control Program.

SR 3.7.10.3

INSERVICE TESTING PROGRAM

This SR requires the PSW primary and booster pumps be tested in accordance with the ~~Inservice Test (IST) Program~~. The ~~IST program~~ verifies the developed head of PSW primary and booster pumps at flow test point is greater than or equal to the required developed head. The specified Frequency is in accordance with IST Program requirements.

SR 3.7.10.4

A battery service test is a special test of the battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length correspond to the design duty cycle requirements.

The surveillance frequency is in accordance with the Surveillance Frequency Control Program.

SR 3.7.10.5

This SR verifies the design capacity of the battery charger. According to Regulatory Guide 1.32 (Ref. 1), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensure that these requirements can be satisfied.

This SR provides two options. One option requires that each battery charger be capable of supplying ≥300 amps for greater than 8 hours at the minimum established float voltage. The current requirements are based on the output rating of the charger. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to stabilize and to have been maintained for at least 2 hours.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.10.7 (continued)

Component
2HPI-SX-TRN003 (2HP-24 PSW transfer switch)
2HPI-SX-TRN004 (2HP-26 PSW transfer switch)
3HPI-SX-TRN003 (3HP-24 PSW transfer switch)
3HPI-SX-TRN004 (3HP-26 PSW transfer switch)
1PSW-SX-TRN001 (1CA CHARGER auto transfer switch)
1PSW-SX-TRN002 (1CB CHARGER auto transfer switch)
2PSW-SX-TRN001 (2CA CHARGER auto transfer switch)
2PSW-SX-TRN002 (2CB CHARGER auto transfer switch)
3PSW-SX-TRN001 (3CA CHARGER auto transfer switch)
3PSW-SX-TRN002 (3CB CHARGER auto transfer switch)
1PSW-SX-TRN004 (manual transfer switch for 1XJ)
1PSW-SX-TRN005 (manual transfer switch for 1XK)
2PSW-SX-TRN003 (manual transfer switch for 2XJ)
2PSW-SX-TRN004 (manual transfer switch for 2XI)
2PSW-SX-TRN005 (manual transfer switch for 2XK)
3PSW-SX-TRN003 (manual transfer switch for 3XJ)
3PSW-SX-TRN004 (manual transfer switch for 3XI)
3PSW-SX-TRN005 (manual transfer switch for 3XK)
1RC-155/1RC-156 power transfer
1RC-157/1RC-158 power transfer
1RC-159/1RC-160 power transfer
2RC-155/2RC-156 power transfer
2RC-157/2RC-158 power transfer
2RC-159/2RC-160 power transfer
3RC-155/3RC-156 power transfer
3RC-157/3RC-158 power transfer
3RC-159/3RC-160 power transfer

The surveillance frequency is in accordance with the Surveillance Frequency Control Program.

SR 3.7.10.8

SR verifies PSW booster pump and check valves can supply water to the "A" and "B" HPI pump motor coolers in accordance with the ~~IST program~~.

INSERVICE TESTING PROGRAM

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.9

This SR requires that the PSW portable pump be tested to verify that the developed head of PSW portable pump at the flow test point is greater than or equal to the required developed head. The surveillance frequency is in accordance with the Surveillance Frequency Control Program.

SR 3.7.10.10

This SR requires the required PSW valves be tested in accordance with the ~~IST Program~~. The specified Frequency is in accordance with ~~IST Program~~ requirements.

INSERVICE TESTING PROGRAM

SR 3.7.10.11

Performance of the CHANNEL CHECK for each required instrumentation channel ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel with a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; therefore, it is key in verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The instrument string to the control room is checked and calibrated periodically per the Surveillance Frequency Control Program.

Agreement criteria are determined based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. If the channels are normally off scale during times when surveillance is required, the CHANNEL CHECK will only verify that they are off scale in the same direction. Off scale low current loop channels are verified to be reading at the bottom of the range and not failed downscale.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled in accordance with the Surveillance Frequency Control Program.

BASES

BACKGROUND (continued)

The return piping from the RO unit is routed back to the purification portion of the two SFPC Purification Systems (Units 1 & 2 and Unit 3). The RO System return piping is non-seismic up to the point where connections are made to the SF purification piping. A check valve is installed in each of the return lines to the SF purification piping. The check valve and the downstream piping are seismically qualified. The location where the discharge piping connects to the purification loop is such that the return flow can be aligned to the same source supplying the RO unit.

The BWST water is routed to the RO System from the SF purification loop. The two redundant automatic isolation valves are credited to isolate the RO system and the SFPC purification system to prevent unanalyzed radiological releases from either system. The valves are automatically isolated upon receipt of a low BWST level actuation signal prior to ECCS suction swapover to the reactor building sump.

APPLICABLE SAFETY ANALYSES

The large break LOCA assumes back-leakage from the sump to the borated water storage tank (BWST). RO system operation or BWST recirculation using the BWST recirculation pump requires a flow path to be open from the BWST. Two redundant safety related automatic isolation valves are used to isolate each SFPC Purification System (Unit 1 and 2, and Unit 3) prior to ECCS Suction swapover from the BWST to the reactor building sump to prevent unanalyzed radiological releases. With the automatic isolation of this pathway, the use of the SFPC purification system for RO operation or BWST recirculation does not impact the assumptions in the design basis LOCA dose analysis. These automatic valve isolations are part of the primary success pathway which functions to mitigate the LOCA and meet 10 CFR 50.36, Criterion 3 (Reference 2). The isolation of the SFPC purification system credits two safety related automatic isolation valves and several manual valves upstream of the automatic isolation valves to ensure the plant stays within the bounds of the design basis LOCA analysis.

LCO

This LCO requires that the two automatic isolation valves used to isolate the SFPC purification system (one set for Unit 1 & 2 and one set for Unit 3) from the BWST to be OPERABLE. The automatic isolation valves are required to close on an automatic isolation signal. The LCO requires that the SFPC Purification System branch line manual valves located upstream of the automatic valves to be and closed and meet ~~Inservice Testing Program~~ leakage requirements.

INSERVICE TESTING PROGRAM

BASES (continued)

INSERVICE TESTING PROGRAM

APPLICABILITY

The SFPC purification system automatic isolation valves are required to be OPERABLE and the branch line manual isolation valves are required to be closed and meet ~~IST Program~~ leakage requirements in MODES 1, 2, 3, and 4 when the SFPC Purification System is not isolated from the BWST, consistent with emergency core cooling system (ECCS) OPERABILITY requirements. These requirements ensure the plant stays within the bounds of the design basis LOCA analysis.

ACTIONS

The ACTIONS are modified by two Notes. Note 1 allows the SFPC purification system flow path from the BWST to be unisolated intermittently under administrative controls. The opening of a closed valve in the flow path on an intermittent basis under administrative control includes the following: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the SFPC purification system. In this way, the flow path can be rapidly isolated when a need for isolation is indicated. The maximum continuous RO system operating period is 7 days. Procedures controlling RO System operation limit operation to a specified time period to prevent the boron concentration and water level going below the TS limit of the BWST.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each branch line manual valve. This is acceptable, since the Required Actions for each applicable Condition provide appropriate compensatory actions for each inoperable manual valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable manual valves are governed by subsequent Condition entry and application of associated Required Actions.

A.1 and A.2

In the event one SFPC purification system BWST automatic isolation valve is inoperable, the SFPC Purification System flow path must be isolated within 4 hours. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic isolation valve, a closed and de-activated non-automatic power operated valve, a closed manual valve, or a blind flange. For the SFPC Purification System flow path isolated in accordance with Required Action A.1, the device used to isolate the flow path should be the closest available to the inoperable SFPC Purification System BWST

BASES

ACTIONS (continued)

C.1 and C.2

If a required manual valve(s) is discovered or not closed or not meeting IST ~~Program~~ leakage requirements, the flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic isolation valve, a closed and de-activated non-automatic power operated valve, a closed manual valve, or a blind flange. The 1-hour Completion Time is considered reasonable, considering the time required to isolate the flow path and the low probability of an accident occurring during the time period requiring this action. This is necessary to ensure that the flow path to the top of the BWST is isolated.

INSERVICE TESTING PROGRAM

In the event a SFPC purification system branch line flow path is isolated in accordance with Required Action C.1, the flow path must be verified to be isolated on a periodic basis per Required Action C.2. This periodic verification is necessary to ensure that the flow path is isolated should an event occur requiring it to be isolated. The Completion Time of once per 31 days for verifying the flow path is isolated is appropriate considering the fact that the device is operated under administrative controls and the probability of its misalignment is low.

D.1 and D.2

If the Required Actions and associated Completion Times of Condition A, B, or C are not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 12 hours and to MODE 5 within 36 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 3.7.19.1

This SR requires verification that the SFPC Purification system branch line manual valves SF-51, 53, 54, and DW-112 for Unit 1 and 2 or 3SF- 51, 53, 54, and 3DW-112 for Unit 3 that are not locked, sealed, or otherwise secured in the closed position, are closed. The SR helps to ensure that post accident leakage of radioactive fluids does not impact the offsite dose analysis. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown,

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.19.1 (continued)

that each manual isolation valve is closed. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program. This SR does not apply if a valve is locked, sealed, or otherwise secured, since it was verified to be in the correct position upon locking, sealing, or securing.

SR 3.7.19.2

This SR verifies that the SFPC Purification system branch line manual valves SF-51, 53, 54, and DW-112 for Unit 1 and 2 or 3SF-51, 53, 54, and 3DW-112 for Unit 3 meet ~~IST Program~~ leakage requirements. The specified Frequency is in accordance with the ~~Inservice Testing Program~~ requirements.

SR 3.7.19.3

This SR verifies that the SFPC Purification System BWST automatic isolation valves are OPERABLE in accordance with the ~~Inservice Testing Program.~~ As part of this SR, the ~~IST Program~~ leakage requirements are verified met. The specified Frequency is in accordance with the ~~Inservice Testing Program~~ requirements.

INSERVICE TESTING PROGRAM

SR 3.7.19.4

This SR requires verification that each SFPC Purification System automatic isolation valve (SF-166 and SF-167 for Unit 1 & 2 and 3SF-166 and 3SF-167 for Unit 3) actuates to the isolation position on an actual or simulated isolation signal. This SR is not required for valves that are locked, sealed, or otherwise secured in position under administrative controls. The SR helps to ensure that post accident leakage of radioactive fluids do not impact the offsite dose analysis. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 9.1.3.
2. 10 CFR 50.36.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.10.1.12

A battery service test is a special test of the battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length correspond to the design duty cycle requirements. The design basis discharge time for the SSF battery is one hour.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.10.1.13

CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. CHANNEL CALIBRATION shall find that measurement errors and bistable setpoint errors are within the assumptions of the setpoint analysis. CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the setpoint analysis. The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

SR 3.10.1.14

Inservice Testing of the SSF valves demonstrates that the valves are mechanically OPERABLE and will operate when required. These valves are required to operate to ensure the required flow path.

The specified Frequency is in accordance with the ~~IST Program requirements~~ INSERVICE TESTING PROGRAM. Operating experience has shown that these components usually pass the SR when performed at the ~~IST~~ INSERVICE TESTING PROGRAM Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.10.1.15

INSERVICE TESTING PROGRAM

This SR requires the SSF pumps to be tested in accordance with the ~~IST Program~~. The ~~IST~~ verifies the required flow rate at a discharge pressure to verify OPERABILITY. The SR is modified by a note indicating that it is not applicable to the SSF submersible pump.

INSERVICE TESTING PROGRAM

The specified Frequency is in accordance with the ~~IST Program~~ requirements. Operating experience has shown that these components usually pass the SR when performed at the ~~IST~~ Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.10.1.16

This SR requires the SSF submersible pump to be tested on a 2 year Frequency and verifies the required flow rate at a discharge pressure to verify OPERABILITY.

The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 9.6.

2. Oconee Probabilistic Risk Assessment.

3. 10 CFR 50.36.

4. NRC Letter from L. A. Wiens to H. B. Tucker, "Safety Evaluation Report on Effect of Tornado Missiles on Oconee Emergency Feedwater System," dated July 28, 1989.

5. NRC Letter from L. A. Wiens to J. W. Hampton, "Safety Evaluation for Station Blackout (10 CFR 50.63) - Oconee Nuclear Station, Units 1, 2, and 3," dated March 10, 1992.

4.0.1 (Continued)

An example of this process is Auxiliary Feedwater (AFW) pump turbine maintenance during refueling that requires testing at steam pressures that cannot be obtained until the unit is at HOT SHUTDOWN conditions. 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.

INSERT HNP Bases 4.0.2 (new paragraphs)

4.0.2 The provisions of this specification establish the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 18 month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. Likewise, it is not the intent that the 18-month interval surveillances be performed during power operation unless it is consistent with safe plant operation. The limitation of Specification 4.0.2 is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

INSERT HNP Bases 4.0.3 (new paragraph)

4.0.3 Specification 4.0.3 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 surveillance interval. A delay period of up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater, applies from the point in time that it is discovered that the surveillance has not been performed in accordance with Specification 4.0.2, and not at the time that the specified surveillance interval was not met.

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 ACTION requirements 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.

INSERT HNP Bases 4.0.2

When a Section 6.8.4 specification states that the provisions of SR 4.0.2 are applicable, a 25% extension of the testing interval, whether stated in the specification or incorporated by reference, is permitted.

The exceptions to SR 4.0.2 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. Examples of where SR 4.0.2 does not apply 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. These programs establish 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.

INSERT HNP Bases 4.0.3

When a Section 6.8.4 specification states that the provisions of SR 4.0.3 are applicable, it permits the flexibility to defer declaring the testing requirement not met in accordance with SR 4.0.3 when the testing has not been completed within the testing interval (including the allowance of SR 4.0.2 if invoked by the Section 6.8.4 specification).

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 3.0.1

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 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.

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.

(continued)

BASES

SR 3.0.1

Surveillances, including Surveillances invoked by Required (continued) 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.

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 equires 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).

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.

INSERT 1 RNP Bases SR 3.0.2 (new paragraph)

INSERT 2 RNP Bases SR 3.0.2 (new paragraph)

(continued)

INSERT 1 RNP Bases 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.

INSERT 2 RNP Bases SR 3.0.2

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. Examples of where SR 3.0.2 does not apply 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. These programs establish 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.

BASES

SR 3.0.2
(continued)

The requirements of regulations take precedence over the TS. An example of where SR 3.0.2 does not apply is in the Containment Leakage Rate Testing Program. This program establishes 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.

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

INSERT RNP Bases SR 3.0.3 (new paragraph)

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.

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,

(continued)

INSERT RNP Bases SR 3.0.3

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).

BASES

ACTIONS

A.1 (continued)

coincident with an RCS overpressure event could challenge the integrity of the pressure boundary.

B.1 and B.2

If the Required Action of A.1 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 within 12 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. With any RCS cold leg temperatures at or below 350°F, overpressure protection is provided by the LTOP System. 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 three 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 Section XI of the ASME Code (Ref. 4), which provides the activities and Frequencies necessary to satisfy the SRs. No additional requirements are specified.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.
2. UFSAR, Chapter 15.
3. WCAP-7769, Rev. 1, June 1972.
4. ASME, Boiler and Pressure Vessel Code, Section XI.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.2

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 actuation signal is allowed to be in a nonaccident position provided the valve will automatically reposition within the proper stroke time. This Surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position. The 31 day Frequency is appropriate because the valves are operated under administrative control, and an improper valve position would only affect a single train. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.2.3

Periodic surveillance testing of ECCS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is required by Section XI of 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. This ensures that pump performance is consistent with the pump curve. SRs are specified in the ~~Inservice Testing Program~~, which encompasses Section XI of the ASME Code. Section XI of the Code provides the activities and Frequencies necessary to satisfy the requirements.

INSERVICE TESTING PROGRAM

SR 3.5.2.4 and SR 3.5.2.5

These Surveillances demonstrate that each automatic ECCS valve actuates to the required position on an actual or

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.4 and SR 3.5.2.5 (continued)

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

SR 3.5.2.6

Periodic inspections of the containment sump suction inlet ensure that it is unrestricted and stays in proper operating condition. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, on the need to have access to the location, and because of the potential for an unplanned transient if the Surveillance were performed with the reactor at power. This Frequency has been found to be sufficient to detect abnormal degradation and is confirmed by operating experience.

SR 3.5.2.7

Verification of proper valve position ensures the proper flow path is established for the LHSI system following operation in RHR mode. The Frequency of 31 days is commensurate with the accessibility and radiation levels involved in performing the surveillance (Ref. 6).

SR 3.5.2.8

Verification of proper valve position ensures the proper flow path is established for the LHSI system following operation in RHR mode. The Frequency of 92 days is based on

(continued)

BASES

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The inboard 42 inch purge valves must have blocks installed to prevent full opening and actuate closed on an automatic signal. The valves covered by this LCO are listed along with their associated stroke times in the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, or blind flanges are in place.

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.3.3 (continued)

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 3.6.3.4

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. The isolation time and Frequency of this SR are in accordance with the Inservice Testing (IST) Program. In addition to the ~~IST program~~ testing frequency, the 42 inch purge supply and exhaust valves will be tested prior to use if not tested within the previous quarter. Otherwise, the 42 inch purge supply and exhaust valves are not cycled quarterly only for testing purposes.

SR 3.6.3.5

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation 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 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.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.6.3 (continued)

train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

SR 3.6.6.4

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 Section XI of the ASME Code (Ref. 5). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms pump performance is consistent with the pump design curve and is indicative of overall performance, by setting the pump head and measuring the test flow. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of the 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 of a containment High - High pressure signal. SR 3.6.6.5 is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. SR 3.6.6.6 must be performed with the isolation valves in the spray supply lines at the containment and spray additive tank locked closed. 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.

(continued)

BASES

ACTIONS (continued)

B.1 and B.2

If the Required Actions and associated Completion Times are not 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 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 3.6.8.1

This SR verifies the IVSW tank has the necessary pressure to provide motive force to the seal water. A pressure ≥ 46.2 psig ensures the containment penetration flowpaths that are sealed by the IVSW System are maintained at a pressure which is at least 1.1 times the calculated peak containment internal pressure (P_a) related to the design bases accident. Verification of the IVSW tank pressure on a Frequency of once per 12 hours is acceptable. This Frequency is sufficient to ensure availability of IVSW. Operating experience has shown this Frequency to be appropriate for early detection and correction of off normal trends.

SR 3.6.8.2

This SR verifies the IVSW tank has an initial volume of water necessary to provide seal water to the containment isolation valves served by the IVSW System. An initial volume ≥ 85 gallons ensures the IVSW System contains the proper inventory to maintain the required seal. Verification of IVSW tank level on a Frequency of once per 31 days is acceptable since tank level is continuously monitored by installed instrumentation and will alarm in the control room prior to level decreasing to 85 gallons.

SR 3.6.8.3

This SR verifies the stroke time of each automatic air operated header injection solenoid valve is within limits. The frequency is specified by the ~~Inservice Testing~~

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.8.3 (continued)

~~Program~~, and previous operating experience has shown that these valves usually pass the required test when performed.

SR 3.6.8.4

This SR ensures that automatic header injection valves actuate to the correct position on a simulated or actual signal. 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.

SR 3.6.8.5

This SR ensures the capability of the dedicated nitrogen bottles to pressurize the IVSW system independent of the Plant Nitrogen System. 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.

SR 3.6.8.6

Integrity of the IVSW seal boundary is important in providing assurance that the design leakage value required for the system to perform its sealing function is not exceeded. 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.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

event occurring from a partial power level may result in an increase in reactor power that exceeds the combined steam flow capacity of the turbine and the remaining OPERABLE MSSVs. Thus, for multiple inoperable MSSVs on the same steam generator it is necessary to prevent this power increase by lowering the Power Range Neutron Flux-High setpoint to an appropriate value. When the Moderator Temperature Coefficient (MTC) is positive, the reactor power may increase above the initial value during 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.

The MSSVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

The accident analysis assumes four MSSVs per steam generator are OPERABLE to provide overpressure protection for design basis transients occurring at 102% of the pre-Appendix K power uprate licensed power level of 2300 MWt (i.e., 2346 MWt). The LCO, therefore, also requires that four MSSVs per steam generator be OPERABLE.

The OPERABILITY of the MSSVs is defined as the ability to open upon demand 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

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, four 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.

(continued)

BASES (continued)

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~~. The ASME Code, Section XI (Ref. 5), requires that safety and relief valve tests be performed in accordance with ASME OM Code (Ref. 6). According to Reference 6, the following tests are required:

a. Visual examination;

b. Seat tightness determination;

c. Setpoint pressure determination (lift setting);

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

The ASME OM Code requires that all valves be tested every 5 years, and a minimum of 20% of the valves be tested every 24 months. The ASME Code specifies the activities and frequencies necessary to satisfy the requirements. Table 3.7.1-2 allows a ± 3% setpoint tolerance for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift. The lift settings, according to Table 3.7.1-2, correspond to ambient conditions of the valve at nominal 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. The MSSVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSSVs are not tested at hot conditions, the lift setting pressure shall be corrected to ambient conditions of the valve at operating temperature and pressure.

REFERENCES

1. UFSAR, Section 10.3.2.

2. ASME, Boiler and Pressure Vessel Code, Section III.

3. UFSAR, Section 15.2.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.1 (continued)

containment analyses with the exception of closure of the MSIVs for a MSLB at 100% RTP, in which case MSIV closure in 2 seconds is assumed for MSIVs which close in the forward flow direction. 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, Section XI (Ref. 5), requirements during operation in MODE 1 or 2.

The Frequency is in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM. The specified Frequency for valve closure time is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the specified Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

This test is conducted in MODE 3 with the unit at operating temperature and pressure, as discussed in Reference 5 exercising requirements. 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.

REFERENCES

1. UFSAR, Section 10.3.
2. UFSAR, Section 6.2.
3. UFSAR, Section 15.1.5.
4. TRM, Section 4.0
5. ASME, Boiler and Pressure Vessel Code, Section XI.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that the closure time of each MFRV and bypass valve is within limits (Ref. 4) on an actual or simulated actuation signal. The MFRV, and bypass valve closure times are assumed in the accident and containment analyses (Ref. 2). This Surveillance 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, Section XI (Ref. 3).

The Frequency for this SR is in accordance with the ~~Inservice Testing Program~~. The specified Frequency for valve closure is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the specified Frequency.

SR 3.7.3.2

This SR verifies that the closure time of each MFIV is within limits (Ref. 4) on an actual or simulated actuation signal. The MFIV closure times are assumed in the accident and containment analyses (Ref. 2). This Surveillance 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, Section XI (Ref. 3).

The Frequency for this SR is in accordance with the ~~Inservice Testing Program~~. The specified Frequency for valve closure is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the specified Frequency.

INSERVICE TESTING PROGRAM

(continued)