ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE
BROWNS FERRY NUCLEAR PLANT
UNITS 1, 2, AND 3

(TVA BFN TECHNICAL SPECIFICATION NO. 320)

Technical Specification 320
Effective Page Listing

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PROPOSED TECHNICAL SPECIFICATION CHANGE
BROWNS FERRY NUCLEAR PLANT
UNIT 1

(TVA BFN TECHNICAL SPECIFICATION NO. 320)

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1(15)	Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	≤ 100 mr/hr or downscale	F	1. 1 upscale channel or 2 downscale channels will a. Initiate SGTS b. Isolate refueling floor c. Close atmosphere control system.
2(7) (8)	Instrument Channel SGTS Flow - Train A R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
2(7) (8)	Instrument Channel SGTS Flow - Train B R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
2(7) (8)	Instrument Channel SGTS Flow - Train C R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
1	Reactor Building Isolation Timer (refueling floor)	0 ≤ t ≤ 2 secs.	H or F	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
1	Reactor Building Isolation Timer (reactor zone)	0 ≤ t ≤ 2 secs.	G or A or H	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
2(10)	Group 1 (Initiating) Logic	N/A	A	1. Group 1: A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main Steamline High Radiation c. Main Steamline High Flow d. Main Steamline Space High Temperature e. Main Steamline Low Pressure

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1	Group 1 (Actuation) Logic	N/A	B	1. Group 1: A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main Steamline High Radiation c. Main Steamline High Flow d. Main Steamline Space High Temperature e. Main Steamline Low Pressure
2	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Group 2: A Group 2 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure
1	Group 2 (RHR Isolation-Actuation) Logic	N/A	D	
1	Group 8 (TIP-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Drywell Vent and Purge-Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic
2	Group 3 (Initiating) Logic	N/A	C	1. Group 3: A Group 3 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. Reactor Water Cleanup System High Temperature c. Reactor Water Cleanup System High Drain Temperature

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Group 6: A Group 6 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure c. Reactor Building Ventilation High Radiation
1	Group 8 (Initiating) Logic	N/A	J	1. Group 8: A Group 8 isolation is automatically actuated by only the following conditions: a. High Drywell Pressure b. Reactor Vessel Low Water Level 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G or A	
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
2(2)	Instrument Channel - Reactor High Water Level	≤583" above vessel zero.	A	1. Above trip setting trips HPCI turbine.
1	Instrument Channel - HPCI Turbine Steam Line High Flow	≤90 psi (7)	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
4(4)	Instrument Channel - HPCI Steam Line Space High Temperature	≤200°F.	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Steam Supply Pressure - Low (PS 73-1A-D)	≥100 psig	A	1. Below trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Turbine Exhaust Diaphragm (PS 73-20A-D)	≤20 psig	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
1	Core Spray System Logic	N/A	B	1. Includes testing auto initiation inhibit to Core Spray Systems in other units.
1	RCIC System (Initiating) Logic	N/A	B	1. Includes Group 7 valves. 2. Group 7: A Group 7 isolation is automatically actuated by only the following condition: 1. The respective turbine steam supply valve not fully closed.
1	RCIC System (Isolation) Logic	N/A	B	1. Includes Group 5 valves. 2. Group 5: A Group 5 isolation is actuated by any of the following conditions: a. RCIC Steamline Space High Temperature b. RCIC Steamline High Flow c. RCIC Steamline Low Pressure d. RCIC Turbine Exhaust Diaphragm High Pressure
1 (16)	ADS Logic	N/A	A	

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
1	RHR (LPCI) System (Initiation)	N/A	B	
1	RHR (LPCI) System (Containment Cooling Spray) Logic	N/A	A	
1	HPCI System (Initiating) Logic	N/A	B	1. Includes Group 7 valves. 2. Group 7: A Group 7 isolation is automatically actuated by only the following condition: 1. The respective turbine steam supply valve not fully closed.
1	HPCI System (Isolation) Logic	N/A	B	1. Includes Group 4 valves. 2. Group 4: A Group 4 isolation is actuated by any of the following conditions: a. HPCI Steamline Space High Temperature b. HPCI Steamline High Flow c. HPCI Steamline Low Pressure d. HPCI Turbine Exhaust Diaphragm High Pressure
1	Core Spray System auto initiation inhibit (Core Spray auto initiation).	N/A	B	1. Inhibit due to the core spray system of another unit. 2. The inhibit is considered the contact in the auto initiating logic only; i.e., the permissive function of the inhibit.
1	LPCI System auto initiation inhibit (LPCI auto initiation)	N/A	B	1. Inhibit due to the LPCI System of another unit. 2. The inhibit is considered the contact in the auto initiating logic only, i.e., the permissive function of the inhibit.

PROPOSED TECHNICAL SPECIFICATION CHANGE
BROWNS FERRY NUCLEAR PLANT
UNIT 2

(TVA BFN TECHNICAL SPECIFICATION NO. 320)

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1(14)	Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	≤ 100 mr/hr or downscale	F	1. 1 upscale channel or 2 downscale channels will a. Initiate SGTS b. Isolate refueling floor c. Close atmosphere control system.
2(7) (8)	Instrument Channel SGTS Flow - Train A R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
2(7) (8)	Instrument Channel SGTS Flow - Train B R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
2(7) (8)	Instrument Channel SGTS Flow - Train C R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
1	Reactor Building Isolation Timer (refueling floor)	0 ≤ t ≤ 2 secs.	H or F	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
1	Reactor Building Isolation Timer (reactor zone)	0 ≤ t ≤ 2 secs.	G or A or H	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
2(10)	Group 1 (Initiating) Logic	N/A	A	1. Group 1: A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main Steamline High Radiation c. Main Steamline High Flow d. Main Steamline Space High Temperature e. Main Steamline Low Pressure

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1	Group 1 (Actuation) Logic	N/A	B	1. Group 1: A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main Steamline High Radiation c. Main Steamline High Flow d. Main Steamline Space High Temperature e. Main Steamline Low Pressure
2	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Group 2: A Group 2 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure
1	Group 2 (RHR Isolation-Actuation) Logic	N/A	D	
1	Group 8 (TIP-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Drywell Vent and Purge-Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic
2	Group 3 (Initiating) Logic	N/A	C	1. Group 3: A Group 3 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. Reactor Water Cleanup (RWCU) System High Temperature in the main steam valve vault c. RWCU System High Temperature in the RWCU pump room 2A d. RWCU System High Temperature in the RWCU pump room 2B e. RWCU System High Temperature in the RWCU heat exchanger room f. RWCU System High Temperature in the space near the pipe trench containing RWCU piping

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Group 6: A Group 6 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure c. Reactor Building Ventilation High Radiation
1	Group 8 (Initiating) Logic	N/A	J	1. Group 8: A Group 8 isolation is automatically actuated by only the following conditions: a. High Drywell Pressure b. Reactor Vessel Low Water Level 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G or A	
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
2(2)	Instrument Channel - Reactor High Water Level (LIS-3-208B and LIS-3-208D)	≤583" above vessel zero.	A	1. Above trip setting trips HPCI turbine.
1	Instrument Channel - HPCI Turbine Steam Line High Flow (PDIS-73-1A and 1B)	≤90 psi (7)	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Steam Supply Pressure - Low (PS 73-1A-D)	≥100 psig	A	1. Below trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Turbine Exhaust Diaphragm (PS 73-20A-D)	≤20 psig	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
1	Core Spray System Logic	N/A	B	1. Includes testing auto initiation inhibit to Core Spray Systems in other units.
1	RCIC System (Initiating) Logic	N/A	B	
1	RCIC System (Isolation) Logic	N/A	B	1. Includes Group 5 valves. 2. Group 5: A Group 5 isolation is actuated by any of the following conditions: a. RCIC Steamline Space High Temperature b. RCIC Steamline High Flow c. RCIC Steamline Low Pressure d. RCIC Turbine Exhaust Diaphragm High Pressure
1 (16)	ADS Logic	N/A	A	
1	RHR (LPCI) System (Initiation)	N/A	B	

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
1	RHR (LPCI) System (Containment Cooling Spray) Logic	N/A	A	
1	HPCI System (Initiating) Logic	N/A	B	
1	HPCI System (Isolation) Logic	N/A	B	1. Includes Group 4 valves. 2. Group 4: A Group 4 isolation is actuated by any of the following conditions: a. HPCI Steamline Space High Temperature b. HPCI Steamline High Flow c. HPCI Steamline Low Pressure d. HPCI Turbine Exhaust Diaphragm High Pressure
1	Core Spray System auto initiation inhibit (Core Spray auto initiation).	N/A	B	1. Inhibit due to the core spray system of another unit. 2. The inhibit is considered the contact in the auto initiating logic only; i.e., the permissive function of the inhibit.
1	LPCI System auto initiation inhibit (LPCI auto initiation)	N/A	B	1. Inhibit due to the LPCI System of another unit. 2. The inhibit is considered the contact in the auto initiating logic only, i.e., the permissive function of the inhibit.

PROPOSED TECHNICAL SPECIFICATION CHANGE
BROWNS FERRY NUCLEAR PLANT
UNIT 3

(TVA BFN TECHNICAL SPECIFICATION NO. 320)

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable Per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2	Instrument Channel - High Radiation Main Steam Line Tunnel (6)	3 times normal rated full power background (13)	B	1. Above trip setting initiates Main Steam Line Isolation
2	Instrument Channel - Low Pressure Main Steam Line	≥ 825 psig (4)	B	1. Below trip setting initiates Main Steam Line Isolation
2(3)	Instrument Channel - High Flow Main Steam Line	≤ 140% of rated steam flow	B	1. Above trip setting initiates Main Steam Line Isolation
2(12)	Instrument Channel - Main Steam Line Tunnel High Temperature	≤ 200°F	B	1. Above trip setting initiates Main Steam Line Isolation.
1(15)	Instrument Channel - Reactor Building Ventilation High Radiation - Reactor Zone	≤ 100 mr/hr or downscale	G	1. 1 upscale channel or 2 downscale channels will a. Initiate SGTS b. Isolate reactor zone and refueling floor. c. Close atmosphere control system.
2	Instrument Channel Reactor Water Cleanup System Main Steam Valve Vault (TIS-069-834A-D)	≤ 201.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Pipe Trench (TIS-069-835A-D)	≤ 135.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2	Instrument Channel Reactor Water Cleanup System Pump Room 3A (TIS-069-836A-D)	≤ 152.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Pump Room 3B (TIS-069-837A-D)	≤ 152.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-838A-D)	≤ 143.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-839A-D)	≤ 170.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
1(15)	Instrument Channel - Reactor Building Ventilation High Radiation - Refueling Zone	≤ 100 mr/hr or downscale	F	1. 1 upscale channel or 2 downscale channels will a. Initiate SGTS b. Isolate refueling floor c. Close atmosphere control system.
2(7) (8)	Instrument Channel SGTS Flow - Train A R. H. Heaters	≥2000 cfm and ≤ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2(7) (8)	Instrument Channel SGTS Flow - Train B R. H. Heaters	$\geq$2000 cfm and $\leq$ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
2(7) (8)	Instrument Channel SGTS Flow - Trair C R. H. Heaters	$\geq$2000 cfm and $\leq$ 4000 cfm	H and (A or F)	Below 2000 cfm airflow R.H. heaters shall be shut off.
1	Reactor Building Isolation Timer (refueling floor)	$0 \leq t \leq 2$ secs.	H or F	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
1	Reactor Building Isolation Timer (reactor zone)	$0 \leq t \leq 2$ secs.	G or A or H	1. Below trip setting prevents spurious trips and system perturbations from initiating isolation.
2(10)	Group 1 (Initiating) Logic	N/A	A	1. A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main steamline high radiation c. Main steamline high flow d. Main steamline space high temperature e. Main steamline low pressure
1	Group 1 (Actuation) Logic	N/A	B	1. Group 1: A Group 1 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Low Water Level b. Main Steamline High Radiation c. Main Steamline High Flow d. Main Steamline Space High Temperature e. Main Steamline Low Pressure

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2	Group 2 (Initiating) Logic	N/A	A or (B and E)	1. Group 2: A Group 2 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure
1	Group 2 (RHR Isolation-Actuation) Logic	N/A	D	
1	Group 8 (TIP-Actuation) Logic	N/A	J	
1	Group 2 (Drywell Sump Drains-Actuation) Logic	N/A	K	
1	Group 2 (Reactor Building & Refueling Floor, and Drywell Vent and Purge-Actuation) Logic	N/A	F and G	1. Part of Group 6 Logic
2	Group 3 (Initiating) Logic	N/A	C	1. Group 3: A Group 3 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. Reactor Water Cleanup (RWCU) System High Temperature in the main steam valve vault c. RWCU System High Temperature in the RWCU pump room 3A d. RWCU System High Temperature in the RWCU pump room 3B e. RWCU System High Temperature in the RWCU heat exchanger room f. RWCU System High Temperature in the space near the pipe trench containing RWCU piping

TABLE 3.2.A (Continued)
PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Minimum No. Instrument Channels Operable per Trip Sys(1)(11)	Function	Trip Level Setting	Action (1)	Remarks
1	Group 3 (Actuation) Logic	N/A	C	
1	Group 6 Logic	N/A	F and G	1. Group 6: A Group 6 isolation is actuated by any of the following conditions: a. Reactor Vessel Low Water Level b. High Drywell Pressure c. Reactor Building Ventilation High Radiation
1	Group 8 (Initiating) Logic	N/A	J	1. Group 8: A Group 8 isolation is automatically actuated by only the following conditions: a. High Drywell Pressure b. Reactor Vessel Low Water Level 2. Same as Group 2 initiating logic.
1	Reactor Building Isolation (refueling floor) Logic	N/A	H or F	
1	Reactor Building Isolation (reactor zone) Logic	N/A	H or G or A	
1(7) (8)	SGTS Train A Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train B Logic	N/A	L or (A and F)	
1(7) (8)	SGTS Train C Logic	N/A	L or (A and F)	

Refer to Table 3.2.B for RCIC and HPCI functions including Groups 4, 5, and 7 valves.

NOTES FOR TABLE 3.2.A (Cont'd)

14. DELETED

15. There is a RBVRM trip function for the refueling zone and a RBVRM trip function for the reactor zone. Each trip function is composed of two divisional trip systems. Each trip system has one channel for each zone. Each channel contains two sensors, both of which must be OPERABLE for the channel to be OPERABLE. A channel downscale/inoperable trip occurs when either of the sensors are indicating less than the low radiation setpoint or are inoperable. A channel upscale trip occurs when both of the sensors are indicating higher than the high radiation setpoint. Only one channel upscale trip is required for trip function initiation. Two channel downscale trips in a zone are required for trip function initiation.

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
2(2)	Instrument Channel - Reactor High Water Level	≤583" above vessel zero.	A	1. Above trip setting trips HPCI turbine.
1	Instrument Channel - HPCI Turbine Steam Line High Flow	≤90 psi (7)	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
4(4)	Instrument Channel - HPCI Steam Line Space High Temperature	≤200°F.	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Steam Supply Pressure - Low (PS 73-1A-D)	≥100 psig	A	1. Below trip setting isolates HPCI system and trips HPCI turbine.
3(2)	Instrument Channel - HPCI Turbine Exhaust Diaphragm (PS 73-20A-D)	≤20 psig	A	1. Above trip setting isolates HPCI system and trips HPCI turbine.
1	Core Spray System Logic	N/A	B	1. Includes testing auto initiation inhibit to Core Spray Systems in other units.
1	RCIC System (Initiating) Logic	N/A	B	1. Includes Group 7 valves. 2. Group 7: A Group 7 isolation is automatically actuated by only the following condition: 1. The respective turbine steam supply valve not fully closed.
1	RCIC System (Isolation) Logic	N/A	B	1. Includes Group 5 valves. 2. Group 5: A Group 5 isolation is actuated by any of the following conditions: a. RCIC Steamline Space High Temperature b. RCIC Steamline High Flow c. RCIC Steamline Low Pressure d. RCIC Turbine Exhaust Diaphragm High Pressure
1 (16)	ADS Logic	N/A	A	

TABLE 3.2.B (Continued)

Minimum No. Operable Per Trip Sys(1)	Function	Trip Level Setting	Action	Remarks
1	RHR (LPCI) System (Initiation)	N/A	B	
1	RHR (LPCI) System (Containment Cooling Spray) Logic	N/A	A	
1	HPCI System (Initiating) Logic	N/A	B	1. Includes Group 7 valves. 2. Group 7: A Group 7 isolation is automatically actuated by only the following condition: 1. The respective turbine steam supply valve not fully closed.
1	HPCI System (Isolation) Logic	N/A	B	1. Include. Group 4 valves. 2. Group 4: A Group 4 isolation is actuated by any of the following conditions: a. HPCI Steamline Space High Temperature b. HPCI Steamline High Flow c. HPCI Steamline Low Pressure d. HPCI Turbine Exhaust Diaphragm High Pressure
1(3)	Core Spray Loop A Discharge Pressure (PI-75-20)	0 - 500 psig Indicator (9)	D	1. Part of filled discharge pipe requirements. Refer to Section 4.5.
1(3)	Core Spray Loop B Discharge Pressure (PI-75-48)	0 - 500 psig Indicator (9)	D	1. Part of filled discharge pipe requirements. Refer to Section 4.5.
1(3)	RHR Loop A Discharge Pressure (PI-74-51)	0 - 450 psig Indicator (9)	D	1. Part of filled discharge pipe requirements. Refer to Section 4.5.
1(3)	RHR Loop B Discharge Pressure (PI-74-65)	0 - 450 psig Indicator (9)	D	1. Part of filled discharge pipe requirements. Refer to Section 4.5.
1(10)	Instrument Channel - RHR Start	N/A	A	1. Starts RHR area cooler fan when respective RHR motor starts.

TABLE 4.2.A (Cont'd)
SURVEILLANCE REQUIREMENTS FOR PRIMARY CONTAINMENT AND REACTOR BUILDING ISOLATION INSTRUMENTATION

Function	Functional Test	Calibration Frequency	Instrument Check
Group 6 Logic	once/operating cycle (18)	N/A	N/A
Group 8 (Initiating) Logic	Checked during channel functional test. No further test required.	N/A	N/A
Reactor Building Isolation (refueling floor) Logic	once/6 months (18)	(6)	N/A
Reactor Building Isolation (reactor zone) Logic	once/6 months (18)	(6)	N/A
SGTS Train A Logic	once/6 months (19)	N/A	N/A
SGTS Train B Logic	once/6 months (19)	N/A	N/A
SGTS Train C Logic	once/6 months (19)	N/A	N/A
Instrument Channel Reactor Water Cleanup System Main Steam Valve Vault (TIS-069-834A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pipe Trench (TIS-069-835A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pump Room 3A (TIS-069-836A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pump Room 3B (TIS-069-837A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-838A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-839A-D)	(1) (28)	4 months	N/A

steam line isolation valve closure, fission product release is limited so that 10 CFR 100 guidelines are not exceeded for this accident. Reference Section 14.6.2 FSAR. An alarm with a nominal setpoint of 1.5 x normal full-power background is provided also.

Pressure instrumentation is provided to close the main steam isolation valves in RUN Mode when the main steam line pressure drops below 825 psig.

The HPCI high flow and temperature instrumentation are provided to detect a break in the HPCI steam piping. Tripping of this instrumentation results in actuation of HPCI isolation valves. Tripping logic for the high flow is a 1-out-of-2 logic, and all sensors are required to be operable.

High temperature in the vicinity of the HPCI equipment is sensed by four sets of four bimetallic temperature switches. The 16 temperature switches are arranged in two trip systems with eight temperature switches in each trip system.

The HPCI trip settings of 90 psi for high flow and 200°F for high temperature are such that core uncovery is prevented and fission product release is within limits.

The RCIC high flow and temperature instrumentation are arranged the same as that for the HPCI. The trip setting of 450" water for high flow and 200°F for temperature are based on the same criteria as the HPCI.

High temperature at the Reactor Water Cleanup (RWCU) System in the main steam valve vault, RWCU pump room 3A, RWCU pump room 3B, RWCU heat exchanger room or in the space near the pipe trench containing RWCU piping could indicate a break in the cleanup system. When high temperature occurs, the cleanup system is isolated.

The instrumentation which initiates CSCS action is arranged in a dual bus system. As for other vital instrumentation arranged in this fashion, the specification preserves the effectiveness of the system even during periods when maintenance or testing is being performed. An exception to this is when logic functional testing is being performed.

The control rod block functions are provided to prevent excessive control rod withdrawal so that MCPR does not decrease to 1.07. The trip logic for this function is 1-out-of-n: e.g., any trip on one of six APRMs, eight IRMs, or four SRMs will result in a rod block.

The minimum instrument channel requirements assure sufficient instrumentation to assure the single failure criteria is met. The minimum instrument channel requirements for the RBM may be reduced by one for maintenance, testing, or calibration. This does not significantly increase the risk of an inadvertent control rod withdrawal, as the other channel is available, and the RBM is a backup system to the written sequence for withdrawal of control rods.

in the system, isolation is provided by high temperature in the cleanup system area. Also, since the vessel could potentially be drained through the cleanup system, a low-level isolation is provided.

Groups 4 and 5 - Process lines are designed to remain OPERABLE and mitigate the consequences of an accident which results in the isolation of other process lines. The signals which initiate isolation of Groups 4 and 5 process lines are therefore indicative of a condition which would render them inoperable.

Group 6 - Lines are connected to the primary containment but not directly to the reactor vessel. These valves are isolated on reactor low water level (538"), high drywell pressure, or reactor building ventilation high radiation which would indicate a possible accident and necessitate primary containment isolation.

Group 7 - Process lines are closed only on the respective turbine steam supply valve not fully closed. This assures that the valves are not open when HPCI or RCIC action is required.

Group 8 - Line (traveling in-core probe) is isolated on high drywell pressure or reactor low water level (538"). This is to assure that this line does not provide a leakage path when containment pressure or reactor water level indicates a possible accident condition.

The maximum closure time for the automatic isolation valves of the primary containment and reactor vessel isolation control system have been selected in consideration of the design intent to prevent core uncovering following pipe breaks outside the primary containment and the need to contain released fission products following pipe breaks inside the primary containment.

In satisfying this design intent, an additional margin has been included in specifying maximum closure times. This margin permits identification of degraded valve performance prior to exceeding the design closure times.

In order to assure that the doses that may result from a steam line break do not exceed the 10 CFR 100 guidelines, it is necessary that no fuel rod perforation resulting from the accident occur prior to closure of the main steam line isolation valves. Analyses indicate that fuel rod cladding perforations would be avoided for main steam valve closure times, including instrument delay, as long as 10.5 seconds.

ENCLOSURE 2

BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3
(TVA BFN TECHNICAL SPECIFICATION NO. 320)
REASON FOR THE CHANGE, DESCRIPTION, AND JUSTIFICATION

REASON FOR THE CHANGE

Prior to restart of Unit 2, a High Energy Line Break (HELB) analysis was performed and identified the need for additional temperature detection switches. A technical specification change for Unit 2 was submitted (TS-289 dated June 4, 1990) and approved by the NRC (Amendment 189 dated February 6, 1991) to address these concerns. An additional TS change for Unit 2 was submitted (TS-329 dated December 23, 1992) for the requirement for four new temperature switches added in the RWCU Heat Exchanger Room and approved by the NRC as amendment 213 dated May 5, 1993. This proposed TS change will address for Unit 3, the TS changes granted previously for Unit 2 and also design changes being made to the Reactor Water Cleanup (RWCU) system for Unit 3.

The RWCU system for Unit 3 was configured such that the pumps take suction directly from the reactor vessel and recirculation loop A. At rated RPV temperature and pressure, the RWCU pumps were processing approximately 500°F water which could potentially cause pump vibration and seal leakage problems. A design change to the RWCU system has been completed that rerouted the RWCU pump suction to downstream of the non-regenerative heat exchanger. This reroute will reduce the inlet water temperature to the RWCU pumps to approximately 120°F. A HELB analysis was performed in conjunction with the design change. This analysis indicated the need for temperature switches in the main steam valve vault, the heat exchanger room and the RWCU pipe trench area. As a result, temperature switches are being added in all the above required areas in Unit 3. Additionally, temperature switches are being added to the Unit 3 pump rooms.

The proposed changes for Units 1, 2, and 3 are administrative changes to clarify the Tables 3.2.A and 3.2.B remarks for the various group isolations.

DESCRIPTION OF THE PROPOSED CHANGE

1. For Unit 3, delete the following functions from Table 3.2.A on page 3.2/4.2-8:

   a. Instrument Channel - Reactor Water Cleanup System Floor Drain High Temperature.

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

b. Instrument Channel - Reactor Water Cleanup System Space High Temperature.

2. For Unit 3, add the following to Table 3.2.A, pages 3.2/4.2-8 & 9:

Minimum No. Instrument Channels Operable Per Trip Sys (1)(11)	Function	Trip Level Setting	Action (1)	Remarks
2	Instrument Channel Reactor Water Cleanup System Main Steam Valve Vault (TIS-069-834A-D)	≤ 201.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Pipe Trench (TIS-069-835A-D)	≤ 135.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Pump Room 3A (TIS-069-836A-D)	≤ 152.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Pump Room 3B (TIS-069-837A-D)	≤ 152.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-838A-D)	≤ 143.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor
2	Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-839A-D)	≤ 170.0°F	C	Above Trip Setting initiates Isolation of Reactor Water Cleanup Lines to and from the Reactor

3. For Unit 3, delete the following from the Table 3.2.A remarks for Group 3 isolation on page 3.2/4.2-10:

b. Reactor Water Cleanup System High Temperature

c. Reactor Water Cleanup System High Drain Temperature

4. For Unit 3, add the following to the Table 3.2.A remarks for Group 3 isolation on page 3.2/4.2-11:

b. Reactor Water Cleanup (RWCU) System High Temperature in the mainsteam valve vault

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

c. RWCU System High Temperature in the RWCU pump room 3A

d. RWCU System High Temperature in the RWCU pump room 3B

e. RWCU System High Temperature in the RWCU heat exchanger room

f. RWCU System High Temperature in the space near the pipe trench containing RWCU piping

5. For Unit 3, delete Note 14 from Table 3.2.A, page 3.2/4.2-13a.

6. For Unit 3, delete the following functions from Table 4.2.A on page 3.2/4.2-42:

   a. Instrument Channel - Reactor Cleanup System Floor Drain High Temperature.

   b. Instrument Channel - Reactor Cleanup System Space High Temperature.

7. For Unit 3, add the following to Table 4.2.A:

Function	Functional Test	Calibration Frequency	Instrument Check
Instrument Channel Reactor Water Cleanup System Main Steam Valve Vault (TIS-069-834A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pipe Trench (TIS-069-835A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pump Room 3A (TIS-069-836A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Pump Room 3B (TIS-069-837A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-838A-D)	(1) (28)	4 months	N/A
Instrument Channel Reactor Water Cleanup System Heat Exchanger Room (TIS-069-839A-D)	(1) (28)	4 months	N/A

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

8. For Unit 3, in Bases 3.2, page 3.2/4.2-66, delete the following paragraph:

> "High temperature at the Reactor Cleanup System floor drain could indicate a break in the cleanup system. When high temperature occurs, the cleanup system is isolated."

9. For Unit 3, replace the paragraph deleted in (8) above with the following:

> "High temperature at the Reactor Water Cleanup (RWCU) System in the main steam valve vault, RWCU pump room 3A, RWCU pump room 3B, RWCU heat exchanger room or in the space near the pipe trench containing RWCU piping could indicate a break in the cleanup system. When high temperature occurs, the cleanup system is isolated."

10. For Unit 3, present Bases 3.7.D/4.7.D, page 3.7/4.7-34, for the Group 3 valve description reads in part as follows:

> "To protect the reactor from a possible pipe break in the system, isolation is provided by high temperature in the cleanup system area, or high flow through the inlet to the cleanup system."

The proposed change to Bases 3.7.D/4.7.D reads as follows:

> "To protect the reactor from a possible pipe break in the system, isolation is provided by high temperature in the cleanup system area."

11. For Units 1 and 2, the present remark in Table 3.2.A for Group 1 on page 3.2/4.2-9 reads:

> "The valves in Group 1 are actuated by any of the following conditions:"

The proposed change to the remark for Group 1 reads as follows:

> "A Group 1 isolation is actuated by any of the following conditions:"

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

12. For Unit 3, the present remark in Table 3.2.A on page 3.2/4.2-9 reads:

"Refer to Table 3.7.A for list of valves."

The proposed change to the remark for Group 1 reads as follows:

"A Group 1 isolation is actuated by any of the following conditions:

a. Reactor Vessel Low Low Water Level
b. Main Steamline High Radiation
c. Main Steamline High Flow
d. Main Steamline Space High Temperature
e. Main Steamline Low Pressure"

13. For Units 1, 2 and 3, the present remark for Group 1 in Table 3.2.A on page 3.2/4.2-10 reads:

"The valves in Group 1 are activated by any of the following conditions:"

The proposed change to the remark for Group 1 reads as follows:

"A Group 1 isolation is actuated by any of the following conditions:"

14. For Unit 1, 2 and 3, the present remark for Group 2 in Table 3.2.A on page 3.2/4.2-10 reads:

"The valves in Group 2 are actuated by any of the following conditons:"

The proposed change to the remark for Group 2 reads as follows:

"A Group 2 isolation is actuated by any of the following conditions:"

15. For Units 1, 2 and 3, the present remark for Group 3 in Table 3.2.A on page 3.2/4.2-10 reads:

"The valves in Group 3 are actuated by any of the following conditions:"

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

The proposed change to the remark for Group 3 reads as follows:

"A Group 3 isolation is actuated by any of the following conditions:"

16. For Units 1, 2 and 3, the present remark for Group 6 in Table 3.2.A on page 3.2/4.2-11 reads:

"The valves in Group 6 are actuated by any of the following conditions:"

The proposed change to the remark for Group 6 reads as follows:

"A Group 6 isolation is actuated by any of the following conditons:"

17. For Units 1, 2 and 3, the present remark for Group 8 in Table 3.2.A on page 3.2/4.2-11 reads:

"The valves in Group 8 are automatically actuated by only the following conditions:"

The proposed change to the remark for Group 8 reads as follows:

"A Group 8 isolation is automatically actuated by only the following conditions:"

18. For Units 1 and 3, the present remark for Group 7 in Table 3.2.B on page 3.2/4.2-19 reads:

"The valves in Group 7 are automatically actuated by only the following condition:"

The proposed change to the remark for Group 7 reads as follows:

"A Group 7 isolation is automatically actuated by only the following condition:"

19. For Units 1, 2 and 3, the present remark for Group 5 in Table 3.2.B on page 3.2/4.2-19 reads:

"The valves in Group 5 are actuated by any of the following conditions:"

DESCRIPTION OF THE PROPOSED CHANGE (Continued)

The proposed change to the remarks for Group 5 reads as follows:

"A Group 5 isolation is actuated by any of the following conditions:"

20. For Units 1 and 3, the present remark for Group 7 in Table 3.2.B on page 3.2/4.2-20 reads:

"The valves in Group 7 are automatically actuated by only the following condition:"

The proposed change to the remarks for Group 7 reads as follows:

"A Group 7 isolation is automatically actuated by only the following condition:"

21. For Units 1, 2 and 3, the present remark for Group 4 in Table 3.2.B on page 3.2/4.2-20 reads:

"The valves in Group 4 are actuated by any of the following conditions:"

The proposed change to the remark for Group 4 reads as follows:

"A Group 4 isolation is actuated by any of the following conditions:"

JUSTIFICATION FOR THE PROPOSED CHANGE

The RWCU System does not have a safety function beyond the maintenance of the reactor coolant pressure boundary and the primary/secondary containment boundary. It maintains high reactor-water purity to limit chemical and corrosive action, thereby limiting fouling and deposition on heat transfer surfaces. The system is designed to automatically isolate following detection of high temperatures in the areas surrounding the RWCU piping and following low reactor vessel water level, since these conditions may be associated with a RWCU High Energy Line Break. The automatic closure of the RWCU System isolation valves prevents excessive loss of reactor coolant and the release of significant amounts of radioactive material from the nuclear system process barrier into the Reactor Building.

In response to RWCU Pump vibration and seal leakage problems associated with high temperature process fluid and consequential

JUSTIFICATION FOR THE PROPOSED CHANGE (Continued)

stresses, a RWCU System piping reroute provides the pumps with cooler suction water. The reroute places the RWCU pump suction downstream of the non-regenerative heat exchangers where water temperature is approximately 120°F during normal operation. This design change was coordinated with programs to reduce intergranular stress corrosion cracking.

During the design process for the RWCU changes, a Reactor Building HELB analysis was performed to look at the new system configuration. This analysis indicated the need for temperature switches in the main steam valve vault, the heat exchanger room and the RWCU pipe trench. As a result, temperature switches are being added in all the above required areas in Unit 3. Additionally, the temperature switches in the RWCU pump rooms are being added to the Unit 3 pump rooms.

The HELB analysis for Unit 3 is performed using the same codes and methodology as Unit 2. The break locations in the RWCU system are determined in accordance with the requirements of Standard Review Plan (SRP) 3.6.2. The mass and energy releases from the RWCU system at the break locations are determined using the RELAP5/MOD2 computer program with a discharge coefficient of 1.0 per the requirements of SRP 6.2.1.3. The subcompartment analysis model of the Reactor Building used to determine the environmental consequences of breaks in the RWCU System was developed in accordance with the requirements of the SRP 6.2.1.2. The environmental response of the Reactor Building for the postulated breaks are determined using the MONSTER computer program.

The MONSTER computer program:

1) is an enhanced version of CONTEMPT4/MOD2 computer program;

2) is a lumped parameter code which assumes a homogeneous mixture (i.e., air-steam-water) exists in each subcompartment;

3) accounts for choked or unchoked flow between compartments based on a mean flow path density; and

4) allows the NUREG-0588 recommend UCHIDA heat transfer coefficient to be applied to subcompartment heat sinks.

The Unit 3 piping modifications increased the pipe size running from the reactor vessel to the regenerative heat exchanger from 4 inches to 6 inches. The HELB analysis determined that the fluid blowdown rate from a 6-inch pipe break near containment isolation

JUSTIFICATION FOR THE PROPOSED CHANGE (Continued)

valve 3-FCV-69-2 is more severe for the rerouted configuration than for the original configuration. This analysis necessitates additional temperature switches in that compartment of the RWCU Heat Exchanger Room to detect and initiate isolation of the break. The additional switches detect the pipe break early enough to commence closure of primary containment isolation valves 3-FCV-69-1 and 3-FCV-69-2 in order to maintain the required environmental parameters inside the Unit 3 reactor building.

The floor drain high temperature switches and RWCU space high temperature switches were deleted previously from the Unit 2 technical specifications and are proposed to be deleted from the Unit 3 technical specifications. These temperature switches are not required by the HELB analysis performed to support these proposed TS changes. The proposed changes to the RWCU system will provide quicker detection of high energy line breaks than the present system. The new temperature detection loops consisting of resistance temperature detectors (RTDs) and analog trip units (ATUs) are qualified for the environment where they will operate.

The 24 temperature switches being added to the required Unit 3 areas will perform the same function as the Unit 2 RWCU leak detection temperature switches. Including these devices in the technical specifications will help to ensure that they are periodically tested in accordance with the plant surveillance testing program. The minimum number of instrument channels required to be operable per trip system of two, matches the same requirement for existing instrumentation. The proposed Action requirements also match those of existing instrumentation.

Each group of four new temperature switches will be channelized by designating two channels as Division I and two channels as Division II to ensure physical, electrical, and functional independence. The trip logic for the new switches requires one trip from Division I and one from Division II (one out of two taken twice) in order to initiate a primary containment isolation signal to RWCU primary containment isolation valves 3-FCV-069-1 and 3-FCV-069-2, as well as 3-FCV-069-12. Because of this logic arrangement, the failure of a single RTD, ATU, or power feed will not prevent isolation and will minimize spurious isolations.

The setpoints for the new temperature loops were selected high enough to ensure that spurious trips are not received during normal operation and low enough to provide timely detection of a RWCU system line break. This improves the detection/isolation of RWCU breaks and helps to limit the reactor coolant lost, helps

JUSTIFICATION FOR THE PROPOSED CHANGE (Continued)

assure core cooling, and helps to ensure environmental conditions inside the reactor building are maintained within the limits stated on environmental drawings. The revision to Table 3.2.A gives the allowable value for each function. Trip settings have been chosen and will be established in plant instructions to ensure that the allowable values are not exceeded taking into account instrument drift and inaccuracies. The Table 3.2.A remarks for Group 3 isolation are being revised to reflect the new temperature switches.

The proposed changes to Bases 3.2 are made to reflect the changes described above for the RWCU system. The proposed change to Unit 3 Bases 3.2 replaces the present description of the RWCU isolations with the description currently in Unit 2 Bases 3.2. The proposed change to Unit 3 Bases 3.7.D/4.7.D deletes reference to high flow through the inlet to the cleanup system as a RWCU isolation. This signal is not a RWCU isolation and the proposed deletion of this wording reflects previously granted changes for the Unit 2 TS (TS 251 and Amendment 193).

For Units 1, 2, and 3, the proposed changes to the remarks on Tables 3.2.A and 3.2.B for isolations are administrative changes to state that group isolation of the primary containment valves is obtained by the signals listed. This change clarifies that the remarks do not address the system isolations.

ENCLOSURE 3

BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3
(TVA BFN TECHNICAL SPECIFICATION NO. 320)
PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

DESCRIPTION OF THE PROPOSED TECHNICAL SPECIFICATION CHANGE

The technical specifications for BFN Unit 3 is being revised to reflect design changes in the reactor water cleanup (RWCU) system and a new High Energy Line Break (HELB) analysis. Existing RWCU system temperature switches for Unit 3 in Tables 3.2.A and 4.2.A are being deleted and replaced with new temperature loops containing resistance temperature detectors (RTDs) and analog trip units (ATUs). Table 3.2.A remarks for Group 3 isolation are being revised to reflect the new temperature switches. Bases 3.2 and 3.7.D/4.7.D are revised to reflect the new configuration. Present Note 14 to Table 3.2.A is being deleted. The proposed changes for Units 1, 2, and 3 are administrative changes to clarify the Tables 3.2.A and 3.2.B remarks for group isolations.

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.

   An analysis of HELBs in the Unit 3 reactor building identified certain RWCU pipe breaks which could not be automatically detected and isolated in a reasonable time frame. To resolve this issue, a design change is being performed to remove from service the existing non-environmentally qualified temperature switches used to detect RWCU line breaks and replace them with environmentally qualified RTDs and IEEE Class 1E qualified ATUs located to detect and isolate the critical RWCU pipe breaks. This TS amendment adds the new ATUs function to Tables 3.2.A and 4.2.A. Note 14 is deleted from Table 3.2.A since it only applies to the temperature switches being removed from the table.

BASES FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION (Continued)

The safety function of the RTD/ATU temperature loops is to provide an isolation signal to close the RWCU suction line isolation valves FCV-69-001 and FCV-69-002) and RWCU return line valve (FCV-69-012) on a high area temperature. This ensures RWCU pipe breaks are isolated. No other RWCU safety functions are affected by the change.

The new RTD/ATU temperature loops were chosen to decrease the time required to initiate closure of the RWCU valves. This improves the detection/isolation of RWCU breaks and helps to limit the reactor coolant lost, helps ensure core cooling, and helps ensure that environmental conditions inside the reactor building are maintained within the required limits.

Components added by this change are qualified for the environment in which they will operate. This ensures that the system will perform its function in a post accident environment. No additional paths for the release of radiation or contamination are created. The failure modes of the RTDs and ATUs are such that any single failure will result in a gross failure alarm and/or a channel trip. Because of the redundancy, separations, and logic designed into the system, a single failure of any part of the system will not prevent isolation of the primary containment isolation valves and spurious operation is minimized. The RTDs will be located and the instrument setpoints will be set to preclude spurious trips due to ambient temperatures including localized hot areas while assuring a timely trip due to a pipe break. Therefore, the proposed amendment does not involve a significant increase in the probability or 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.

This change is being made to improve the RWCU leak detection/isolation function of the RWCU Primary Containment Isolation System (PCIS). The PCIS will perform its intended safety function in the same manner as the previous installation. There is no affect on the function or operation of any other plant system.

BASES FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION (Continued)

Failure of the RTD/ATU temperature locps would be no different than failure of existing temperature switches. Since environmental qualification requirements, divisional separation, single failure requirements and one-out-of-two taken twice logic requirements are maintained, the possibility of a RWCU isolation failure on a RWCU line break or of a spurious isolation is no more likely after the change than before.

In the existing design, logic relays are powered from RPS Bus A or B. The new design also uses RPS Bus A or B to feed the ATUs. Therefore, the consequence of a power failure is unchanged from the present design. The seismic qualification and proper circuit coordination of the installation is maintained. The system functions and operates in the same manner as previously evaluated in the Safety Analysis Report. No new system interactions other than additional RTDs located in the main steam valve vault to input into the PCIS logic for isolation of the RWCU have been introduced by this activity. Therefore, the proposed amendment 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 margin of safety will be enhanced by installing instruments that provide quicker response to a temperature rise indicative of a pipe break. Calculations have been performed to determine the analytical limits for the RTD/ATU temperature loops in each of the monitored areas and to determine the setpoints for the ATUs in each area. The setpoints are set above the maximum expected room temperatures to avoid spurious actuations due to ambient conditions and below the analytical limits to ensure timely detection of a pipe break. This type of design utilizing ATUs has been analyzed by the NRC (NEDO-21617, Analog Transmitter/Trip Unit System for Engineered Safeguard Sensor Trip Input) and has been found to be generically acceptable at BWR facilities. Therefore, the proposed amendment does not involve a significant reduction in any margin of safety.

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.