July 20, 1988

Docket Nos. 50-259/260/296

Distribution
Docket File
NRC PDR
Local PDR
JPartlow
JAxelrad
SRichardson
SBlack
BDLiaw
FMcCoy
WSLittle
MSimms
JKelly(2)
DMoran
JRutberg
FMiraglia
EJordan
ACRS(10)
GPA/CA
GPA/PA
TVA-Rockville
BFN Rdg. File
TBarnhart

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

Dear Mr. White:

SUBJECT: TEMPORARY TECHNICAL SPECIFICATION CHANGE REGARDING THE OPERABILITY REQUIREMENTS FOR THE STANDBY GAS TREATMENT SYSTEM AND THE CONTROL ROOM EMERGENCY VENTILATION SYSTEM (TAC NOS. 00347, 00348, 00350) (TS 245-T)

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

The Commission has issued the enclosed Amendments Nos.151 , 147, and 122to 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 June 1, 1988. The amendments modify the Technical Specifications by changing the operability requirements for the Standby Gas Treatment System and the Control Room Emergency Ventilation System to allow system modifications and maintenance needed for restart to proceed in parallel with the fuel inspection and reconstitution program. These temporary changes will be in effect only until the start of the Browns Ferry, Unit 2 fuel load.

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. 151 to License No. DPR-33
2. Amendment No. 147to License No. DPR-52
3. Amendment No. 122to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:
See next page

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1/1

*SEE PREVIOUS PAGE FOR CONCURRENCE

OSP:TVA/PE*	OSP:TVA/PM*	TVAAD/TP*	OGC	TVA:AD/P
JKelly:as	GGears	BDLiaw		SBlack
/ /88	/ /88	/ /88	7/13/88	7/20/88

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Docket Nos. 50-259/260/296

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Sincerely,

Suzanne Black, Assistant Director
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Enclosures:
1. Amendment No. to License No. DPR-33
2. Amendment No. to License No. DPR-52
3. Amendment No. to License No. DPR-68
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cc w/enclosures:
See next page

OSP:TVA/LA	OSP:TVA/PE	OSP:TVA/PM	OGC	TVA:AD/P	TVA:AD/TP
MSimms	JKelly:as	GGears		SBlack	BDLiaw
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July 20, 1988

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

July 20, 1988

Docket Nos. 50-259/260/296

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

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1. Amendment No. 151 to License No. DPR-33
2. Amendment No. 147 to License No. DPR-52
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cc w/enclosures:
See next page

Mr. S. A. White
Tennessee Valley Authority

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

July 20, 1988

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 151
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 June 1, 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. 151 , 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 20, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 151

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
3.7/4.7-13	3.7/4.7-13
3.7/4.7-14	3.7/4.7-14*
3.7/4.7-15	3.7/4.7-15
3.7/4.7-15a	3.7/4.7-15a
3.7/4.7-16	3.7/4.7-16*
3.7/4.7-19	3.7/4.7-19*
3.7/4.7-20	3.7/4.7-20

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
*1a. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system shall be OPERABLE at all times when secondary containment integrity is required.	1. At least once per year, the following conditions shall be demonstrated.
1b. With no fuel in any reactor vessel, only two (2) of the three (3) standby gas treatment trains are required to be OPERABLE at all times when secondary containment integrity is required. If either of the two (2) standby gas treatment system trains become inoperable at any time when operability is required, suspend handling of irradiated fuel until two (2) trains of standby gas treatment are OPERABLE.	a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at a flow of 9000 cfm (± 10%). b. The inlet heaters on each circuit are tested in accordance with ANSI N510-1975, and are capable of an output of at least 40 kW. c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

* With no fuel in any reactor vessel, Specification 3.7.B.1.b is applicable.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at ≥ 10% design flow 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.B.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 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 shall be shown to operate within ±10% design flow.	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.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
	4.7.B.2 (Cont'd)
	d. Each train shall be operated a total of at least 10 hours every month.
	e. Test sealing of gaskets for housing doors shall be performed utilizing chemical smoke generators during each test performed for compliance with Specification 4.7.B.2.a and Specification 3.7.B.2.a.
* 3. From and after the date that one train of the standby gas treatment system is made or found to be INOPERABLE for any reason, reactor operation and fuel handling is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE, provided that during such 7 days all active components of the other two standby gas treatment trains shall be OPERABLE.	3. a. Once per operating cycle automatic initiation of each branch of the standby gas treatment system shall be demonstrated from each unit's controls.
	b. At least once per year manual operability of the bypass valve for filter cooling shall be demonstrated.
	* c. When one train of the standby gas treatment system becomes INOPERABLE the other two trains shall be demonstrated to be OPERABLE within 2 hours and daily thereafter.

* Not applicable with no fuel in any reactor vessel.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
3.7.B.3 (Cont'd) 4. If these conditions cannot be met, the reactor shall be placed in a condition for which the standby gas treatment system is not required.	

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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.C. Secondary Containment	4.7.C. Secondary Containment
1. Secondary containment integrity shall be maintained in the reactor zone at all times except as specified in 3.7.C.2.	1. Secondary containment surveillance shall be performed as indicated below: a. Secondary containment capability to maintain 1/4 inch of water vacuum under calm wind (< 5 mph) conditions with a system leakage rate of not more than 12,000 cfm, shall be demonstrated at each refueling outage prior to refueling.
2. If reactor zone secondary containment integrity cannot be maintained the following conditions shall be met: a. The reactor shall be made subcritical and Specification 3.3.A shall be met. b. The reactor shall be cooled down below 212°F and the reactor coolant system vented. c. Fuel movement shall not be permitted in the reactor zone. d. Primary containment integrity maintained.	2. After a secondary containment violation is determined the standby gas treatment system will be operated immediately after the affected zones are isolated from the remainder of the secondary containment to confirm its ability to maintain the remainder of the secondary containment at 1/4-inch of water negative pressure under calm wind conditions.
3. Secondary containment integrity shall be maintained in the refueling zone, except as specified in 3.7.C.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 per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to 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 per operating cycle not to exceed 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

* LCO not applicable with no fuel in any reactor vessel.

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

July 20, 1988

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 147
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 June 1, 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. 147, 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 20, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 147

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
3.7/4.7-13	3.7/4.7-13
3.7/4.7-14	3.7/4.7-14*
3.7/4.7-15	3.7/4.7-15
3.7/4.7-15a	3.7/4.7-15a
3.7/4.7-16	3.7/4.7-16*
3.7/4.7-19	3.7/4.7-19*
3.7/4.7-20	3.7/4.7-20

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
*1a. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system shall be OPERABLE at all times when secondary containment integrity is required.	1. At least once per year, the following conditions shall be demonstrated.
1b. With no fuel in any reactor vessel, only two (2) of the three (3) standby gas treatment trains are required to be OPERABLE at all times when secondary containment integrity is required. If either of the two (2) standby gas treatment system trains become inoperable at any time when operability is required, suspend handling of irradiated fuel until two (2) trains of standby gas treatment are OPERABLE.	a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at a flow of 9000 cfm (± 10%). b. The inlet heaters on each circuit are tested in accordance with ANSI N510-1975, and are capable of an output of at least 40 kW. c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

* With no fuel in any reactor vessel, Specification 3.7.B.1.b is applicable.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at ≥ 10% design flow 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.B.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 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 shall be shown to operate within ±10% design flow.	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.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
	4.7.B.2 (Cont'd)
	d. Each train shall be operated a total of at least 10 hours every month.
	e. Test sealing of gaskets for housing doors shall be performed utilizing chemical smoke generators during each test performed for compliance with Specification 4.7.B.2.a and Specification 3.7.B.2.a.
* 3. From and after the date that one train of the standby gas treatment system is made or found to be INOPERABLE for any reason, reactor operation and fuel handling is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE, provided that during such 7 days all active components of the other two standby gas treatment trains shall be OPERABLE.	3. a. Once per operating cycle automatic initiation of each branch of the standby gas treatment system shall be demonstrated from each unit's controls.
	b. At least once per year manual operability of the bypass valve for filter cooling shall be demonstrated.
	* c. When one train of the standby gas treatment system becomes INOPERABLE the other two trains shall be demonstrated to be OPERABLE within 2 hours and daily thereafter.

* Not applicable with no fuel in any reactor vessel.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
3.7.B.3 (Cont'd)	
4. If these conditions cannot be met, the reactor shall be placed in a condition for which the standby gas treatment system is not required.	

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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.C. Secondary Containment	4.7.C. Secondary Containment
1. Secondary containment integrity shall be maintained in the reactor zone at all times except as specified in 3.7.C.2.	1. Secondary containment surveillance shall be performed as indicated below: a. Secondary containment capability to maintain 1/4 inch of water vacuum under calm wind (< 5 mph) conditions with a system leakage rate of not more than 12,000 cfm, shall be demonstrated at each refueling outage prior to refueling.
2. If reactor zone secondary containment integrity cannot be maintained the following conditions shall be met: a. The reactor shall be made subcritical and Specification 3.3.A shall be met. b. The reactor shall be cooled down below 212°F and the reactor coolant system vented. c. Fuel movement shall not be permitted in the reactor zone. d. Primary containment integrity maintained.	2. After a secondary containment violation is determined the standby gas treatment system will be operated immediately after the affected zones are isolated from the remainder of the secondary containment to confirm its ability to maintain the remainder of the secondary containment at 1/4-inch of water negative pressure under calm wind conditions.
3. Secondary containment integrity shall be maintained in the refueling zone, except as specified in 3.7.C.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 per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to 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 per operating cycle not to exceed 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
* LCO not applicable with no fuel in any reactor vessel.	

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

July 20, 1988

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 122
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 June 1, 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. 122, 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 20, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 122

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
3.7/4.7-13	3.7/4.7-13
3.7/4.7-14	3.7/4.7-14*
3.7/4.7-15	3.7/4.7-15
3.7/4.7-15a	3.7/4.7-15a
3.7/4.7-16	3.7/4.7-16*
3.7/4.7-19	3.7/4.7-19*
3.7/4.7-20	3.7/4.7-20

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
*1a. Except as specified in Specification 3.7.B.3 below, all three trains of the standby gas treatment system shall be OPERABLE at all times when secondary containment integrity is required.	1. At least once per year, the following conditions shall be demonstrated.
1b. With no fuel in any reactor vessel, only two (2) of the three (3) standby gas treatment trains are required to be OPERABLE at all times when secondary containment integrity is required. If either of the two (2) standby gas treatment system trains become inoperable at any time when operability is required, suspend handling of irradiated fuel until two (2) trains of standby gas treatment are OPERABLE.	a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at a flow of 9000 cfm (± 10%). b. The inlet heaters on each circuit are tested in accordance with ANSI N510-1975, and are capable of an output of at least 40 kW. c. Air distribution is uniform within 20% across HEPA filters and charcoal adsorbers.

* With no fuel in any reactor vessel, Specification 3.7.B.1.b is applicable.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
2. a. The results of the in-place cold DOP and halogenated hydrocarbon tests at ≥ 10% design flow 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.B.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 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 shall be shown to operate within ±10% design flow.	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.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
	4.7.B.2 (Cont'd)
	d. Each train shall be operated a total of at least 10 hours every month.
	e. Test sealing of gaskets for housing doors shall be performed utilizing chemical smoke generators during each test performed for compliance with Specification 4.7.B.2.a and Specification 3.7.B.2.a.
* 3. From and after the date that one train of the standby gas treatment system is made or found to be INOPERABLE for any reason, reactor operation and fuel handling is permissible only during the succeeding 7 days unless such circuit is sooner made OPERABLE, provided that during such 7 days all active components of the other two standby gas treatment trains shall be OPERABLE.	3. a. Once per operating cycle automatic initiation of each branch of the standby gas treatment system shall be demonstrated from each unit's controls.
	b. At least once per year manual operability of the bypass valve for filter cooling shall be demonstrated.
	* c. When one train of the standby gas treatment system becomes INOPERABLE the other two trains shall be demonstrated to be OPERABLE within 2 hours and daily thereafter.

* Not applicable with no fuel in any reactor vessel.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B. Standby Gas Treatment System	4.7.B. Standby Gas Treatment System
3.7.B.3 (Cont'd) 4. If these conditions cannot be met, the reactor shall be placed in a condition for which the standby gas treatment system is not required.	

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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.C. Secondary Containment	4.7.C. Secondary Containment
1. Secondary containment integrity shall be maintained in the reactor zone at all times except as specified in 3.7.C.2.	1. Secondary containment surveillance shall be performed as indicated below: a. Secondary containment capability to maintain 1/4 inch of water vacuum under calm wind (< 5 mph) conditions with a system inleakage rate of not more than 12,000 cfm, shall be demonstrated at each refueling outage prior to refueling.
2. If reactor zone secondary containment integrity cannot be maintained the following conditions shall be met: a. The reactor shall be made subcritical and Specification 3.3.A shall be met. b. The reactor shall be cooled down below 212°F and the reactor coolant system vented. c. Fuel movement shall not be permitted in the reactor zone. d. Primary containment integrity maintained.	2. After a secondary containment violation is determined the standby gas treatment system will be operated immediately after the affected zones are isolated from the remainder of the secondary containment to confirm its ability to maintain the remainder of the secondary containment at 1/4-inch of water negative pressure under calm wind conditions.
3. Secondary containment integrity shall be maintained in the refueling zone, except as specified in 3.7.C.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 per operating cycle, not to exceed 18 months, the pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to 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 per operating cycle not to exceed 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

* LCO not applicable with no fuel in any reactor vessel.

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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 151 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 147 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 122 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 June 1, 1988, the Tennessee Valley Authority (TVA or the licensee) requested amendments to Appendix A of the Technical Specifications (TS) for 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 temporary changes to the TS are to provide system operability requirements for the Standby Gas Treatment System (SGTS) and the Control Room Emergency Ventilation System (CREVS) to support the BFN fuel inspection and reconstitution program and plant activities before Unit 2 fuel load.

The current BFN TS provide operability requirements for the handling of spent fuel and operations over the spent fuel pools. Specification 3.7.C.3 requires refueling zone secondary containment integrity to be maintained. For handling of spent fuel and all operations over spent fuel pools, BFN Technical Specification 3.7.B.1 requires all three trains of SGTS to be operable whenever secondary containment integrity is required. TS 3.7.B.3 will allow fuel handling for a maximum of seven days with one train of SGTS inoperable. However, the remaining two trains must be demonstrated operable within two hours and daily thereafter.

A conservative reading of TS 3.7.E.1 would also require both trains of CREVS to be operable. The staff understands that TVA is currently evaluating the CREVS due to leakage into the control room from the same ventilation ducts providing the CREVS suction. The current specification requires operability at all times when any reactor vessel contains irradiated fuel. All three units at BFN are currently defueled. TS 3.7.E.3 and 3.7.E.4 limit "refueling operations" if one or both CREVS is inoperable. A conservative definition of refueling operations would encompass any movement of fuel in and around the fuel pools.

Fuel inspection and reconstitution will improve the reliability of the fuel by identifying and replacing fuel rods which fail to meet acceptable corrosion criteria for continued operation. This will reduce the number of fuel pins leaking in future cycles, which will reduce plant radiation levels and thus increase plant safety.

TVA has requested a temporary change to the TS which will relax these system requirements to allow the system modifications and maintenance needed for restart to proceed in parallel with the fuel inspection and reconstitution program.

2.0 EVALUATION

2.1 Standby Gas Treatment (SGTS)

The SGTS has three trains that automatically start upon receipt of a high radiation signal. The SGTS minimizes the release of radioactive material from the secondary containment to the environs. The SGTS performs two safety functions: (1) filtering iodine particulate and exhaust from the Reactor Building atmosphere to the plant stack during secondary containment isolation conditions, and (2) when isolated, maintaining the secondary containment at one-quarter inch of water negative pressure relative to the building exterior, thus assuring only inleakage into the secondary containment.

The fuel for all three units has decayed for approximately three years. The only significant radioisotope remaining is Kr-85. Based on the current fuel fission inventory, there is essentially no iodine present. Should a fuel handling accident occur, SGTS filtering of iodine would therefore not be required. Filtering has no effect on Kr-85 since it is an inert gas. The most severe accident applicable before fuel load is the fuel handling accident previously evaluated in the Final Safety Analysis Report, Section 14.6.4. The only safety function that would be performed by the SGTS in the event of a fuel handling accident would be to maintain the required one-quarter inch of water negative pressure when secondary containment integrity is required. It has been verified through periodic surveillance testing that only two SGTS trains are required to maintain the one-quarter inch of water negative pressure. The average measured inleakage is approximately 10,100 CFM with the secondary containment at one-quarter inch negative pressure. This is less than the TS limit of 12,000 CFM. Each train of SGTS is rated at 9,000 CFM. The total design flow for two trains is 15,000 CFM. Thus, two trains will provide adequate flow to maintain the necessary vacuum.

The proposed temporary amendment will require only two of the three trains of SGTS to be operable when secondary containment integrity is required. With less than two operable trains of SGTS, handling of irradiated fuel will be suspended until two trains are operable. If fuel handling is suspended, the fuel assemblies being moved, inspected, or reconstituted will be placed in a secure position until fuel handling activities resume. As fuel handling will be suspended if less than two trains are operable, limiting condition for operation (LCO) 3.7.B.3 and its associated required surveillance requirement (SR) 4.7.B.3.c will not be entered. To prevent ambiguity, this LCO and SR will be marked to clarify that they are not applicable without fuel in any of the three reactor vessels. Based on the above, the staff concludes that the proposed temporary changes to the TS regarding system operability requirements for the SGTS are acceptable.

2.2 Control Room Emergency Ventilation System (CREVS)

The CREVS is designed to protect the control room operators by pressurizing the main control room with filtered air during a fuel handling accident condition. The CREVS uses charcoal adsorbers to assure the removal of radioactive iodine from the air and high efficiency particulate absolute (HEPA) filters for removing particulate matter. These filters and adsorbers will keep the resulting doses, in the event of a design basis fuel handling accident, less than the allowable levels stated in Criterion 19 of General Design Criteria (GDC 19) for Nuclear Power Plants Appendix A to 10 CFR Part 50.

TVA is proposing to delete the operability requirements of the CREVS until just before the fuel load of BFN Unit 2. Unit 2 is scheduled to load fuel in the fall of 1988. Units 1 and 3 fuel load dates have not been established. This change will enable work to be performed on the CREVS and the associated control room HVAC ducting, as necessary. This consists of a one time change to the technical specifications. LCO's 3.7.E.3 and 3.7.E.4 will be returned to applicability before commencing fuel load.

The filtration function that the CREVS provides would not be needed in the event of a fuel handling accident. 10 CFR Part 50, Appendix A, GDC 19, requires that in the event of an accident the radiation dosage to the occupants of the control room not exceed 5 rem whole body or its equivalent to any part of the body for the duration of the accident. This same radiation dose limit is endorsed in Section 6.2.4 of NUREG 0800. TVA has evaluated the potential consequences to the control room operators in the event of a fuel handling accident before fuel load. Currently all three units are defueled with the irradiated fuel stored in the spent fuel pool. The irradiated fuel has decayed for approximately three years and the only remaining volatile fission product of any significance is Kr-85. Essentially no iodine is present in the decayed fuel. Due to the "scrubbing" effect of the fuel pool water and since Kr-85 is the only radioisotope of any significance, virtually no radioactive particulates would enter the CREVS intake ductwork. Since essentially no iodine is present in the fuel, the inhalation dose is negligible, and therefore, assuming the failure of two assemblies (i.e., 124 fuel pins), the main control room doses would be 0.001 rem whole body gamma, 0.200 rem beta, and 0.0 rem inhalation. These calculated doses are far below the level acceptable in the event of an accident. In order to reach the dose limit of 10 CFR Part 50 Appendix A, approximately 300 assemblies currently stored in the BFN fuel pool would have to fail. Based on the above, the staff concludes that the proposed temporary changes to the TS regarding system operability requirements for the CREVS are 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 finding.

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 22407) on June 15, 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 (3) 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 20, 1988