UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 16, 1994

Docket Nos. 50-348
and 50-364

Mr. D. N. Morey, Vice President
Southern Nuclear Operating Co., Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

Dear Mr. Morey:

SUBJECT: ISSUANCE OF AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NO. NPF-2 AND AMENDMENT NO. 99 TO FACILITY OPERATING LICENSE NO. NPF-8 REGARDING SURVEILLANCE TEST INTERVALS AND ALLOWED OUTAGE TIMES FOR REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION - JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. M88188 AND M88189)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 106 to Facility Operating License No. NPF-2 and Amendment No. 99 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2. The amendments change the Technical Specifications in response to your submittal dated October 14, 1993.

The requested amendment would incorporate changes allowing longer surveillance test intervals (STIs) and allowed outage times (AOTs) for the reactor trip system (RTS) and engineered safety features actuation system (ESFAS) instrumentation into the Technical Specifications. The proposed changes would also revise certain RTS/ESFAS functions, minimum channels operable, channel calibration, and channel functional test requirements to ensure they are in concert with the Westinghouse Standard Technical Specifications and WCAP-10271, "Evaluation of Surveillance Frequencies and Out-of-Service Times for Reactor Protection Instrumentation Systems."

200042

CP-1

DFO1

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

Byron L. Siegel, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 106 to NPF-2
2. Amendment No. 99 to NPF-8
3. Safety Evaluation

cc w/enclosures:
See next page

cc:

Mr. R. D. Hill, Jr.
General Manager - Farley Nuclear Plant
Southern Nuclear Operating Co., Inc.
Post Office Box 470
Ashford, Alabama 36312

Mr. B. L. Moore, Licensing Manager
Southern Nuclear Operating Co., Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

James H. Miller, III, Esquire
Balch and Bingham Law Firm
Post Office Box 306
1710 Sixth Avenue North
Birmingham, Alabama 35201

Mr. J. D. Woodard
Executive Vice President
Southern Nuclear Operating Company
P.O. Box 1295
Birmingham, Alabama 35201

State Health Officer
Alabama Department of Public Health
434 Monroe Street
Montgomery, Alabama 36130-1701

Chairman
Houston County Commission
Post Office Box 6406
Dothan, Alabama 36302

Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta St., N.W., Ste. 2900
Atlanta, Georgia 30323

Resident Inspector
U.S. Nuclear Regulatory Commission
Post Office Box 24 - Route 2
Columbia, Alabama 36319

AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NO. NPF-2 - FARLEY, UNIT 1
AMENDMENT NO. 99 TO FACILITY OPERATING LICENSE NO. NPF-8 - FARLEY, UNIT 2

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cc: Farley Service List

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

Original Signed by:
Byron L. Siegel, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 106 to NPF-2
2. Amendment No. 99 to NPF-8
3. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	LA:PD2-1	PM:PD2-1	PD:PD2-1	OGC
NAME	PAnderson	BSiegel	WBateman WMB	R. Bachmann
DATE	3/29/94	4/27/94	5/4/94	4/26/94

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 106
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern Nuclear Operating Company, Inc., dated October 14, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-2 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 106 , are hereby incorporated in the license. Southern Nuclear Operating Company, Inc., shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William H. Bateman

William H. Bateman, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 16, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 106

TO FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages	Insert Pages
3/4 3-4	3/4 3-4
3/4 3-5	3/4 3-5
3/4 3-6	3/4 3-6
3/4 3-7	3/4 3-7
3/4 3-8	3/4 3-8
3/4 3-9	3/4 3-9
3/4 3-12	3/4 3-12
3/4 3-13	3/4 3-13
3/4 3-16	3/4 3-16
3/4 3-17	3/4 3-17
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-21	3/4 3-21
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3/4 3-37	3/4 3-37
B3/4 3-1	B3/4 3-1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
17. Turbine Trip					
A. Low Auto Stop Oil Pressure	3	2	2	1	7#
B. Turbine Throttle Valve Closure	4	4	1	1	6#
18. Safety Injection Input from ESF	2	1	2	1, 2	15
19. Reactor Coolant Pump Breaker Position Trip					
A. Above P-8	1/breaker	1	1/breaker	1	10
B. Above P-7	1/breaker	2	1/breaker per operating loop	1	11#
20. Reactor Trip System Interlocks					
A. Intermediate Range Neutron Flux, P-6	2	1	2	2, and*	8
B. Low Power Reactor Trips Block, P-7 P-10 Input	4	2	3	1	8
P-13 Input	2	1	2	1	8
C. Power Range Neutron Flux, P-8	4	2	3	1	8
D. Power Range Neutron Flux, P-10 (Input to P-7)	4	2	3	1, 2	8
E. Turbine Impulse Chamber Pressure, P-13	2	1	2	1	8
F. Power Range Neutron Flux, P-9	4	2	3	1	8

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
21. Reactor Trip Breakers	2	1	2	1, 2 3*, 4*, 5*	1, 14 13
22. Automatic Trip Logic	2	1	2	1, 2 3*, 4*, 5*	15 13

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.

** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

\# The provisions of Specification 3.0.4 are not applicable.

High voltage to detector may be de-energized above P-6.

Indication only.

The provisions of Specification 3.0.3 are not applicable if THERMAL POWER level ≥ 10% of RATED THERMAL POWER.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of the other channels per Specification 4.3.1.1.

c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO from the remaining 3 detectors is monitored at least once per 12 hours per Specification 4.2.4.2.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

ACTION 5 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 6 hours.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

TABLE 3.3-1 (Continued)

ACTION 8 - With the interlock inoperable to the extent that a reactor trip which should not be blocked in the current MODE is blocked, declare the trip function inoperable and follow the ACTION statements of Table 3.3-1 for the affected channel(s).

Interlock		Affected Channels on Table 3.3-1
1.	P-6	a. Source Range, Neutron Flux Startup Shutdown
2.	P-7	a. Low Reactor Coolant Loop Flow (2 loops) b. Undervoltage - Reactor Coolant Pumps c. Underfrequency - Reactor Coolant Pumps d. Pressurizer Low Pressure e. Pressurizer High Level
3.	P-8	a. Low Reactor Coolant Loop Flow (1 loop)
4.	P-9	a. Turbine Trip
5.	P-10	a. Intermediate Range, Neutron Flux b. Power Range, Neutron Flux - Low Setpoint c. Source Range, Neutron Flux Startup Shutdown d. P-7 (Item 2 above)
6.	P-13	a. P-7 (Item 2 above)

ACTION 9 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 6 hours or be in HOT STANDBY within the next 6 hours; however, one channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.

ACTION 10 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 6 hours or reduce THERMAL POWER to below the P-8 (Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint within the next 2 hours. Operation below the P-8 (Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint may continue pursuant to ACTION 11.

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 12 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours, or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours, or open the Reactor Trip System breakers within the next hour.

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, the breaker may be considered OPERABLE provided that the diverse trip feature is restored to OPERABLE status within 48 hours, or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.

ACTION 15 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	R(11), S/U(1)(12)	1, 2 3*, 4*, 5*
2. Power Range, Neutron Flux				
A. High	S	D(2), M(3) and Q(6)	Q	1, 2
B. Low	S	D(2), M(3) and Q(6)	S/U(10)	2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A	R(6)	Q	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(10)	1, 2 and *
6. Source Range, Neutron Flux	S(7)	R(6)	Q and S/U(10)	2, 3, 4, 5, and *
7. Overtemperature ΔT	S	R	Q	1, 2
8. Overpower ΔT	S	R	Q	1, 2
9. Pressurizer Pressure--Low	S	R	Q	1
10. Pressurizer Pressure--High	S	R	Q	1, 2
11. Pressurizer Water Level--High	S	R	Q	1
12. A. Loss of Flow - Single Loop	S	R	Q	1
B. Loss of Flow - Two Loops	S	R	N.A.	1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
13. Steam Generator Water Level--Low-Low	S	R	Q	1, 2
14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	Q	1, 2
15. Undervoltage - Reactor Coolant Pumps	N.A.	R	Q	1
16. Underfrequency - Reactor Coolant Pumps	N.A.	R	Q	1
17. Turbine Trip				
A. Low Auto Stop Oil Pressure	N.A.	R	S/U(9)(10)	N.A.
B. Turbine Throttle Valve Closure	N.A.	R	S/U(9)(10)	N.A.
18. Safety Injection Input from ESF	N.A.	N.A.	R(4)	1, 2
19. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	1
20. Reactor Trip System Interlocks	N.A.	R	S/U(8)	1
21. Reactor Trip Breaker	N.A.	N.A.	M(5)(14)(15), S/U(1)(14)(15)	1, 2, 3*, 4*, 5*
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, 3*, 4*, 5*
23. Reactor Trip Bypass Breaker	N.A.	N.A.	(13), R(11)	1, 2, 3*, 4*, 5*

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure--High	3	2	2	1, 2, 3	19*
d. Pressurizer Pressure--Low	3	2	2	1, 2, 3#	19*
e. Differential Pressure Between Steam Lines--High				1, 2, 3	
Three Loops Operating	3/steam line	2/steam line twice and 1/3 steam lines	2/steam line		19*
Two Loops Operating	3/operating steam line	2###/steam line twice in either operating steam line	2/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
f. Steam Line Pressure--Low				1, 2, 3##	
Three Loops Operating	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 2 loops		19*
Two Loops Operating	1 pressure/ loop	1### pressure in any operating loop	1 pressure any operating loop		15
2. CONTAINMENT SPRAY					
a. Manual	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure--High-High-High	4	2	3	1, 2, 3	16

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4. STEAM LINE ISOLATION					
a. Manual	1/steam line	1/steam line	1/operating steam line	1, 2**, 3**	22
b. Automatic Actuation Logic	2	1	2	1, 2**, 3**	21
c. Containment Pressure--High-High	3	2	2	1, 2**, 3**	19*
d. Steam Flow in Two Steam Lines--High				1, 2**, 3**	
Three Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		19*
Two Loops Operating	2/operating steam line	1###/any operating steam line	1/operating steam line		15
COINCIDENT WITH T_{avg}--Low-Low				1, 2**, 3**	
Three Loops Operating	1 T_{avg}/loop	1 T_{avg} any 2 loops	1 T_{avg} any 2 loops		19*
Two Loops Operating	1 T_{avg}/operating loop	1### T_{avg} in any operating loop	1 T_{avg} in any operating loop		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
e. Steam Line Pressure--Low				1, 2**, 3##,**	
Three Loops Operating	1 pressure/loop	1 pressure any 2 loops	1 pressure any 2 loops		19*
Two Loops Operating	1 pressure/operating loop	1### pressure in any operating loop	1 pressure any operating loop		15
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water Level--High-High	3/loop	2/loop in any operating loop	2/loop in each operating loop	1, 2	19*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. AUXILIARY FEEDWATER					
a. Automatic Actuation Logic	2	1	2	1, 2, 3	21
b. Stm. Gen. Water Level--Low-Low					
i. Start Motor-Driven Pumps	3/stm. gen.	2/stm. gen. any stm. gen.	2/stm. gen.	1, 2, 3	19*
ii. Start Turbine-Driven Pumps	3/stm. gen.	2/stm. gen. any 2 stm. gen.	2/stm. gen.	1, 2, 3	19*
c. Undervoltage-RCP Start Turbine-Driven Pump	3-2/bus	2	2	1	19
d. S.I. Start Motor-Driven Pumps	See 1 above (all S.I. initiating functions and requirements)				
e. Trip of Main Feedwater Pumps Start Motor-Driven Pumps	2/pump	1/pump	1/pump	1	23*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	24*
b. Grid Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	24*
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS					
a. Pressurizer Pressure, P-11	3	2	2	1, 2, 3	20
b. Low-Low T_{avg}, P-12	3	2	2	1, 2, 3	20
c. Steam Generator Level, P-14	(See 5.a above)				
d. Reactor Trip, P-4	2	1	2	1, 2, 3	13

TABLE 3.3-3 (Continued)

TABLE NOTATION

Trip function may be bypassed in this MODE below the P-11 (Pressurizer Pressure Block of Safety Injection) setpoint.

Trip function may be bypassed in this MODE below P-12 (T_{avg} Block of Safety Injection) setpoint.

The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

* The provisions of Specification 3.0.4 are not applicable.

** Not applicable if main steam isolation valves are closed.

ACTION STATEMENTS

ACTION 13 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 14 - Deleted.

ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION 18 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 19 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.2.1.

ACTION 20 - With the interlock inoperable to the extent that a safeguards function which should not be blocked in the current MODE is blocked, declare the safeguard function(s) inoperable and follow the appropriate ACTION statement(s) of Table 3.3-3 for the affected function(s).

Interlock		Affected Channels on Table 3.3-3
1.	P-11	a. Pressurizer Pressure--Low
2.	P-12	a. Steam Line Pressure--Low b. Steam Flow in Two Steam Lines High Coincident with T_{avg}--Low-Low

ACTION 21 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing provided the other channel is OPERABLE.

ACTION 22 - With the number of OPERABLE Channels one less than the Total Number of Channels restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

ACTION 23 - With the number of OPERABLE Channels one less than the Minimum Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 24 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channel OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels per Specification 4.3.2.1.

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION					
a. Manual Initiation	N.A.	N.A.	R(1)	1, 2, 3, 4	|
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	
c. Containment Pressure--High	S	R	Q	1, 2, 3	|
d. Pressurizer Pressure--Low	S	R	Q	1, 2, 3	|
e. Differential Pressure Between Steam Lines--High	S	R	Q	1, 2, 3	|
f. Steam Line Pressure--Low	S	R	Q	1, 2, 3	|
2. CONTAINMENT SPRAY					
a. Manual Initiation	N.A.	N.A.	R(1)	1, 2, 3, 4	|
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	
c. Containment Pressure--High-High-High	S	R	Q	1, 2, 3	|

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
3. CONTAINMENT ISOLATION					
a. Phase "A" Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) From Safety Injection Automatic Actuation Logic	N.A	N.A.	M(2)	1, 2, 3, 4	
b. Phase "B" Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	
3) Containment Pressure--High-High-High	S	R	Q	1, 2, 3	|
c. Purge and Exhaust Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
4. STEAM LINE ISOLATION					
a. Manual	N.A.	N.A.	R(1)	1, 2, 3	|
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3	
c. Containment Pressure--High-High	S	R	Q	1, 2, 3	|
d. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low	S	R	Q	1, 2, 3	|
e. Steam Line Pressure--Low	S	R	Q	1, 2, 3	|
5. TURBINE TRIP AND FEEDWATER ISOLATION					
a. Steam Generator Water Level--High-High	S	R	Q	1, 2, 3	|

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
6. AUXILIARY FEEDWATER				
a. Automatic Actuation Logic	N.A.	N.A.	M(2)(6)	1, 2, 3
b. Steam Generator Water Level--Low-Low	S	R	Q	1, 2, 3
c. Undervoltage - RCP	N.A.	R	Q	1
d. S.I.	See 1 above (all SI surveillance requirements)			
e. Trip of Main Feedwater Pumps	N.A.	N.A.	S/U(5)	1
7. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	N.A.	R(3)	M(4)	1, 2, 3, 4
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	N.A.	R(3)	M(4)	1, 2, 3, 4
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS	N.A.	R	N.A.	N.A.

TABLE 4.3-2 (Continued)

TABLE NOTATION

(1) Manual actuation switches shall be tested at least once per 18 months during shutdown.

(2) Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(3) Channel calibration shall exclude actuation of the final trip actuation relay.*

(4) Functional testing shall consist of verification of relay operation upon removal of input voltage and operation of 2-out-of-3 logic excluding the final trip actuation relay.*

(5) If not performed in the previous 92 days.

(6) Excluding automatic actuation logic for trip of main feedwater pumps.

*Actuation of the final trip actuation relay shall be included in response time testing.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip and Engineered Safety Feature Actuation System instrumentation and interlocks ensures that 1) the associated Engineered Safety Feature Actuation action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its setpoint, 2) the specified coincidence logic and sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance consistent with maintaining an appropriate level of reliability of the Reactor Trip System and Engineered Safety Feature Actuation System instrumentation and, 3) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses. The surveillance requirements specified for these systems ensure that the overall system functional capa- bility is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and supplements to that report as approved by the NRC and documented in the SERs and SSER (letters to J. J. Sheppard from Cecil O. Thomas dated February 21, 1985; Roger A. Newton from Charles E. Rossi dated February 22, 1989; and Gerard T. Goering from Charles E. Rossi dated April 30, 1990).

The Engineered Safety Feature Actuation System interlocks perform the functions indicated below on increasing the required parameter, consistent with the setpoints listed in Table 3.3-4:

P-11 Defeats the manual block of safety injection actuation on low pressurizer pressure.

P-12 Defeats the manual block of safety injection actuation on low steam line pressure.

P-14 Trip of all feedwater pumps, turbine trip, closure of feedwater isolation valves and inhibits feedwater control valve modulation.

On decreasing the required parameter the opposite function is performed at reset setpoints, with the exception of P-12 as noted below:

P-12 Allows manual block of safety injection actuation on low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks (i.e., prevents premature block of the noted function).

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 99
License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern Nuclear Operating Company, Inc., dated October 14, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 99 , are hereby incorporated in the license. Southern Nuclear Operating Company, Inc., shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William H. Bateman

William H. Bateman, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 16, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 99

TO FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages	Insert Pages
3/4 3-4	3/4 3-4
3/4 3-5	3/4 3-5
3/4 3-6	3/4 3-6
3/4 3-7	3/4 3-7
3/4 3-8	3/4 3-8
3/4 3-9	3/4 3-9
3/4 3-12	3/4 3-12
3/4 3-13	3/4 3-13
3/4 3-16	3/4 3-16
3/4 3-17	3/4 3-17
3/4 3-19	3/4 3-19
3/4 3-20	3/4 3-20
3/4 3-21	3/4 3-21
3/4 3-22	3/4 3-22
3/4 3-23	3/4 3-23
3/4 3-24	3/4 3-24
3/4 3-33	3/4 3-33
3/4 3-34	3/4 3-34
3/4 3-35	3/4 3-35
3/4 3-36	3/4 3-36
3/4 3-37	3/4 3-37
B3/4 3-1	B3/4 3-1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
17. Turbine Trip					
A. Low Auto Stop Oil Pressure	3	2	2	1	7#
B. Turbine Throttle Valve Closure	4	4	1	1	6#
18. Safety Injection Input from ESF	2	1	2	1, 2	15
19. Reactor Coolant Pump Breaker Position Trip					
A. Above P-8	1/breaker	1	1/breaker	1	10
B. Above P-7	1/breaker	2	1/breaker per operating loop	1	11#
20. Reactor Trip System Interlocks					
A. Intermediate Range Neutron Flux, P-6	2	1	2	2, and*	8
B. Low Power Reactor Trips Block, P-7 P-10 Input	4	2	3	1	8
P-13 Input	2	1	2	1	8
C. Power Range Neutron Flux, P-8	4	2	3	1	8
D. Power Range Neutron Flux, P-10 (Input to P-7)	4	2	3	1, 2	8
E. Turbine Impulse Chamber Pressure, P-13	2	1	2	1	8
F. Power Range Neutron Flux, P-9	4	2	3	1	8

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
21. Reactor Trip Breakers	2	1	2	1, 2 3*, 4*, 5*	1, 14 13
22. Automatic Trip Logic	2	1	2	1, 2 3*, 4*, 5*	15 13

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.

** The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

\# The provisions of Specification 3.0.4 are not applicable.

High voltage to detector may be de-energized above P-6.

Indication only.

The provisions of Specification 3.0.3 are not applicable if THERMAL POWER level $\geq$ 10% of RATED THERMAL POWER.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of the other channels per Specification 4.3.1.1.

c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO from the remaining 3 detectors is monitored at least once per 12 hours per Specification 4.2.4.2.

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

ACTION 5 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 6 hours.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

ACTION 8 - With the interlock inoperable to the extent that a reactor trip which should not be blocked in the current MODE is blocked, declare the trip function inoperable and follow the ACTION statements of Table 3.3-1 for the affected channel(s).

Interlock		Affected Channels on Table 3.3-1
1.	P-6	a. Source Range, Neutron Flux Startup Shutdown
2.	P-7	a. Low Reactor Coolant Loop Flow (2 loops) b. Undervoltage - Reactor Coolant Pumps c. Underfrequency - Reactor Coolant Pumps d. Pressurizer Low Pressure e. Pressurizer High Level
3.	P-8	a. Low Reactor Coolant Loop Flow (1 loop)
4.	P-9	a. Turbine Trip
5.	P-10	a. Intermediate Range, Neutron Flux b. Power Range, Neutron Flux - Low Setpoint c. Source Range, Neutron Flux Startup Shutdown d. P-7 (Item 2 above)
6.	P-13	a. P-7 (Item 2 above)

ACTION 9 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 6 hours or be in HOT STANDBY within the next 6 hours; however, one channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.

ACTION 10 - With one channel inoperable, restore the inoperable channel to OPERABLE status within 6 hours or reduce THERMAL POWER to below the P-8 (Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint within the next 2 hours. Operation below the P-8 (Low Reactor Coolant Pump Flow and Reactor Coolant Pump Breaker Position) setpoint may continue pursuant to ACTION 11.

TABLE 3.3-1 (Continued)

ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 6 hours.

ACTION 12 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours, or be in HOT STANDBY within the next 6 hours.

ACTION 13 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours, or open the Reactor Trip System breakers within the next hour.

ACTION 14 - With one of the diverse trip features (undervoltage or shunt trip attachment) inoperable, the breaker may be considered OPERABLE provided that the diverse trip feature is restored to OPERABLE status within 48 hours, or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status.

ACTION 15 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
1. Manual Reactor Trip	N.A.	N.A.	R(11), S/U(1)(12)	1, 2 3*, 4*, 5*	
2. Power Range, Neutron Flux					
A. High	S	D(2), M(3) and Q(6)	Q	1, 2	I
B. Low	S	D(2), M(3) and Q(6)	S/U(10)	2	
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2	I
4. Power Range, Neutron Flux, High Negative Rate	N.A	R(6)	Q	1, 2	I
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(10)	1, 2 and *	I
6. Source Range, Neutron Flux	S(7)	R(6)	Q and S/U(10)	2, 3, 4, 5, and *	I
7. Overtemperature ΔT	S	R	Q	1, 2	
8. Overpower ΔT	S	R	Q	1, 2	
9. Pressurizer Pressure--Low	S	R	Q	1	
10. Pressurizer Pressure--High	S	R	Q	1, 2	
11. Pressurizer Water Level--High	S	R	Q	1	
12. A. Loss of Flow - Single Loop	S	R	Q	1	
B. Loss of Flow - Two Loops	S	R	N.A.	1	

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
13. Steam Generator Water Level--Low-Low	S	R	Q	1, 2
14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	Q	1, 2
15. Undervoltage - Reactor Coolant Pumps	N.A.	R	Q	1
16. Underfrequency - Reactor Coolant Pumps	N.A.	R	Q	1
17. Turbine Trip				
A. Low Auto Stop Oil Pressure	N.A.	R	S/U(9)(10)	N.A.
B. Turbine Throttle Valve Closure	N.A.	R	S/U(9)(10)	N.A.
18. Safety Injection Input from ESF	N.A.	N.A.	R(4)	1, 2
19. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	1
20. Reactor Trip System Interlocks	N.A.	R	S/U(8)	1
21. Reactor Trip Breaker	N.A.	N.A.	M(5)(14)(15), S/U(1)(14)(15)	1, 2, 3*, 4*, 5*
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2, 3*, 4*, 5*
23. Reactor Trip Bypass Breaker	N.A.	N.A.	(13), R(11)	1, 2, 3*, 4*, 5*

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure--High	3	2	2	1, 2, 3	19*
d. Pressurizer Pressure--Low	3	2	2	1, 2, 3#	19*
e. Differential Pressure Between Steam Lines--High				1, 2, 3	
Three Loops Operating	3/steam line	2/steam line twice and 1/3 steam lines	2/steam line		19*
Two Loops Operating	3/operating steam line	2###/steam line twice in either operating steam line	2/operating steam line		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
f. Steam Line Pressure--Low				1, 2, 3##	
Three Loops Operating	1 pressure/ loop	1 pressure any 2 loops	1 pressure any 2 loops		19*
Two Loops Operating	1 pressure/ loop	1### pressure in any operating loop	1 pressure any operating loop		15
2. CONTAINMENT SPRAY					
a. Manual	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure--High-High-High	4	2	3	1, 2, 3	16

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4. STEAM LINE ISOLATION					
a. Manual	1/steam line	1/steam line	1/operating steam line	1, 2**, 3**	22
b. Automatic Actuation Logic	2	1	2	1, 2**, 3**	21
c. Containment Pressure--High-High	3	2	2	1, 2**, 3**	19*
d. Steam Flow in Two Steam Lines--High				1, 2**, 3**	
Three Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		19*
Two Loops Operating	2/operating steam line	1###/any operating steam line	1/operating steam line		15
COINCIDENT WITH T_{avg}--Low-Low				1, 2**, 3**	
Three Loops Operating	1 T_{avg}/loop	1 T_{avg} any 2 loops	1 T_{avg} any 2 loops		19*
Two Loops Operating	1 T_{avg}/operating loop	1### T_{avg} in any operating loop	1 T_{avg} in any operating loop		15

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
e. Steam Line Pressure--Low				1, 2**, 3##,**	
Three Loops Operating	1 pressure/loop	1 pressure any 2 loops	1 pressure any 2 loops		19*
Two Loops Operating	1 pressure/operating loop	1### pressure in any operating loop	1 pressure any operating loop		15
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water Level--High-High	3/loop	2/loop in any operating loop	2/loop in each operating loop	1, 2	19*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. AUXILIARY FEEDWATER					
a. Automatic Actuation Logic	2	1	2	1, 2, 3	21
b. Stm. Gen. Water Level--Low-Low					
i. Start Motor-Driven Pumps	3/stm. gen.	2/stm. gen. any stm. gen.	2/stm. gen.	1, 2, 3	19*
ii. Start Turbine-Driven Pumps	3/stm. gen.	2/stm. gen. any 2 stm. gen.	2/stm. gen.	1, 2, 3	19*
c. Undervoltage-RCP Start Turbine-Driven Pump	3-2/bus	2	2	1	19
d. S.I. Start Motor-Driven Pumps	See 1 above (all S.I. initiating functions and requirements)				
e. Trip of Main Feedwater Pumps Start Motor-Driven Pumps	2/pump	1/pump	1/pump	1	23*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	24*
b. Grid Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	24*
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS					
a. Pressurizer Pressure, P-11	3	2	2	1, 2, 3	20
b. Low-Low T_{avg}, P-12	3	2	2	1, 2, 3	20
c. Steam Generator Level, P-14	(See 5.a above)				
d. Reactor Trip, P-4	2	1	2	1, 2, 3	13

TABLE 3.3-3 (Continued)

TABLE NOTATION

Trip function may be bypassed in this MODE below the P-11 (Pressurizer Pressure Block of Safety Injection) setpoint.

Trip function may be bypassed in this MODE below P-12 (T_{avg} Block of Safety Injection) setpoint.

The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

* The provisions of Specification 3.0.4 are not applicable.

** Not applicable if main steam isolation valves are closed.

ACTION STATEMENTS

ACTION 13 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 14 - Deleted.

ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel associated with an operating loop may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION 18 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 19 - With the number of OPERABLE Channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.2.1.

ACTION 20 - With the interlock inoperable to the extent that a safeguards function which should not be blocked in the current MODE is blocked, declare the safeguard function(s) inoperable and follow the appropriate ACTION statement(s) of Table 3.3-3 for the affected function(s).

Interlock		Affected Channels on Table 3.3-3
1.	P-11	a. Pressurizer Pressure--Low
2.	P-12	a. Steam Line Pressure--Low b. Steam Flow in Two Steam Lines High Coincident with T_{avg}--Low-Low

ACTION 21 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing provided the other channel is OPERABLE.

ACTION 22 - With the number of OPERABLE Channels one less than the Total Number of Channels restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

ACTION 23 - With the number of OPERABLE Channels one less than the Minimum Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST.

ACTION 24 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The Minimum Channel OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels per Specification 4.3.2.1.

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION				
a. Manual Initiation	N.A.	N.A.	R(1)	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
c. Containment Pressure--High	S	R	Q	1, 2, 3
d. Pressurizer Pressure--Low	S	R	Q	1, 2, 3
e. Differential Pressure Between Steam Lines--High	S	R	Q	1, 2, 3
f. Steam Line Pressure--Low	S	R	Q	1, 2, 3
2. CONTAINMENT SPRAY				
a. Manual Initiation	N.A.	N.A.	R(1)	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
c. Containment Pressure--High-High-High	S	R	Q	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
3. CONTAINMENT ISOLATION					
a. Phase "A" Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) From Safety Injection Automatic Actuation Logic	N.A	N.A.	M(2)	1, 2, 3, 4	
b. Phase "B" Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	
3) Containment Pressure--High-High-High	S	R	Q	1, 2, 3	|
c. Purge and Exhaust Isolation					
1) Manual	N.A.	N.A.	R(1)	1, 2, 3, 4	|
2) Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4	

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
4. STEAM LINE ISOLATION				
a. Manual	N.A.	N.A.	R(1)	1, 2, 3
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3
c. Containment Pressure--High-High	S	R	Q	1, 2, 3
d. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low	S	R	Q	1, 2, 3
e. Steam Line Pressure--Low	S	R	Q	1, 2, 3
5. TURBINE TRIP AND FEEDWATER ISOLATION				
a. Steam Generator Water Level--High-High	S	R	Q	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
6. AUXILIARY FEEDWATER				
a. Automatic Actuation Logic	N.A.	N.A.	M(2)(6)	1, 2, 3
b. Steam Generator Water Level--Low-Low	S	R	Q	1, 2, 3
c. Undervoltage - RCP	N.A.	R	Q	1
d. S.I.	See 1 above (all SI surveillance requirements)			
e. Trip of Main Feedwater Pumps	N.A.	N.A.	S/U(5)	1
7. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	N.A.	R(3)	M(4)	1, 2, 3, 4
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	N.A.	R(3)	M(4)	1, 2, 3, 4
8. ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INTERLOCKS	N.A.	R	N.A.	N.A.

TABLE 4.3-2 (Continued)

TABLE NOTATION

ctuation switches shall be tested at least once per 18 months hutdown.

(1)

in or logic channel shall be tested at least every 62 days on RED TEST BASIS.

(2)

calibration shall exclude actuation of the final trip actuation

ıal testing shall consist of verification of relay operation moval of input voltage and operation of 2-out-of-3 logic ng the final trip actuation relay.*

performed in the previous 92 days.

ng automatic actuation logic for trip of main feedwater pumps.

*Actuation of the final trip actuation relay shall be included in response time testing.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip and Engineered Safety Feature Actuation System instrumentation and interlocks ensures that 1) the associated Engineered Safety Feature Actuation action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its setpoint, 2) the specified coincidence logic and sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance consistent with maintaining an appropriate level of reliability of the Reactor Trip System and Engineered Safety Feature Actuation System instrumentation and, 3) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses. The surveillance requirements specified for these systems ensure that the overall system functional capa- bility is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and supplements to that report as approved by the NRC and documented in the SERs and SSER (letters to J. J. Sheppard from Cecil O. Thomas dated February 21, 1985; Roger A. Newton from Charles E. Rossi dated February 22, 1989; and Gerard T. Goering from Charles E. Rossi dated April 30, 1990).

The Engineered Safety Feature Actuation System interlocks perform the functions indicated below on increasing the required parameter, consistent with the setpoints listed in Table 3.3-4:

P-11 Defeats the manual block of safety injection actuation on low pressurizer pressure.

P-12 Defeats the manual block of safety injection actuation on low steam line pressure.

P-14 Trip of all feedwater pumps, turbine trip, closure of feedwater isolation valves and inhibits feedwater control valve modulation.

On decreasing the required parameter the opposite function is performed at reset setpoints, with the exception of P-12 as noted below:

P-12 Allows manual block of safety injection actuation on low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks (i.e., prevents premature block of the noted function).

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NO. NPF-2

AND AMENDMENT NO. 99 TO FACILITY OPERATING LICENSE NO. NPF-8

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-348 AND 50-364

1.0 INTRODUCTION

By letter dated October 14, 1993, Southern Nuclear Operating Company, Inc. (the licensee), submitted a request for changes to the Joseph M. Farley Nuclear Plant, Units 1 and 2, Technical Specifications (TS). The requested changes would incorporate changes allowing longer surveillance test intervals (STIs) and allowed outage times (AOTs) for the reactor trip system (RTS) and engineered safety features actuation system (ESFAS) instrumentation.

2.0 BACKGROUND

Operating utilities have become increasingly aware of the effects of current surveillance test intervals (STI) and maintenance requirements on plant operation. Inadvertent reactor trips have occurred that could be attributed to human errors during performance of these activities. Human errors were found to be directly proportional to the frequency of surveillance tests (STs) and inversely proportional to the time allowed for an inoperable channel to remain in a bypassed condition before repairs could be made. Thus, a greater frequency of STIs and shorter AOTs were, in part, contributing to the number of inadvertent trips and challenges to safety systems.

To resolve the above concerns, the Westinghouse Owners Group (WOG) initiated a program to evaluate the effect of such undesirable events and proposed TS changes to increase STIs and AOTs to minimize the number of inadvertent trips and challenges to the safety systems while maintaining the benefits of routine tests and maintenance activities to ensure the reliability of the RTS and ESFAS instruments.

3.0 PRE-APPROVED REVISIONS AND ASSOCIATED CONDITIONS

The WOG published results of its study and proposals for remedial actions in 1983 in the original WCAP-10271. This document was later revised several times in response to NRC's comments and the current version of WCAP-10271, Supplement 2, Revision 1, was published on May 12, 1987. The staff reviewed all versions of WCAP-10271 including WOG's responses to staff's questions on these submittals. During this review, the NRC staff engaged the services of Brookhaven National Laboratory (BNL) to evaluate the approach used and the

analyses performed in the WOG reports. BNL determined the adequacy of WOG's methodology to establish technical bases for unavailability data, reliability calculations, and proposed STI/AOT extensions. After the NRC staff and BNL staff had completed their review the NRC issued three safety evaluation reports (SERs): RTS SER on February 21, 1985, ESFAS SER on February 22, 1989, and a supplemental SER (SSER) on April 30, 1990. These SERs approved various TS changes relating to extending STIs, test/maintenance AOTs, and bypass time for instrument channels in RTS, ESFAS, and the logic cabinets for these systems. In the SERs, the NRC staff approved extensions to STIs/AOTs as well as to the time during which the instrument channels could be bypassed. However, the staff stipulated certain conditions that licensees must meet to include these pre-approved changes in plant-specific TS. The pre-approved changes and associated conditions are addressed below.

3.1 Pre-Approved Changes

As mentioned above, the NRC staff stipulated certain conditions to be met before the approved TS changes to RTS, ESFAS and logic cabinets of these systems could be made in any plant-specific TS. The pre-approved TS changes are described below and the associated conditions are described in section 3.2 of this report.

3.1.1. SER issued on February 21, 1985, (RTS SER).

In this SER the staff approved the following TS changes relating to RTS instruments:

(1) STI for RTS analog channel operational testing may be increased from once a month to once per quarter.

(2) The duration for which an inoperable RTS analog channel may be maintained in an untripped condition may be increased from 1 hour to 6 hours.

(3) The duration for which an inoperable RTS channel may be bypassed to allow testing of another channel in the same function may be increased from 2 hours to 4 hours. Also, the channel test may be done in the bypass mode, leaving the inoperable channel in a tripped condition.

(4) Testing of RTS analog channels in a bypassed condition instead of a tripped condition will be allowed.

3.1.2. SER issued on February 22, 1989, (ESFAS SER).

In this SER, the staff approved the following TS changes relating to ESFAS instruments:

(1) The STIs for the ESFAS analog channels operational testing may be increased from 1 month to 3 months.

(2) The AOTs for testing of ESFAS analog channels may be increased from 2 hours to 4 hours for both relays and solid state systems.

(3) The AOTs for testing all components may be up to 4 hours in solid state systems.

(4) In relay systems, the AOTs for testing of ESFAS the logic trains and master relays could be increased to 8 hours and for the slave relays to 12 hours.

(5) The AOTs for maintenance on all ESFAS components may be extended to 12 hours for both relays and solid state systems. All components except the analog channels can be in the bypass mode during maintenance AOT, with an analog channel tripped after 6 hours in the bypass mode. Therefore, the maximum duration for which an inoperable ESFAS analog channel could be in an untripped condition is 6 hours.

(6) Staggered testing is not required for analog channels in the ESFAS and this requirement may be removed for analog channels in RTS.

3.1.3. Supplemental SER issued on April 30, 1990 (SSER).

In this SSER, the staff approved proposed STI/AOT extensions for the logic cabinets and reactor trip breakers for the RTS based on its evaluation of Appendix D to WCAP-10271, Supplement 2, Revision 1. The RTS and ESFAS share some common instrumentation; therefore, it was necessary to consider STI/AOT extensions for RTS logic cabinets. The staff's conclusions are given below.

(1) The AOT extensions for the RTS logic cabinets as presented in Appendix D are acceptable. The new AOTs are 4 hours for testing and 12 hours for maintenance instead of 2 hours and 6 hours respectively.

(2) The STI/AOT extensions (covered by the ESFAS SER) for ESFAS functions associated with the Safety Injection, Steam Line Isolation, Main Feedwater Isolation, and Auxiliary Feedwater Pump Start Signals are acceptable.

(3) The STI/AOT extensions proposed in Appendix D are not acceptable for reactor trip breakers because the extensions would inappropriately reduce availability of these breakers.

3.2 Associated Conditions for Approval

3.2.1 RTS SER TS Changes.

(1) Performance of testing shall be done on a staggered basis. (This condition was later removed by the ESFAS SER.)

(2) Procedures should be implemented to evaluate test-failures for common cause effects and additional testing should be performed if necessary.

(3) Approval of routine RTS channel testing (items 3.1.1.(3) and (4) above) in a bypassed condition assumes that the plant design allows such testing without lifting any leads or installing temporary jumpers.

(4) The approved revisions to the RTS TS as described above in items 3.1.1(1) through (4), also apply to the reactor coolant pump undervoltage and underfrequency functional units.

(5) For RTS channels which provide dual inputs to other safety related systems such as ESFAS, the approval of items 3.1.1(1) through (4) above applies only to RTS functions. However, the STI and AOT extensions approved in the ESFAS SER and SSER for ESFAS analog channels are now the same as the RTS STI and AOT extensions. Therefore, this condition is no longer required.

(6) Increased STI could change the margin in the analog channel setpoint, therefore, approval of an increased STI is contingent on confirmation by the licensee that their setpoint methodology includes sufficient margin to offset any anticipated additional drift as a result of less frequent surveillance.

3.2.2 ESFAS SER TS Changes:

(1) The licensee must confirm the applicability of the generic analyses to their plant.

(2) The licensee must confirm that any increase in instrument setpoint drift due to the extended STIs is properly accounted for in the setpoint calculation methodology.

3.2.3 SSER TS changes:

(1) Acceptance of item 3.1.3.(1) is contingent on including a separate new action statement for modes 1 and 2 for RTS Automatic Trip and Interlock Logic Functional Units. The model Action Statement given below is in the format of Westinghouse Standard Technical Specifications, Revision 4, Table 3.3-1.

ACTION 12 - With the number of OPERABLE Channels (analog channels and trip logic) one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

4.0 EVALUATION OF PROPOSED REVISIONS

The staff evaluated the licensee's proposed TS changes to verify that they are consistent with the pre-approved changes and that the licensee has met the conditions associated with those changes.

4.1 Verification that Proposed Changes are consistent with the Pre-approved Changes

4.1.1 Table 4.3-1, Reactor Trip System Instrumentation Surveillance Requirements

(1) Proposed change: (Units 1 and 2) Functional Units 2.A, 3, 4, 6, 7, 8, 9, 10, 11, 12.A, 13, 14, 15, and 16. Change CHANNEL FUNCTIONAL TEST frequencies from monthly to quarterly.

Evaluation: The existing STI for these RTS Functional Units of TS Table 4.3-1 is monthly. The revision to Table 4.3-1 changes the STI for these Functional Units from monthly to quarterly.

The above change is consistent with the pre-approved changes described in Section 3.1.1.(1) of this report, and is therefore, acceptable.

(2) Proposed change: (Units 1 and 2) Functional Units 5 (Intermediate Range Neutron Flux), 6 (Source range Neutron Flux) and 17.A & B (Turbine Trips). Revise the Channel Functional Test requirement for surveillance to be performed during STARTUP if not performed during the previous 31 days rather than the previous 7 days.

Evaluation: These Functional Units are used only during start up. During discussions with the licensee, the licensee informed the staff that although drift was considered for calculating the trip setpoint, it was not considered in the calculation of margin for the functional test acceptance criteria of Functional Units 5 and 6. This is conservative because by not considering drift, the test acceptance margin is narrow. This is acceptable to the staff. For Functional Units 17.A & B (Turbine Trips), the functional test includes only a test of logic functions excluding the transmitter. Therefore, drift of the transmitter was not considered. This is acceptable to the staff.

(3) Proposed change: (Units 1 and 2) Functional Unit 17.A (Turbine Trip - Low Auto Stop Oil Pressure) and 17.B (Turbine Throttle Valve Closure). Change CHANNEL CALIBRATION frequency from N.A. (Not Applicable) to R (Refueling outage).

Evaluation: For these Functional Units, the existing TS does not have any requirements for CHANNEL CALIBRATION. The WCAP-10271 analysis assumed that the Channel for the "Turbine Trip-Reactor Trip" function would be calibrated once in each cycle. Therefore, to apply results of WCAP-10271, it is necessary to perform CHANNEL CALIBRATION of these Functional Units once in each cycle. Changing CHANNEL CALIBRATION frequency from N.A. to R (once in every refueling outage) is consistent

with the assumptions made in the WCAP-10271 and, therefore, is acceptable to the staff.

(4) Proposed change: (Units 1 and 2) Functional Unit 18 (Safety Injection Input from ESF). Change CHANNEL FUNCTIONAL TEST frequency from M(4)(monthly with note 4 applying) to R (Refueling outage).

Evaluation: The existing TS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST to be performed once every month with Note 4 applying which states, "Manual ESF functional input check every 18 months". The manual ESF input signal is provided by main control board hand switches. These switches can only be tested during plant shutdown conditions. The proposed revision clarifies what testing is required and when it should be performed and is, therefore, acceptable to the staff.

4.1.2 Table 3.3-1, Reactor Trip System Instrumentation Allowable Outage Time Requirements

(1) Proposed change: (Units 1 and 2) Increase in the time that an inoperable RTS channel may be maintained in an untripped condition from 1 hour to 6 hours (ACTIONS 2, 7, and 11).

Evaluation: The revised ACTION statement requires the inoperable channel to be placed in the tripped condition within 6 hours. Thus, the time for putting the inoperable channel in the tripped condition is extended from 1 hour to 6 hours. This proposed change is acceptable to the staff because it is consistent with the pre-approved change as described in Section 3.1.1.(2) of this report.

(2) Proposed Change: (Units 1 and 2) Increase the time that an inoperable RTS channel may be bypassed to allow testing of another channel in the same function from 2 hours to 4 hours (ACTIONS 2, 7, 9, and new ACTION 15).

Evaluation: The revision to the ACTION statements allows the inoperable channel to be placed in a bypassed status up to 4 hours instead of 2 hours for surveillance testing of other channels in the same function per Specification 4.3.1.1.1. This is acceptable to the staff, because it is consistent with the pre-approved changes described in Section 3.1.1.(3) of this report.

(3) Proposed change: (Units 1 and 2) Functional Units 18 (Safety Injection Input from ESF) and 22 (Automatic Trip Logic) replace ACTION 1 with ACTION 15. The new ACTION 15 will allow 6 hours to restore an inoperable channel to operable status before requiring action to be taken to achieve HOT STANDBY. Revise ACTION 9 and ACTION 10 to allow 6 hours (instead 2 hours according to the existing statement for these ACTIONS) to restore the inoperable channel to operable status before requiring action to be taken to achieve HOT STANDBY.

Evaluation: For Functional Units 18 and 22, if the number of OPERABLE channels is one less than the minimum Channels OPERABLE required, the

existing Action 1 requires the plant to be in HOT STANDBY within 6 hours, however, one channel may be bypassed for up to 2 hours for surveillance test per specification 4.3.1.1. The new ACTION 15 allows 6 hours to restore the inoperable channel to OPERABLE status before requiring shutdown to HOT STANDBY within next 6 hours, and allows bypassing one channel up to 4 hours instead of 2 hours for surveillance testing per Specification 4.3.1.1 provided the other channel is OPERABLE. The above change is acceptable to the staff because it is consistent with the pre-approved change as described in Section 3.2.3.(1) of this report.

The revised Action statement for ACTIONs 9 and 10 will allow the inoperable channel to be restored to OPERABLE status within 6 hours instead of 2 hours per the existing action statement. This is acceptable to the staff because it is consistent with the pre-approved change as described in Section 3.2.3.(1) of this report.

(4) Proposed change: (Units 1 and 2) Functional Unit 17.B (Turbine Throttle Valve Closure). Replace ACTION 7 with revised ACTION 6.

Evaluation: For RTS Functional Unit 17.B, if the number of OPERABLE channels is one less than the total number of channels required, the existing ACTION 7 allows STARTUP and/or POWER OPERATION to proceed until performance of the next required CHANNEL FUNCTIONAL TEST, provided the inoperable channel is placed in the tripped position within 1 hour. The revised ACTION 6 requires the inoperable channel to be placed in the tripped condition within 6 hours instead of 1 hour. The above change is consistent with the pre-approved change as described in Sections 3.1.1.(2) of this report, and, therefore is acceptable to the staff.

(5) Proposed changes: (Units 1 and 2) Revise the action-statement for existing ACTION 7 to delete the provision that STARTUP and/or POWER OPERATION may continue until the next CHANNEL FUNCTIONAL TEST. Add the requirement that the minimum number of operable channels must be met.

Evaluation: The existing ACTION 7 allows startup and/or power operation to proceed until performance of the next required CHANNEL FUNCTIONAL TEST, provided the inoperable channel is placed in the tripped position within 1 hour.

The revised ACTION 7 states that with the number of OPERABLE channels one less than the Total Number of Channels, startup and/or power operation may proceed indefinitely provided:

a. The inoperable channel is placed in the tripped condition within 6 hours, and
b. With the requirement for the minimum number of channels OPERABLE met, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of the other channels per Specification 4.3.1.1.

Thus, the time for putting the inoperable channel in the tripped condition is extended from 1 hour to 6 hours, and bypassing the

inoperable channel for up to 4 hours is allowed while the other channels are being tested. The above change is consistent with the pre-approved changes as described in Sections 3.1.1.(2), and 3.1.1.(3) of this report and, therefore, is acceptable to the staff.

(6) Proposed change: (Units 1 and 2) Functional Unit 17.B (Turbine Trip on Turbine Throttle Valve Closure). Change the requirement for number of MINIMUM CHANNELS OPERABLE from 4 to 1.

Evaluation: This Functional Unit has a total of 4 channels, and by design, all 4 channels are required to satisfy the RTS Turbine Throttle Valve Closure reactor trip logic. This is a diverse trip function, i.e., the turbine trip/reactor trip function is not credited as a primary trip in the accident analyses. The existing TS requires that the minimum number of channels operable shall be 4, and stipulates that an inoperable channel must be placed in the "tripped" status, but does not have any provisions should a second channel become inoperable. In such a case, shutdown of the affected unit will be required. By implementing the proposed Minimum Channels Operable requirement of 1 channel in accordance with ACTION 6, plant operation can continue provided any failed channel is placed in the tripped condition within 6 hours. In case more than one channel becomes inoperable, plant shutdown will not be required, thereby, maximizing operating flexibility of the plant and maintaining consistency with the design basis. Therefore, this change is acceptable to the staff.

4.1.3 Table 4.3-2, Engineered Safety Feature Actuation System Instrumentation Surveillance Requirements

(1) Proposed change: (Units 1 and 2) Functional Units 1.c, 1.d, 1.e, 1.f, 2.c, 3.b.3, 4.c, 4.d, 4.e, 5.a, 6.b, and 6.c. Change CHANNEL FUNCTIONAL TEST frequencies from monthly to quarterly.

Evaluation: Existing STI for these ESFAS Functional Units of TS Table 4.3-2 is monthly. The revision to Table 4.3-2 changes the STI for these Functional Units from monthly to quarterly. The above change is acceptable to the staff because it is consistent with the pre-approved changes described in Section 3.1.2.(1) of this report.

(2) Proposed change: (Units 1 and 2) Functional Unit 8 (Engineered Safety Feature Actuation System Interlocks). Change frequency for CHANNEL CALIBRATION from N.A. (Not Applicable) to R (Refueling outage), and for CHANNEL FUNCTIONAL TEST from R (Refueling outage) to N.A. (Not Applicable).

Evaluation: The existing TS requires a CHANNEL FUNCTIONAL TEST to be performed during each refueling outage and does not require CHANNEL CALIBRATION. Revised TS will require CHANNEL CALIBRATION during each refueling outage and no CHANNEL FUNCTIONAL TEST. Because, by definition, a CHANNEL CALIBRATION includes the performance of a CHANNEL FUNCTIONAL TEST, no test requirements are being changed. This change is

only a clarification to the TS, and, therefore, is acceptable to the staff.

(3) Proposed change: (Units 1 and 2) Functional Units 1.a, 2.a, 3.a.1, 3.b.1, 3.c.1, and 4.a. Change CHANNEL FUNCTIONAL TEST frequency from M(1)(monthly with footnote 1 applying) to R(1) (Refueling outage with footnote 1 applying). Revise footnote (1) which currently states: "Manual actuation switches shall be tested at least once per 18 months during shutdown. All other circuitry associated with manual safeguards actuation shall receive a CHANNEL FUNCTIONAL TEST at least once per 31 days," to "Manual actuation switches shall be tested at least once per 18 months during shutdown."

Evaluation: These Functional Units are for manual initiation of ESF functions and are tested by actuation of main control board hand switches. The existing TS requires that CHANNEL FUNCTIONAL TEST for these Functional Units to be done once every month with footnote 1 applying. As indicated by the footnote 1, these switches can only be functionally tested during plant shutdown conditions. The existing TS requirement creates confusion which is clarified by changing the STI for these Functional Units from monthly to once each refueling outage. The statement in footnote note 1; "All other circuitry associated with manual safeguards actuation shall receive a CHANNEL FUNCTIONAL TEST at least once per 31 days," is removed because it is not applicable to Farley Units 1 and 2. This is because all other circuits which are associated with manual safeguards actuation are part of the automatic actuation logic which is tested on a staggered bi-monthly basis. The proposed change clarifies what testing is required and when it should be performed and, therefore, is acceptable to the staff.

4.1.4 Table 3.3-3, Engineered Safety Feature Actuation System Instrumentation Allowable Outage Time Requirements

(1) Proposed change: (Units 1 and 2) Increase in the time that an inoperable ESFAS channel may be maintained in an untripped condition from 1 hour to 6 hours (ACTION 19, and new ACTION 24).

Evaluation: The revised ACTION statement requires an inoperable channel to be placed in the tripped condition within 6 hours. Thus, the time for putting the inoperable channel in the tripped condition is extended from 1 hour to 6 hours. This proposed change is consistent with the pre-approved change as described in Sections 3.1.2.(5) of this report and is, therefore, acceptable to the staff.

(2) Proposed Change: (Units 1 and 2) Increase the time that an inoperable ESFAS channel may be bypassed to allow testing of another channel in the same function from 2 hours to 4 hours (ACTIONS 13, 15, 16, 19, and 21).

Evaluation: The revision to the ACTION statements allows the inoperable channel to be placed in a bypassed status for up to 4 hours instead of 2 hours for surveillance testing "of other channels" in the same function per Specification 4.3.1.1. The proposed change is consistent with the

pre-approved changes described in Sections 3.1.2.(2) of this report and is, therefore, acceptable to the staff.

(3) Proposed change: (Units 1 and 2) Revision to ACTIONs 13, 15 and 21 to allow 6 hours to restore an inoperable channel to OPERABLE status before requiring shutdown to HOT STANDBY within the next 6 hours.

Evaluation: If the number of operable channels is one less than the minimum number of Channels OPERABLE required, existing ACTIONs 13, 15, and 21 require the plant to be in HOT STANDBY within 6 hours. The revised action-statement allows 6 hours to restore the inoperable channel to OPERABLE status before requiring shutdown to HOT STANDBY within the next 6 hours. The above change is consistent with the pre-approved change as described in Section 3.2.3.(1) of this report and is, therefore, acceptable to the staff.

(4) Proposed change: (Units 1 and 2) Addition of new ACTION 24 to allow STARTUP and/or POWER OPERATION to proceed when the number of OPERABLE channels is one less than the Total Number of Channels provided certain conditions are met. New ACTION 24 is applicable to Functional Units 7.a (Loss of Power - 4 KV Bus Loss of Voltage) and 7.b (Loss of Power - Degraded Grid Voltage), in place of ACTION 19.

Evaluation: The new ACTION 24 statement requires an inoperable channel to be placed in the tripped condition within 6 hours, instead of within 1 hour as was stipulated by ACTION 19. The statement of ACTION 24 allowing bypassing of the inoperable channel for 2 hours for surveillance testing of other channels, provided the minimum number of channels OPERABLE requirement is met, is similar to the statement of the existing ACTION 19. The proposed change is consistent with the pre-approved change as described in Sections 3.1.2.(5) of this report and is, therefore, acceptable to the staff.

(5) Proposed change: (Units 1 and 2) Delete ACTION 14 which is no longer used.

Evaluation: Functional Units which were previously covered under ACTION 14 are now applied to other ACTIONS. Deletion of ACTION 14 is an editorial change and, therefore, acceptable to the staff.

(6) Proposed change: (Units 1 and 2) Functional Unit 4.c (Steam Line Isolation-Containment Pressure High-High). Change number of MINIMUM CHANNELS OPERABLE from 3 to 2.

Evaluation: Revising the number of MINIMUM CHANNELS OPERABLE from 3 to 2 corrects a previous TS error. By design, any 2 out of 3 channels are required to trip to satisfy the ESFAS Containment Pressure-High-High actuation logic; therefore, two channels are required to be operable as a minimum, provided that a failed channel is placed in trip. ACTION 19 which is applicable to this Functional Unit requires the inoperable channel to be placed in a tripped condition. This is an editorial change and, therefore, is acceptable to the staff.

4.2 Verification Of Conditions

In the TS change submittal, the licensee confirmed that the conditions identified by the staff in the generic SERs to be satisfied have been met as described below.

(1) Condition 3.2.1.(1): Testing on a staggered basis was originally stipulated in the RTS SER for RTS channels changed to the quarterly test frequency. However, this requirement was later removed in the ESFAS SER. The licensee stated that since the extended RTS surveillance frequencies and test maintenance times have never been requested for Farley, this condition is not applicable to the Farley units. This is acceptable to the staff.

(2) Condition 3.2.1.(2): The RTS SER required implementation or confirmation of plant procedures that identify/evaluate common cause RTS channel failures and specify additional testing for plausible common cause failures. The licensee stated that its existing plant procedures require RTS/ESFAS failures to be evaluated for common cause. The evaluation considers other RTS/ESFAS channels which may be impacted by the identified failure mechanism. Corrective action includes additional requirements to test other channels, if necessary. This is consistent with the RTS SER condition, and is acceptable to staff.

(3) Condition 3.2.1.(3): The RTS SER stipulated that approval of routine channel testing in a bypassed condition is contingent on the capability of the RTS design to allow such testing without lifting leads or installing temporary jumpers. The licensee stated that in the existing design configuration at Farley, the nuclear instrumentation system source range high flux, the intermediate range high flux reactor trip signals and the containment pressure high-high containment spray actuation signal incorporate a bypass testing hardware feature. The licensee does not plan to implement routine testing in bypass of RTS/ESFAS functions other than the above functions, and therefore, no lifting of leads or jumpers are necessary. This is consistent with the RTS SER condition, and is acceptable to the staff.

(4) Condition 3.2.1.(5): The RTS SER states that approval to extend the STI and AOT for channels that provide dual inputs to other safety related systems such as ESFAS, applies to the RTS function only. The licensee stated that since the extensions generically approved for the ESFAS analog channels are now the same as for the RTS analog channels, this condition is not applicable to the Farley TS. This is acceptable to the staff.

(5) Condition 3.2.1.(6) and 3.2.2.(2): Approval of increased STIs is contingent on confirmation by the licensee that their setpoint methodology includes sufficient margin to offset the additional drift anticipated as a result of less frequent surveillance. The licensee stated that they have evaluated eighteen months (August 1989 - March 1991) of RTS/ESFAS monthly surveillance test data for Farley, Unit 1 instrument loops to establish drift values. The evaluation concluded

that the assumed rack drift uncertainty allowances used in the Farley specific RTS/ESFAS setpoint study will bound the expected rack drift incurred through quarterly surveillance testing. The staff has reviewed the licensee's data evaluation and finds it consistent with the generic SER condition, and is therefore, acceptable.

(6) Condition 3.2.2.(1): The ESFAS SER states that the licensee must confirm the applicability of the generic analyses to their plant. The licensee stated that the generic analysis used in WCAP-10271 and its supplements is applicable to Farley, Units 1 and 2. Farley is a three loop Westinghouse PWR that uses the Westinghouse 7300 Process Control System and the Westinghouse Solid State Protection System for both RTS and ESFAS. Both of these systems were specifically modelled in the generic analyses. In addition, the reactor coolant pump under frequency and under voltage trips, and turbine trip-reactor trip functional units were included in the generic RTS models. This response is consistent with the generic SER condition, and is therefore, acceptable to the staff.

5.0 SUMMARY

Based on the above, the staff concludes that the proposed TS changes to Farley, Units 1 and 2 RTS and ESFAS surveillance test intervals and allowable outage times are consistent with the staff's previous generic approval and required plant specific conditions, and are therefore, acceptable.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Alabama official was notified of the proposed issuance of the amendment. The State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes Surveillance Requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 17605). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S.V. Athavale

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