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July 5, 1988

Docket No. 50-259/260/296

Posted
Amdt. 150 to DPR-33

Mr. S. A. White
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

S. Black
G. Gears
J. Kelly(2)
GPA/PA
LFMB
E. Butcher

Dear Mr. White:

SUBJECT: DELETION OF ABSOLUTE SURVEILLANCE REQUIREMENTS (TACS 00037, 00038, AND 00039) (TS 238)

Re: Browns Ferry Nuclear Plant, Units 1, 2, and 3

The Commission has issued the enclosed Amendments Nos. 150, 146, and 121 to Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3, respectively. These amendments are in response to your application dated February 24, 1988. The amendments modify Technical Specification Surveillance Requirements 4.7.E.1, 4.7.E.3, 4.7.F.1, 4.9.A.2.c, and 4.11.A.5 to replace the words "not to exceed" with the words "at least once every."

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Original Signed by

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Enclosures:
1. Amendment No. 150 to License No. DPR-33
2. Amendment No. 146 to License No. DPR-52
3. Amendment No. 121 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:
See next page

*SEE PREVIOUS CONCURRENCE

OFC	:OSP:TVA/LA*	OSP:TVA/PE*	:OSP:TVA/PM*	TVA:AD/TP*	:OGC*	:TVA:AD/P
NAME	:MSimms	:JKelly:as	:GGears	:BDLiaw	RBachmann	:SBlack
DATE	:6/21/88	:6/20/88	:6/22/88	:6/23/88	:6/27/88	:7/5/88

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

Docket No. 50-259/260/296

July 5, 1988

Mr. S. A. White
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: DELETION OF ABSOLUTE SURVEILLANCE REQUIREMENTS (TACS 00037, 00038, AND 00039) (TS 238)

Re: Browns Ferry Nuclear Plant, Units 1, 2, and 3

The Commission has issued the enclosed Amendments Nos. 150, 146, and 121 to Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3, respectively. These amendments are in response to your application dated February 24, 1988. The amendments modify Technical Specification Surveillance Requirements 4.7.E.1, 4.7.E.3, 4.7.F.1, 4.9.A.2.c, and 4.11.A.5 to replace the words "not to exceed" with the words "at least once every."

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Enclosures:
1. Amendment No. 150 to License No. DPR-33
2. Amendment No. 146 to License No. DPR-52
3. Amendment No. 121 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:
See next page

Mr. S. A. White
Tennessee Valley Authority

Browns Ferry Nuclear Plant
Units 1, 2, and 3

cc:
General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
E11 B33
Knoxville, Tennessee 37902

Mr. R. L. Gridley
Tennessee Valley Authority
5N 157B Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. H. P. Pomrehn
Tennessee Valley Authority
Browns Ferry Nuclear Plant
P.O. Box 2000
Decatur, Alabama 35602

Mr. M. J. May
Tennessee Valley Authority
Browns Ferry Nuclear Plant
P.O. Box 2000
Decatur, Alabama 35602

Mr. D. L. Williams
Tennessee Valley Authority
400 West Summit Hill Drive
W10 B85
Knoxville, Tennessee 37902

Chairman, Limestone County Commission
P.O. Box 188
Athens, Alabama 35611

Claude Earl Fox, M.D.
State Health Officer
State Department of Public Health
State Office Building
Montgomery, Alabama 36130

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

Resident Inspector/Browns Ferry NP
U.S. Nuclear Regulatory Commission
Route 12, Box 637
Athens, Alabama 35611

Dr. Henry Myers, Science Advisor
Committee on Interior
and Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 150
License No. DPR-33

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 24, 1988, 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 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. DPR-33 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 150, are hereby incorporated in the license. The licensee 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 150

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-21	3.7/4.7-21
3.7-4.7-22	3.7/4.7-22*
3.9/4.9-3	3.9/4.9-3*
3.9/4.9-4	3.9/4.9-4
3.11/4.11-3	3.11/4.11-3
3.11/4.11-4	3.11/4.11-4*

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E Control Room Emergency Ventilation
1. Except as specified in Specification 3.7.E.3 below, both control room emergency pressurization systems shall be OPERABLE at all times when any reactor vessel contains irradiated fuel.	1. At least once every 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate (± 10%).
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.	2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.
b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity when tested in accordance with ASTM D3803 (130°C, 95% R.H.).	b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
c. System flow rate shall be shown to be within ±10% design flow when tested in accordance with ANSI N510-1975.	c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.
	d. Each circuit shall be operated at least 10 hours every month.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
3. From and after the date that one of the control room emergency pressurization systems is made or found to be INOPERABLE for any reason, reactor operation or refueling operations is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE.	3. At least once every 18 months, automatic initiation of the control room emergency pressurization system shall be demonstrated.
4. If these conditions cannot be met, reactor shutdown shall be initiated and all reactors shall be in Cold Shutdown within 24 hours for reactor operations and refueling operations shall be terminated within 2 hours.	4. During the simulated automatic actuation test of this system (see Table 4.2.G), it shall be verified that the following dampers operate as indicated: Close: FCO-150 B, D, E, and F Open: FCO-151, FCO-152

LIMITING CONDITIONS FOR OPERATION

3.7.F. Primary Containment Purge System

1. The primary containment shall be normally vented and purged through the primary containment purge system. The standby gas treatment system may be used when primary containment purge system is INOPERABLE.

2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.

   b. The results of laboratory carbon sample analysis shall show ≥85% radioactive methyl iodide removal when tested in accordance with ASTM D3803. (130°C 95% R.H.).

   c. System flow rate shall be shown to be within ±10% of design flow when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS

4.7.F. Primary Containment Purge System

1. At least once every 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 8.5 inches of water at system design flow rate (± 10%).

2. a. The tests and sample analysis of Specification 3.7.F.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first or after 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

   b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.

   c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.G. Containment Atmosphere Dilution System (CAD)	4.7.G. Containment Atmosphere Dilution System (CAD)
1. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE with:	1. System Operability
a. Two independent systems capable of supplying nitrogen to the drywell and torus.	a. At least once per month cycle each solenoid operated air/nitrogen valve through at least one complete cycle of full travel and verify that each manual valve in the flow path is open.
b. A minimum supply of 2,500 gallons of liquid nitrogen per system.	b. Verify that the CAD System contains a minimum supply of 2,500 gallons of liquid nitrogen twice per week.
2. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE whenever the reactor mode switch is in the "RUN" position.	2. When FCV 84-8B is INOPERABLE, each solenoid operated air/nitrogen valve of System B shall be cycled through at least one complete cycle of full travel and each manual valve in the flow path of System B shall be verified open at least once per week.
3. If one system is INOPERABLE, the reactor may remain in operation for a period of 30 days provided all active components in the other system are OPERABLE.	

LIMITING CONDITIONS FOR OPERATION

3.9.A. Auxiliary Electrical Equipment

3.9.A.1.c. (Cont'd)

NOTE FOR (3) AND (4):

With no cooling tower pumps or fans running, a cooling tower transformer may be substituted for a common station-service transformer.

SURVEILLANCE REQUIREMENTS

4.9.A. Auxiliary Electrical System

4.9.A.1.b.2.(Cont'd)

permanently connected loads, the auto-connected emergency loads are energized through load sequencing, and the diesel operates for greater than or equal to five minutes while its generator is loaded with the emergency loads.

c. Once a month the quantity of diesel fuel available shall be logged.

d. Each diesel generator shall be given an annual inspection in accordance with instructions based on the manufacturer's recommendations.

e. Once a month a sample of diesel fuel shall be checked for quality. The quality shall be within acceptable limits specified in Table 1 of the latest revision to ASTM D975 and logged.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.A. Auxiliary Electrical Equipment	4.9.A. Auxiliary Electrical System
2. The reactor shall not be started up (made critical) from the hot standby condition unless all of the following conditions are satisfied:	2. DC Power System - Unit Batteries (250-V), Diesel-Generator Batteries (125-V) and Shutdown Board Batteries (250-V)
a. At least one offsite power source is available as specified in 3.9.A.1.c.	a. Every week the specific gravity, voltage and temperature of the pilot cell and overall battery voltage shall be measured and logged.
b. Three units 1 and 2 diesel generators shall be OPERABLE.	b. Every three months the measurement shall be made of voltage of each cell to nearest 0.1 volt, specific gravity of each cell, and temperature of every fifth cell. These measurements shall be logged.
c. An additional source of power consisting of one of the following: (1) A second offsite power source available as specified in 3.9.A.1.c. (2) A fourth OPERABLE units 1 and 2 diesel generator.	c. At least once every 24 months, a battery rated discharge (capacity) test shall be performed and the voltage, time, and output current measurements shall be logged.
d. Requirements 3.9.A.3 through 3.9.A.6 are met.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
area where protection is lost is checked hourly.	
3. If only one high pressure fire pump is OPERABLE, the reactors may remain in operation for a period not to exceed 7 days, provided the requirements of Specification 3.11.A.1.b above are met.	3. Raw Service Water System Testing Item — Frequency Simulated automatic and manual actuation of raw service water pumps and operation of tank level switches. — Once/year
4. If Specification 3.11.A.3 cannot be met, the reactors shall be placed in the Cold Shutdown condition in 24 hours.	4. The high pressure fire protection system pressure shall be logged daily.
5. Removal of any component in the High Pressure Fire System from service for any reason other than testing or emergency operations shall require Plant Manager approval.	5. Principal header and component isolation valves shall be checked open at least once every 3 months.
6. The Raw Service Water storage tank level shall be maintained above level 723'7" by the raw service water pumps.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
7. If Specification 3.11.A.6 cannot be met a fire pump shall be started and run continuously until the raw service water pumps can maintain a raw service water storage tank level above 723'7".	
8. The fire protection water distribution system shall have a minimum capacity of 2664 gpm at 250' head.	
9. The fire protection system shall be capable of supplying the individual loads listed in Table 3.11.A.	
B. CO_2 Fire Protection System	B. CO_2 Fire Protection System
1. The CO_2 Fire Protection System shall be OPERABLE:	1. CO_2 Fire Protection Testing:
a. With a minimum of 8-1/2 tons (0.5 Tank) CO_2 in storage units 1 and 2.	a. Item: Simulated automatic and manual actuation — Frequency: Once/year
b. With a minimum of 3 tons (0.5 Tank) CO_2 storage unit 3.	b. Item: Storage tank pressure and level — Frequency: Checked daily

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 146
License No. DPR-52

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 24, 1988, 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 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. DPR-52 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 146, are hereby incorporated in the license. The licensee 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 146

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-21	3.7/4.7-21
3.7-4.7-22	3.7/4.7-22*
3.9/4.9-3	3.9/4.9-3*
3.9/4.9-4	3.9/4.9-4
3.11/4.11-3	3.11/4.11-3
3.11/4.11-4	3.11/4.11-4*

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
1. Except as specified in Specification 3.7.E.3 below, both control room emergency pressurization systems shall be OPERABLE at all times when any reactor vessel contains irradiated fuel.	1. At least once every 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate (± 10%).
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.	2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.
b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity when tested in accordance with ASTM D3803 (130°C, 95% R.H.).	b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
c. System flow rate shall be shown to be within ±10% design flow when tested in accordance with ANSI N510-1975.	c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.
	d. Each circuit shall be operated at least 10 hours every month.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
3. From and after the date that one of the control room emergency pressurization systems is made or found to be INOPERABLE for any reason, reactor operation or refueling operations is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE.	3. At least once every 18 months, automatic initiation of the control room emergency pressurization system shall be demonstrated.
4. If these conditions cannot be met, reactor shutdown shall be initiated and all reactors shall be in Cold Shutdown within 24 hours for reactor operations and refueling operations shall be terminated within 2 hours.	4. During the simulated automatic actuation test of this system (see Table 4.2.G), it shall be verified that the following dampers operate as indicated: Close: FCO-150 B, D, E, and F Open: FCO-151 FCO-152

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.F. Primary Containment Purge System	4.7.F. Primary Containment Purge System
1. The primary containment shall be normally vented and purged through the primary containment purge system. The standby gas treatment system may be used when primary containment purge system is INOPERABLE.	1. At least once every 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 8.5 inches of water at system design flow rate (± 10%).
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.	2. a. The tests and sample analysis of Specification 3.7.F.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first or after 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.
b. The results of laboratory carbon sample analysis shall show ≥85% radioactive methyl iodide removal when tested in accordance with ASTM D3803. (130°C 95% R.H.).	b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
c. System flow rate shall be shown to be within ±10% of design flow when tested in accordance with ANSI N510-1975.	c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.G. Containment Atmosphere Dilution System (CAD) 1. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE with: a. Two independent systems capable of supplying nitrogen to the drywell and torus. b. A minimum supply of 2,500 gallons of liquid nitrogen per system. 2. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE whenever the reactor mode switch is in the "RUN" position. 3. If one system is INOPERABLE, the reactor may remain in operation for a period of 30 days provided all active components in the other system are OPERABLE.	4.7.G. Containment Atmosphere Dilution System (CAD) 1. System Operability a. At least once per month cycle each solenoid operated air/nitrogen valve through at least one complete cycle of full travel and verify that each manual valve in the flow path is open. b. Verify that the CAD System contains a minimum supply of 2,500 gallons of liquid nitrogen twice per week.

LIMITING CONDITIONS FOR OPERATION

3.9.A. Auxiliary Electrical Equipment

3.9.A.1.c. (Cont'd)

NOTE FOR (3) AND (4):

With no cooling tower pumps or fans running, a cooling tower transformer may be substituted for a common station-service transformer.

SURVEILLANCE REQUIREMENTS

4.9.A. Auxiliary Electrical System

4.9.A.1.b.2.(Cont'd)

permanently connected loads, the auto-connected emergency loads are energized through load sequencing, and the diesel operates for greater than or equal to five minutes while its generator is loaded with the emergency loads.

c. Once a month the quantity of diesel fuel available shall be logged.

d. Each diesel generator shall be given an annual inspection in accordance with instructions based on the manufacturer's recommendations.

e. Once a month a sample of diesel fuel shall be checked for quality. The quality shall be within acceptable limits specified in Table 1 of the latest revision to ASTM D975 and logged.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.A. Auxiliary Electrical Equipment	4.9.A. Auxiliary Electrical System
2. The reactor shall not be started up (made critical) from the hot standby condition unless all of the following conditions are satisfied:	2. DC Power System - Unit Batteries (250-V), Diesel-Generator Batteries (125-V) and Shutdown Board Batteries (250-V)
a. At least one offsite power source is available as specified in 3.9.A.1.c.	a. Every week the specific gravity, voltage and temperature of the pilot cell and overall battery voltage shall be measured and logged.
b. Three units 1 and 2 diesel generators shall be OPERABLE.	b. Every three months the measurement shall be made of voltage of each cell to nearest 0.1 volt, specific gravity of each cell, and temperature of every fifth cell. These measurements shall be logged.
c. An additional source of power consisting of one of the following: (1) A second offsite power source available as specified in 3.9.A.1.c. (2) A fourth OPERABLE units 1 and 2 diesel generator.	c. At least once every 24 months, a battery rated discharge (capacity) test shall be performed and the voltage, time, and output current measurements shall be logged.
d. Requirements 3.9.A.3 through 3.9.A.6 are met.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
area where protection is lost is checked hourly.	
3. If only one high pressure fire pump is OPERABLE, the reactors may remain in operation for a period not to exceed 7 days, provided the requirements of Specification 3.11.A.1.b above are met.	3. Raw Service Water System Testing Item: Simulated automatic and manual actuation of raw service water pumps and operation of tank level switches. Frequency: Once/year
4. If Specification 3.11.A.3 cannot be met, the reactors shall be placed in the Cold Shutdown condition in 24 hours.	4. The high pressure fire protection system pressure shall be logged daily.
5. Removal of any component in the High Pressure Fire System from service for any reason other than testing or emergency operations shall require Plant Manager approval.	5. Principal header and component isolation valves shall be checked open at least once every 3 months.
6. The Raw Service Water storage tank level shall be maintained above level 723'7" by the raw service water pumps.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
7. If Specification 3.11.A.6 cannot be met a fire pump shall be started and run continuously until the raw service water pumps can maintain a raw service water storage tank level above 723'7".	
8. The fire protection water distribution system shall have a minimum capacity of 2664 gpm at 250' head.	
9. The fire protection system shall be capable of supplying the individual loads listed in Table 3.11.A.	
B. CO_2 Fire Protection System	B. CO_2 Fire Protection System
1. The CO_2 Fire Protection System shall be OPERABLE:	1. CO_2 Fire Protection Testing:
a. With a minimum of 8-1/2 tons (0.5 Tank) CO_2 in storage units 1 and 2.	a. Simulated automatic and manual actuation — Once/year
b. With a minimum of 3 tons (0.5 Tank) CO_2 storage unit 3.	b. Storage tank pressure and level — Checked daily

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 121
License No. DPR-68

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 24, 1988, 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 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. DPR-68 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No.146 , are hereby incorporated in the license. The licensee 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 5, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 121

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf pages* are provided to maintain document completeness.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-21	3.7/4.7-21
3.7/4.7-22	3.7/4.7-22*
3.9/4.9-3	3.9/4.9-3*
3.9/4.9-4	3.9/4.9-4
3.11/4.11-3	3.11/4.11-3
3.11/4.11-4	3.11/4.11-4*

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E Control Room Emergency Ventilation
1. Except as specified in Specification 3.7.E.3 below, both control room emergency pressurization systems shall be OPERABLE at all times when any reactor vessel contains irradiated fuel.	1. At least once every 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 6 inches of water at system design flow rate (± 10%).
2. a. The results of the inplace cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.	2. a. The tests and sample analysis of Specification 3.7.E.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first for standby service or after every 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.
b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity when tested in accordance with ASTM D3803 (130°C, 95% R.H.).	b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
c. System flow rate shall be shown to be within ±10% design flow when tested in accordance with ANSI N510-1975.	c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.
	d. Each circuit shall be operated at least 10 hours every month.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
3. From and after the date that one of the control room emergency pressurization systems is made or found to be INOPERABLE for any reason, reactor operation or refueling operations is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE.	3. At least once every 18 months, automatic initiation of the control room emergency pressurization system shall be demonstrated.
4. If these conditions cannot be met, reactor shutdown shall be initiated and all reactors shall be in Cold Shutdown within 24 hours for reactor operations and refueling operations shall be terminated within 2 hours.	4. During the simulated automatic actuation test of this system (see Table 4.2.G), it shall be verified that the following dampers operate as indicated: Close: FCO-150 B, D, E, and F Open: FCO-151, FCO-152

LIMITING CONDITIONS FOR OPERATION

3.7.F. Primary Containment Purge System

1. The primary containment shall be normally vented and purged through the primary containment purge system. The standby gas treatment system may be used when primary containment purge system is INOPERABLE.

2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal when tested in accordance with ANSI N510-1975.

   b. The results of laboratory carbon sample analysis shall show ≥85% radioactive methyl iodide removal when tested in accordance with ASTM D3803. (130°C 95% R.H.).

   c. System flow rate shall be shown to be within ±10% of design flow when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS

4.7.F. Primary Containment Purge System

1. At least once every 18 months the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 8.5 inches of water at system design flow rate (± 10%).

2. a. The tests and sample analysis of Specification 3.7.F.2 shall be performed at least once per operating cycle or once every 18 months, whichever occurs first or after 720 hours of system operation and following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

   b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.

   c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.G. Containment Atmosphere Dilution System (CAD)	4.7.G. Containment Atmosphere Dilution System (CAD)
1. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE with:	1. System Operability
a. Two independent systems capable of supplying nitrogen to the drywell and torus.	a. At least once per month cycle each solenoid-operated air/nitrogen valve through at least one complete cycle of full travel and verify that each manual valve in the flow path is open.
b. A minimum supply of 2,500 gallons of liquid nitrogen per system.	b. Verify that the CAD System contains a minimum supply of 2,500 gallons of liquid nitrogen twice per week.
2. The Containment Atmosphere Dilution (CAD) System shall be OPERABLE whenever the reactor mode switch is in the "RUN" position.	
3. If one system is INOPERABLE, the reactor may remain in operation for a period of 30 days provided all active components in the other system are OPERABLE.	
4. If Specifications 3.7.G.1 and 3.7.G.2, or 3.7.G.3 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.	
5. Primary containment pressure shall be limited to a maximum of 30 psig during repressurization following a loss of coolant accident.	

LIMITING CONDITIONS FOR OPERATION

3.9.A. Auxiliary Electrical Equipment

3.9.A.1.c.(3) (Cont'd)

station-service transformer A or cooling tower transformer 1, and the Trinity line must supply unit 3 through common station-service transformer B or cooling tower transformer 2.

SURVEILLANCE REQUIREMENTS

4.9.A. Auxiliary Electrical System

4.9.A.1.b.(3) (Cont'd)

connected emergency loads are energized through load sequencing, and the diesel operates for greater than or equal to five minutes while its generator is loaded with the emergency loads.

c. Once a month the quantity of diesel fuel available shall be logged.

d. Each diesel generator shall be given an annual inspection in accordance with instructions based on the manufacturer's recommendations.

e. Once a month a sample of diesel fuel shall be checked for quality. The quality shall be within acceptable limits specified in Table 1 of the latest revision to ASTM D975 and logged.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.A. Auxiliary Electrical Equipment	4.9.A. Auxiliary Electrical System
2. The reactor shall not be started up (made critical) from the Hot Standby condition unless all of the following conditions are satisfied:	2. DC Power System - Unit Batteries (250-V), Diesel-Generator Batteries (125-V)and Shutdown Board Batteries (250-V)
a. At least one offsite power source is available as specified in 3.9.A.1.c.	a. Every week the specific gravity, voltage, and temperature of the pilot cell, and overall battery voltage shall be measured and logged.
b. Three units 3 diesel generators shall be OPERABLE.	b. Every three months the measurements shall be made of voltage of each cell to nearest 0.1 volt, specific gravity of each cell, and temperature of every fifth cell. These measurements shall be logged.
c. An additional source of power consisting of one of the following: (1) A second offsite power source available as specified in 3.9.A.1.c. (2) A fourth unit 3 diesel generator OPERABLE.	c. At least once every 24 months, a battery rated discharge (capacity) test shall be performed and the voltage, time, and output current measurements shall be logged.
d. Requirements 3.9.A.3 through 3.9.A.6 are met.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
3.11.A.2. (Cont'd) area where protection is lost is checked hourly.	
3. If only one high pressure fire pump is OPERABLE, the reactors may remain in operation for a period not to exceed 7 days, provided the requirements of Specification 3.11.A.1.b above are met.	3. Raw Service Water System Testing Item: Simulated automatic and manual actuation of raw service water pumps and operation of tank level switches. Frequency: Once/year
4. If Specification 3.11.A.3 cannot be met, the reactors shall be placed in the Cold Shutdown condition in 24 hours.	4. The high pressure fire protection system pressure shall be logged daily.
5. Removal of any component in the High Pressure Fire System from service for any reason other than testing or emergency operations shall require Plant Manager approval.	5. Principal header and component isolation valves shall be checked open at least once every 3 months.
6. The Raw Service Water storage tank level shall be maintained above level 723'7" by the raw service water pumps.	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A. High Pressure Fire Protection System	4.11.A. High Pressure Fire Protection System
7. If Specification 3.11.A.6 cannot be met, a fire pump shall be started and run continuously until the raw service water pumps can maintain a raw service water storage tank level above 723'7".	
8. The fire protection water distribution system shall have a minimum capacity of 2,664 gpm at 250' head.	
9. The fire protection system shall be capable of supplying the individual loads listed in Table 3.11.A.	
B. CO_2 Fire Protection System	B. CO_2 Fire Protection System
1. The CO_2 Fire Protection System shall be OPERABLE:	1. CO_2 Fire Protection Testing:
	Item / Frequency
a. With a minimum of 8-1/2 tons (0.5 Tank) CO_2 in storage units 1 and 2.	a. Simulated automatic and manual actuation — Once/year
b. With a minimum of 3 tons (0.5 Tank) CO_2 storage unit 3.	b. Storage tank pressure and level — Checked daily

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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 150 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 146 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 121 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

DOCKETS NOS. 50-259, 50-260 AND 50-296

1.0 INTRODUCTION

By letter dated February 24, 1988 (TS 238), the Tennessee Valley Authority (TVA or the licensee) requested amendments to Facility Operating Licenses Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant (BFN), Units 1, 2 and 3. The proposed amendments would modify the following Technical Specification (TS) Surveillance Requirements (SR) to replace the words "not to exceed" with the words "at least once every": SR 4.7.E.1, 4.7.E.3, 4.7.F.1, 4.9.A.2.c, and 4.11.A.5.

2.0 EVALUATION

The proposed amendment would change the BFN TS for Units 1, 2 and 3 to eliminate the use of absolute surveillance intervals for TS 4.7.E.1, 4.7.E.3, 4.7.F.1, 4.9.A.2.c, and 4.11.A.5. The current TS words "at least once per operating cycle, not to exceed 18 months" are replaced by "at least once every 18 months" for SR 4.7.E.1, 4.7.E.3, and 4.7.F.1. The current TS words "at intervals not to exceed 24 months" are replaced by "at least once every 24 months" for SR 4.9.A.2.c. The current TS words "at intervals no greater than 3 months" are replaced by "at least once every 3 months" for SR 4.11.A.5.

The language change makes these five surveillance requirements consistent with other BFN surveillance intervals. In addition, the proposed changes permit the application of TS Definition 1.0.LL, Surveillance. This definition allows a maximum extension of a single surveillance interval not to exceed 25 percent of the interval. Further, the combined time for any three consecutive surveillance intervals is not to exceed 3.25 times the specified surveillance interval. Thus, the wording change adds flexibility to the surveillance scheduling without significantly impacting the surveillance intervals.

Surveillance requirements 4.7.E.1 and 4.7.F.1 demonstrate that the Control Room Emergency Ventilation filters and adsorbers and the Primary Containment Purge System filters and adsorbers, respectively, are not clogged with excessive

amounts of foreign matter. This is done by measuring the pressure drop across the combined filters and charcoal adsorber banks. The licensee has stated that a review of the data collected during performance of the surveillance shows that the recorded pressure drop is less than one half of the TS limit. This surveillance is normally scheduled during refuel outages. Deleting the once-per-operating cycle phrase will not result in a significant change in the requirements since the 18-month interval corresponds to the planned operating cycle and will almost always be the most restrictive surveillance interval.

Surveillance Requirement 4.7.E.3 demonstrates the automatic initiation function of the Control Room Emergency Ventilation System. This surveillance is normally scheduled during refuel outages. Deleting the once-per-operating cycle phrase will not result in a significant change in the requirements since the 18-month interval corresponds to the planned operating cycle.

Surveillance requirement 4.9.A.2.c demonstrates that the unit batteries, the diesel generator batteries, and the shutdown board batteries have maintained their rated capacities by performing at rated discharge. The change in the surveillance interval to "at least once every 24 months" does not decrease the confidence that the batteries are at rated capacity. Pilot cell and individual cell tests are performed at frequencies that would indicate irregularities long before failure of the batteries.

Surveillance requirement 4.11.A.5 verifies that the fire protection header and component isolation valves are open. The change to once every three months is consistent with other surveillance intervals and will not increase the probability of a mispositioned valve going undetected for a long period of time.

The intent of surveillance requirements to ensure system operability is not affected by this change. Although the average surveillance interval may be slightly longer, the definition of surveillance in the TS allows for this. This change is also in agreement with the Standard Technical Specifications. No adverse safety consequences result from the proposed change. This change improves nuclear safety by minimizing unnecessary plant shutdowns that may be required by inadvertently exceeding the present absolute time intervals and is therefore acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The amendments involve a change to 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/or changes to the surveillance requirements. The staff has determined that the amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such findings.

Accordingly, the amendments meet 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 nor environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (53 FR 13108) on April 20, 1988 and consulted with the State of Alabama. No public comments were received and the State of Alabama did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: J. Kelly

Dated: July 5, 1988