Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609

June 2, 1995

TVA-BFN-TS-361 10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - TECHNICAL SPECIFICATION (TS) 361 - RESIDUAL HEAT REMOVAL SERVICE WATER SYSTEM (RHRSW) TS REQUIREMENT FOR STANDBY COOLANT SUPPLY AND TS 3/4.2.F INSTRUMENT NUMBER CHANGES

In accordance with the provisions of 10 CFR 50.4 and 50.90, TVA is submitting a request for an amendment (TS-361) to licenses DPR-33, DPR-52, and DPR-68 to change the TSs for Units 1, 2, and 3. The proposed change clarifies the definition of operability for the RHRSW system standby coolant supply capability and revises the instrument numbers in TS Tables 3.2.F and 4.2.F for several instruments that have been upgraded.

The RHRSW system standby coolant supply along with the Residual Heat Removal (RHR) system cross-connect capability provides a long-term redundancy to the other emergency core and containment cooling systems and is designed to accommodate certain situations that, although unlikely to occur, could jeopardize the functioning of these systems. The proposed revision to the TS 3.5.C.3 requirements reflects the long-term requirement of this function by clarifying that the standby coolant supply is considered operable if the

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capability can be restored to service within five hours. This change is consistent with the current TS 3.5.B.11 requirements for the RHR system cross-connect capability which allows five hours for restoration. Additionally, minor wording changes for the TS 3.5.C.3 requirements are proposed.

This revision is necessary to clarify the operability requirements of the standby coolant supply capability due to design requirements. Due to BFN 10 CFR 50 Appendix R requirements, the power supply breakers for certain normally closed valves associated with the standby coolant supply will be open during reactor power operation. This configuration does not prevent the capability of the standby coolant supply to perform its function since the power supply breakers and valves can be positioned within the period required for utilizing standby coolant.

TVA is also revising TS Tables 3.2.F, Surveillance Instrumentation, and 4.2.F, Minimum Test and Calibration Frequency for Surveillance Instrumentation, to reflect new instrument numbers for several instruments that have been upgraded during the extended outage on Unit 3. The proposed changes are consistent with the current Unit 2 TS for these instruments.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The BFN Plant Operations Review Committee and the BFN Nuclear Safety Review Board have reviewed this proposed change and determined that operation of BFN Units 1, 2, and 3 in accordance with the proposed change will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. This includes TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains copies of the appropriate TS pages from Units 1, 2, and 3 marked-up to show the proposed change. Enclosure 3 forwards the revised TS pages for Units 1, 2, and 3 that incorporate the proposed change.

TVA requests that the revised TSs be approved one month prior to Unit 3 startup, currently scheduled for January 1996, and made effective within 30 days of NRC approval. The revision for the standby coolant supply capability will clarify the operability requirements and will be consistent with current RHR system cross-connect TS requirements. Revisions to TS Tables 3.2.F and 4.2.F are administrative changes needed to reflect current plant instrument numbering. If you have any questions about these changes, please contact me at (205) 729-2636.

Sincerely,

Pedro Salas
Manager of Site Licensing

Enclosures
cc: See page 4

Subscribed and sworn to before me
on this 02 day of June 1995.

Barbara A. Blanton
Notary Public

My Commission Expires 10/06/98

My Commission Expires _____

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS-361
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

A. TS 3.5.C.3, Standby Coolant Supply

TVA is revising Units 1, 2, and 3 TS 3.5.C.3, Residual Heat Removal Service Water (RHRSW) and Emergency Equipment Cooling Water Systems (EECWS), to clarify the operability requirements for the standby coolant supply capability. This revision will add a note to indicate that operability of the standby coolant supply is maintained if the capability can be restored to service within five hours. Wording is also added to reflect that the operability of the standby coolant supply capability includes the associated valves. This change is consistent with the existing Units 1, 2, and 3 requirements for the RHR system cross-connect capability contained in TS 3.5.B.11. Additionally, the TSs for Units 1 and 3 are being revised to unitize these requirements. This change will result in similar wording for each unit's TS.

The specific changes are described below.

1. Unit 1 TS 3.5.C.3, TS page 3.5/4.5-10.

Current Limiting Condition for Operation:

> "During REACTOR POWER OPERATION, both RHRSW pumps D1 and D2 normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5 below."

Proposed Limiting Condition for Operation:

> "During Unit 1 REACTOR POWER OPERATION, both RHRSW pumps D1 and D2 and associated valves normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5

below. (Note: Because standby coolant supply capability is not a short-term requirement, a component is not considered inoperable if standby coolant supply capability can be restored to service within 5 hours.)"

2. Unit 2 TS 3.5.C.3, TS page 3.5/4.5-10.

Current Limiting Condition for Operation:

"During Unit 2 REACTOR POWER OPERATION, any two RHRSW pumps (D1, D2, B1, and B2) normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5 below."

Proposed Limiting Condition for Operation:

"During Unit 2 REACTOR POWER OPERATION, any two RHRSW pumps (D1, D2, B1, and B2) and associated valves normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5 below. (Note: Because standby coolant supply capability is not a short-term requirement, a component is not considered inoperable if standby coolant supply capability can be restored to service within 5 hours.)"

3. Unit 3 TS 3.5.C.3, TS page 3.5/4.5-10.

Current Limiting Condition for Operation:

"During REACTOR POWER OPERATION, both RHRSW pumps B1 and B2 normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5 below."

Proposed Limiting Condition for Operation:

"During Unit 3 REACTOR POWER OPERATION, both RHRSW pumps B1 and B2 and associated valves normally or alternately assigned to the RHR heat exchanger header supplying the standby coolant supply connection must be OPERABLE except as specified in 3.5.C.4 and 3.5.C.5 below. (Note: Because standby coolant supply capability is not a short-term

requirement, a component is not considered inoperable if standby coolant supply capability can be restored to service within 5 hours.)"

B. TS 3.2.F, Surveillance Instrumentation

TVA is revising Unit 3 TS Table 3.2.F, Surveillance Instrumentation, and Table 4.2.F, Minimum Test and Calibration Frequency for Surveillance Instrumentation, to reflect new instrument numbers for several instruments that have been upgraded during the extended outage on Unit 3. The specific changes are described below. The proposed changes are consistent with the current Unit 2 TS.

1. Unit 3 TS Table 3.2.F, Surveillance Instrumentation. Revise the instrument numbers as shown below.

   a. For the first Drywell Pressure

      Existing TS:

Instrument #
PI-64-67

      Proposed TS:

Instrument #
PI-64-67B

   b. For Drywell Temperature (includes reordering)

      Existing TS:

Instrument #
TI-64-52
XR-64-50

      Proposed TS:

Instrument #
XR-64-50
TI-64-52AB

c. For the second Drywell Pressure

Existing TS:

Instrument #
PS-64-67

Proposed TS:

Instrument #
PS-64-67B

d. For the Drywell Temperature and Pressure and Timer

Existing TS:

Instrument #
XR-64-50 and PS-64-58B and IS-64-67

Proposed TS:

Instrument #
TS-64-52A and PIS-64-58A and IS-64-67A

2. Unit 3 TS Table 4.2.F, Minimum Test and Calibration Frequency for Surveillance Instrumentation. Revise the instrument numbers as shown below.

Existing TS:

Instrument Channel
10) Drywell Pressure (PS-64-67)
...
12) Drywell Temperature (TR-64-52)
13) Timer (IS-64-67)

Proposed TS:

Instrument Channel
10) Drywell Pressure (PS-64-67B)
...
12) Drywell Temperature (TR-64-52A)
13) Timer (IS-64-67A)

II. REASON FOR THE PROPOSED CHANGE

A. TS 3.5.C.3, Standby Coolant Supply

The proposed revision to TS 3.5.C.3 clarifies the operability requirements of the standby coolant supply capability to reflect the long-term requirement of this function. Due to Appendix R requirements for two unit operation (see Safety Analysis below), certain normally closed motor operated valves in the flow path for the standby coolant supply will have their power removed during reactor power operation by having the associated supply breaker in the open position. This configuration will require the power supply breakers for the affected valves to be closed before the standby coolant supply can be utilized. Since the requirement for standby coolant supply is not a short-term requirement, this configuration does not prevent the capability of the standby coolant supply to perform its function.

Minor wording changes for the TS are also proposed to extend the TS requirements to include the associated valves needed for the standby coolant supply and to unitize the Unit 1 and 3 TSs. These changes clarify the TS requirements and are intended to avoid confusion.

These TS changes are needed for clarification of operability requirements of the standby coolant supply system due to design requirements of Appendix R. Compliance with the current TS requirements can be maintained with the design configuration since the ability of the standby coolant supply to perform its required function will be maintained. However, these changes are proposed to avoid confusion and provide consistency with the TS requirements for the RHR system cross-connect capability.

B. TS 3.2.F, Surveillance Instrumentation

The proposed changes to Unit 3 TS Table 3.2.F & 4.2.F (except for PIS-64-58A) reflect upgrades in the affected instrumentation to provide qualified, more reliable instrumentation. The TS are being revised to reflect new instrument numbers that correspond to the upgraded instrumentation. The surveillance requirements remain unchanged. These changes are necessary administrative changes required to reflect the new instrument numbers. These proposed changes to the instrument numbers are consistent with the existing Unit 2 TS.

The proposed change to Unit 3 TS Table 3.2.F for PIS-64-58A reflects an instrument number change that was inadvertently omitted from TS request number 318 submitted on March 30, 1994. This change was part of the installation of an Analog Transmitter/Trip System (ATTS) on Unit 3. The installation of the ATTS was analyzed as part of that TS change request (TS No. 318).

III. SAFETY ANALYSIS

A. TS 3.5.C.3, Standby Coolant Supply

System Design Function

The standby coolant supply and the RHR system cross-connect capability are manually initiated features provided to maintain a long-term reactor core and primary containment cooling capability irrespective of primary containment integrity or operability of the RHR system associated with a given unit. This capability provides added long-term redundancy to the other emergency core and containment cooling systems and is designed to accommodate certain situations that, although unlikely to occur, could jeopardize the functioning of these systems.

The standby coolant supply and RHR system cross-connect capability are not required to function to mitigate any analyzed design basis accidents, but are added features to provide continuing core cooling in the most degraded state of the unit RHR and Core Spray systems, namely, that of complete failure due to inundation from torus, torus header piping failure, or other cause.

The standby coolant supply system provides means for core cooling for any postulated failure of the RHR system cooling complex, provided the reactor has been tripped for several minutes and sufficient time is available for system alignment.

System Operation (See attached Figure)

The standby coolant supply connection provides a tie between the RHRSW system (which circulates raw water for cooling through the RHR system heat exchangers) and the RHR system. This connection allows the RHRSW pumps to supply raw water directly to the RHR system (via valves 1-FCV-23-57 or 2-FCV-23-57) which then can be directed to the reactor vessel, containment, or suppression pool utilizing the RHR system flowpath. One standby coolant supply connection (1-FCV-23-57) can supply Unit 1 RHR system Loop II or Unit 2 RHR system Loop I utilizing RHRSW pumps D1 or D2. The other standby coolant supply connection (2-FCV-23-57) can supply either Unit 2 RHR system Loop II or Unit 3 RHR system Loop I utilizing RHRSW pumps B1 or B2.

The RHR system cross-connect capability allows the RHR systems on adjoining units to be interconnected. This allows the RHR pumps and heat exchangers on one unit to cool an adjoining unit whose pumps have completely failed. At BFN, Unit 1 RHR system Loop II and Unit 2 RHR system Loop I can be cross-connected and Unit 2 RHR system Loop II and Unit 3 RHR system Loop I can be cross-connected. Suppression pool water that has been circulated through the RHR heat exchangers on one unit can be used to flood the reactor core, spray the drywell and suppression chamber, or returned to the suppression chamber of the adjacent unit. In this way, decay heat and residual heat can be removed from the reactor core and primary containment of the adjacent unit on a long-term basis.

The standby coolant supply would be used only until a sufficient hydrostatic head of water is built up in the basement of the affected unit to supply adequate net positive suction head (NPSH) to RHR pumps on the unit cross-connection. Subsequent cooling would be a closed-cycle mode using one of the two available RHR heat exchangers on the adjacent unit.

The standby coolant supply and the RHR system cross-connect capability are manually initiated features. The valves associated with these features are normally closed and are placed into service when needed.

The standby coolant supply connects to the RHR system cross-connect piping between the RHR pump discharge lines exiting the RHR heat exchangers. Therefore, in order to initiate standby coolant supply for a unit, the associated RHR system cross-connect valve must also be opened. The following table shows the relationship

between components used for the standby coolant supply capability.

Unit/RHR Loop	RHR Cross-connect Valve Required to be Opened for Standby Coolant (Normally Closed)	Standby Coolant Supply Valve (Normally Closed)	RHRSW Pumps Supplying Standby Coolant
Unit 1/Loop II	1-FCV-74-101	1-FCV-23-57	D1, D2
Unit 2/Loop I	2-FCV-74-100		
Unit 2/Loop II	2-FCV-74-101*	2-FCV-23-57	B1, B2
Unit 3/Loop I	3-FCV-74-100*		

*Power supply breakers to be left in open position -See Appendix R requirements below

Appendix R Safe Shutdown Analysis Requirements

The return of operation of BFN Unit 3 after an extended shutdown period has required the re-review of programs initiated for the restart of BFN Unit 2. The safe shutdown analysis required by 10 CFR 50 Appendix R was re-evaluated based upon two unit operation. Based on this evaluation, certain plant changes were required to ensure that the minimum safe shutdown systems (SSDS) were available for a fire event in any plant location.

Based on this evaluation, certain normally closed RHR system cross-connect valves will have their power supply breakers open during reactor power operation. This prevents the spurious operation of more than one valve in this flow path that would divert RHR system flow away from the reactor vessel. As stated previously, certain of these valves are required to be operated for the standby coolant supply function.

RHR system cross-connect valves 2-FCV-74-101 and 3-FCV-74-100 will be in the closed position with their power supply breakers in the open position to comply with the Appendix R design requirements. These two valves are utilized for the standby coolant supply to Unit 2 RHR system Loop II and Unit 3 RHR system Loop I. This will require manual operator action to restore the power to the affected valves prior to their operation to place standby coolant supply in service.

Safety Analysis of Proposed Change

The Design Basis Events (DBEs) associated with the systems affected by this proposed TS change are listed

in the BFN Safe Shutdown Analysis. Neither the standby coolant supply connection nor the RHR cross-connect capability is required for mitigation of any event analyzed in the BFN Safe Shutdown Analysis. Additionally, no credit is taken in the Final Safety Analysis Report (FSAR) Chapter 14 safety analyses for these capabilities of the RHRSW or RHR systems.

The standby coolant supply and the RHR system cross-connect capability are provided to maintain a long-term reactor core and primary containment cooling capability and is not a short-term requirement. TS 3.5.B.11 for the RHR system cross-connect capability currently takes credit for this long-term requirement by allowing component operability if the capability can be restored to service within five hours. For the standby coolant supply capability, given the likelihood of the limiting event (torus failure with resultant reactor building flooding causing loss of emergency core and containment cooling systems), the high availability of the power conversion system, and operator actions per Emergency Operating Instruction guidance to use all available pressure sources of water, the capability to maintain the unit in a safe condition is not compromised.

In the event that these capabilities are needed, they are placed into service to provide an alternate means for core or containment cooling. Access to the control areas of the valve breakers is not limited in any event and the associated valves are located high enough to ensure adequate time for lineup before they become inundated. This TS change is limited to a revision of the specification of the RHRSW pumps which provide the standby coolant supply connection and includes within the specification the associated valves for the functional capability. It also provides a logical expansion of the definition of operability for this capability since it is a long-term redundant capability. These changes are acceptable from the viewpoint of nuclear safety since they do not affect the RHRSW pump operability requirements for support of the RHR cooling function and they do not prevent the ability of the standby coolant supply to perform its required function.

B. TS 3.2.F, Surveillance Instrumentation

The drywell temperature and pressure surveillance instrumentation was upgraded this outage to provide qualified, more reliable instrumentation. TS Tables 3.2.F and 4.2.F have been revised to reflect new instrument numbers for the upgraded instrumentation. The surveillance requirements remain the same.

Proposed change 1.d updates instrumentation numbers that were inadvertently omitted from TS change request number 318. The safety analysis associated with the installation of the ATTS was evaluated as part of that TS change request.

IV. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

TVA has concluded that operation of Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 in accordance with the proposed changes to the technical specifications does not involve a significant hazards consideration. TVA's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c).

1. **The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

   The proposed change to TS 3.5.C.3 clarifies the operability requirements of the standby coolant supply capability. It does not change or degrade the nuclear safety characteristics of the RHRSW and RHR systems and will not affect the intent of the TS. The operation of the standby coolant supply capability is not a precursor to any design basis accident or transient analyzed in the BFN FSAR. The proposed changes to instrument numbers are administrative changes for the upgraded drywell temperature and pressure instrumentation. The proposed changes do not affect the design basis or the safety functions of the Primary Containment system, since the function and instrumentation range is not changed. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report has not been increased.

2. **The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

   The possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report is not created by this change. The change to TS 3.5.C.3 adds the indication of associated valves of the function involved and a clarification of operability for the standby coolant supply connection to be commensurate with the RHR cross-connect capability. The proposed changes to instrument numbers are administrative changes effected by the upgrade of instrumentation. There are no

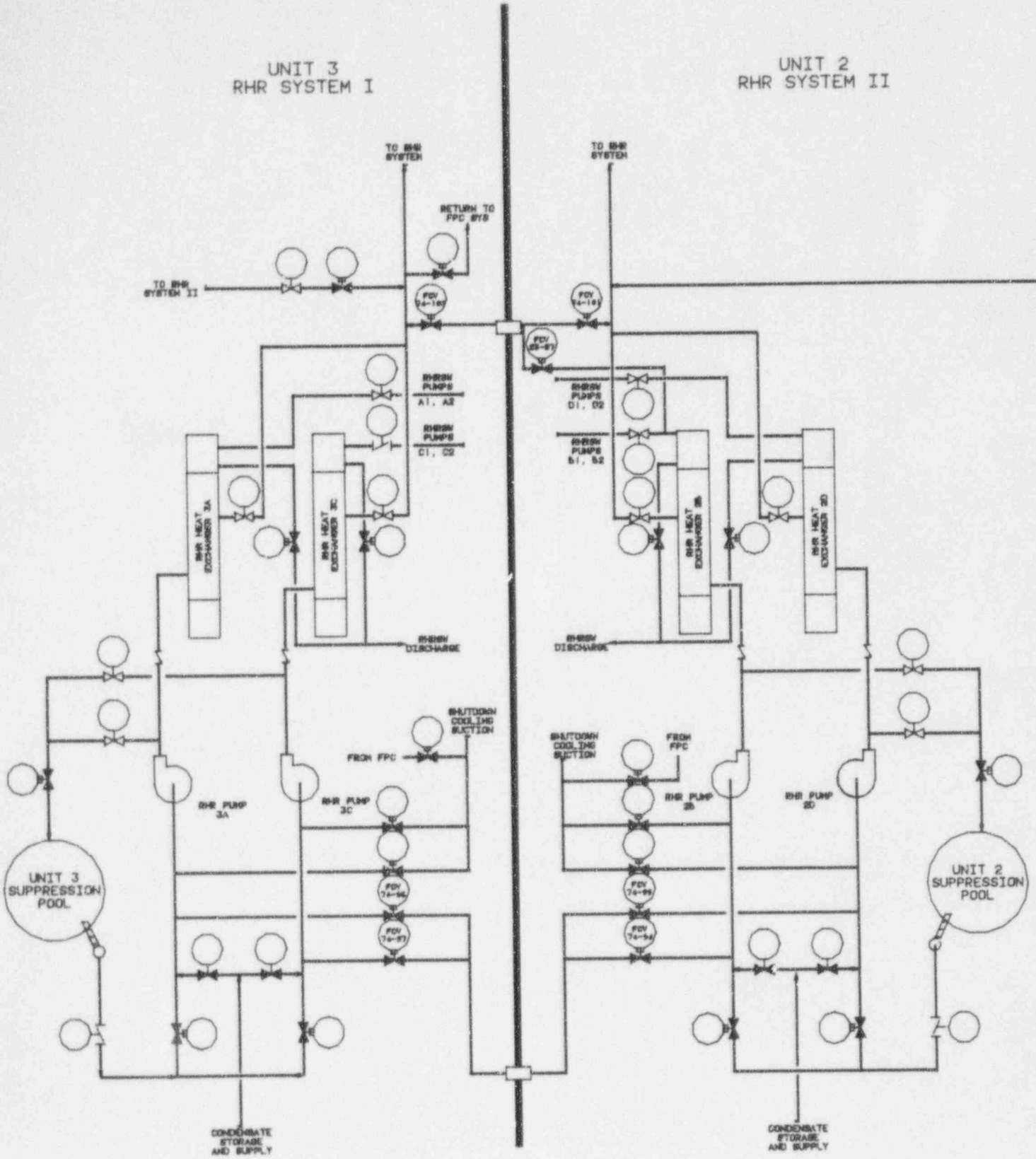
automatic actions affected or compromised by these changes.

3. **The proposed amendment does not involve a significant reduction in a margin of safety.**

The proposed change to TS 3.5.C.3 does not affect any acceptable limit of operation or analysis assumption in the TS or Bases. The changes affect neither setpoints, calibration intervals, nor functional test intervals. The change does not affect any acceptable limit of operation or analysis assumption found in the TS or their bases. The proposed administrative changes to the instrument numbers do not affect the setpoint, calibration interval or function of the instrumentation. These changes do not affect any limiting conditions of operation or analysis assumption in the TSs or their bases. Therefore, the change does not reduce the margin of safety as defined in the basis for any TS.

V. ENVIRONMENTAL IMPACT CONSIDERATION

The proposed change does not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.


UNIT 3
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UNIT 2
RHR SYSTEM II
TO RHR SYSTEM
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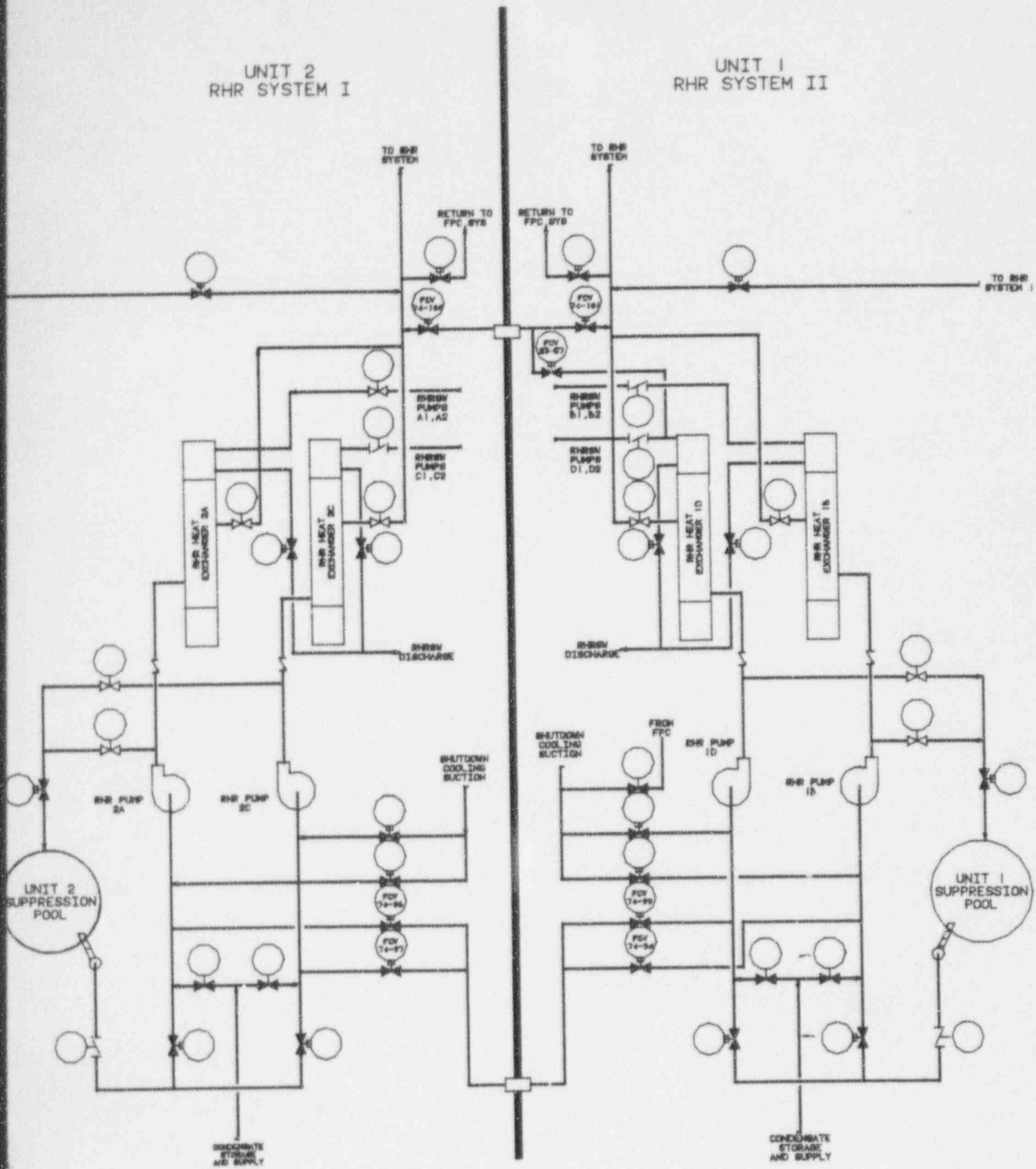
TO RHR SYSTEM II
RHR HEAT EXCHANGER 3A
RHR HEAT EXCHANGER 3C
RHR HEAT EXCHANGER 2B
RHR HEAT EXCHANGER 2D
RHR PUMPS A1, A2
RHR PUMPS C1, C2
RHR PUMPS D1, D2
RHR PUMPS B1, B2
RHR DISCHARGE
SHUTDOWN COOLING SUCTION
FROM FPC
RHR PUMP 3A
RHR PUMP 3C
RHR PUMP 2B
RHR PUMP 2D
UNIT 3 SUPPRESSION POOL
UNIT 2 SUPPRESSION POOL
CONDENSATE STORAGE AND SUPPLY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UNIT 1
RHR SYSTEM II
TO RHR SYSTEM
RETURN TO FPC SYS
TO RHR SYSTEM
RETURN TO FPC SYS
TO RHR SYSTEM 1
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RHRSW PUMPS C1, C2
RHRSW PUMPS B1, B2
RHRSW PUMPS D1, D2
RHR HEAT EXCHANGER 2A
RHR HEAT EXCHANGER 2C
RHR HEAT EXCHANGER 1D
RHR HEAT EXCHANGER 1B
RHRSW DISCHARGE
RHRSW DISCHARGE
SHUTDOWN COOLING SUCTION
FROM FPC
SHUTDOWN COOLING SUCTION
RHR PUMP 2A
RHR PUMP 2C
RHR PUMP 1D
RHR PUMP 1B
UNIT 2 SUPPRESSION POOL
UNIT 1 SUPPRESSION POOL
CONDENSATE STORAGE AND SUPPLY
CONDENSATE STORAGE AND SUPPLY