DUKE ENERGY CORPORATION

OCONEE NUCLEAR STATION

ATTACHMENT 1

TECHNICAL SPECIFICATIONS

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3.5 INSTRUMENTATION SYSTEMS

3.5.1 Operation Safety Instrumentation

Applicability

Applies to unit instrumentation and control systems.

Objective

To delineate the conditions of the unit instrumentation and safety circuits necessary to assure reactor safety.

Specifications

3.5.1.1 The reactor shall not be in a startup mode or in a critical state unless the requirements of Table 3.5.1-1, Column C are met, with the exception of Items 20, 21, and 22. For Items 20, 21, and 22, the requirements are specified in Specification 3.5.7.

3.5.1.2 In the event that the number of protective channels operable falls below the limit given under Table 3.5.1-1, Column C; operation shall be limited as specified in Column D.

3.5.1.3 For on-line testing or in the event of a protective instrument or channel failure, a key-operated channel bypass switch associated with each reactor protective channel may be used to lock the channel trip relay in the untripped state. Status of the untripped state shall be indicated by a light. Only one channel bypass key shall be accessible for use in the control room. Only one channel shall be locked in this untripped state or contain a dummy bistable at any one time.

3.5.1.4 For on-line testing or maintenance during reactor power operation, a key-operated shutdown bypass switch associated with each reactor protective channel may be used in conjunction with a key-operated channel bypass switch as limited by 3.5.1.3. Status of the shutdown bypass switch shall be indicated by a light.

3.5.1.5 During startup when the wide range instruments come on scale, the overlap between the wide range and the source range instrumentation shall not be less than one decade. If the overlap is less than one decade, the flux level shall not be greater than that readable on the source range instruments until the one decade overlap is achieved.

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action if Conditions of Column C Cannot Be Met
20. Main Steam Header Pressure and MSLB detection (analog) channels per steam generator	3	2	3 (k)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.
21. Feedwater isolation circuitry (digital) channels	2	1	2 (l)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.
22. Feedwater isolation circuitry (digital) channels manual pushbutton	2	1	2 (l)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

(a) For channel testing, calibration, or maintenance, the minimum of three operable channels may be maintained by placing one channel in bypass and one channel in the tripped condition, leaving an effective one out of two trip logic.

(b) When 2 of 4 power range instrument channels are greater than 10% rated power, hot shutdown is not required.

(c) When 2 of 4 wide range instrument channels are greater than 4×10^{-4} % rated power, hot shutdown is not required.

(d) (Deleted)

(e) If minimum conditions are not met within 48 hours after hot shutdown, the unit shall be in cold shutdown within 24 hours.

(f) 1. Place the inoperable Reactor Trip Module output in the tripped condition within one hour or

2. Remove the power supplied to the control rod trip devices associated with the inoperable Reactor Trip Module within one hour.

(g) (Deleted)

(h) The RCP monitors provide inputs to this logic. For operability to be met either all RCP monitor channels must be operable or 3 operable with the remaining channel in the tripped state.

(i) 1. The power supplied to the control rod drive mechanisms through the failed CRD Trip Breaker shall be removed within one hour or

2. With one of the CRD Trip Breaker diverse features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

(j) 1. With one SCR Control Relay inoperable in logic channel C or D, restore the inoperable SCR Control Relay to OPERABLE status in 48 hours or remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within the next hour.

2. With two or more SCR Control Relays inoperable in logic channel C or D, remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within one hour.

(k) Requirement of 3 channels can be met with one of three channels placed in trip. The affected channel shall be placed in trip within 4 hours of discovery.

(l) 1 of 2 digital channels or manual pushbutton can be disabled for up to 72 hours and still meet the requirements of this column.

3.5.7 Main Steam Line Break Detection and Feedwater Isolation

Applicability

Applies to main steam line break (MSLB) detection and feedwater isolation circuitry when main steam header pressure is greater than 700 psig and to the Main Feedwater main and startup control (Main Feedwater control) valves when Reactor Coolant System temperature is greater than 250 °F.

Objective

To ensure availability of the MSLB detection and feedwater isolation circuitry and Main Feedwater control valves to protect against containment overpressurization during a MSLB inside contaiment.

Specifications

3.5.7.1 MSLB detection and feedwater isolation circuitry shall be operable per Table 3.5.1-1, Items 20, 21, and 22.

3.5.7.2 The Main Feedwater control valves shall be operable.

3.5.7.2.1 The provisions of 3.5.7.2 may be modified as follows:

a. A Main Feedwater control valve in one or more flow paths may be inoperable provided the affected valve(s) are closed within 8 hours from discovery and verified closed once per 7 days.

b. If the required actions and associated completion time of 3.5.7.2.1.a cannot be met, the reactor shall be placed in a hot shutdown condition within 12 hours, and be less than or equal to an RCS temperature of 250 °F in an additional 18 hours.

Bases

The operability requirements of the MSLB detection and feedwater isolation circuitry and Main Feedwater control valves ensure that containment overpressure protection is available during a MSLB accident inside containment. The specified completion times provide adequate time to take appropriate action to restore the operability of the MSLB detection and feedwater isolation circuitry and the Main Feedwater control valves, or, if necessary, sufficient time to reduce power in a controlled manner. The completion times are considered adequate given the low probability of a MSLB accident.

Analyses of the main steam line break accident have determined that the containment design pressure of 59 psig could be exceeded with continued feedwater flow into the reactor building. To prevent exceeding the containment design pressure, the MSLB detection and feedwater isolation circuitry is designed to trip both Main Feedwater pumps, isolate all main

feedwater to both steam generators, and inhibit autostart/initiate autostop of the turbine driven emergency feedwater pump. In addition, to further decrease operator burden, this circuitry will initiate the same automatic actions if a MSLB occurs outside containment.

The MSLB detection and feedwater isolation circuitry is divided into two parts which consist of the MSLB detection circuitry and the feedwater isolation circuitry. The MSLB detection circuitry consists of three MSLB detection analog channels per main steam header (total of six). A detection analog channel consists of a pressure transmitter, a signal isolator(s) (if necessary), and a current switch(es). The feedwater isolation circuitry is divided into two redundant digital channels. Each digital channel consists of two parallel 2 out of 3 logic combinations. The three detection analog channels on each main steam header provide input to the two parallel 2 out of 3 logic combinations in each digital channel. Actuation of either 2/3 logic circuit in a digital channel will actuate that digital channel. Feedwater isolation will occur if either digital channel is actuated. Thus, low steam generator pressure in either steam generator fully actuates the system. In addition, each digital channel consists of a manual bypass pushbutton, an enable/disable switch, a seal-in, a time delay, and a master relay. The master relay is energized to cause the feedwater isolation.

MSLB detection and feedwater isolation circuitry is considered operable provided all of the following conditions are met:

a. Feedwater isolation digital channels are operable per Specification Table 3.5.1-1 Item # 21, enabled, and the MSLB manual initiation is functional per Table 3.5.1-1 Item # 22.

b. The main and startup Feedwater control valves are operable to close.

c. The Turbine Driven Emergency Feedwater pump (TDEFWP) is not in RUN or is in RUN but is not aligned to feed the steam generators.

d. MSLB detection analog channels are operable per Specification Table 3.5.1.1 Item # 20.

e. MS-93 (steam admission valve to TDEFWP) is operable to close or is isolated.

f. The associated Main Feedwater pump trip circuitry is operable.

g. The MSLB testing requirements of Technical Specification Tables 4.1-1 and 4.1-2 are met.

Main Feedwater main and startup control valves must remain operable to close even under conditions below the main steam header pressure of 700 psig. To protect against overpressurization of containment during a MSLB inside containment when the MSLB detection and Feedwater isolation

circuitry is disabled, the specification requires that control valves be operable to close when RCS temperature is greater than 250 °F. 250 °F is a sufficiently low temperature to ensure that no significant energy release will occur in the event of a MSLB inside the reactor building.

The function of closing the Main Feedwater main and startup block valves is not credited in the MSLB analysis for mitigation of containment overpressurization. Therefore, no operability requirements for these valves are specified.

Table 4.1-1 (CONTINUED)

Channel Description	Check	Test	Calibrate	Remarks
55. Containment Pressure Monitor (PT-230, 231)	MO	NA	AN	TMI Item II.F.1.4
56. Containment Water Level Monitor-Wide Range (LT-90, -91)	MO	NA	RF	TMI Item II.F.1.5
57. Containment Hydrogen Monitor (MT-80,-81)	NA	MO	AN	TMI Item II.F.1.6
58. Wide Range Hot Leg Level	NA	RF	RF	
59. Reactor Vessel Head Level	NA	RF	RF	
60. Core Exit Thermocouples	MO	NA	RF	
61. Subcooling Monitors	MO	RF	RF	
62. Main Steam Header Pressure and MSLB detection (analog) channels	ES	RF	RF	
63. Feedwater isolation circuitry (digital) channels and manual pushbutton	NA	RF	NA	

ES - Each Shift
DA - Daily
WE - Weekly
MO - Monthly
QU - Quarterly
AN - Annually
PS - Prior to startup, if not performed previous week
NA - Not Applicable
RF - Refueling Outage
STB - STAGGERED TEST BASIS

Amendment No. ________ (Unit 1)
Amendment No. ________ (Unit 2)
Amendment No. ________ (Unit 3)

Table 4.1-2
MINIMUM EQUIPMENT TEST FREQUENCY

	Item	Test	Frequency
1.	Control Rod Movement [1]	Movement of Each Rod	Monthly
2.	Pressurizer Safety Valves	Setpoint	Each Refueling[4]
3.	Main Steam Safety Valves	Setpoint	Each Refueling[4]
4.	Refueling System Interlocks[5]	Functional	Prior to Refueling
5.	Main Steam Stop Valves [1]	Movement of Each Stop Valve	Monthly
6.	Reactor Coolant System [2] Leakage	Evaluate	Daily
7.	Condenser Circulating Water[6] Flow Test	Functional	Each Refueling
8.	High Pressure Service Water Pumps and Power Supplies	Functional	Monthly
9.	Spent Fuel Cooling System	Functional	Prior to Refueling
10.	High Pressure and Low [3] Pressure Injection System	Vent Pump Casings	Monthly and Prior to Testing
11.	Emergency Feedwater Pump Automatic Start and Automatic Valve Actuation Feature	Functional	Each Refueling
12.	MSLB Feedwater Isolation [7] Feature	Functional	Each Refueling

(1) Applicable only when the reactor is critical.

(2) Applicable only when the reactor coolant is above 200°F and at a steady-state temperature and pressure.

(3) Operating pumps excluded.

(4) Number of safety valves to be tested each refueling shall be in accordance with ASME Codes Section XI, Article IWV-3511, such that each valve is tested at least once every 5 years.

(5) Applicable only to the interlocks associated with the Reactor Building Purge System.

(6) Verification of the Emergency Condenser Circulating Water (ECCW) System function to supply siphon suction to the Low Pressure Service Water System shall be performed to ensure operability of the LPSW System.

(7) Verification that Main Feed Pumps, Main Feedwater Control Valves, and Turbine Driven Emergency Feedwater Pumps are appropriately actuated/inhibited by the MSLB Feedwater Isolation Feature.

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

ATTACHMENT 2

TECHNICAL SPECIFICATIONS
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Amendment No. 209 (Unit 1)
Amendment No. 209 (Unit 2)
Amendment No. 206 (Unit 3)

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3.5.7 Main Steam Line Break Detection and Feedwater Isolation 3.5-48

3.5 INSTRUMENTATION SYSTEMS

3.5.1 Operation Safety Instrumentation

Applicability

Applies to unit instrumentation and control systems.

Objective

To delineate the conditions of the unit instrumentation and safety circuits necessary to assure reactor safety.

Specifications

3.5.1.1 The reactor shall not be in a startup mode or in a critical state unless the requirements of Table 3.5.1-1, Column C are met.

3.5.1.2 In the event that the number of protective channels operable falls below the limit given under Table 3.5.1-1, Column C; operation shall be limited as specified in Column D.

3.5.1.3 For on-line testing or in the event of a protective instrument or channel failure, a key-operated channel bypass switch associated with each reactor protective channel may be used to lock the channel trip relay in the untripped state. Status of the untripped state shall be indicated by a light. Only one channel bypass key shall be accessible for use in the control room. Only one channel shall be locked in this untripped state or contain a dummy bistable at any one time.

3.5.1.4 For on-line testing or maintenance during reactor power operation, a key-operated shutdown bypass switch associated with each reactor protective channel may be used in conjunction with a key-operated channel bypass switch as limited by 3.5.1.3. Status of the shutdown bypass switch shall be indicated by a light.

3.5.1.5 During startup when the wide range instruments come on scale, the overlap between the wide range and the source range instrumentation shall not be less than one decade. If the overlap is less than one decade, the flux level shall not be greater than that readable on the source range instruments until the one decade overlap is achieved.

Insert

, with the exception of Items 20, 21, and 22. For Items 20, 21, and 22, the requirements are specified in Specification 3.5.7

Amendment No. 223 (Unit 1)
Amendment No. 223 (Unit 2)
Amendment No. 220 (Unit 3)

TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action If Conditions Of Column C Cannot Be Met
15. ESF Reactor Building Spray System				
a. Analog Reactor Building High Pressure Instrument Channel	3	2	3	Bring to hot shutdown within 12 hours (e)
b. Digital Logic Manual Pushbutton	2	1	2	Bring to hot shutdown within 12 hours (e)
c. Digital Logic Channels (7 and 8)	2	1	2	Bring to hot shutdown within 24 hours (e)
16. Turbine Stop Valves Closure	2	1	2	Bring to hot shutdown within 24 hours (e)
17. Protective Channel Coincidence Logic in the Reactor Trip Modules	4 logic channels; A, B, C, and D	AB or AD or BC or CD	4	See Note (f)
18. CRD Breakers	1 AC Breaker and 2 DC Breakers per trip system		1 AC Breaker and 2 DC Breakers per trip system	See Note (i)
19. SCR Control Relays E and F	4 SCR Control Relays per trip system		4 SCR Control Relays per trip system	See Note (j)

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TABLE 3.5.1-1
INSTRUMENTS OPERATING CONDITIONS (cont'd)

FUNCTIONAL UNIT	(A) TOTAL NO. OF CHANNELS	(B) CHANNELS TO TRIP	(C) MINIMUM CHANNELS OPERABLE	(D) Operator Action if Conditions of Column C Cannot Be Met
20. Main Steam Header Pressure and MSLB detection (analog) channels per steam generator	3	2	3 (k)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.
21. Feedwater isolation circuitry (digital) channels	2	1	2 (l)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.
22. Feedwater isolation circuitry (digital) channels manual pushbutton	2	1	2 (l)	Bring to hot shutdown within 12 hours and bring to less than 700 psig steam header pressure within an additional 6 hours.

TABLE 3.5.1-1

INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

(a) For channel testing, calibration, or maintenance, the minimum of three operable channels may be maintained by placing one channel in bypass and one channel in the tripped condition, leaving an effective one out of two trip logic.

(b) When 2 of 4 power range instrument channels are greater than 10% rated power, hot shutdown is not required.

(c) When 2 of 4 wide range instrument channels are greater than 4 x 10^{-4} % rated power, hot shutdown is not required.

(d) (Deleted)

(e) If minimum conditions are not met within 48 hours after hot shutdown, the unit shall be in the cold shutdown within 24 hours.

(f) 1. Place the inoperable Reactor Trip Module output in the tripped condition within one hour or

2. Remove the power supplied to the control rod trip devices associated with the inoperable Reactor Trip Module within one hour.

(g) (Deleted)

(h) The RCP monitors provide inputs to this logic. For operability to be met either all RCP monitor channels must be operable or 3 operable with the remaining channel in the tripped state.

(i) 1. The power supplied to the control rod drive mechanisms through the failed CRD Trip Breaker shall be removed within one hour or

2. With one of the CRD Trip Breaker diverse features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.

TABLE 3.5.1-1

INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

(j) 1. With one SCR Control Relay inoperable in logic channel C or D, restore the inoperable SCR Control Relay to OPERABLE status in 48 hours or remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within the next hour.

2. With two or more SCR Control Relays inoperable in logic channel C or D, remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within one hour.

(k) Requirement of 3 channels can be met with one of three channels placed in trip. The affected channel shall be placed in trip within 4 hours of discovery.

(l) 1 of 2 digital channels or manual pushbutton can be disabled for up to 72 hours and still meet the requirements of this column.

3.5.7 Main Steam Line Break Detection and Feedwater Isolation

Applicability

Applies to main steam line break (MSLB) detection and feedwater isolation circuitry when main steam header pressure is greater than 700 psig and to the Main Feedwater main and startup control (Main Feedwater control) valves when Reactor Coolant System temperature is greater than 250 °F.

Objective

To ensure availability of the MSLB detection and feedwater isolation circuitry and Main Feedwater control valves to protect against containment overpressurization during a MSLB inside contaiment.

Specifications

3.5.7.1 MSLB detection and feedwater isolation circuitry shall be operable per Table 3.5.1-1, Items 20, 21, and 22.

3.5.7.2 The Main Feedwater control valves shall be operable.

3.5.7.2.1 The provisions of 3.5.7.2 may be modified as follows:

a. A Main Feedwater control valve in one or more flow paths may be inoperable provided the affected valve(s) are closed within 8 hours from discovery and verified closed once per 7 days.

b. If the required actions and associated completion time of 3.5.7.2.1.a cannot be met, the reactor shall be placed in a hot shutdown condition within 12 hours, and be less than or equal to an RCS temperature of 250 °F in an additional 18 hours.

Bases

The operability requirements of the MSLB detection and feedwater isolation circuitry and Main Feedwater control valves ensure that containment overpressure protection is available during a MSLB accident inside containment. The specified completion times provide adequate time to take appropriate action to restore the operability of the MSLB detection and feedwater isolation circuitry and the Main Feedwater control valves, or, if necessary, sufficient time to reduce power in a controlled manner. The completion times are considered adequate given the low probability of a MSLB accident.

Analyses of the main steam line break accident have determined that the containment design pressure of 59 psig could be exceeded with continued feedwater flow into the reactor building. To prevent exceeding the containment design pressure, the MSLB detection and feedwater isolation circuitry is designed to trip both Main Feedwater pumps, isolate all main

feedwater to both steam generators, and inhibit autostart/initiate autostop of the turbine driven emergency feedwater pump. In addition, to further decrease operator burden, this circuitry will initiate the same automatic actions if a MSLB occurs outside containment.

The MSLB detection and feedwater isolation circuitry is divided into two parts which consist of the MSLB detection circuitry and the feedwater isolation circuitry. The MSLB detection circuitry consists of three MSLB detection analog channels per main steam header (total of six). A detection analog channel consists of a pressure transmitter, a signal isolator(s) (if necessary), and a current switch(es). The feedwater isolation circuitry is divided into two redundant digital channels. Each digital channel consists of two parallel 2 out of 3 logic combinations. The three detection analog channels on each main steam header provide input to the two parallel 2 out of 3 logic combinations in each digital channel. Actuation of either 2/3 logic circuit in a digital channel will actuate that digital channel. Feedwater isolation will occur if either digital channel is actuated. Thus, low steam generator pressure in either steam generator fully actuates the system. In addition, each digital channel consists of a manual bypass pushbutton, an enable/disable switch, a seal-in, a time delay, and a master relay. The master relay is energized to cause the feedwater isolation.

MSLB detection and feedwater isolation circuitry is considered operable provided all of the following conditions are met:

a. Feedwater isolation digital channels are operable per Specification Table 3.5.1-1 Item # 21, enabled, and the MSLB manual initiation is functional per Table 3.5.1-1 Item # 22.

b. The main and startup Feedwater control valves are operable to close.

c. The Turbine Driven Emergency Feedwater pump (TDEFWP) is not in RUN or is in RUN but is not aligned to feed the steam generators.

d. MSLB detection analog channels are operable per Specification Table 3.5.1.1 Item # 20.

e. MS-93 (steam admission valve to TDEFWP) is operable to close or is isolated.

f. The associated Main Feedwater pump trip circuitry is operable.

g. The MSLB testing requirements of Technical Specification Tables 4.1-1 and 4.1-2 are met.

Main Feedwater main and startup control valves must remain operable to close even under conditions below the main steam header pressure of 700 psig. To protect against overpressurization of containment during a MSLB inside containment when the MSLB detection and Feedwater isolation

circuitry is disabled, the specification requires that control valves be operable to close when RCS temperature is greater than 250 °F. 250 °F is a sufficiently low temperature to ensure that no significant energy release will occur in the event of a MSLB inside the reactor building.

The function of closing the Main Feedwater main and startup block valves is not credited in the MSLB analysis for mitigation of containment overpressurization. Therefore, no operability requirements for these valves are specified.

Table 4.1-1 (CONTINUED)

Channel Description	Check	Test	Calibrate	Remarks
55. Containment Pressure Monitor (PT-230,231)	MO	NA	AN	TMI Item II.F.1.4
56. Containment Water Level Monitor-Wide Range (LT-90, -91)	MO	NA	RF	TMI Item II.F.1.5
57. Containment Hydrogen Monitor (MT-80, -81)	NA	MO	AN	TMI Item II.F.1.6
58. Wide Range Hot Leg Level	NA	RF	RF	
59. Reactor Vessel Head Level	NA	RF	RF	
60. Core Exit Thermocouples	MO	NA	RF	
61. Subcooling Monitors	MO	RF	RF	
62. Main Steam Header Pressure and MSLB detection (analog) channels	ES	RF	RF	
63. Feedwater isolation circuitry (digital) channels and manual pushbutton	NA	RF	NA	

Insert

ES - Each Shift
DA - Daily
WE - Weekly
MO - Monthly

QU - Quarterly
AN - Annually
PS - Prior to startup, if not performed previous week
NA - Not applicable
RF - Refueling Outage
STB - STAGGERED TEST BASIS

Table 4.1-2

MINIMUM EQUIPMENT TEST FREQUENCY

	Item	Test	Frequency
1.	Control Rod Movement [1]	Movement of Each Rod	Monthly
2.	Pressurizer Safety Valves	Setpoint	Each Refueling[4]
3.	Main Steam Safety Valves	Setpoint	Each Refueling[4]
4.	Refueling System Interlocks[5]	Functional	Prior to Refueling
5.	Main Steam Stop Valves [1]	Movement of Each Stop Valve	Monthly
6.	Reactor Coolant System [2] Leakage	Evaluate	Daily
7.	Condenser Circulating Water [6] Flow Test	Functional	Each Refueling
8.	High Pressure Service Water Pumps and Power Supplies	Functional	Monthly
9.	Spent Fuel Cooling System	Functional	Prior to Refueling
10.	High Pressure and Low [3] Pressure Injection System	Vent Pump Casings	Monthly and Prior to Testing
11.	Emergency Feedwater Pump Automatic Start and Automatic Valve Actuation Feature	Functional	Each Refueling
12.	MSLB Feedwater Isolation Feature[7]	Functional	Each Refueling

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(1) Applicable only when the reactor is critical.

(2) Applicable only when the reactor coolant is above 200°F and at a steady-state temperature and pressure.

(3) Operating pumps excluded.

(4) Number of safety valves to be tested each refueling shall be in accordance with ASME Codes Section XI, Article IWV-3511, such that each valve is tested at least once every 5 years.

(5) Applicable only to the interlocks associated with the Reactor Building Purge System.

(6) Verification of the Emergency Condenser Circulating Water (ECCW) System function to supply siphon suction to the Low Pressure Service Water System shall be performed to ensure operability of the LPSW system.

(7) Verification that Main Feed Pumps, Main Feedwater Control Valves, and Turbine Driven Emergency Feedwater Pumps are appropriately actuated/inhibited by the MSLB Feedwater Isolation Feature

ATTACHMENT 3

TECHNICAL JUSTIFICATION

Technical Specification Change:

The proposed revision to the Technical Specifications provided in Attachment 1 includes a new Technical Specification (3.5.7) titled " Main Steam Line Break Detection and Feedwater Isolation", and revisions to Technical Specification 3.5.1 and Table 3.5.1-1. The new Technical Specification, along with the revisions to Specification 3.5.1 and Table 3.5.1-1, identify operability requirements for the main steam line break (MSLB) detection and feedwater isolation circuitry and Main Feedwater (FDW) main and startup control valves. In addition, Technical Specification Table 4.1-1, "Instrument Surveillance Requirements", and Table 4.1-2, "Minimum Equipment Test Frequency", are being revised to include surveillance requirements for the subject circuitry and components.

Background:

By letter dated February 8, 1980, the NRC provided Inspection and Enforcement Bulletin (IEB) 80-04, "Analysis of a PWR Main Steam Line Break (MSLB) with Continued Feedwater Addition". Among others, the Bulletin requested the following licensee actions:

* Conduct a review of the containment pressure response analysis to determine if the potential for containment overpressure for a MSLB inside containment included the impact of runout flow from the auxiliary feedwater system and the impact of other energy sources, such as continuation of feedwater or condensate flow.

* If the potential for containment overpressure exists... provide a proposed corrective action and schedule for completion of the corrective action. Provide a description of any interim action that will be taken until the proposed corrective action is completed.

In a series of written responses to IEB 80-04 in the early 1980s, Duke concluded that the potential for containment overpressurization during a MSLB inside containment did not

exist at Oconee based on existing safety analyses. Therefore, no corrective actions were implemented at that time for the containment overpressurization issue.

In the 1992-1993 timeframe, Duke reanalyzed the UFSAR Chapter 15 MSLB transient for purposes of determining the limits that this accident might impose on plans for extended fuel cycle designs and reload design optimization. Part of this project consisted of a reanalysis of the containment pressure response. Based on the containment pressure response reanalysis, it was concluded that the containment design pressure would be exceeded for a MSLB inside containment without operator action to isolate main feedwater. In a letter dated May 27, 1993, the results of the containment pressure response reanalysis, along with interim corrective actions, were provided to the NRC. The interim corrective actions included taking credit for operator action due to the low probability of a MSLB in concurrence with available conservative design margins.

In a letter dated August 19, 1993, Duke provided the NRC with the proposed long-term corrective actions for resolution of IEB 80-04. Duke also provided a description of the modification to be performed on each Oconee unit, along with a schedule for completion. In addition, Duke proposed the following approach in addressing the equipment to be installed with regards to Technical Specifications:

"Inclusion of the steam generator pressure signals in the instrument surveillance Technical Specification will be submitted upon completion of the modifications on all three units. In the interim, a Selected Licensee Commitment (SLC) or a proposed Technical Specification will cover each completed unit until all three units are completed."

In a letter dated October 6, 1993, the NRC agreed with the conceptual design description of the modification and the proposed schedule for completion of the modification.

In a letter dated June 14, 1995, Duke provided the NRC with a description of changes to the modification and a delay in the modification implementation schedule. Duke clarified that several design features of the modification, such as single failure and safety-related classification issues,

would not fully meet the descriptions provided in internal NRC guidance for IEB 80-04.

Modification Description:

Based on applicable safety analyses, it has been concluded that it is an undue burden on the operators to respond to a MSLB inside containment within the necessary timeframe to prevent pressurizing the Reactor Building above its design pressure.

The modification is designed to address the overpressurization concern by isolating main feedwater to both steam generators during a MSLB.

Steam generator header pressure is used as an input signal to the MSLB circuitry for detection and feedwater isolation. When a MSLB is sensed, or upon manual actuation, the main and startup FDW control valves will be closed to isolate the FDW flowpaths to both steam generators. In addition, the main FDW pumps are tripped. The turbine-driven emergency feedwater (TDEFW) pump will be inhibited from auto-starting or will be auto-stopped if it has already started. A manual override for the TDEFW pump inhibit is provided to allow the operator to subsequently start the TDEFW pump if necessary for decay heat removal. All of these functions are credited for mitigating a MSLB inside containment.

The motor-driven emergency feedwater (MDEFW) pumps are not affected by the MSLB detection and feedwater isolation circuitry. However, the MDEFW pumps must be manually isolated, per Emergency Operating Procedures, from the affected steam generator within 10 minutes of an indication of a MSLB.

The function of closing the main and startup FDW block valves is not credited in the MSLB analysis for mitigation of containment overpressurization during a MSLB. However, the MSLB detection and FDW isolation circuitry performs this function to provide additional conservatism.

Modification Design:

The modification installs new QA-1, single-failure proof, seismically designed circuitry and instrumentation to perform the feedwater isolation function. However, the existing equipment which is actuated by this new circuitry is not fully QA-1 or single-failure proof. For example, the main FDW control valve operators and associated power supplies, as well as the startup FDW control valve operators and associated power supplies, are non QA-1, have no backup air supply path, and are subject to a single failure. In addition, FDW pump trip circuitry and the FDW pumps are not QA-1 or single-failure proof. This information is summarized in a letter to the NRC dated June 14, 1995, and has been discussed with your staff.

The FDW control valves and MS-93 (steam admission valve to the TDEFWP) are credited to operate to prevent containment overpressurization during a MSLB inside containment. The FDW pumps are also credited to trip for two reasons: (1) to reduce the pressure drop across the main and startup FDW control valves to assure that they close and, (2) to minimize waterhammer effects due to closure of the main and startup FDW control valves.

A Loss of Offsite Power (LOOP) does not impact the ability of the MSLB detection and feedwater isolation circuitry to perform its intended safety function. Specifically, if a LOOP occurs during a MSLB event, a sufficient inventory of air will continue to be available, via the Instrument Air System, to drive the main and startup FDW control valves closed.

Although the complete MSLB detection and feedwater isolation function described above is not fully single failure proof or safety-related (QA-1) due to use of existing equipment, it is Duke's position that this approach is acceptable to satisfy the intent of IEB 80-04 because:

1) The consequences of a FDW control valve failure during a MSLB inside containment are bounded by the existing ONS UFSAR Chapter 15 analysis. This analysis already assumes a failure of the ICS/operator to function and assumes full FDW flow to the affected steam generator during the accident.

This analysis concludes that no core damage will occur.

2) The existing components used by this modification, while not safety-related or single-failure proof, must demonstrate a high reliability for the plant to operate under normal conditions. The main FDW control valves are under constant use above 20% full power. The main and startup FDW control valves are in a preventive maintenance program. In addition, the main and startup FDW control valves and the FDW pump trip circuitry will be functionally tested each refueling outage under Item # 12 of Technical Specification Table 4.1-2. Therefore, there is a high level of confidence that these components will perform their intended functions.

3) A MSLB inside containment, concurrent with the assumption that a FDW control valve sticks open, is evaluated to have a probability of occurrence of less than 1.0E-6 per reactor year. Therefore, the probability of this event is extremely low.

4) In the highly unlikely event that a FDW control valve failure and a MSLB inside containment did occur concurrently, there is a high probability that the containment would not fail even if the building design pressure was exceeded. The likely failure pressure of containment is significantly above the reactor building design pressure.

5) Should the containment fail, public health and safety would not be adversely affected because the remaining fission product barriers are still intact. Dose consequences to the public would be less than a small fraction of the 10CFR100 limits.

Modification Equipment Description:

A new pressure transmitter will be installed on each steam header. These new pressure transmitters, in addition to two existing pressure transmitters per steam header, will each feed a steam pressure signal to a signal isolator (when used) and current switch. These current switches will be calibrated to provide an ON/OFF signal at the desired setpoint for actuation of the feedwater isolation circuitry. A pressure transmitter and its associated signal isolator(s) and current switch(es) constitute a MSLB detection analog channel. A block diagram of the MSLB detection analog circuitry is provided in Figure 1.

The current switches are calibrated to actuate at a pressure of 550 psig. This pressure was selected to balance the attributes of a low setpoint, which minimizes spurious actuations, and a high setpoint, which reduces the magnitude of depressurization required to actuate the circuit and potentially lead to spurious actuations. Smaller breaks may not actuate the circuitry because the steam header pressure may not decrease below the setpoint. However, small breaks should not require an automatic feedwater isolation since operator action can limit containment pressure to less than the design limit.

The six MSLB detection analog channels feed two redundant feedwater isolation digital channels consisting of two single failure proof two-out-of-three (2 / 3) logic circuits. Actuation of either of the 2/3 logic circuits in a digital channel will actuate that digital channel. Thus, low steam generator pressure in either steam generator fully actuates the system. A block diagram of the feedwater isolation digital circuitry is shown in Figure 2. If the logic is satisfied, a master relay coil is energized. The use of an energized master relay ensures that a loss of power to the digital channels will not result in an inadvertent feedwater isolation. If either digital channel is actuated, a feedwater isolation will occur. Energizing the master relay results in closure of contacts in various control circuits for structures, systems, and components (SSCs) used for the MSLB containment overpressurization protection. Therefore, when the master relay is energized, this results in the components moving to the position

required to perform their isolation functions. Other features of the digital channels include a test/manual actuation pushbutton, a circuit seal-in after the master relay is energized, a 2 second time delay to prevent spurious actuation, and an "enable" or "arming" switch. The two 2 / 3 logic circuits, along with their associated enable switch, master relay, seal-in, time delay, and test/manual actuation pushbutton are considered a feedwater isolation digital channel.

The feedwater isolation digital channels will be enabled and disabled administratively rather than automatically. Appropriate operating procedures will contain a step to enable/disable the digital channels at a pre-determined enable pressure.

Justification for Inclusion in Technical Specifications:

The four criteria from 10CFR50.36 were reviewed to determine if a Technical Specification was necessary to address the equipment installed by the MSLB detection and feedwater isolation circuitry modification. If any criterion is answered "Yes", then a Technical Specification should be implemented. It was determined that a Technical Specification is necessary based on Criterion 3 of 10CFR50.36 as described below:

3) Is the MSLB detection and feedwater isolation circuitry a part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier?

   Yes.

   The equipment installed by the MSLB detection and feedwater isolation circuitry modification is part of the primary success path for mitigation of a MSLB since exceeding containment design pressure is considered a consequence of a MSLB inside containment. Although the mass and energy release will bypass containment if the MSLB is outside containment, Oconee is also licensed to mitigate MSLBs inside containment.

Thus, the equipment installed by the MSLB detection and feedwater isolation circuitry modification functions to mitigate a design basis accident or transient that presents a challenge to the integrity of a fission product barrier.

Therefore, a Technical Specification is required for the equipment installed by the MSLB detection and feedwater isolation circuitry modification.

Basis for Technical Specification contents:

The operability requirements of the MSLB detection and feedwater isolation circuitry ensure that containment overpressure protection is provided during a MSLB accident.

A 550 psig actuation setpoint was selected based on recently performed containment response analyses. These containment response analyses methods are described in Duke Topical Report DPC-NE-3003-PA, "Mass and Energy Release and Containment Response Methodology", and were approved by the NRC in a Safety Evaluation Report dated March 15, 1995. Containment analyses for a MSLB inside containment were performed under various assumptions and conditions to confirm the acceptability of the modification design.

During plant startup, the MSLB detection and feedwater isolation circuitry will be enabled at a main steam pressure of 700 psig. An enable/disable pressure of 700 psig provides a 150 psig operating margin from the actuation setpoint of 550 psig, which is adequate margin to ensure that the circuitry will not cause excessive feedwater isolation events. This margin also ensures that the circuitry can be enabled without interfering with plant startup or shutdown.

Specification Table 3.5.1-1 allows for one channel of the main steam header pressure and/or MSLB (analog) detection to be unavailable if the MSLB detection channel has been placed in trip within 4 hours of discovery. Placing the affected analog channel in trip conservatively places the Feedwater isolation circuitry in one out of two logic to ensure that a loss of function does not occur in the event of a single

failure. Specification Table 3.5.1-1 does not permit more than one analog channel to be unavailable for two reasons: 1) placing a second channel in trip would cause actuation of the feedwater isolation circuitry, and, 2) failing to place a second channel in trip would reduce the system to a one out of one logic. Therefore, if more than one analog channel is unavailable, Table 3.5.1-1 conservatively requires shut down to hot shutdown within 12 hours.

Specification Table 3.5.1-1 allows for one channel of the Feedwater Isolation (digital) channel to be out of service for up to 72 hours. If the digital channel inoperability is not resolved within 72 hours, then the specification conservatively requires shut down to hot shutdown within 12 hours. With one digital channel unavailable, the other digital channel can perform the required safety function of isolating feedwater to containment in the event of a MSLB inside containment. 72 hours is considered adequate given the low probability of a MSLB inside containment.

In general, if the MSLB detection and feedwater isolation circuitry incurs a loss of function, then the specification conservatively requires shut down to hot shutdown within 12 hours. The LCO action statement also requires the affected unit steam pressure to be below the MSLB detection and feedwater isolation circuitry arming pressure of 700 psig in an additional 6 hours. A period of 12 hours allows adequate time to achieve safe (hot) shutdown in an orderly manner. The additional period of 6 hours to reduce steam pressure less than the arming pressure of the MSLB detection and feedwater isolation circuitry is also adequate based on this same reasoning, and is consistent with the Improved Standardized Technical Specifications (ISTS).

To permit inclusion of the MSLB detection and feedwater isolation circuitry analog and digital channels in Specification Table 3.5.1-1, a revision to Specification 3.5.1.1 was necessary. The revision to 3.5.1.1 permits the conditions under the applicability of new Specification 3.5.7.2 to be applied in lieu of the conditions required in Specification 3.5.1.1. Specification 3.5.1.1 requires a minimum number of channels to be operable in startup mode or while critical. Specification 3.5.7.2 requires a minimum number of channels to be operable when greater than 700 psig main steam header pressure. Therefore, the conditions of

Specification 3.5.7.2 are appropriate in lieu of the conditions of Specification 3.5.1.1 since they conservatively bound the conditions of Specification 3.5.1.1.

Greater than 250 °F RCS temperature and less than 700 psig RCS pressure, in the event of a MSLB inside containment, operator action is credited to isolate feedwater to the affected steam generator to prevent containment overpressurization. At 700 psig RCS pressure, RCS temperature is controlled at approximately 400-425 °F by procedure. To assure that a single failure of a FDW control valve will not prevent mitigation of a MSLB under these conditions, new Specification 3.5.7.2 addresses operability of the main and startup FDW control valves. This specification requires that these valves be operable at RCS temperatures greater than 250 °F to address the potential vulnerability to containment overpressurization below the MSLB circuitry enable point of 700 psig RCS pressure. The reactor building design pressure of 59 psig will not be exceeded, regardless of the availability of the MSLB circuitry and the FDW control valves, if RCS temperature is less than 250 °F.

Specification 3.5.7.2.1 allows for a FDW control valve in one or more flow paths to be inoperable provided that the valve(s) are closed within 8 hours from discovery and verified closed once per 7 days. If the action to close the valve(s) cannot be met within the specified time frame, then hot shutdown must be achieved in 12 hours, and an RCS temperature of less than 250 °F must be achieved in an additional 18 hours. The allowable period to achieve safe shutdown is the same as the allowable period specified for loss of function of the MSLB circuitry. The additional 18 hours is provided to permit a controlled RCS cooldown to a temperature less than 250 °F. Closure of inoperable FDW control valves in 8 hours and verification every 7 days is consistent with the Improved Standardized Technical Specifications (ISTS) and is considered conservative.

The MSLB detection and feedwater isolation circuitry is divided into two parts which consist of the MSLB detection circuitry and the feedwater isolation circuitry as shown in Figures 1 and 2. The MSLB detection circuitry consists of

six MSLB detection analog channels. Three detection analog channels are on each Main Steam header. A typical detection analog channel consists of a pressure transmitter, a signal isolator(s) (if necessary), and a current switch(es). The feedwater isolation circuitry is divided into two redundant digital channels. Each digital channel consists of two parallel 2 out of 3 logic combinations. The three detection analog channels on each Main Steam header provide input to the two parallel 2 out of 3 logic combinations in each digital channel. Actuation of either 2/3 logic circuit in a digital channel will actuate that digital channel. Thus, low steam generator pressure in either steam generator fully actuates the system. In addition, each digital channel consists of a manual bypass pushbutton, an enable/disable switch, a seal-in, a time delay, and a master relay. The master relay is energized to cause the feedwater isolation.

To ensure that the MSLB detection and feedwater isolation circuitry can perform its intended safety function, the following conditions must exist:

1) Feedwater isolation digital channels must be operable per Specification Table 3.5.1-1 Item # 21. Table 3.5.1-1 Item # 21 permits one digital channel to be unavailable for up to 72 hours. If one or more feedwater isolation digital channels are inoperable, a single failure could result in the MSLB detection and feedwater isolation circuitry being unable to perform its intended safety function.

   In addition, all feedwater isolation digital channels must be enabled and the MSLB manual initiation must be functional per Table 3.5.1-1 Item # 22. An enable/disable switch is provided for each feedwater isolation digital channel. Manual initiation is verified operable during the refueling outage functional testing.

2) The main and startup FDW control valves must be operable to ensure that the MSLB detection and feedwater isolation circuitry will operate these valves to the close position.

3) The TDEFW pump mode selector switch must not be in the RUN position except when it is not aligned to feed the

steam generators. For purposes of testing the TDEFW pump under controlled procedures, it is necessary to allow the TDEFW pump to be run in manual as long as the system valve lineup prohibits feeding of a steam generator. In these limited cases, this portion of the feedwater isolation safety function is still satisfied since the TDEFW pump cannot feed the steam generators. This feature will be functionally tested each refueling outage under Item # 12 of Table 4.1-2. In addition, this feature was satisfactorily tested as part of post-modification testing.

4) MSLB detection analog channels must be operable per Table 3.5.1-1 Item # 20. Table 3.5.1-1 Item # 20 permits one of three channels to be unavailable if the affected channel is placed in trip. Placing the channel in trip establishes a conservative one out of two logic condition. Four hours is allowed to place the affected channel in trip. Four hours provides adequate time to place the channel in trip. If more than one MSLB detection analog channels for either steam header is inoperable, a worst-case single failure of the remaining available analog channel on the same steam header could result in failure to isolate feedwater during a MSLB.

5) Main Steam valve MS-93 (steam admission valve to TDEFW turbine) must be operable to close during a feedwater isolation. MS-93 is required to close to inhibit operation of the TDEFW pump. MS-93 is a normally closed valve during plant operation. This feature will be functionally tested each refueling outage under Item # 12 of Table 4.1-2. In addition, this feature was satisfactorily tested as part of post-modification testing.

6) Associated Main Feedwater pump trip circuitry must be operable to trip the Main Feedwater pumps. This circuitry consists only of the Main Feedwater pump trip circuitry which is actuated by the feedwater isolation circuitry. This feature will be functionally tested each refueling outage under Item # 12 of Table 4.1-2. In addition, this feature was satisfactorily tested as part of post-modification testing.

7) The safety analysis for a MSLB inside containment credits the MSLB detection and feedwater isolation circuitry with the safety function of preventing containment overpressurization. The MSLB detection and feedwater isolation circuitry (including manual initiation) must be tested to provide a reasonable level of assurance that the circuitry will perform its intended safety function. This testing will require a verification of circuit function which includes channel calibrations, response times, channel checks, and functional tests. These tests are essentially the same as the ISTS-defined channel calibration, response time, channel check, and functional tests respectively. In addition, the testing of this circuitry is in conformance with Generic Letter 96-01, "Testing of Safety-Related Logic Circuits". The existing testing philosophy is to allow performance of safety-related logic tests by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

This verification of circuit function is to be performed on a refueling outage frequency. An engineering study was performed to determine what the optimum test frequency should be based on maximizing the availability of the circuitry. The study concluded that availability of the MSLB circuitry was not significantly impacted in reducing the test frequency from semiannually to every refueling outage. A review was also performed of the functional testing from a plant transient risk and human factors perspective. It was determined that testing on a refueling basis provides adequate confidence that the circuitry will be available to perform its safety function, while the risks of testing during plant operation will be avoided.

The new MSLB circuitry and associated component testing requirements are specified in Items # 62 and # 63 of Technical Specification Table 4.1-1 and Item # 12 of Technical Specification Table 4.1-2 respectively.

Summary of UFSAR Revisions

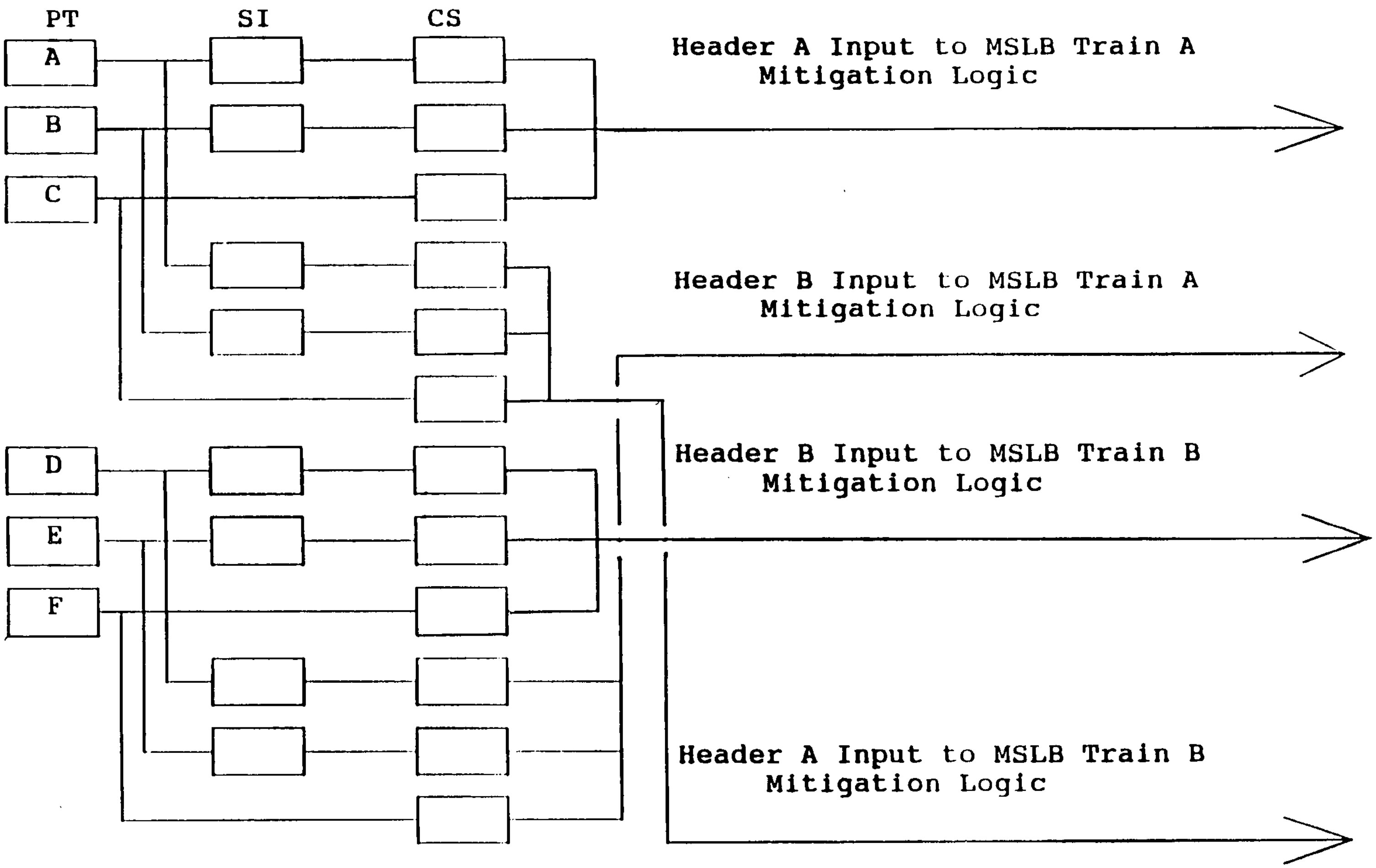
Chapters 3, 6, 7, 10, and 15 were affected by the installation of the MSLB detection and feedwater isolation circuitry. Chapter 3 will be revised to include the MSLB detection and feedwater isolation circuitry in the listing of QA-1 committed components. Chapters 7 and 10 were revised to include a description of the TDEFW pump inhibit/stop function. Chapter 10 was also revised to include a summary of a waterhammer analysis performed in support of the MSLB modification. Chapter 6 was revised to include a description of the reanalysis of the MSLB. Portions of the Chapter 15 MSLB analysis pertaining to the containment analysis were moved to a more appropriate location in Chapter 6. The UFSAR description of the MSLB reanalysis takes credit for the MSLB circuitry to protect against containment overpressurization.

Editorial Changes

One editorial change to the NOTES section of Table 3.5.1-1 is proposed. This change is to delete the word "the" in Note (e) of the table to make the note more readable. This change does not alter the intent or interpretation of the existing note.

FIGURE 1

MSLB Detection Circuitry Block Diagram



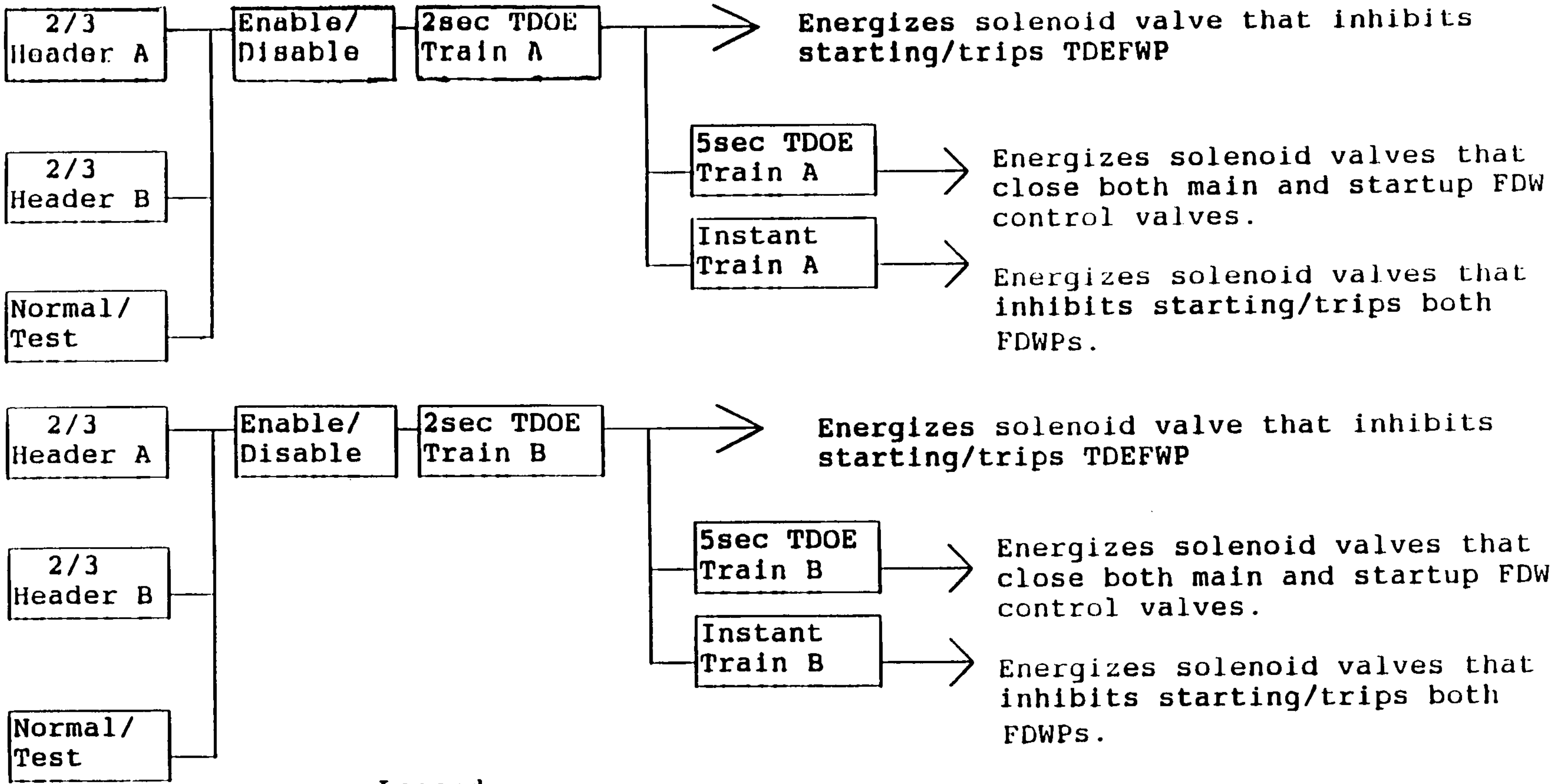
Note: 1. PT A,B,D, and E are existing pressure transmitters that input to MSLB logic thru signal isolators.
2. PT A,B, and C are located on steam header A.
3. PT D,E, and F are located on steam header B.

Legend

PT - Pressure Transmitter
SI - Signal Isolator
CS - Current Switch

FIGURE 2

FDW Isolation Logic Block Diagram



Legend

2/3 - two-out-of-three logic
TDOE - Time Delay On Enerization Relay
Instant - Multiplication Relay

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION EVALUATION

Pursuant to 10CFR50.91, Duke Power Company (Duke) has made the determination that this amendment request involves a No Significant Hazards Consideration by applying the standards established by NRC regulations in 10CFR50.92. This ensures that operation of the facility in accordance with the proposed amendment will not:

A. Involve a significant increase in the probability or consequences of an accident previously evaluated?

NO

This proposed Technical Specification amendment does not create any conditions or events which lead to accidents (events) previously evaluated in the UFSAR, other than a loss of Main Feedwater (FDW). The new MSLB detection and feedwater isolation circuitry addressed by this change is designed so that a credible single failure will not cause a loss of FDW to the steam generator unless a MSLB is detected. Single failures are not assumed if entry into a Technical Specification action statement occurs.

During a MSLB, the circuitry is intentionally stopping and isolating FDW. Operators are currently instructed to isolate FDW on indication of a MSLB. The new circuitry will automatically stop FDW to eliminate the need for this operator action. Thus the probability of the stopping (loss) of FDW is not increased. The NRC has also stated that the stopping of FDW to mitigate a MSLB is an acceptable response to address the concerns of Inspection and Enforcement Bulletin 80-04.

The Emergency Feedwater (EFW) System is an accident mitigation system. The MSLB modification and associated Technical Specification to keep the turbine driven emergency feedwater pump (TDEFW) pump from starting following a MSLB will not initiate any accidents.

The potential for containment overpressurization currently exists without the installed modification and associated Technical Specification. The new MSLB detection and feedwater isolation circuitry will assist in reducing the potential for the overpressurization of containment. The EFW circuitry is

designed so that the TDEFWP will still auto start for any event other than a MSLB. The TDEFWP can still be manually started during a MSLB or FDW line break accident as needed. This action is similar to other manual actions to align EFW for the MSLB scenarios that are already described in the ONS UFSAR. This new circuitry and associated Technical Specification creates no new credible single failures that could prevent the TDEFWP from auto starting (except for the MSLB). The motor driven EFW pumps and EFW flow control valves are not adversely affected by this change and will provide EFW flow for scenarios other than Station Blackout. Both FDW and EFW will still provide their design functions of supplying feedwater to the steam generators, as evaluated in the UFSAR. The ability to shut down following a 10CFR50 Appendix R fire is not adversely affected. This Technical Specification change does not adversely affect containment integrity and radiological release pathways.

B. Create the possibility of a new or different kind of accident from the accident previously evaluated?

NO

No accidents different than already evaluated in the UFSAR are postulated. The FDW System will still perform its design function of supplying feedwater to the steam generators as evaluated in the UFSAR. The EFW System will still provide its function of supplying feedwater to the steam generators, as evaluated in the UFSAR, for events resulting in the loss of the FDW System.

C. Involve a significant reduction in a margin of safety?

NO

The design pressure of containment is specified to be 59 psig in the bases to several Technical Specifications. With the potential for unrestricted FDW and EFW flow during a MSLB inside containment, the design pressure of the containment could be exceeded. The proposed Technical Specifications address equipment which will function to isolate FDW in the unlikely event of a MSLB accident. Therefore, the proposed Technical Specifications do not increase the potential for the containment

to be pressurized or increase the expected pressure of containment following a MSLB. No plant safety limits, set points, or design parameters are adversely affected. The fuel, fuel cladding, and Reactor Coolant System are not impacted.

Duke has concluded based on the above that there are no significant hazards considerations involved in this amendment request.

ATTACHMENT 5

ENVIRONMENTAL IMPACT ANALYSIS

Pursuant to 10CFR51.22 (b), an evaluation of the proposed amendments has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10CFR51.22 (c) 9 of the regulations. The proposed amendment does not involve:

1) A significant hazards consideration.

This conclusion is supported by the No Significant Hazards Consideration Evaluation which is contained in Attachment 4.

2) A significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

This amendment will not significantly change the types or amounts of any effluents that may be released offsite.

3) A significant increase in the individual or cumulative occupational radiation exposure.

This amendment will not significantly increase the individual or cumulative occupation radiation exposure.

In summary, this amendment request meets the criteria set forth in 10CFR51.22 (c) 9 of the regulations for categorical exclusion from an environmental inpact statement.