



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30323

Report Nos.: 50-259/91-03, 50-260/91-03, and 50-296/91-03

Licensee: Tennessee Valley Authority  
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Docket Nos.: 50-259, 50-260, and 50-296

License Nos.: DPR-33, DPR-52, and DPR-68

Facility Name: Browns Ferry Units 1, 2, and 3

Inspection at Browns Ferry Site near Decatur, Alabama

Inspection Conducted: January 28, 1991 - February 1, 1991

Inspector: Paul Kellogg for 2/19/91  
 C. A. Patterson, NRC Team Leader Date Signed

Team Members: R. Vogt-Lowell  
 M. Banerjee

Approved by: Paul Kellogg 2/19/91  
 Paul Kellogg, Section Chief, Date Signed  
 Inspection Programs,  
 TVA Projects Division

SUMMARY

Scope:

This special announced inspection of technical specifications was conducted to verify implementation of TS changes made since the plant shutdown. This included procedure revision and operator training.

Results:

Twenty-seven of approximately 80 TS changes made since the plant shutdown were reviewed, paragraph 2. The approved TS amendments were found to be properly implemented into controlled copies of the licensee's TS and applicable plant procedures. Operator training was conducted during requalification training or as part of the required reading program, paragraph 3. With implementation of the remaining TS changes identified as restart, the TS changes support restart of Unit 2.



A URI was identified concerning SBGT flow distribution problems, paragraph 4. The SI did not meet the acceptance criteria and a test deficiency was resolved by the licensee by deleting the acceptance criteria from the SI. This was done to meet the system SPOC schedule for SBGT. Similar test deficiencies in 1989 were resolved by replacing HEPA filters or charcoal bed absorbers. The concerns identified in this URI should be resolved prior to declaring the system operable.

A weakness was identified in procedural controls of the DG reliability program, paragraph 2.q. The licensee committed to formalize the program prior to Unit 2 restart.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees:

- O. Zeringue, Site Director
- \*L. Myers, Plant Manager
- \*M. Herrell, Operations Manager
- \*J. Rupert, Project Engineer
- R. Johnson, Modifications Manager
- R. Jones, Operations Superintendent
- A. Sorrell, Maintenance Manager
- G. Turner, Site Quality Assurance Manager
- P. Carrier, Site Licensing Manager
- \*P. Salas, Compliance Supervisor
- \*J. Corey, Site Radiological Control Manager
- \*R. Tuttle, Site Security Manager

Other licensee employees or contractors contacted included licensed reactor operators, auxiliary operators, craftsmen, technicians, and public safety officers; and quality assurance, design, and engineering personnel.

#### NRC Personnel:

- \*C. Patterson, Senior Resident Inspector
- \*E. Christnot, Resident Inspector
- \*M. Banerjee, Resident Inspector - Oyster Creek
- \*R. Vogt-Lowell, NRC Contractor

\*Attended exit interview

Acronyms used throughout this report are listed in the last paragraph.

### 2. Technical Specification Changes

Twenty-seven of approximately 80 TS changes made since the plant shutdown were reviewed. The changes were reviewed to verify adequate implementation into controlled copies of TS and applicable plant procedures. Operator training on the changes was reviewed.

#### a. TS Amendment No 112

This amendment revised the TS Auxiliary Electrical System section to reflect the 161 KV offsite power system capability, incorporated changes in start bus utilization, and to clarified wording. The changes also deleted unnecessary degraded voltage timer relay tolerances and provided settings which more realistically matched relay characteristics.

Based on a review of a controlled copy of TS, the inspector confirmed that the changes contained in the amendment have been adequately incorporated. The following procedures were reviewed to ensure adequate inclusion of the TS changes:

GOI-100-1A, "Unit Startup from Cold Shutdown to Power Operations and Return to Full Power From Power Reduction".

GOI-100-1B, "Unit Startup From Cold Shutdown to Hot Standby".

GOI-100-1C, "Unit Startup From Hot Standby to Power Operations".

O-OI-57A; "Switchyard and 4160V AC Electrical System Operating Instructions"

Licensed operator requalification training on the changes associated with this amendment was initiated June 24, 1985.

b. Amendment 117

The inspector reviewed licensee's TS change which revised the definition of the secondary containment integrity. This revised definition permits the licensee to perform maintenance work on a secondary containment isolation valve provided the penetration is isolated by at least one secondary containment automatic isolation valve deactivated in the closed position. The inspector verified the controlled copy #52 contained the TS as approved. The inspector interviewed a SRO and found him knowledgeable about the current TS definition.

c. TS Amendment 118

Before this amendment, the TS contained a requirement that upon the failure of a RPS channel in the unsafe condition (i.e. the failure did not result in tripping the channel) all RPS channels monitoring the same variable must be functionally tested. This testing had to be performed immediately before the trip system containing the failure was tripped. The trip system containing the failure could be in the untripped position for up to eight hours in order to functionally test the other trip system. This amendment to the TS deleted the functional test requirement and replaced it with a requirement to trip the channel containing the failure. Section 4.1 and a footnote in Table 3.1.A of the TS were revised as a result of this amendment.

A controlled copy of the TS was reviewed by the inspector to verify that the pages revised by this amendment had been incorporated. The current revision to plant procedure 2-SI-1, "Surveillance Program" was verified to be consistent with the amended TS. A sampling of plant functional test procedures for RPS instruments listed on TS



Table 4.1.A was reviewed for compatibility with the amendment. No discrepancies were noted.

d. TS Amendment No 124

This amendment clarified the requirements for seismic restraints, supports, and snubbers by adopting the requirements of the Standard TS. This change permits the plant, during all modes of operation, to replace or restore inoperable seismic restraints, supports, and snubbers within a 72-hour period after they were discovered. It also requires an engineering analysis to show that the supported component has not been damaged by the inoperable snubber. Later, TS Amendment No. 160 deleted seismic restraints and supports from TS Sections 3.6.H and 4.6.H. Via review of a controlled copy of the Unit 2 TS, the inspector confirmed proper incorporation of the changes associated with the referenced amendments.

Procedural coverage of the TS requirements is contained in procedures O-SI-4.6.H.1, "Visual Examination of Hydraulic and Mechanical Snubbers" and O-SI-4.6.H.2, "Functional Test of Hydraulic and Mechanical Snubbers".

e. TS Amendment No. 125

The areas involved in this amendment are as follows: (a) Modification of the core physics, thermal and hydraulic limits to be consistent with replacing approximately one third of the core during the Cycle 6 core reload outage; (b) changes related to torus modifications; (c) miscellaneous plant modifications; and (d) administrative changes.

A review of the incorporation of these changes into a controlled copy of the TS disclosed discrepancies which were identified to the licensee. In the case of Table 3.7.B, "Testable Penetrations with Double O-Ring Seals", the proposed table changes in the TVA amendment request corresponded to the table in the NRC approved amendment. Upon incorporation of this table into the TS, transcriptional errors resulted in a Suppression Chamber Access Hatch penetration number being incorrectly assigned to shear lug penetrations. The inspector verified the correct reference to these shear lug penetration numbers in plant procedure SDSP-17.1, "Primary Containment Leak Rate Test Requirements." A second discrepancy was noted in the Bases for TS 2.1.E, "Turbine Control Valve Fast Closure or Turbine Trip Scram". It appears that word deletions/changes approved by this amendment had inadvertently been reintroduced during later unrelated amendments to this TS page. The licensee made note of the discrepancy and initiated PTS #52 for its internal tracking and dispositioning during a future amendment. Neither of these discrepancies were considered safety significant.

Licensed operator requalification training on the changes associated with this amendment was initiated November 10, 1986.





## f. TS Amendment No 129

The changes to the TS contained in this amendment did not change the overall meaning intent, or significant requirements of the specifications. For example, one change was to move closer to the language and content of the Standard TS for RSCS and RWM operation and surveillance. The revised specifications provided all of the operational limits and action and surveillance requirements of the Standard TS.

A controlled copy of TS was reviewed by the inspector to confirm incorporation of the applicable changes. These changes were also determined to have been incorporated, as appropriate, in the following plant procedures:

- 2-SI-4.3.B.3.A, "RWM and RSCS Functional Test for Startup".
- 2-SI-4.3.B.3.B, "RWM and RSCS Functional Test for Shutdown".
- 2-OI-85, "Control Rod Drive System Operating Instruction".
- GOI-100-6, "Rod Worth Minimizer".

The inspector confirmed that Operations Training had issued Attachment D, "Licensed Operator Requalification Training Urgent Reading Assignment" to BF-OTIL-5, "Operator Required Reading Program" on July 29, 1987 to address the changes associated with this TS amendment.

## g. TS Amendment No 130

Aside from minor clarifications and improvements to the TS, this amendment deletes one of the alternative actions specified in TS Table 3.1.A when the APRM High Flux or Inoperative trip channels are inoperable. Before this change, if the APRM High Flux or Inoperative trip functions were inoperable in the RUN mode of reactor operation, TS allowed action 1.B to be taken, which resulted in the plant being placed in the Startup/Hot Standby mode of operation. Taking this action however, would have required the APRM High Flux and the Inoperative trip functions to have been operable for that mode. This ambiguity could lead to confusion by the operators. Deletion of option 1.B as one of the alternative actions specified in Table 3.1.A when the APRM High Flux or Inoperative trip channels are inoperable removes this ambiguity.

Based on a review of a controlled copy of TS for Unit 2, the inspector verified that the changes have been properly incorporated. Licensed operator requalification training on the changes associated with this amendment was initiated September 30, 1989.



## h. Amendment 132

This TS change provided a clarification to the surveillance requirement in section 4.4.A.2.b for the SLC system. This included visual verification of recirculated boron solution back into the SLC solution tank, and a verification of a minimum pump flow rate of 39 gpm against a system head of 1275 psig by pumping demineralized water thru the SLC test tank. The inspector verified licensee's surveillance procedure 2-SI-4.4.A.2 met the TS requirement. TS controlled copy no. 52 appropriately incorporated the revision. During discussion with a control room SRO, the inspector found the SRO to be knowledgeable about this technical specification.

## i. TS Amendment No 133

This TS change added more restrictive monitoring limits for coolant leakage per Generic Letter 84-11, "Stainless Steel Piping Reinspection." The amendment required drywell leakage measurement and recording every four hours instead of eight hours and reduced the allowable out of service time from 72 every hours, to 24 hours for the sump leakage monitoring system. The inspector reviewed the related SIs 2-A.15, 2-A-16, and 4.6.C.2, and the amendment was correctly incorporated.

## j. TS Amendment No 135

Before this amendment, TS 6.8.3.1 contained certain requirements for high radiation areas in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr, with additional requirements being imposed on high radiation areas greater than 1000 mrem/hr. This amendment corrected the previous deficiency associated with the radiation intensity of exactly 1000 mrem/hr not being covered by the existing set of limits by changing the upper limit of one set of requirements from "less than 1000 mrem/hr" to "less than or equal to 1000 mrem/hr".

Based on a review of a controlled copy of TS, the inspector confirmed that the changes contained in the amendment have been adequately incorporated. This amendment was included in Operations Training Lesson Plan OPL 173.026, "Unit 2 Technical Specifications Amendments 135 - 177" imparted to licensed operators during their October 1990 requalification cycle. Also, plant procedure RCI-1, "Radiological Control Program," was revised to include the changes associated with this amendment.

## k. TS Amendment No 136

This change clarified the trip level setting of the SBTG relative humidity heater. TS Table 3.2.A, page 3.2/4.2.9 was changed from less than or equal to 2000 cfm to greater than or equal to 2000 cfm



and less than or equal to 4000 cfm to clarify an ambiguity. This prevents damage to the heater by insuring sufficient air flow to transfer heat and does not interfere with heater function during normal blower operation.

The inspector reviewed a controlled copy of the TS and this change had been incorporated. A copy of O-SI-4.2.A-13 for calibration of the switch setting was reviewed, and the TS Change was incorporated.

l. TS Amendment 139

This change required a later standard be used for iodine testing and analysis of charcoal filter samples. The referenced test method was changed from ANSI N510-1975 to ASTM D3803. These changes were for the SGBT, CREV, and purge systems under TS 3.7.B.2.6, 3.7.E.2.6, and 3.7.F.2.6. The inspector reviewed a controlled copy of TS which currently incorporated the change. SGBT Iodine Removal Efficiency was verified to have incorporated ASTM D3803. O-SI-4.7.E.4.A, CREV System Iodine Removal Efficiency and SI-4.7.F, Primary Containment Purge System, both correctly referenced ASTM D3803. Training for the plant operators was covered during requalification training lesson plan OIL 173.026.

m. Amendment 140

This TS change requested changing the functional test interval from 6 months to 18 months for certain ECCS logic functions, including Core Spray, Automatic Depressurization, RCIC, HPCI and LPCI systems. The inspector reviewed control copy 52 to verify it included the TS as approved. The inspector verified the licensee's surveillance program in procedure 2-SI-1 is consistent with the TS amendment. Individual surveillance procedures were also verified for consistency on a sample basis. The licensee included this TS change in their 1990/91 license requalification training program.

n. TS Amendment 141

This amendment changed the primary containment TSs in three places. First, LCO 3.7.D.1 was changed to require primary containment isolation valves be operable when primary containment integrity is required instead of only during reactor power operations. Second, LCO 3.7.D.2, was changed to permit operation to continue for up to 4 hours with an inoperable primary containment isolation valve without requiring a redundant valve be placed in the isolated position, provided that at least one isolation valve in the line having an inoperable isolation valve was operable. Previously, no time limit was specified. Third, definition 1.0.0.3 for primary containment integrity was changed to reference TS 3.7.D.1. The inspector reviewed the applicable SR and none were required to be changed by this TS change. Training for the plant operators was covered during requalification training lesson plan OIL 173.026.



o. Amendment 147/177

This TS change requested deletion of remaining portions of temporary amendments No. 147, and clarified the LCO for SBTG and secondary containment. This TS change request was approved by NRC and issued as amendment 177. Clarifying statements were also added to the associated bases section.

The temporary amendment 147 was originally made to allow fuel movement for fuel reconstitution with only 2 of the 3 SBTG trains operable and control room emergency ventilation inoperable. Fuel reconstitution was completed and the temporary amendments were no longer needed. Changes to the SBTG LCO clarified specific action to be taken if the 7 day LCO for one train of inoperable SBTG was to be exceeded or if more than one train became inoperable. Changes to reactor zone secondary containment integrity LCO allowed four hours to restore integrity before specific actions need to be taken. These actions would place the reactor in a safe condition and would minimize the potential for radioactive material release to environment. The inspector reviewed TS controlled copy 3 and 52 to ensure changes were properly incorporated. No deficiencies were identified.

p. TS Amendment 148

This TS change increased the maximum allowed LPCI injection valve stroke time from 30 to 40 seconds. As part of the EQ modifications to the valve operators, a qualified motor brake could not be found. As a result, the valve operators were regearing, which increased the stroke times for these valves. TS Table 3.7.A. changed the maximum operating time for the inboard LPCI valves from 30 to 40 seconds. The inspector reviewed a controlled copy of TS and found the change had been made to TS Table 3.7.A. The inspector reviewed 2-SI-4.5.B.1.c (I and II), RHR System MOV Operability, and found the time change was incorporated. Training for the plant operators was covered during requalification training under lesson plan OIL173.026.

q. Amendment 149

This TS change request implemented Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," July 2, 1984. The change was intended to prevent excessive testing and improve reliability of the DG, and required that all diesel starts be logged, number of fast starts be restricted to once per 184 days, and a test program, commensurate with diesel reliability, be instituted. This program specified criteria for DG test frequency and requalification.

The inspector reviewed the TS controlled copy No. 52 to ensure the amendment was properly incorporated. The inspector also reviewed the following procedures to determine the licensee's implementation of the amendment in the procedures:





0-OI-82	Standby Diesel Generator System Operating Instruction
2-SI-1	Surveillance Program
2-SI-4.9.A.1.a.A	Diesel Generator A Monthly Operability Test
2-SI-4.9.A.1.b-1	Diesel Generator A Emergency Load Acceptance Test
0-SI-4.9.B.A,	Diesel Generator A Operability Check.

To verify licensee's implementation of the requirement to log diesel starts, the inspector reviewed procedure 0-OI-82. The procedure contains an operating log as illustration two. Completed log sheets are reviewed by the DG system engineer against the TS Table 4.9.A for determining the reliability level and required actions. The system engineer maintains a running number for DG valid starts and failures in his notebook. No formal system for tracking diesel performance existed.

Licensee's surveillance program 0-SI-1 allows use of either of the following procedures for meeting TS requirements in Section 4.9.B.1 thru 4.9.B.6

0-SI-4.9.A.1.a. (A thru D), Diesel Generator (A thru D) Monthly Operability Test

0-SI-4.9.B. (A thru D), Diesel Generator (A thru D) Operability Check

The first procedure allows for a slow start to demonstrate operability, however the second procedure demonstrates operability by a fast start. The licensee indicated either one of the procedures could be chosen depending on the circumstances and amount of time available. Fast start testing results in incremental degradation of the diesel engine. The inspector was concerned that without further programmatic guidance the intent of Generic Letter 84-15 to limit fast starts may not be fully implemented. To verify frequency of fast starts, the inspector reviewed the log maintained by the system engineer and noted a prominent decrease in the number of fast starts in recent years.

The inspector concluded that the licensee's implementation of the operating log and diesel generator reliability program is not procedurally controlled and is considered a weakness. The licensee committed to implement procedure controls before the unit restart.

Operator training on the TS amendment was included in the 1990/91 license requalification training.

r. Amendment 157

This TS change changed the reactor water level zero reference point from the top of the active fuel to the bottom of the reactor vessel

(vessel zero). TS setpoints for reactor water level safety limit in related limiting safety system settings protective instrumentation reactor trip settings and the associated bases were revised to reflect a vessel zero reference.

Prior to this change, the setpoints were referenced against a zero at the top of the active fuel. Due to fuel design change, the length of active fuel changed, which changed the setpoints. The purpose of the TS change was to avoid such changes in the future by using a zero level reference point at the bottom of the vessel. The licensee also indicated in their submittal dated June 24, 1985, that this change would help eliminate possible operator confusion with having TS water levels referenced to different points. This was the intent of NUREG 0737, item II.K.3.27, which required all reactor vessel water level instruments to be referenced to the same point.

The inspector reviewed TS controlled copy no. 52 and various operating instructions for proper incorporation of this amendment. The inspector performed a control room walkdown. The zero reference used in the procedures and control room instrument indicators/recorder are not at vessel zero. The inspector concluded that control room indicators/recorders use a consistent zero reference called instrument zero which is 528" above vessel zero. This change was implemented to meet NUREG 0737 item II.K.3.27 together with control room design review related changes implementation of which is not yet complete. The licensee indicated that the procedures, including Emergency Operating Instructions, were revised to be consistent with the control room indicators. However, the licensee is not currently planning to change the TS to be consistent with the control room instruments and station procedures. The inspector concluded this difference in zero reference is a human factor issue. The licensee has not submitted a closure letter for NUREG 0737 item II.K.3.27 at the completion of this inspection.

This TS amendment was included in the 1990/91 license requalification training and was discussed during October 1990 training session. The control room SRO interviewed by the inspector was familiar with the changes made to the control room reactor water level indicators and recorder.

s. Amendment 159

This TS change upgraded the entire fire protection section to make it consistent with current industry practices and standards. The inspector verified TS control copy no. 3 properly incorporated the changes. The inspector verified by a sampling that the TS requirements for surveillance testing were included in licensee's surveillance program. Operator training for this TS revision was included in the 1990/91 licensee requalification training program and was completed during October 1990. The inspector concluded the



licensee had adequately incorporated the TS amendment in plant procedures.

t. TS Amendment 161

This TS change was to incorporate requirements for the ATWS-RPT system. The operability requirements are provided in LCO Section 3.2.L and Table 3.2.L. The SRs of 4.2.L provide periodic verification of system operability. The ATWS-RPT trip logic initiates a trip when a coincident trip of either two low reactor water level signals or two high reactor pressure signals in the same trip channel. The inspector reviewed a controlled copy of the TS and found the change had been correctly made. 2-SI-4.2.L.2 (A-D), ATWS RPT System Reactor High Pressure Channel Calibration was reviewed and found to satisfy the calibration requirements of TS. The OI for the recirculation system was reviewed and found to have been revised to support this TS change. Operator training was conducted during requalification training on lesson plan OIL 173.026.

u. TS Amendment 165

This TS change added requirements for monitoring piping made of austenitic stainless steel as outlined in Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping." The inspector reviewed a controlled copy of TS which incorporated the changes. SI 4.6.G, BFN Inservice Inspection Program and SDSP-13.3, ASME Action XI Repairs and Replacements, were revised to incorporate the TS changes. Training for plant operators was covered during requalification training lesson plan OIL 173.026.

v. TS 168

This TS change updated surveillance requirement 4.7.E.4. The change was to reflect dampers FCO-31-150 B, D, E, F, and G closed, and dampers FCO-31-151 and 152 open, during a simulated automatic actuation test of the CREV system. These isolation dampers were added by a design change. This change also corrected an administrative error in surveillance requirement 4.11.B.3.a.3., in that the value of the battery pilot cell voltage was to be 2V instead of 24V.

The inspector verified TS copy 23 for appropriate incorporation of these changes. The damper numbers included in the TS were not complete (FCO-31-151 vice FCO-151). This is considered a typographical error. The inspector reviewed procedures O-SI-4.2.G-2, Control Room Isolation and Pressurization Functional Testing; O-OI-31, Control Bay and Off Gas Treatment Building Air Conditioning System; and O-AOI-31-1, Control Bay Isolation (high radiation) and found them adequate with respect to the damper positions.



This TS amendment was also included in the 1990/91 licensee requalification training program. The inspector concluded licensee's implementation of this TS change in plant procedures was adequate.

w. TS Amendment 172

This TS change was revised to reflect reactor core operating limits for Cycle 6 operation. The inspector reviewed the changes in a controlled copy of TS. The core physics limits for the four types of fuel bundles used in the core reload had been correctly made. Training for plant operators was covered during requalification training lesson plan OIL 173.026.

x. TS Amendment No 176

This amendment changed the reactor vessel pressure at which operability of the HPCI/RCIC systems is demonstrated on a reactor startup and to which reactor vessel pressure must be reduced if HPCI/RCIC operability cannot be determined. As a result of this amendment, this demonstration is required within 12 hours after reactor pressure reaches 150 psig. Also, the language of the surveillance requirements for the HPCI and RCIC systems is changed in this amendment from "once/operating cycle" to "once/18 months".

Based on a review of a controlled copy of TS, the inspector confirmed that the changes contained in the amendment have been adequately incorporated. The following procedures were reviewed to ensure adequate inclusion of the TS changes:

GOI-100-1A, "Unit Startup from Cold Shutdown to Power Operations and Return to Full Power From Power Reduction".

GOI-100-1B, "Unit Startup From Cold Shutdown to Hot Standby".

GOI-100-1C, "Unit Startup From Hot Standby to Power Operations".

During the review of GOI-100-1B, the inspector noted that the procedure did not include a HPCI/RCIC operability signoff at 150 psig reactor vessel pressure similar to that required by the other two procedures. This finding was pointed out to cognizant Operations personnel who promptly submitted a procedure change request to incorporate a required signoff.

The inspector confirmed that Operations Training had issued Attachment D, "Licensed Operator Requalification Training Urgent Reading Assignment" Ref. #UL900109 to address the changes associated with this TS amendment.



## y. TS Amendment No. 174

The TS changes associated with this amendment redefined regions on the operating power-flow map and operating restrictions on activities about those regions. The regions and restrictions are intended to avoid problems with thermal hydraulic instability, which have been a focus of NRC attention following the LaSalle instability event of March 1988.

Specific changes to the TS are (1) addition of TS 3.5.M.1, 2, and 3, TS 4.5.M.1, Figure 3.5.M-1 and the addition of the associated Bases 3.5.M and (2) changes to TS 3.6.F.3 and 4.6.F.3, the addition of 3.6.F.4 and additions to the Bases for 3.6.F/4.6.F. There are also associated changes to the table of contents and list of illustrations. The inspector reviewed a controlled copy of the TS and confirmed that these changes had been incorporated.

Procedures 2-SI-4.5.M.1.a, "Core Thermal Hydraulic Stability - Power Increase" and 2-SI-4.5.M.1.b, "Core Thermal Hydraulic Stability - Flow Decrease" were issued by the licensee to incorporate the requirements associated with the new TS 4.5.M.1.a and TS 4.5.M.1.b. Adequate procedural incorporation of the TS changes associated with the amendment were confirmed by the inspector via a review of the new surveillance instructions referenced above in addition to procedures GOI-100-1A, GOI-100-12A, 2-OI-68, 2-AOI-68-1, 2-ARP-9-5, GOI-100-1C, and GOI-100-12B. Training for the plant operators was covered during requalification training lesson plan OIL 173.026.

## z. TS Amendment 179

This TS change clarified the number of EECW and RHRSW pumps required for operation. This change revised TS 3.5.L/4.5.L and Table 3.5.-1. The minimum pump assignment is a function of the number of units fueled. The inspector reviewed a controlled copy of the TS and the changes were incorporated into the TS. The OIs for RHRSW and EECW were reviewed and both cross referenced the appropriate TS number. Training was conducted for the plant using an urgent reading package which contained the TS pages affected by the change and the safety evaluation.

## aa. TS Amendment 182

This change was made to allow one hour before shutting the RHR shutdown cooling isolations valves when the containment isolation logic function was inoperable. The previous time limit required the valves be closed immediately before resolution of the problem or establishment of alternate cooling. This change had not been approved by the NRC at the time of the inspection, but was expected shortly.





Training was conducted for the operators by an urgent reading package dated January 17, 1991. The inspector reviewed the package which contained the TS pages changed and the safety evaluation for the change.

No violations or deviations were identified in this paragraph.

### 3. Training of Operators

The inspector reviewed the training conducted for plant operators on the TS changes. TS Amendments 137 through 177 were covered by requalification lesson plan OPL 173-026. Training was completed on November 5, 1990. Before this lesson plan TS changes were made part of the required reading program. After amendment 177 changes were processed by urgent reading packages for the operators. Additionally, OPL173.026 was in process of being updated for additional training with the latest TS changes. This training was scheduled to begin February 11, 1991, and end March 22, 1991.

No violations or deviations were identified in this paragraph.

### 4. SBTG Flow Distribution Test Problem

The inspector reviewed some recently completed SIs to verify that TS were being implemented by the SIs. For 0-SI-4.7.B.3, SBTG Flow Distribution Test, the acceptance criteria could not be met and test deficiencies were written to resolve the problem. The test was required by TS 4.7.B.1.c to verify that the air flow distribution across the HEPA filters and charcoal absorbers was uniform within 20 percent. The test consisted of two sets of measurements at nine data points each. The physical arrangement of the SBTG filter train is an upstream HEPA filter, charcoal absorber, and downstream HEPA filter. The first set of data was taken across the upstream filter. The second set of data was taken across the charcoal and downstream filter. The test data was within 20 percent for the upstream filter but not for the second set of data.

The licensee resolved this TD by revising the SI to delete the portion of the test that failed. Revision four to the SI was completed January 14, 1991. The reason for the revision was that the test scope was outside the boundary discussed in ANSI standard, N510-1975. The revision was processed as URGENT and needed for SBTG SPOC.

The inspector did not agree with the procedure revision. The SI as revised did not appear to meet TS since the TS SR was for uniform across the HEPA filters and charcoal absorber. Additionally, a known deficiency in the system was not being resolved.

This item is unresolved pending further review of test methods as identified as URI 259, 260, 296/91-03-01, SBTG Test Deficiencies.



The inspector also reviewed the completed SI for the three trains of SBTG conducted in 1989. These were conducted as follows:

Train A	11/9/89 and 11/10/89
Train B	10/10/89 and 10/13/89
Train C	11/11/89 and 11/13/89

In each case the test initially failed a portion of the test. Either the HEPA filter or charcoal absorber were replaced and the test successfully performed.

No violations or deviations were identified in this paragraph.

#### 5. QA Audits

The licensee performed an audit (No. BFA 90013) during March 2-27, 1990 to determine if Browns Ferry TS were being properly implemented and maintained. This audit identified five areas of weaknesses but concluded that the program to maintain and implement TS requirements was adequate and effective. The weaknesses were being followed to resolution.

A QA monitoring was also performed (Report QBF-F-90-0451) during August 15 - September 28, 1990 which reviewed the Browns Ferry TS for proper incorporation of 51 amendments. The site procedures which implement the TS changes were found to be adequate.

The inspector reviewed the QA reports and concluded the audit was comprehensive and reflected the licensee's commitment towards maintaining and implementing the TS amendments.

No violations or deviations were identified in this paragraph.

#### 6. Action on Previous Findings (92701, 92702)

(CLOSED) IFI 259, 260, 296/90-25-02, TS Reformatting.

This IFI was opened because the inspector identified that a possible cause of a SR not being correctly incorporated into an SI was that a revision bar was missing from the changed TS page. The results of the licensee's incident investigation into this problem determined the missing revision bar was not a factor. The inspector reviewed a QA audit of TS changes and several problems similar to this were found. The mistakes were made by both TVA and NRC indicating a need for closer review and attention to detail in TS revisions. None of the mistakes were found to be significant.

#### 7. Exit Interview (30703)

The inspection scope and findings were summarized on February 1, 1989 with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed



below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee.

The licensee committed to formalize the DG reliability tracking program into a plant procedure before Unit 2 restart.

<u>Item Number</u>	<u>Description and Reference</u>
259, 260, 296/91-03-01	URI, SGBT Test Deficiencies, paragraph 4

Licensee management was informed that one IFI was closed.

#### 8. Acronyms

ANSI	American National Standards Institute
AOI	Abnormal Operating Instruction
APRM	Average Power Range Monitor
ARP	Annunciator Response Procedure
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
ATWS	Anticipated Transient Without Scram
BWR	Boiling Water Reactor
CREV	Control Room Emergency Ventilation System
DG	Diesel Generator
ECCS	Emergency Core Cooling System
EECW	Emergency Equipment Cooling Water
EQ	Environmental Qualification
GOI	General Operating Instruction
HEPA	High Efficiency Particulate Air
HPCI	High Pressure Coolant Injection
IFI	Inspector Followup Item
IGSCC	Intergranular Stress Corrosion Cracking
KV	Kilovolt
LCO	Limiting Condition for Operation
LPCI	Low Pressure Coolant Injection
MOV	Motor Operated Valve
NRC	Nuclear Regulatory Commission
OI	Operating Instruction
OPL	Operator Training Lesson Plan
PSIG	Pounds Per Square Inch Gauge
PTS	Proposed Technical Specification
QA	Quality Assurance
RCI	Radiological Control Instruction
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection System
RPT	Recirculation Pump Trip
RSCS	Rod Sequence Control System
RWM	Rod Worth Minimizer

SBGT	Standby Gas Treatment
SDSP	Site Directors Standard Practice
SI	Surveillance Instruction
SLC	Standby Liquid Control
SPOC	System Preoperability Checklist
SR	Surveillance Requirement
SRO	Senior Reactor Operator
TD	Test Deficiency
TS	Technical Specification
TVA	Tennessee Valley Authority
URI	Unresolved Item