Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-16-155

January 17, 2017

10 CFR 50.90
10 CFR 50.55a

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

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, 50-296, and 72-052

SUBJECT: **Application to Revise Technical Specifications to Adopt TSTF-545, Rev. 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," to Request an Alternative to the ASME Code, and to Implement Administrative TSTF-299, Rev. 0, "Administrative Controls Program 5.5.2.b Test Interval and Exception" (BFN-TS-495)**

REFERENCES:

1. TSTF-545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," Revision 3, dated October 21, 2015 (ML15294A555)

2. TSTF-299, "Administrative Controls Program 5.5.2.b Test Interval and Exception," NRC Received Date: November 12, 1998, (ML040620202)

3. Letter from W. D. Beckner (NRC) to A. R. Pietrangelo (Nuclear Energy Institute), "TSTF Status Report - October 2000," dated October 31, 2000, (ML003765449)

Pursuant to 10 CFR 50.90, Tennessee Valley Authority (TVA) is submitting a request for an amendment to the Technical Specifications (TS) for Browns Ferry Nuclear Plant, Units 1, 2, and 3. The proposed change revises the Technical Specifications (TS) to eliminate the "Inservice Testing Program," contained in TS Section 5.5.6 and replace the program with a new defined term, "Inservice Testing Program," in the TS Definitions section. This request is consistent with TSTF-545, Revision 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing." Additionally, TVA is requesting implementation of Administrative TSTF-299, Rev. 0, "Administrative Controls Program 5.5.2.b Test Interval and Exception," which clarifies the intent of refueling cycle intervals with respect to the system leak test requirements (i.e., 24 month intervals) and adds the following sentence, "The provisions of SR 3.0.2 are applicable."

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

Enclosure 1 provides a description and assessment of the proposed TS changes. Enclosure 2 provides the existing TS pages marked up to show the proposed changes. Enclosure 3 provides revised (clean) TS pages. Enclosure 4 provides TS Bases pages marked up to show the associated TS Bases changes and is provided for information only. Enclosure 5 provides revised (clean) TS Bases pages and is provided for information only. Enclosure 6 provides the request for an alternative to the ASME Code.

Approval of the proposed amendment and relief request is requested by January 16, 2018. Once approved, the amendment shall be implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the Alabama State Department of Public Health.

There are no new regulatory commitments associated with this submittal. If you should have any questions regarding this submittal, please contact Ed Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 17th day of January 2017.

Sincerely,

Joseph W. Shea
Vice President - Nuclear Licensing

Enclosures

cc: See Page 3

Enclosures

1. Description and Assessment of Technical Specifications Changes
2. Proposed Technical Specification Changes (Mark-Up)
3. Revised Technical Specification Pages
4. Proposed Technical Specification Bases Changes (Mark-Up) – Information Only
5. Revised Technical Specification Bases Changes – Information Only
6. Description and Assessment of the Proposed Alternative to the ASME Code

cc:(Enclosures)

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant
NRC Project Manager - Browns Ferry Nuclear Plant
State Health Officer, Alabama State Department of Public Health
NRC Branch Chief - Region II

ENCLOSURE 1

DESCRIPTION AND ASSESSMENT OF TECHNICAL SPECIFICATIONS CHANGES

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

ENCLOSURE 1

DESCRIPTION AND ASSESSMENT OF TECHNICAL SPECIFICATIONS CHANGES

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

1.0 DESCRIPTION

The proposed change eliminates the "Inservice Testing Program" contained in Technical Specification (TS) Section 5.5.6 to remove requirements duplicated in American Society of Mechanical Engineers (ASME) Code for Operations and Maintenance of Nuclear Power Plants (OM Code), Case OMN-20, "Inservice Test Frequency." TS Section 5.5.6 will provide a reference to a new defined term, "Inservice Testing Program," which will be added to TS Section 1.1, "Definitions." The proposed change to the TS is consistent with Technical Specification Task Force (TSTF) TSTF-545, Rev. 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing."

The proposed change also revises TS 5.5.2, "Primary Coolant Sources Outside Containment," to clarify the intent of refueling cycle intervals (i.e., 24 month intervals) with respect to system leak test requirements and to add a statement that the provisions of Surveillance Requirement (SR) 3.0.2 are applicable. The changes are consistent with TSTF-299, Rev. 0, "Administrative Controls Program 5.5.2.b Test Interval and Exception."

2.0 ASSESSMENT

2.1 TSTF-545 - Applicability of Published Safety Evaluation

Tennessee Valley Authority (TVA) has reviewed the model safety evaluation provided in the Federal Register Notice of Availability dated March 28, 2016, (81 FR 17208) to the TSTF in a letter dated December 11, 2015 (ML15314A365). This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-545. TVA concluded that the justifications presented in TSTF-545, and the model safety evaluation prepared by the NRC staff, are applicable to Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, and justify this amendment for the incorporation of the changes to the BFN TS.

- BFN Unit 1 was issued a construction permit on May 10, 1967, and the provisions of 10 CFR 50.55a(f)(1) are applicable.

- BFN Unit 2 was issued a construction permit on May 10, 1967, and the provisions of 10 CFR 50.55a(f)(1) are applicable.

- BFN Unit 3 was issued a construction permit on July 31, 1968, and the provisions of 10 CFR 50.55a(f)(1) are applicable.

2.2 TSTF-545 - Variations

TVA is proposing variations listed below from the TS changes described in TSTF-545 or the applicable parts of the NRC staff's model safety evaluation dated December 11, 2015. These variations are administrative and do not affect the applicability of TSTF-545 or the NRC staff's model safety evaluation to the proposed license amendment.

In some cases, the BFN Units 1, 2, and 3 TS utilize different numbering than the Standard Technical Specifications on which TSTF-545 was based. In other cases, TSTF-545 changes were not applicable because the associated specification is not contained in the BFN Units 1, 2, and 3 TS.

TSTF-545 deletes TS 5.5.7 (BFN section 5.5.6), Inservice Testing Program, and renumbers all subsequent TS programs. Renumbering TS programs impacts several TS Bases references and a large number of station procedures. TVA proposes to retain the BFN TS 5.5.6 and replace the text with: "Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM." TVA also proposes retaining the subsequent TS program numbering. By retaining the current program numbering and including the note, excessive administrative burden is avoided.

BFN Units 1, 2, and 3 TS SR 3.6.1.6.2, (re: TS 3.6.1.6 Suppression Chamber-to-Drywell Vacuum Breakers) specifies a FREQUENCY of "In accordance with the Inservice Testing Program." Although this section is not explicitly listed in TSTF-545, TVA proposes substituting "Inservice Testing Program" with "INSERVICE TESTING PROGRAM" to be consistent with the TSTF-545 changes.

The proposed differences are administrative and do not affect the applicability of TSTF-545 to the BFN Units 1, 2, and 3 TS.

TSTF-545 Variations (TS numbers listed are from TSTF-545 unless otherwise noted):

- Implemented - corresponding TSs differs in numerical designator:

TSTF-545	BFN TS
SR 3.5.1.7	SR 3.5.1.6
SR 3.5.2.5	SR 3.5.2.4
SR 3.6.1.3.6	SR 3.6.1.3.5
SR 3.6.1.3.8	SR 3.6.1.3.6
5.5.7	5.5.6*

*Note: Rather than deleting TS section 5.5.6 and renumbering subsequent sections, the text of TS 5.5.6 was replaced by "Note: See Section 1.1 for the definition of INSERVICE TESTING PROGRAM."

- Not implemented – burdensome section number changes as discussed above:

  LCO 3.0.6 TS 5.5.8 – 5.5.13 TS 5.5.15

- Not Implemented – not applicable to BFN:

  SR 3.1.7.7 SR 3.4.5.1 SR 3.6.2.4.2 SR 3.6.4.2.2 TS 5.5.14, 16, 17

- Addition - Consistent with TSTF-545: BFN SR 3.6.1.6.2 FREQUENCY is being changed from “Inservice Testing Program” to “INSERVICE TESTING PROGRAM.”

TVA performed a search of the BFN Units 1, 2, and 3 TSs Bases for the key phrase "Inservice Testing Program.” Consistent with TSTF-545, all instances of "Inservice Testing Program" were replaced by “INSERVICE TESTING PROGRAM.” (Note: the TS Bases markups included in Enclosure 4 are submitted for information only).

2.3 TSTF-299

TVA has reviewed TSTF-299, Rev. 0, “Administrative Controls Program 5.5.2.b Test Interval and Exception,” Rev. 0, with regard to BFN Units 1, 2, and 3 and concluded that implementation would continue to provide adequate safety because the change is administrative in nature. In Reference 1, the NRC acknowledged their approval of the TSTF-299, Rev. 0, which is applicable to NUREG 1433. Reference 2 provides an example of NRC approval of TSTF-299 implementation. The revised wording is a voluntary administrative change to the TS that does not alter the design basis of the plant.

The revised TS 5.5.2.b will require system leak testing at least once per 24 months. However, a refueling cycle interval may be longer than 24 months in order to achieve the required fuel burn-up, because of shutdowns and power reductions. Incorporating the allowance to apply a 25 percent frequency extension, as provided in SR 3.0.2, to the system leak test requirements allows flexibility in scheduling that is inherent in the current requirement of “at refueling cycle intervals or less.” The applicability of SR 3.0.2 must be explicitly stated in TS 5.5.2 because SR 3.0.2 only applies to SRs in TS Sections 3.0 through 3.10, unless specifically stated.

The fixed testing frequency of “at least once every 24 months” is more precise than the current frequency of “at refueling cycle intervals or less” and is consistent with similar requirements in the BFN TS and the Standard Technical Specifications (STS). BFN Units 1, 2, and 3 are currently on a 24-month fuel cycle. Therefore, adopting this more precise terminology is a clarification of the test frequency. The proposed TS change implementing TSTF-299 is administrative in nature.

Extending the test frequency by 25 percent is consistent with the test extension permitted in the STS. The 25 percent test frequency extension provides flexibility to perform the testing during refueling outages where the fuel cycle was extended due to a lengthy forced shutdown or operation at reduced power.

System leak tests required by TS 5.5.2, “Primary Coolant Sources Outside Containment,” have passed this surveillance during numerous test cycles at the current 24-month interval. These components are routinely inspected during normal operations and/or testing, such that any degradation would be apparent and corrective actions implemented.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

TVA requests adoption of the Technical Specification (TS) changes described in TSTF-545, Rev. 3, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," and TSTF-299, Rev. 0, “Administrative Controls Program 5.5.2.b Test Interval and Exception,” which are approved changes to the Improved Standard Technical Specifications (ISTS), into the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 TS.

The proposed TSTF-545 change revises the TS Chapter 5, "Administrative Controls," Section 5.5, "Programs and Manuals," to delete the contents of the "Inservice Testing (IST) 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 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).

The proposed TSTF-299 administrative change revises TS 5.5.2, "Primary Coolant Sources Outside Containment" to clarify the intent of refueling cycle intervals (i.e., 24 month intervals) with respect to system leak test requirements and to add a statement that the provisions of Surveillance Requirement (SR) 3.0.2 are applicable.

TVA 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

   TSTF 545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," Rev. 3:

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

   Performance of inservice testing is not an initiator to any accident previously evaluated. As a result, the probability of occurrence of an accident is not significantly affected by the proposed change. Inservice test frequencies under Code Case OMN-20 are equivalent to the current testing period allowed by the TS with the exception that testing frequencies greater than 2 years may be extended by up to 6 months to facilitate test

scheduling and consideration of plant operating conditions that may not be suitable for performance of the required testing. The testing frequency extension will not affect the ability of the components to mitigate any accident previously evaluated as the components are required to be operable during the testing period extension. Performance of inservice tests utilizing the allowances in OMN-20 will not significantly affect the reliability of the tested components. As a result, the availability of the affected components, as well as their ability to mitigate the consequences of accidents previously evaluated, is not affected.

TSTF-299, "Administrative Controls Program 5.5.2.b Test Interval and Exception," Rev. 0:

The proposed change affects only the interval at which system leak tests are performed, not the effectiveness of the system leak test requirements. Revising the system leak test requirements from "at refueling cycle intervals or less" to "at least once per 24 months" is considered to be an administrative change because BFN Units 1, 2, and 3 operate on 24-month fuel cycles. Incorporation of the allowance to extend the 24-month interval by 25%, as allowed by Surveillance Requirement (SR) 3.0.2, does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency.

Test intervals are not considered as initiators of any accident previously evaluated. As a result, the probability of any accident previously evaluated is not significantly increased by the proposed amendment. Technical Specification (TS) 5.5.2 continues to require the performance of periodic system leak tests. Therefore, accident analysis assumptions will still be verified. As a result, the consequences of any accident previously evaluated are not significantly increased.

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

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

Response: No

TSTF 545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," Rev. 3:

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.

TSTF-299, "Administrative Controls Program 5.5.2.b Test Interval and Exception," Rev. 0:

The proposed change affects only the interval at which system leak tests are performed; they do not alter the design or physical configuration of the plant. No changes are being made to BFN Units 1, 2, or 3 that would introduce any new accident causal mechanisms.

Therefore, the proposed changes do 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

TSTF 545, "TS Inservice Testing Program Removal & Clarify SR Usage Rule Application to Section 5.5 Testing," Rev. 3:

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

TSTF-299, "Administrative Controls Program 5.5.2.b Test Interval and Exception," Rev. 0:

The proposed change does not change the design or function of plant equipment. The proposed change does not significantly reduce the level of assurance that any plant equipment will be available to perform its function. The proposed change provides operating flexibility without significantly affecting plant operation.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, TVA 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.

5.0 REFERENCES

1. Letter from W. D. Beckner (NRC) to A. R. Pietrangelo (Nuclear Energy Institute), "TSTF Status Report - October 2000," dated October 31, 2000 (ML003765449)

2. Letter from M. J. David (NRC) to C. G. Pardee (Exelon Generation Company, LLC), “Braidwood Station, Units 1 And 2, and Byron Station, Unit Nos. 1 and 2 - Issuance of Amendments Re: Revision to Technical Specifications For Primary Coolant Sources Outside Containment (TAC NOS. MD6224, MD6225, MD6226, AND MD6227),” dated June 18, 2008 (ML081510165)

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

Attachment 1 – Unit 1
Attachment 2 – Unit 2
Attachment 3 – Unit 3

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Attachment 1 – Unit 1

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
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 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs / Setpoint (psig) 4 / 1135 4 / 1145 5 / 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE				FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.			Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.			In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
	SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
	Core Spray	≥ 6250 gpm	2	≥ 105 psid
	SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
	LPCI LPCI	≥ 12,000 gpm ≥ 9,000 gpm	2 1	≥ 250 psig ≥ 125 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE			FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF SYSTEM / FLOW RATE / NO. OF PUMPS CS / ≥ 6250 gpm / 2 / ≥ 105 psid INDICATED SYSTEM PRESSURE SYSTEM / FLOW RATE / NO. OF PUMPS LPCI / ≥ 9,000 gpm / 1 / ≥ 125 psig		In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.		24 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined leakage rate for all four main steam lines is ≤ 150 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

INSERVICE TESTING PROGRAM

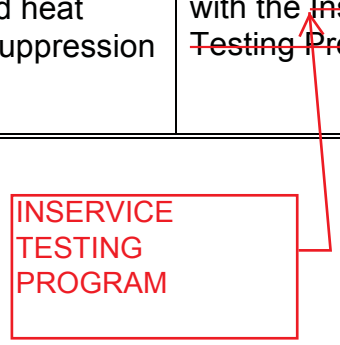
SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the ~~Inservice Testing Program~~



5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at ~~refueling cycle intervals or less.~~ least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

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

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

(continued)

5.5 Programs and Manuals

5.5.6 ~~Inservice Testing Program (continued)~~ (Deleted)

~~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 Test 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.~~

(continued)

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Attachment 2 – Unit 2

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
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 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs — Setpoint (psig) 4 — 1135 4 — 1145 5 — 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE				FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.			Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.			In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
	SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
	Core Spray	≥ 6250 gpm	2	≥ 105 psid
	SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
	LPCI LPCI	≥ 12,000 gpm ≥ 9,000 gpm	2 1	≥ 250 psig ≥ 125 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE				FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure.			In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
	SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
	CS	≥ 6250 gpm	2	≥ 105 psid
	SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
	LPCI	≥ 9,000 gpm	1	≥ 125 psig
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ----------			
	Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.			24 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined leakage rate for all four main steam lines is ≤ 150 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the ~~Inservice Testing Program~~

INSERVICE
TESTING
PROGRAM

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at ~~refueling cycle intervals or less.~~ least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

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

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

(continued)

5.5 Programs and Manuals

5.5.6 ~~Inservice Testing Program (continued)~~ (Deleted)

~~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 Test 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.~~

(continued)

ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

Attachment 3 – Unit 3

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
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 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs / Setpoint (psig) 4 / 1135 4 / 1145 5 / 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE					FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.				Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.				In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
	SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF	
	Core Spray	≥ 6250 gpm	2	≥ 105 psid	
	SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE	
	LPCI LPCI	≥ 12,000 gpm ≥ 9,000 gpm	2 1	≥ 250 psig ≥ 125 psig	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE				FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure.			In accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM
	SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
	CS	≥ 6250 gpm	2	≥ 105 psid
	SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
	LPCI	≥ 9,000 gpm	1	≥ 125 psig
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.			24 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months INSERVICE TESTING PROGRAM
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined leakage rate for all four main steam lines is ≤ 150 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the ~~Inservice Testing Program~~
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate ≥ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the ~~Inservice Testing Program~~

INSERVICE TESTING PROGRAM

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at ~~refueling cycle intervals or less.~~ least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

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

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

(continued)

5.5 Programs and Manuals

5.5.6 ~~Inservice Testing Program (continued)~~ (Deleted)

~~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 Test 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.~~

(continued)

ENCLOSURE 3

REVISED TECHNICAL SPECIFICATION PAGES

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

Attachment 1 – Unit 1
Attachment 2 – Unit 2
Attachment 3 – Unit 3

ENCLOSURE 3

REVISED TECHNICAL SPECIFICATION PAGES

Attachment 1 – Unit 1

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
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 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs: 4, 4, 5 Setpoint (psig): 1135, 1145, 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.	Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.	In accordance with the INSERVICE TESTING PROGRAM

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
Core Spray	≥ 6250 gpm	2	≥ 105 psid

SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
LPCI	≥ 12,000 gpm	2	≥ 250 psig
LPCI	≥ 9,000 gpm	1	≥ 125 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF SYSTEM / FLOW RATE / NO. OF PUMPS CS / ≥ 6250 gpm / 2 ≥ 105 psid INDICATED SYSTEM PRESSURE SYSTEM / FLOW RATE / NO. OF PUMPS LPCI / ≥ 9,000 gpm / 1 ≥ 125 psig	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is $\leq$ 100 scfh and that the combined leakage rate for all four main steam lines is $\leq$ 150 scfh when tested at $\geq$ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is $\leq$ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate $\geq$ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the INSERVICE TESTING PROGRAM

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

(continued)

5.5 Programs and Manuals

5.5.6

(continued)

ENCLOSURE 3

REVISED TECHNICAL SPECIFICATION PAGES

Attachment 2 – Unit 2

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
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 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs: 4, 4, 5 Setpoint (psig): 1135, 1145, 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.	Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.	In accordance with the INSERVICE TESTING PROGRAM

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
Core Spray	≥ 6250 gpm	2	≥ 105 psid

SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
LPCI	≥ 12,000 gpm	2	≥ 250 psig
LPCI	≥ 9,000 gpm	1	≥ 125 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF SYSTEM / FLOW RATE / NO. OF PUMPS CS / ≥ 6250 gpm / 2 / ≥ 105 psid INDICATED SYSTEM PRESSURE SYSTEM / FLOW RATE / NO. OF PUMPS LPCI / ≥ 9,000 gpm / 1 / ≥ 125 psig	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is $\leq$ 100 scfh and that the combined leakage rate for all four main steam lines is $\leq$ 150 scfh when tested at $\geq$ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate $\geq$ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the INSERVICE TESTING PROGRAM

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

(continued)

5.5 Programs and Manuals

5.5.6

(continued)

ENCLOSURE 3

REVISED TECHNICAL SPECIFICATION PAGES

Attachment 3 – Unit 3

1.1 Definitions (continued)

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/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites."
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the license program that fulfills the requirements of 10 CFR 50.55a(f).

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the safety function lift settings of the required 12 S/RVs are within ± 3% of the setpoint as follows: Number of S/RVs: 4, 4, 5 Setpoint (psig): 1135, 1145, 1155 Following testing, lift settings shall be within ± 1%.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify each required S/RV opens when manually actuated.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	----------NOTES---------- 1. Only required to be performed when in MODE 4 > 48 hours. 2. Not required to be performed if performed within the previous 31 days. ---------- Verify each recirculation pump discharge valve cycles through one complete cycle of full travel.	Once prior to entering MODE 2 from MODE 3 or 4
SR 3.5.1.6	Verify the following ECCS pumps develop the specified flow rate against a system head corresponding to the specified pressure.	In accordance with the INSERVICE TESTING PROGRAM

SYSTEM	FLOW RATE	NO. OF PUMPS	SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF
Core Spray	≥ 6250 gpm	2	≥ 105 psid

SYSTEM	FLOW RATE	NO. OF PUMPS	INDICATED SYSTEM PRESSURE
LPCI	≥ 12,000 gpm	2	≥ 250 psig
LPCI	≥ 9,000 gpm	1	≥ 125 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified pressure. SYSTEM: CS — FLOW RATE: ≥ 6250 gpm — NO. OF PUMPS: 2 — SYSTEM HEAD CORRESPONDING TO A VESSEL TO TORUS DIFFERENTIAL PRESSURE OF: ≥ 105 psid SYSTEM: LPCI — FLOW RATE: ≥ 9,000 gpm — NO. OF PUMPS: 1 — INDICATED SYSTEM PRESSURE: ≥ 125 psig	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.2.5	----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.6	Verify the isolation time of each MSIV is $\geq$ 3 seconds and $\leq$ 5 seconds.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify a representative sample of reactor instrumentation line EFCVs actuate to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is $\leq$ 100 scfh and that the combined leakage rate for all four main steam lines is $\leq$ 150 scfh when tested at $\geq$ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	----------NOTES---------- 1. Not required to be met for vacuum breakers that are open during Surveillances. 2. One drywell suppression chamber vacuum breaker may be nonfully closed so long as it is determined to be not more than 3° open as indicated by the position lights. ---------- Verify each vacuum breaker is closed.	14 days
SR 3.6.1.6.2	Perform a functional test of each required vacuum breaker.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.1.6.3	Verify the differential pressure required to open each vacuum breaker is ≤ 0.5 psid.	24 months

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate $\geq$ 9000 gpm through the associated heat exchanger while operating in the suppression pool cooling mode.	In accordance with the INSERVICE TESTING PROGRAM

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the Core Spray, High Pressure Coolant Injection, Residual Heat Removal, and Reactor Core Isolation Cooling. The program shall include the following preventive maintenance:

a. Periodic visual inspection requirements; and

b. System leak test requirements for each system, to the extent permitted by system design and radiological conditions, at least once per 24 months.

The provisions of SR 3.0.2 are applicable.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

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

(continued)

5.5 Programs and Manuals

5.5.6

(continued)

ENCLOSURE 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

Information Only

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

Attachment 1 – Unit 1
Attachment 2 – Unit 2
Attachment 3 – Unit 3

ENCLOSURE 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

Information Only

Attachment 1 – Unit 1

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the ~~Inservice Testing Program~~. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

INSERVICE TESTING PROGRAM

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal ~~Inservice Testing Program~~ generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

INSERVICE TESTING PROGRAM

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

INSERVICE TESTING PROGRAM

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.3.3 and $\geq$ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

INSERVICE TESTING PROGRAM

A 92 day Frequency for SR 3.5.3.3 is consistent with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon ~~Inservice Testing Program~~ requirements to perform valve testing at least once every 92 days.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The ~~Inservice Testing Program~~ Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.
2. ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code).
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

Information Only

Attachment 2 – Unit 2

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

INSERVICE TESTING PROGRAM

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal ~~Inservice Testing Program~~ generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

INSERVICE TESTING PROGRAM

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

INSERVICE TESTING PROGRAM

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.3.3 and $\geq$ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon ~~Inservice Testing Program~~ requirements to perform valve testing at least once every 92 days.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

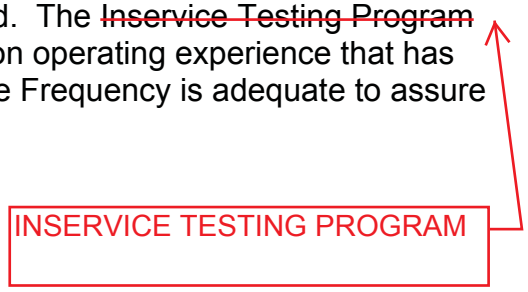
SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The ~~Inservice Testing Program~~ Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.



(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.
2. ASME Code for Operation and Maintenance for Nuclear Power Plants (ASME OM Code).
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

Information Only

Attachment 3 – Unit 3

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the ~~Inservice Testing Program~~. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

INSERVICE TESTING PROGRAM

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal ~~Inservice Testing Program~~ generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

INSERVICE TESTING PROGRAM

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

INSERVICE TESTING PROGRAM

The 31 day Frequency of this SR was derived from the ~~Inservice Testing Program~~ requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ 950 psig to perform SR 3.5.3.3 and ≥ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

INSERVICE TESTING PROGRAM

A 92 day Frequency for SR 3.5.3.3 is consistent with the ~~Inservice Testing Program~~ requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the ~~Inservice Testing Program~~.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon ~~Inservice Testing Program~~ requirements to perform valve testing at least once every 92 days.

INSERVICE TESTING PROGRAM

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The ~~Inservice Testing Program~~ Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.

INSERVICE TESTING PROGRAM

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the ~~Inservice Testing Program~~ INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.

2. ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code).

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 5

REVISED TECHNICAL SPECIFICATION BASES CHANGES

Information Only

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

Attachment 1 – Unit 1
Attachment 2 – Unit 2
Attachment 3 – Unit 3

ENCLOSURE 5

REVISED TECHNICAL SPECIFICATION BASES CHANGES

Information Only

Attachment 1 – Unit 1

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the INSERVICE TESTING PROGRAM. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal INSERVICE TESTING PROGRAM generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.3.3 and $\geq$ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the INSERVICE TESTING PROGRAM.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the INSERVICE TESTING PROGRAM.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon INSERVICE TESTING PROGRAM requirements to perform valve testing at least once every 92 days.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The INSERVICE TESTING PROGRAM Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.

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

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 5

REVISED TECHNICAL SPECIFICATION BASES CHANGES

Information Only

Attachment 2 – Unit 2

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the INSERVICE TESTING PROGRAM. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal INSERVICE TESTING PROGRAM generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.3.3 and $\geq$ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the INSERVICE TESTING PROGRAM.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the INSERVICE TESTING PROGRAM.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon INSERVICE TESTING PROGRAM requirements to perform valve testing at least once every 92 days.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The INSERVICE TESTING PROGRAM Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.

2. ASME Code for Operation and Maintenance for Nuclear Power Plants (ASME OM Code).

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 5

REVISED TECHNICAL SPECIFICATION BASES CHANGES

Information Only

Attachment 3 – Unit 3

BASES (continued)

ACTIONS

A.1 and A.2

With less than the minimum number of required S/RVs OPERABLE, a transient may result in the violation of the ASME Code limit on reactor pressure. If the safety function of one or more required S/RVs is inoperable, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.3.1

This Surveillance requires that the 12 required S/RVs open at the pressures assumed in the safety analysis of Reference 1. The setpoint groups for all 13 S/RVs are listed. The demonstration of the S/RV safe lift settings must be performed during shutdown, since this is a bench test, to be done in accordance with the INSERVICE TESTING PROGRAM. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures. The S/RV setpoint tolerance is ± 3% for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

This SR is modified by a Note that allows LPCI subsystems to be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the RHR low pressure permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. This allows operation in the RHR shutdown cooling mode during MODE 3, if necessary.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps.

The specified Frequency is once prior to entering MODE 2 from MODE 3 or 4. However, this SR is modified by two Notes. Note 1 states the Surveillance is only required to be performed when in MODE 4 > 48 hours. Note 2 states that the Surveillance is not required to be performed if performed within the previous 31 days. Verification prior to entering MODE 2 from MODE 3 or 4, only if in MODE 4 > 48 hours, is an exception to the normal INSERVICE TESTING PROGRAM generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. The 48 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8 (continued)

pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance test is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.7 and SR 3.5.1.8 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

The Frequency for SR 3.5.1.6 and SR 3.5.1.7 is in accordance with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.1.8 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.2 (continued)

in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the INSERVICE TESTING PROGRAM requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 and SR 3.5.3.4

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.3.3 and $\geq$ 150 psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least one turbine bypass valve full open for SR 3.5.3.3 and at least one turbine bypass valve > 50% open for SR 3.5.3.4. Therefore, sufficient time is allowed

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.3 and SR 3.5.3.4 (continued)

after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. Alternately, the low pressure Surveillance test may be performed prior to startup using an auxiliary steam supply. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

A 92 day Frequency for SR 3.5.3.3 is consistent with the INSERVICE TESTING PROGRAM requirements. The 24 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience with these components supports performance of the Surveillance at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.1.3.4

The traversing incore probe (TIP) shear isolation valves are actuated by explosive charges. Surveillance of explosive charge continuity provides assurance that TIP valves will actuate when required. Other administrative controls, such as those that limit the shelf life of the explosive charges, must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.6.1.3.5

Verifying the isolation time of each power operated, automatic PCIV is within limits is required to demonstrate OPERABILITY. MSIVs may be excluded from this SR since MSIV full closure isolation time is demonstrated by SR 3.6.1.3.6. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analyses. The isolation time and Frequency of this SR are in accordance with the requirements of the INSERVICE TESTING PROGRAM.

SR 3.6.1.3.6

Verifying that the isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. This ensures that the calculated radiological consequences of these events remain within 10 CFR 50.67 limits. The Frequency of this SR is in accordance with the requirements of the INSERVICE TESTING PROGRAM.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Each vacuum breaker is verified to be closed to ensure that a potential breach in the primary containment boundary is not present. This Surveillance is performed by observing local or control room indications of vacuum breaker position or by verifying a differential pressure of 0.5 psid is maintained between the reactor building and suppression chamber. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Two Notes are added to this SR. The first Note allows reactor building-to-suppression chamber vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable breakers. A second Note is included to clarify that vacuum breakers open due to an actual differential pressure, are not considered as failing this SR.

SR 3.6.1.5.2

Each vacuum breaker must be cycled to ensure that it opens properly to perform its design function and returns to its fully closed position. This ensures that the safety analysis assumptions are valid. The 92 day Frequency of this SR was developed based upon INSERVICE TESTING PROGRAM requirements to perform valve testing at least once every 92 days.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.6.1

Each vacuum breaker is verified closed to ensure that this potential large bypass leakage path is not present. This Surveillance is performed by observing the vacuum breaker position indication or by verifying that the rate of increase in suppression chamber pressure is less than 0.25 inches of water per minute over a ten minute period at a differential pressure of at least 1.0 psi. Note 2 specifies that vacuum breaker may be nonfully closed provided it is not more than 3° open as indicated by position indication lights. The 14 day Frequency is based on engineering judgment, is considered adequate in view of other indications of vacuum breaker status available to operations personnel, and has been shown to be acceptable through operating experience.

Note 1 has been added to this SR which allows suppression chamber-to-drywell vacuum breakers opened in conjunction with the performance of a Surveillance to not be considered as failing this SR. These periods of opening vacuum breakers are controlled by plant procedures and do not represent inoperable vacuum breakers.

SR 3.6.1.6.2

Each required (i.e., required to be OPERABLE for opening) vacuum breaker must be cycled to ensure that it opens adequately to perform its design function and returns to the fully closed position. This ensures that the safety analysis assumptions are valid. The INSERVICE TESTING PROGRAM Frequency is based on operating experience that has demonstrated that the Frequency is adequate to assure OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the INSERVICE TESTING PROGRAM.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.

2. ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code).

3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

ENCLOSURE 6

DESCRIPTION AND ASSESSMENT OF THE PROPOSED ALTERNATIVE TO THE ASME CODE

Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2, and 3

ENCLOSURE 6

DESCRIPTION AND ASSESSMENT OF THE PROPOSED ALTERNATIVE TO THE ASME CODE

Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3

Fourth 10-Year IST Interval Request for Alternative No. IST-RR-1

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

1.0 DESCRIPTION

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

2.0 ASSESSMENT

Technical Evaluation of the Proposed Alternative to the OM Code

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

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

Code Case OMN-20 is not referenced in the latest revision of Regulatory Guide 1.192 (August 2014) as an acceptable OM Code Case to comply with 10 CFR 50.55a(f) requirements as allowed by 10 CFR 50.55a(b)(6). The proposed alternative is to use Code Case OMN-20 to extend or reduce the IST frequency requirements for the 4th 10 year IST interval or until OMN-20 is incorporated into the next revision of Regulatory Guide 1.192.

ASME Code Components Affected

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

For pumps, valves, and snubbers with test periods of 2 years of less, the test frequency allowed by OMN-20 and the current TS Inservice Testing Program (as modified by SR 3.0.2 and EGM 2012-001) are the same. For pumps, valves, and snubbers with test frequencies greater than 2 years, OMN-20 allows the test frequency to be extended by 6 months. The current TS Inservice Testing Program does not allow extension of test frequencies that are greater than 2 years.

Applicable Code Edition and Addenda

The BFN Units 1, 2, and 3 Code Edition and Addenda that are applicable to the program interval are ASME OM Code 2004 Edition through 2006 Addenda. The BFN Units 1, 2, and 3 current interval ends August 30, 2022.

Applicable Code Requirement

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

Reason for Request

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

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

Proposed Alternative and Basis for Use

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

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

1) For IST testing periods up to and including 2 years, Code Case OMN-20 provides an allowance to extend the IST testing periods by up to 25%. The period extension is to facilitate test scheduling and considers plant operating conditions that may not be suitable

for performance of the required testing (e.g., performance of the test would cause an unacceptable increase in the plant risk profile due to transient conditions or other ongoing surveillance, test or maintenance activities). Period extensions are not intended to be used repeatedly merely as an operational convenience to extend test intervals beyond those specified. The test period extension and the statements regarding the appropriate use of the period extension are equivalent to the existing TS SR 3.0.2 allowance and the statements regarding its use in the SR 3.0.2 Bases. Use of the SR 3.0.2 period extension has been a practice in the nuclear industry for many decades and elimination of this allowance would place a hardship on Tennessee Valley Authority when there is no evidence that the period extensions affect component reliability.

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

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

Duration of Proposed Alternative

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

Precedent

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