

TECHNICAL SPECIFICATION 312

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**PROPOSED TECHNICAL SPECIFICATION CHANGE  
BROWNS FERRY NUCLEAR PLANT  
UNIT 1**

**(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)**

NOTES FOR TABLE 3.1.A

1. There shall be two operable or tripped trip systems for each function. If the minimum number of operable instrument channels per trip system cannot be met for one trip system, trip the inoperable channels or entire trip system within one hour, or, alternatively, take the below listed action for that trip function. If the minimum number of operable instrument channels cannot be met by either trip system, the appropriate action listed below (refer to right-hand column of Table) shall be taken. An inoperable channel need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the inoperable channel shall be restored to operable status within two hours, or take the action listed below for that trip function.
  - A. Initiate insertion of operable rods and complete insertion of all operable rods within four hours. In refueling mode, suspend all operations involving core alterations and fully insert all operable control rods within one hour.
  - B. Reduce power level to IRM range and place mode switch in the STARTUP/HOT Standby position within 8 hours.
  - C. Reduce turbine load and close main steam line isolation valves within 8 hours.
  - D. Reduce power to less than 30 percent of rated.
2. The scram discharge volume high water level bypass may be used in SHUTDOWN or REFUEL to bypass the scram discharge volume high-high water level scram signal in order to reset the reactor protection system trip. A control rod withdraw block is present when this scram is bypassed.
3. Bypassed if reactor pressure is less than 1055 psig and mode switch not in RUN.
4. Bypassed when turbine first stage pressure is less than 154 psig.
5. IRMs are bypassed when APRMs are onscale and the reactor mode switch is in the RUN position.
6. The design permits closure of any two lines without a scram being initiated.
7. When the reactor is subcritical and the reactor water temperature is less than 212°F, only the following trip functions need to be operable:
  - A. Mode switch in shutdown
  - B. Manual scram
  - C. High flux IRM
  - D. Scram discharge volume high level
  - E. APRM 15 percent scram

**PROPOSED TECHNICAL SPECIFICATION CHANGE  
BROWNS FERRY NUCLEAR PLANT  
UNIT 2**

**(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)**

TABLE 3.1.A  
 REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENTS

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| Min. No. of Operable Instr. Channels Per Trip System (1)(23) | Trip Function                                                      | Trip Level Setting                    | Modes in which Function Must Be Operable |            |                     |       | Action (1)      |
|--------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------|------------------------------------------|------------|---------------------|-------|-----------------|
|                                                              |                                                                    |                                       | Shut-down                                | Refuel (7) | Startup/Hot Standby | Run   |                 |
| 2                                                            | High Water Level in West Scram Discharge Tank (LS-85-45A-D)        | ≤ 50 Gallons                          | X(2)                                     | X(2)       | X                   | X     | 1.A             |
| 2                                                            | High Water Level in East Scram Discharge Tank (LS-85-45E-H)        | ≤ 50 Gallons                          | X(2)                                     | X(2)       | X                   | X     | 1.A             |
| 4                                                            | Main Steam Line Isolation Valve Closure                            | ≤10% Valve Closure                    |                                          |            |                     | X(6)  | 1.A or 1.C      |
| 2                                                            | Turbine Control Valve Fast Closure or Turbine Trip                 | ≥550 psig                             |                                          |            |                     | X(4)  | 1.A or 1.D      |
| 4                                                            | Turbine Stop Valve Closure                                         | ≤10% Valve Closure                    |                                          |            |                     | X(4)  | 1.A or 1.D      |
| 2                                                            | Turbine First Stage Pressure Permissive (PIS-1-81A&B, PIS-1-91A&B) | not ≥154 psig                         |                                          | X(18)      | X(18)               | X(18) | 1.A or 1.D (19) |
| 2                                                            | Main Steam Line High Radiation (14)                                | 3 X Normal Full Power Background (20) |                                          | X(9)       | X(9)                | X(9)  | 1.A or 1.C      |

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.. NOTES FOR TABLE 3.1.A

1. There shall be two OPERABLE or tripped trip systems for each function. If the minimum number of OPERABLE instrument channels per trip system cannot be met for one trip system, trip the INOPERABLE channels or entire trip system within one hour, or, alternatively, take the below listed action for that trip function. If the minimum number of OPERABLE instrument channels cannot be met by either trip system, the appropriate action listed below (refer to right-hand column of Table) shall be taken. An INOPERABLE channel need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the INOPERABLE channel shall be restored to OPERABLE status within two hours, or take the action listed below for that trip function.
  - A. Initiate insertion of OPERABLE rods and complete insertion of all OPERABLE rods within four hours. In refueling mode, suspend all operations involving core alterations and fully insert all OPERABLE control rods within one hour.
  - B. Reduce power level to IRM range and place mode switch in the STARTUP/HOT Standby position within 8 hours.
  - C. Reduce turbine load and close main steam line isolation valves within 8 hours.
  - D. Reduce power to less than 30 percent of rated.
2. The scram discharge volume high water level bypass may be used in SHUTDOWN or REFUEL to bypass the scram discharge volume high-high water level scram signal in order to reset the reactor protection system trip. A control rod withdraw block is present when this scram is bypassed.
3. (Deleted)
4. Bypassed when turbine first stage pressure is less than 154 psig.
5. IRMs are bypassed when APRMs are onscale and the reactor mode switch is in the RUN position.
6. The design permits closure of any two lines without a scram being initiated.
7. When the reactor is subcritical and the reactor water temperature is less than 212°F, only the following trip functions need to be OPERABLE:
  - A. Mode switch in SHUTDOWN
  - B. Manual scram
  - C. High flux IRM
  - D. Scram discharge volume high level
  - E. APRM 15 percent scram





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Unit 2

TABLE 4.1.A (Continued)

|                                                                                  | <u>Group (2)</u> | <u>Functional Test</u>     | <u>Minimum Frequency(3)</u> |
|----------------------------------------------------------------------------------|------------------|----------------------------|-----------------------------|
| High Water Level in Scram Discharge<br>Tank Float Switches (LS-85-45C-F)         | A                | Trip Channel and Alarm     | Once/Month                  |
| Electronic Level Switches<br>(LS-85-45A, B, G, H)                                | B                | Trip Channel and Alarm (7) | Once/Month                  |
| Main Steam Line High Radiation                                                   | B                | Trip Channel and Alarm (4) | Once/3 Months (8)           |
| Main Steam Line Isolation Valve<br>Closure                                       | A                | Trip Channel and Alarm     | Once/3 Months (8)           |
| Turbine Control Valve Fast<br>Closure or turbine trip                            | A                | Trip Channel and Alarm     | Once/Month (1)              |
| Turbine First Stage Pressure<br>Permissive (PIS-1-81A and B,<br>PIS-1-91A and B) | B                | Trip Channel and Alarm (7) | Every three months          |
| Turbine Stop Valve Closure                                                       | A                | Trip Channel and Alarm     | Once/Month (1)              |

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TABLE 4.1.B  
 REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION  
 MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

| <u>Instrument Channel</u>                                                | <u>Group (1)</u> | <u>Calibration</u>                            | <u>Minimum Frequency(2)</u>           |
|--------------------------------------------------------------------------|------------------|-----------------------------------------------|---------------------------------------|
| IRM High Flux                                                            | C                | Comparison to APRM on Controlled Startups (6) | Note (4)                              |
| APRM High Flux Output Signal                                             | B                | Heat Balance                                  | Once/7 Days                           |
| Flow Bias Signal                                                         | B                | Calibrate Flow Bias Signal (7)                | Once/Operating Cycle                  |
| LPRM Signal                                                              | B                | TIP System Traverse (8)                       | Every 1000 Effective Full Power Hours |
| High Reactor Pressure (PIS-3-22 AA, BB, C, D)                            | B                | Standard Pressure Source                      | Once/6 Months (9)                     |
| High Drywell Pressure (PIS-64-56 A-D)                                    | B                | Standard Pressure Source                      | Once/18 Months (9)                    |
| Reactor Low Water Level (LIS-3-203 A-D)                                  | B                | Pressure Standard                             | Once/18 Months (9)                    |
| High Water Level in Scram Discharge Volume Float Switches (LS-85-45-C-F) | A                | Calibrated Water Column                       | Once/18 Months                        |
| Electronic Level Switches (LS-85-45 A, B, G, H)                          | B                | Calibrated Water Column                       | Once/18 Months (9)                    |
| Main Steam Line Isolation Valve Closure                                  | A                | Note (5)                                      | Note (5)                              |
| Main Steam Line High Radiation                                           | B                | Standard Current Source (3)                   | Every 3 Months                        |
| Turbine First Stage Pressure Permissive (PIS-1-81 A&B, PIS-1-91 A&B)     | B                | Standard Pressure Source                      | Once/18 Months (9)                    |
| Turbine Stop Valve Closure                                               | A                | Note (5)                                      | Note (5)                              |
| Turbine Control Valve Fast Closure on Turbine Trip                       | A                | Standard Pressure Source                      | Once/Operating Cycle                  |

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Unit 2

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### 3.1 BASES (Cont'd)

be accommodated which would result in slow scram times or partial control rod insertion. To preclude this occurrence, level switches have been provided in the instrument volume which alarm and scram the reactor when the volume of water reaches 50 gallons. As indicated above, there is sufficient volume in the piping to accommodate the scram without impairment of the scram times or amount of insertion of the control rods. This function shuts the reactor down while sufficient volume remains to accommodate the discharge water and precludes the situation in which a scram would be required but not be able to perform its function adequately.

A source range monitor (SRM) system is also provided to supply additional neutron level information during startup but has no scram functions. Reference Section 7.5.4 FSAR. Thus, the IRM is required in the REFUEL and STARTUP modes. In the power range the APRM system provides required protection. Reference Section 7.5.7 FSAR. Thus, the IRM System is not required in the RUN mode. The APRMs and the IRMs provide adequate coverage in the STARTUP and intermediate range.

The high reactor pressure, high drywell pressure, reactor low water level, and scram discharge volume high level scrams are required for STARTUP and RUN modes of plant operation. They are, therefore, required to be operational for these modes of reactor operation.

The requirement to have the scram functions as indicated in Table 3.1.A OPERABLE in the REFUEL mode is to assure that shifting to the REFUEL mode during reactor power operation does not diminish the need for the reactor protection system.

Because of the APRM downscale limit of  $\geq 3$  percent when in the RUN mode and high level limit of  $\leq 15$  percent when in the STARTUP Mode, the transition between the STARTUP and RUN Modes must be made with the APRM instrumentation indicating between 3 percent and 15 percent of rated power or a control rod scram will occur. In addition, the IRM system must be indicating below the High Flux setting (120/125 of scale) or a scram will occur when in the STARTUP Mode. For normal operating conditions, these limits provide assurance of overlap between the IRM system and APRM system so that there are no "gaps" in the power level indications (i.e., the power level is continuously monitored from beginning of startup to full power and from full power to SHUTDOWN). When power is being reduced, if a transfer to the STARTUP mode is made and the IRMs have not been fully inserted (a maloperational but not impossible condition) a control rod block immediately occurs so that reactivity insertion by control rod withdrawal cannot occur.

**PROPOSED TECHNICAL SPECIFICATION CHANGE  
BROWNS FERRY NUCLEAR PLANT  
UNIT 3**

**(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)**

NOTES FOR TABLE 3.1.A

1. There shall be two OPERABLE or tripped trip systems for each function. If the minimum number of OPERABLE instrument channels per trip system cannot be met for one trip system, trip the INOPERABLE channels or entire trip system within one hour, or, alternatively, take the below listed action for that trip function. If the minimum number of OPERABLE instrument channels cannot be met by either trip system, the appropriate action listed below (refer to right-hand column of Table) shall be taken. An INOPERABLE channel need not be placed in the tripped condition where this would cause the trip function to occur. In these cases, the INOPERABLE channel shall be restored to OPERABLE status within two hours, or take the action listed below for that trip function.
  - A. Initiate insertion of OPERABLE rods and complete insertion of all OPERABLE rods within four hours. In refueling mode, suspend all operations involving core alterations and fully insert all OPERABLE control rods within one hour.
  - B. Reduce power level to IRM range and place mode switch in the STARTUP/HOT STANDBY position within 8 hours.
  - C. Reduce turbine load and close main steam line isolation valves within 8 hours.
  - D. Reduce power to less than 30 percent of rated.
2. The scram discharge volume high water level bypass may be used in SHUTDOWN or REFUEL to bypass the scram discharge volume high-high water level scram signal in order to reset the reactor protection system trip. A control rod withdraw block is present when this scram is bypassed.
3. DELETED
4. Bypassed when turbine first stage pressure is less than 154 psig.
5. IRMs are bypassed when APRMs are onscale and the reactor mode switch is in the RUN position.
6. The design permits closure of any two lines without a scram being initiated.
7. When the reactor is subcritical and the reactor water temperature is less than 212°F, only the following trip functions need to be OPERABLE:
  - A. Mode switch in shutdown
  - B. Manual scram
  - C. High flux IRM
  - D. Scram discharge volume high level
  - E. APRM 15 percent scram

## ENCLOSURE 2

### BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3 (TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312) REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION

#### REASON FOR THE CHANGE

The scram pilot air header pressure trip switches perform the same function as the redundant high water level switches in the scram discharge instrument volume for fast fill events in which the high level instrument response time may have been inadequate. TVA's reanalysis of the Control Rod Drive (CRD) system concluded that a successful scram would be achieved with the level instrumentation and without the scram pilot air header pressure trip switches scram function. The overall scram system design still satisfies the criteria contained in the generic Safety Evaluation Report (SER), which was transmitted by NRC letter to All BWR Licensees, dated December 9, 1980, BWR Scram Discharge System.

The potential for a plant transient due to the mal-operation or testing of these switches, the resources required for surveillance and maintenance of the switches, and the costs associated with installing the Class 1E switches in Units 1 and 3 outweigh the safety benefits of this redundant scram feature. Consequently, TVA has decided to request the removal of the scram function of these switches from the BFN Unit 2 Technical Specifications.

In addition, the description of the scram discharge volume high water level bypass in the Units 1, 2, and 3 Technical Specifications requires clarification in order to reduce the potential for misinterpretation.

#### DESCRIPTION OF THE PROPOSED CHANGE

The following specific changes are required to remove the scram pilot air header pressure trip switches scram function from the Unit 2 Technical Specifications:

- 1) The current requirements for Reactor Protection System instrumentation are listed in Table 3.1.A, Reactor Protection System (SCRAM) Instrumentation Requirements. The low scram pilot air header pressure instrumentation will be deleted from this table.

BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION

- 2) The current Note 2 for Table 3.1.A states:

"Scram discharge volume high bypass may be used in SHUTDOWN or REFUEL to bypass scram discharge volume scram and scram pilot air header low pressure scram with control rod block for reactor protection system reset."

The reference to the bypass of the scram pilot air header low pressure scram will be removed. The revised wording of this note is provided at the end of this section.

- 3) The trip functions currently required to be OPERABLE when the reactor is subcritical and the reactor water temperature is less than 212°F are listed as shown below in Note 7 in the Notes for Table 3.1.A section:

"When the reactor is subcritical and the reactor water temperature is less than 212°F, only the following trip functions need to be OPERABLE:

- A. Mode switch in SHUTDOWN
- B. Manual scram
- C. High flux IRM
- D. Scram discharge volume high level
- E. APRM 15 percent scram
- F. Scram pilot air header low pressure"

Note 7F, Scram pilot air header low pressure, will be deleted.

- 4) The current functional tests and the minimum functional test frequencies for safety related Reactor Protection System instrument and control circuits are listed in Table 4.1.A. The low scram pilot air header pressure switches (PS 85-35 A1, A2, B1, and B2) will be deleted.



BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION

5) The current Reactor Protection System instrument calibration minimum calibration frequencies for reactor protection instrument channels are listed in Table 4.1.B. The low scram pilot air header pressure switches (PS 85-35 A1, A2, B1, and B2) will be deleted.

6) The current Bases Section 3.1 states:

"The high reactor pressure, high drywell pressure, reactor low water level, low scram pilot air header pressure and scram discharge volume high level scrams are required for STARTUP and RUN modes of plant operation."

The requirement for the low scram pilot air header pressure scrams for STARTUP and RUN modes of plant operation will be deleted as shown below:

The high reactor pressure, high drywell pressure, reactor low water level, and scram discharge volume high level scrams are required for STARTUP and RUN modes of plant operation.

7) The current Bases Section 3.1 states:

"The low scram pilot air header pressure trip performs the same function as the high water level in the scram discharge instrument volume for fast fill events in which the high level instrument response time may be inadequate. A fast fill event is postulated for certain degraded control air events in which the scram outlet valves unseat enough to allow 5 gpm per drive leakage into the scram discharge volume but not enough to cause control rod insertion."

This discussion of the low scram pilot air header pressure trip is being deleted.



BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION

The following specific changes are required to clarify the description of the Reactor Protection System scram discharge volume high water level bypass in the Units 1, 2, and 3 Technical Specifications:

The current Note 2 for Table 3.1.A in the Unit 2 Technical Specifications states:

"Scram discharge volume high bypass may be used in SHUTDOWN or REFUEL to bypass scram discharge volume scram and scram pilot air header low pressure scram with control rod block for reactor protection system reset."

The current Note 2 for Table 3.1.A in the Units 1 and 3 Technical Specifications states:

"Scram discharge volume high bypass may be used in shutdown or refuel to bypass scram discharge volume scram with control rod block for reactor protection system reset."

The removal of the low scram pilot air header pressure trip for Unit 2 is described above. The description of the scram discharge volume high water level bypass will be clarified and Note 2 for Table 3.1.A for Units 1, 2, and 3 will read as shown below:

The scram discharge volume high water level bypass may be used in SHUTDOWN or REFUEL to bypass the scram discharge volume high-high water level scram signal in order to reset the reactor protection system trip. A control rod withdraw block is present when this scram is bypassed.

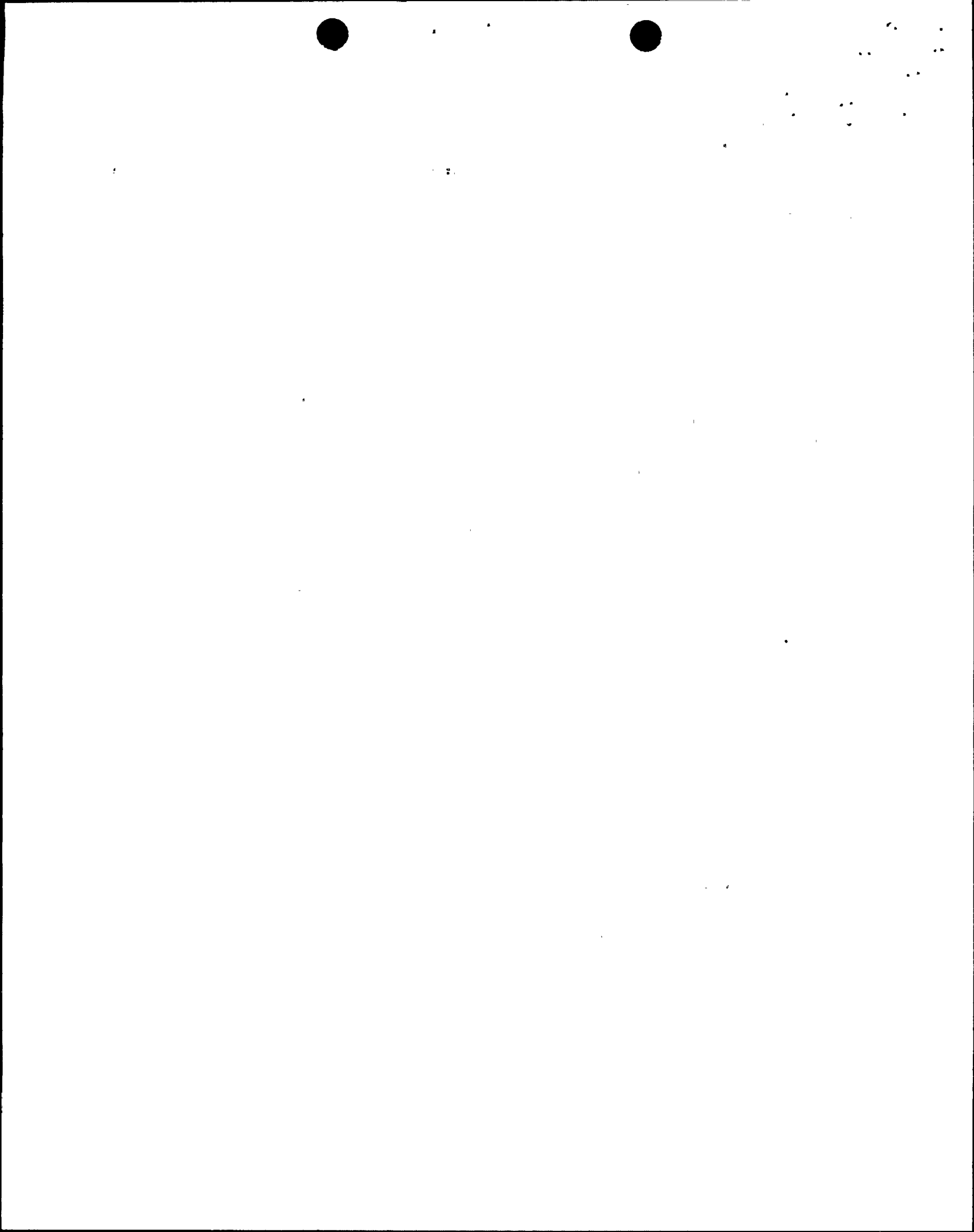
**BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION**

**JUSTIFICATION FOR THE PROPOSED CHANGE**

The Unit 2 scram pilot air header pressure trip switches perform the same function as the high water level switches in the scram discharge instrument volume for fast fill events in which the high level instrument response time may have been inadequate. Section 4.2.4.1 of the generic SER states that the CRD system shall be analyzed based on a plant-specific maximum inleakage to ensure that the system function is not lost prior to initiation of automatic scram. Maximum inleakage is the maximum flow rate, past the seal and through the scram discharge line, without control rod motion, summed over all control rods. The analysis should show no need for vents or drains. The Technical Basis for this section states that a maximum flow rate past the scram outlet valve, without rod motion, is 5 gpm per rod. This value should be used in the analysis to assure system function, or justification should be provided for using a different value. Any value that is used must be verified to be conservative by assured CRD seal maintenance requirements based on stall flow tests.

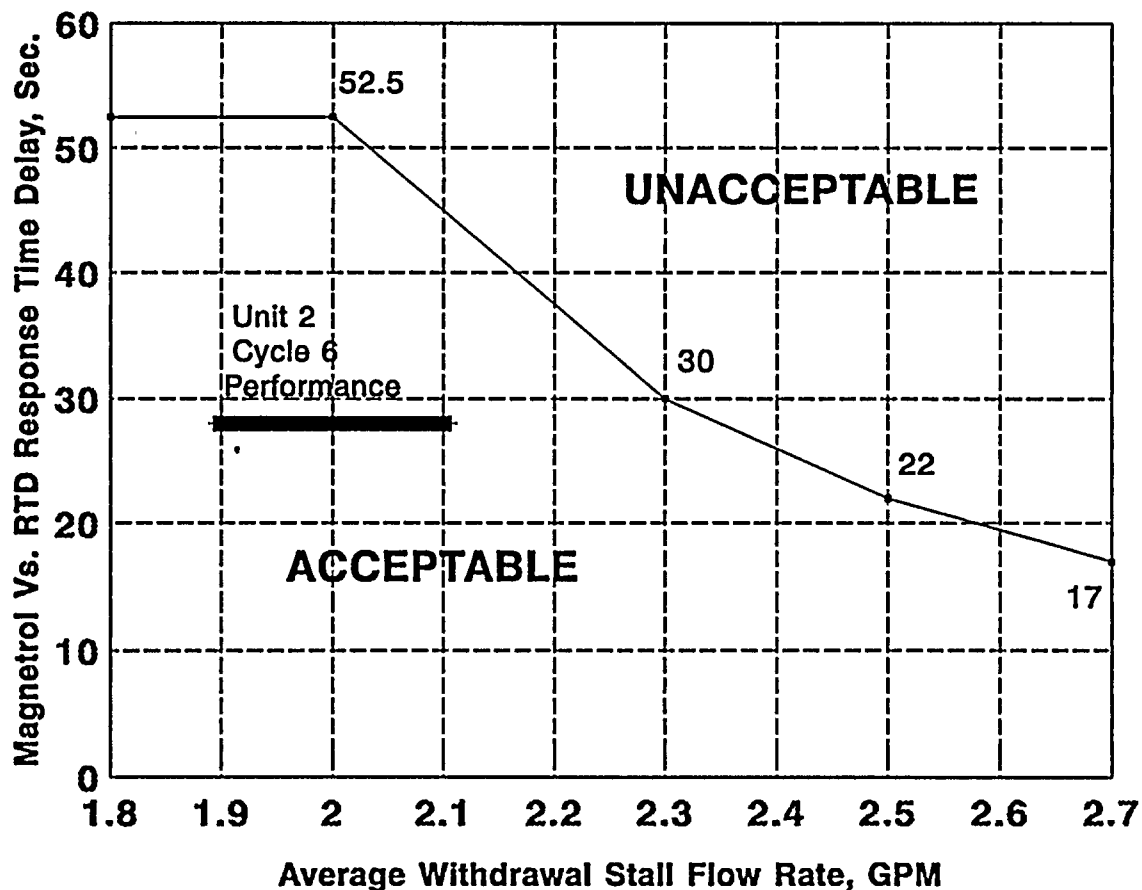
TVA's previous analyses of the scram discharge system were performed assuming the 5 gpm per rod inleakage flow rate. This resulted in approximately 465 gpm inleakage into a scram discharge volume. The fast fill transient reanalysis was based upon unit specific CRD leakage rates and scram discharge instrument volume water level instrumentation characteristics. The intent of the analysis was to show that a successful scram would be achieved using only the water level instrumentation and not the scram pilot air header pressure trip switches.

The water level in the scram discharge instrument volume is monitored by redundant and diverse Magnetrol and heated reference resistive temperature devices (RTD) level switches. Since the level switches are redundant, redundancy in the instrumentation that initiates the scram signal is maintained even with the removal of the scram pilot air header pressure trip switches scram function. The RTD switches were confirmed to respond within two seconds and the response time delay associated with the Magnetrol float switches was included in the analysis. No credit was taken for vents or drains and control rod motion was assumed not to occur until scram initiation. This reanalysis is consistent with the acceptance criteria of the generic SER (Reference 1). A copy of the supporting calculation for this reanalysis is available for review at TVA's Rockville office.



**BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION**

The reanalysis concluded that a successful Unit 2 scram would be achieved, with the level instrumentation and without the scram pilot air header pressure trip switches scram function, provided that the CRD leakage rate and the water level instrumentation response characteristics remain within the success criteria region shown below:



**Definitions:**

The Magnetrol Versus RTD Response Time Delay is the maximum allowable time delay between the RTD and Magnetrol level switches as measured following a reactor scram. The maximum allowable response time delay for either the East or West scram discharge instrument volume is defined as the maximum delay between any RTD level switch and any Magnetrol level switch for that scram discharge instrument volume.



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ENCLOSURE 2 (CONTINUED)

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BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3  
(TVA BFN TECHNICAL SPECIFICATION AMENDMENT 312)  
REASON FOR THE CHANGE, DESCRIPTION AND JUSTIFICATION

The Average Withdrawal Stall Flow Rate is the CRD stall flow rate averaged over all fully withdrawn rods.

As shown on the above figure, during Unit 2 Cycle 6, the average stall flow leakage was 1.9 to 2.1 gpm per CRD. The maximum response time delay between the RTD and Magnetrol level switches for either scram discharge instrument volume was less than 28 seconds. This combination of stall flow rate and instrument delay is well within the acceptable region.

TVA's current Unit 2 procedures require measurements of CRD stall flow rates during reactor power operation for the fully withdrawn CRDs. In addition, as part of the implementation of this proposed Technical Specification, TVA intends to revise its procedures to monitor and take appropriate actions to ensure CRD and scram discharge system performance within the acceptable response time delays and stall flow rates. These systems can degrade over time due to long term mechanisms such as crud buildup and corrosion. However, these mechanisms are relatively slow. Therefore, TVA considers an acceptable frequency of confirmation of the response time delay and stall flow rate to be once per operating cycle or at the next scram if a scram has not occurred during that cycle.

In addition, the description of the scram discharge volume high water level bypass in the Units 1, 2, and 3 Technical Specifications requires clarification in order to reduce the potential for misinterpretation.



ENCLOSURE 3  
BROWNS FERRY NUCLEAR PLANT (BFN)  
PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION

DESCRIPTION OF THE PROPOSED TECHNICAL SPECIFICATION CHANGE

The following specific changes are required to remove the scram pilot air header pressure trip switches scram function from the Unit 2 Technical Specifications:

- 1) The current requirements for Reactor Protection System instrumentation are listed in Table 3.1.A, Reactor Protection System (SCRAM) Instrumentation Requirements. The low scram pilot air header pressure instrumentation will be deleted from this table.
- 2) The reference to the bypass of the scram pilot air header low pressure scram will be removed from Note 2 for Table 3.1.A.
- 3) The trip functions currently required to be OPERABLE when the reactor is subcritical and the reactor water temperature is less than 212°F are listed in Note 7 in the Notes for Table 3.1.A section. Note 7F, Scram pilot air header low pressure, will be deleted.
- 4) The current functional tests and the minimum functional test frequencies for safety related Reactor Protection System instrument and control circuits are listed in Table 4.1.A. The low scram pilot air header pressure switches (PS 85-35 A1, A2, B1, and B2) will be deleted.
- 5) The current Reactor Protection System instrument calibration minimum calibration frequencies for reactor protection instrument channels are listed in Table 4.1.B. The low scram pilot air header pressure switches (PS 85-35 A1, A2, B1, and B2) will be deleted.
- 6) The current Bases Section 3.1 will be revised to reflect the deletion of the low scram pilot air header pressure switches scram function.

Also, the description of the Reactor Protection System scram discharge volume high water level bypass in Note 2 for Table 3.1.A of the Units 1, 2, and 3 Technical Specifications will be clarified.

**BROWNS FERRY NUCLEAR PLANT (BFN)**  
**PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION**

**BASES FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION**

NRC has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92(c). A proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create the possibility of a new or different kind of accident from an accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The proposed TS change is judged to involve no significant hazards considerations based on the following:

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

The Unit 2 scram pilot air header pressure trip switches perform the same function as the high water level switches in the scram discharge instrument volume. They automatically initiate control rod insertion (scram) in the event that degraded air conditions are detected in the BWR control air supply system. Since the scram pilot air header pressure trip function is to ensure that the Control Rod Drive (CRD) System is available to mitigate the consequence of an accident or transient, and the removal of the scram pilot air header pressure trip switches scram function does not effect the precursors for any accident or transient analyzed in Chapter 14 of the BFN Final Safety Analysis Report (FSAR), there is no increase in the probability of any accident previously evaluated.

The scram system has been analyzed, based on a plant-specific maximum inleakage, and the removal of the scram pilot air header pressure trip switches scram function would still result in a successful scram, provided that the CRD leakage rate and the water level instrumentation response characteristics remain within the success criteria region. Administrative controls and periodic measurements of the CRD and scram discharge system performance ensure acceptable response time delays and stall flow rates. Since the scram function would be successfully performed, the removal of the scram pilot air header pressure trip switches scram function does not involve a significant increase in the consequences of any accident previously evaluated.



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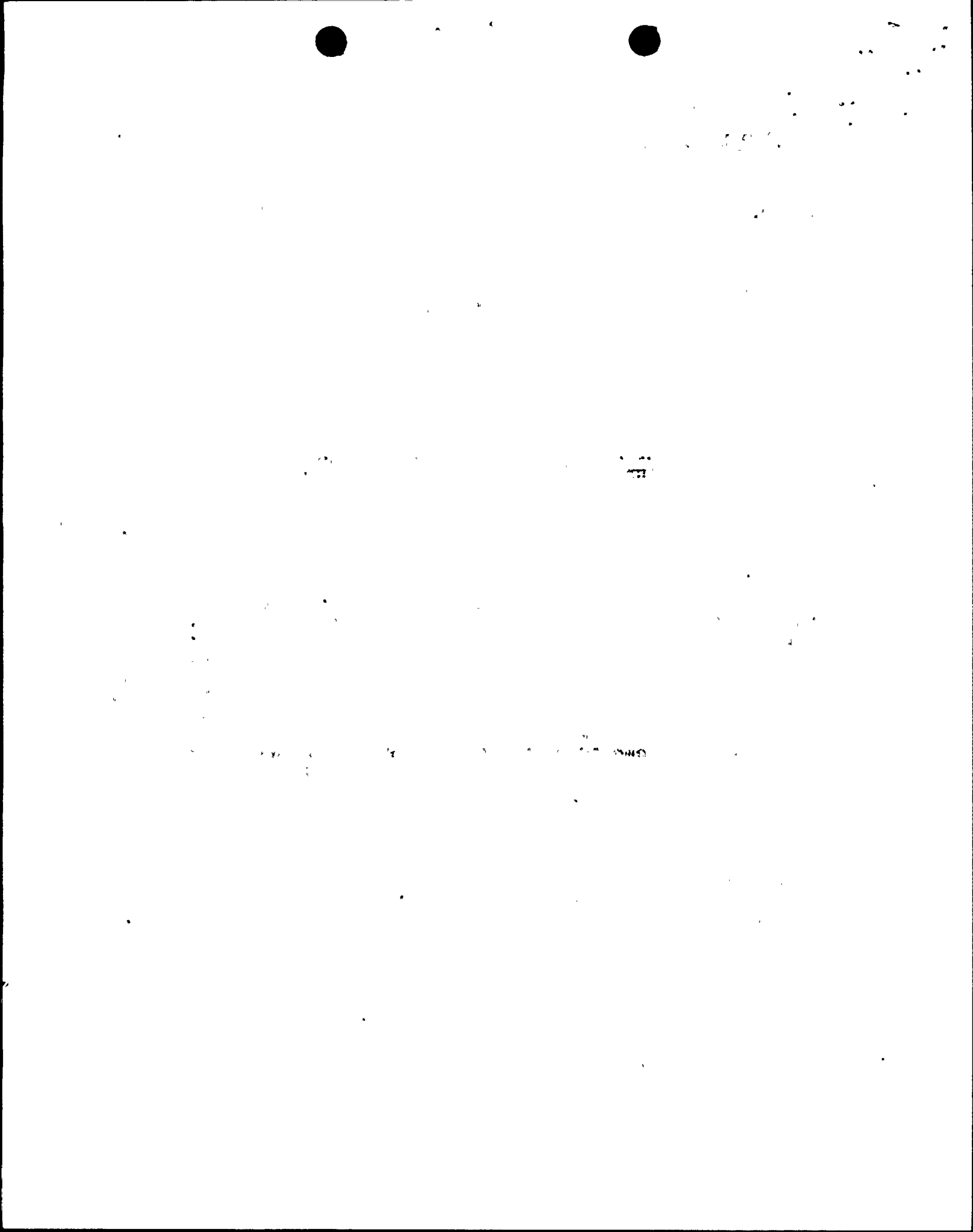
**BROWNS FERRY NUCLEAR PLANT (BFN)**  
**PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION**

The clarification of the description of the scram discharge volume high water level bypass in the Reactor Protection System does not reflect a modification to plant equipment, maintenance activities, or operating instructions. The revised description does not effect the precursors for any accident or transient analyzed in Chapter 14 of the BFN FSAR or equipment used in the mitigation of these accidents or transients. Therefore, there is no increase in the probability of any accident previously evaluated nor an increase in the consequences of any accident previously evaluated.

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

The design criteria for the scram system is contained in the generic Safety Evaluation Report (SER), which was transmitted by NRC letter to All BWR Licensees, dated December 9, 1980, BWR Scram Discharge System. Section 4.2.4.1 of the generic SER states that the CRD system shall be analyzed based on a plant-specific maximum inleakage to ensure that the system function is not lost prior to initiation of automatic scram. This analysis has been performed and it was concluded that the removal of the scram pilot air header pressure trip switches scram function would still allow a successful scram, provided that the CRD leakage rate and the water level instrumentation response characteristics remain within the success criteria region. Administrative controls and periodic measurements of the CRD and scram discharge system performance ensure acceptable response time delays and stall flow rates.

The overall scram system design is in conformance with the generic SER. No new system failure modes are created as a result of removing the scram pilot air header pressure trip switches scram function since, assuming the maximum CRD inleakage due to a degraded air supply system, redundant and diverse level switches will initiate a successful scram prior to this function becoming disabled. The removal of the scram pilot air header pressure trip switches scram function does not create the possibility of a new or different kind of accident from any accident previously evaluated.



**BROWNS FERRY NUCLEAR PLANT (BFN)**  
**PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION**

The clarification of the description of the scram discharge volume high water level bypass in the Reactor Protection System does not reflect a modification to plant equipment, maintenance activities, or operating instructions. No new external threats, system interactions, release pathways, or equipment failure modes are created. Therefore, the clarification of this description does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The water level in the scram discharge instrument volume is monitored by redundant Magnetrol and heated reference resistive temperature devices (RTD) level switches. Since the level switches are redundant and diverse, redundancy and diversity in the instrumentation that initiates the scram signal is maintained even with the removal of the scram pilot air header pressure trip switches scram function.

The scram system has been analyzed, based on a plant-specific maximum inleakage, and the removal of the scram pilot air header pressure trip switches scram function would still result in a successful scram, provided that the CRD leakage rate and the water level instrumentation response characteristics remain within the success criteria region. Since the scram system would successfully operate to mitigate the consequences of accidents and transients previously analyzed, the proposed amendment does not involve a significant reduction in the margin of safety.

The clarification of the description of the scram discharge volume high water level bypass in the Reactor Protection System does not reflect a modification to plant equipment, maintenance activities, or operating instructions. There is no change to the licensing or design basis of the Reactor Protection System. Therefore, the revised description does not involve a significant reduction in the margin of safety.



ENCLOSURE 3 (CONTINUED)

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BROWNS FERRY NUCLEAR PLANT (BFN)

PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION

CONCLUSION

TVA has evaluated the proposed amendment described above against the criteria given in 10 CFR 50.92(c) in accordance with the requirements of 10 CFR 50.91(a)(1). This evaluation has determined that the proposed amendment will not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility for a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. Thus, TVA has concluded that the proposed amendment does not involve a significant hazards consideration.



