September 18, 1989

Docket Nos. 50-259, 50-260
and 50-296

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

Dear Mr. Kingsley:

SUBJECT: TECHNICAL SPECIFICATION REVISIONS CONCERNING OPERABILITY OF THE CONTROL ROOM EMERGENCY VENTILATION SYSTEM (TAC 72198, 72199, 72200) (TS 265T) BROWNS FERRY NUCLEAR PLANTS, UNITS 1, 2, AND 3

The Commission has issued the enclosed Amendment Nos. 171, 173, and 142 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 14, 1989, as supplemented by letter dated July 14, 1989.

These temporary amendments revise Technical Specifications (TS) concerning the operable status of the Control Room Emergency Ventilation System (CREVS) to permit operation of Unit 2 for one cycle before all necessary modifications to CREVS are completed.

A copy of the related Safety Evaluation and Notice of Issuance are enclosed.

Sincerely,

Original Signed By

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 171 to License No. DPR-33
2. Amendment No. 173 to License No. DPR-52
3. Amendment No. 142 to License No. DPR-68
4. Safety Evaluation
5. Notice of Issuance

cc w/enclosures:
See next page
*SEE PREVIOUS CONCURRENCE

DISTRIBUTION:

Docket File	TQuay	WJones
NRC PDR	GGears	EButcher
Local PDR	DMoran	GPA/CA
Projects Reading	TDaniels	ARM/LFMB
ADSP Reading	NMarkisohn	
DCrutchfield	OGC	
BDLiaw	JZwolinski	
SBlack	EJordan	
RPierson	ACRS(10)	
BWilson	GPA/PA	
WSLittle	BFN Rdg. File	

DF01

OFC	:NRR:TVA/LA*	:NRR:TVA/PM*	:OGC*	:TVA:AD/P	:	:
NAME	:MSimms	:GGears:as	:RBachman	:SBlack	:	:
DATE	:8/08/89	:8/08/89	:8/11/89	:9/11/89	:	:

OFFICIAL RECORD COPY

cc w/enclosures:
General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
ET 11B 33H
Knoxville, Tennessee 37902

Mr. F. L. Moreadith
Vice President, Nuclear Engineering
Tennessee Valley Authority
400 West Summit Hill Drive
WT 12A 12A
Knoxville, Tennessee 37902

Dr. Mark O. Medford
Vice President and Nuclear
Technical Director
Tennessee Valley Authority
6N 38A Lookout Place
Chattanooga, Tennessee 37402-2801

Manager, Nuclear Licensing
and Regulatory Affairs
Tennessee Valley Authority
5N 157B Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. O. J. Zeringue
Site Director
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Decatur, Alabama 35602

Mr. P. Carier
Site Licensing Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Decatur, Alabama 35602

Mr. G. Campbell
Plant Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Decatur, Alabama 35602

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

Mr. Danny Carpenter
Senior Resident Inspector
Browns Ferry Nuclear Plant
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

Tennessee Valley Authority
Rockville Office
11921 Rockville Pike
Suite 402
Rockville, Maryland 20852

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. 171
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 14, 1989, as supplemented by letter dated July 14, 1989, 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. 171, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 18, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 171

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.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-51	3.7/4.7-51
3.7/4.7-52	3.7/4.7-52
3.7/4.7-53	3.7/4.7-53
3.7/4.7-53a	3.7/4.7-53a

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.

* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
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.
* 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 POWER OPERATIONS or refueling operations are 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 POWER 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, F, and G Open: FCO-151, FCO-152
* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.	

3.7.E/4.7.E Control Room Emergency Ventilation

The control room emergency ventilation system is designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The control room emergency ventilation system is designed to automatically start upon control room isolation and to maintain the control room pressure to the design positive pressure so that all leakage should be out leakage. During cycle 6, CREVS has been declared inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. Reactor power operations and fuel movement are acceptable until just prior to startup for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCOs must be complied with.

High efficiency particulate absolute (HEPA) filters are installed prior to the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The inplace test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, there is no immediate threat to the control room and reactor operation or refueling operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, the reactor is shutdown and brought to Cold Shutdown within 24 hours or refueling operations are terminated.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than six inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for

the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

Operation of the system for 10 hours every month will demonstrate operability of the filters and adsorber system and remove excessive moisture built up on the adsorber.

If significant painting, fire or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

Demonstration of the automatic initiation capability is necessary to assure system performance capability.

3.7.F/4.7.F Primary Containment Purge System

The primary containment purge system is designed to provide air to purge and ventilate the primary containment system. The exhaust from the primary containment is first processed by a filter train assembly and then channeled through the reactor building roof exhaust system. During power operation, the primary containment purge and ventilation system is isolated from the primary containment by two isolation valves in series.

HEPA (high efficiency particulate air) filters are installed before the charcoal adsorbers followed by a centrifugal fan. The in-place test results should indicate a leak tightness of the system housing of not less than 99-percent and a HEPA efficiency of at least 99-percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 85-percent. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, the Standby Gas Treatment System may be used to purge the containment.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 8.5 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should

allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

If significant painting, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

THIS PAGE INTENTIONALLY LEFT BLANK

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. 173
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 14, 1989, as supplemented by letter dated July 14, 1989, 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. 173, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 18, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 173

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.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-51	3.7/4.7-51
3.7/4.7-52	3.7/4.7-52
3.7/4.7-53	3.7/4.7-53
3.7/4.7-53a	3.7/4.7-53a

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 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.

* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
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.
* 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 POWER OPERATIONS or refueling operations are 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 POWER 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, F, F and G Open: FCO-151, FCO-152

* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

3.7.E/4.7.E Control Room Emergency Ventilation

The control room emergency ventilation system is designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The control room emergency ventilation system is designed to automatically start upon control room isolation and to maintain the control room pressure to the design positive pressure so that all leakage should be out leakage. During cycle 6, CREVS has been declared inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. Reactor power operations and fuel movement are acceptable until just prior to startup for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCOs must be complied with.

High efficiency particulate absolute (HEPA) filters are installed prior to the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The inplace test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, there is no immediate threat to the control room and reactor operation or refueling operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, the reactor is shutdown and brought to Cold Shutdown within 24 hours or refueling operations are terminated.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than six inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for

the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

Operation of the system for 10 hours every month will demonstrate operability of the filters and adsorber system and remove excessive moisture built up on the adsorber.

If significant painting, fire or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

Demonstration of the automatic initiation capability is necessary to assure system performance capability.

3.7.F/4.7.F Primary Containment Purge System

The primary containment purge system is designed to provide air to purge and ventilate the primary containment system. The exhaust from the primary containment is first processed by a filter train assembly and then channeled through the reactor building roof exhaust system. During power operation, the primary containment purge and ventilation system is isolated from the primary containment by two isolation valves in series.

HEPA (high efficiency particulate air) filters are installed before the charcoal adsorbers followed by a centrifugal fan. The in-place test results should indicate a leak tightness of the system housing of not less than 99-percent and a HEPA efficiency of at least 99-percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 85-percent. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, the Standby Gas Treatment System may be used to purge the containment.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 8.5 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray,

mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

If significant painting, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

THIS PAGE INTENTIONALLY LEFT BLANK

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. 142
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 14, 1989, as supplemented by letter dated July 14, 1989, 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. 142, 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne Black

Suzanne Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 18, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 142

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.

REMOVE	INSERT
3.7/4.7-19	3.7/4.7-19
3.7/4.7-20	3.7/4.7-20
3.7/4.7-49	3.7/4.7-49
3.7/4.7-50	3.7/4.7-50
3.7/4.7-51	3.7/4.7-51
3.7/4.7-51a	3.7/4.7-51a

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 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.

* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.E. Control Room Emergency Ventilation	4.7.E. Control Room Emergency Ventilation
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.
* 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 POWER OPERATIONS or refueling operations are 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 POWER 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, F, and G Open: FCO-151, FCO-152

* CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO STARTUP for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

3.7.E/4.7.E Control Room Emergency Ventilation

The control room emergency ventilation system is designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The control room emergency ventilation system is designed to automatically start upon control room isolation and to maintain the control room pressure to the design positive pressure so that all leakage should be out leakage. During cycle 6, CREVS has been declared inoperable only because it does not meet its design basis for essentially zero unfiltered inleakage. Reactor power operations and fuel movement are acceptable until just prior to startup for unit 2 cycle 7. During cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCOs must be complied with.

High efficiency particulate absolute (HEPA) filters are installed prior to the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The inplace test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, there is no immediate threat to the control room and reactor operation or refueling operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, the reactor is shutdown and brought to Cold Shutdown within 24 hours or refueling operations are terminated.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than six inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for

the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

Operation of the system for 10 hours every month will demonstrate operability of the filters and adsorber system and remove excessive moisture built up on the adsorber.

If significant painting, fire or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

Demonstration of the automatic initiation capability is necessary to assure system performance capability.

3.7.F/4.7.F Primary Containment Purge System

The Primary Containment Purge System is designed to provide air to purge and ventilate the primary containment system. The exhaust from the primary containment is first processed by a filter train assembly and then channeled through the reactor building roof exhaust system. During power operation, the primary containment purge and ventilation system is isolated from the primary containment by two isolation valves in series.

HEPA (high efficiency particulate air) filters are installed before the charcoal adsorbers followed by a centrifugal fan. The in-place test results should indicate a leak tightness of the system housing of not less than 99-percent and a HEPA efficiency of at least 99-percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 85-percent. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, the Standby Gas Treatment System may be used to purge the containment.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 8.5 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop should be determined at least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. Tests of the charcoal adsorbers with halogenated hydrocarbon shall be performed in accordance with USAEC Report-1082. Iodine removal efficiency tests shall follow ASTM D3803. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray,

mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced with an adsorbent qualified according to Table 1 of Regulatory Guide 1.52. The replacement tray for the adsorber tray removed for the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N510-1975. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

If significant painting, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals or foreign materials, the same tests and sample analysis shall be performed as required for operational use. The determination of significance shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

THIS PAGE INTENTIONALLY LEFT BLANK

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

ENCLOSURE 4

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 171 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 173 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

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

1.0 INTRODUCTION

By letter dated February 14, 1989, and as supplemented by letter dated July 14, 1989, the Tennessee Valley Authority (TVA or the licensee) submitted a request for a temporary amendment to licenses DPR-33, DPR-52, and DPR-68 to change the Browns Ferry Nuclear (BFN) Technical Specification (TS) for Units 1, 2, and 3 relative to the Control Room Emergency Ventilation System (CREVS).

The proposed temporary TS change 265T would allow power operation and fuel movement during Unit 2 Fuel Cycle 6 and until just before startup for Unit 2 Cycle 7, with the CREVS not meeting its design basis (achieve control room pressurization with essentially zero unfiltered in-leakage).

2.0 BACKGROUND

Temporary TS change 245T addressed and justified allowing both trains of the CREVS to be inoperable (not meet design basis) during the Unit 2 Cycle 5 outage. All fuel had decayed for at least three years and had been removed to the fuel pool. The temporary change was granted on July 20, 1988 by the NRC on the basis that the radiological consequences due to postulated fuel handling accidents would be much less severe than normally predicted.

Temporary TS change 253T addressed and justified CREVS not being operable during Unit 2 Cycle 5 fuel loading and sub-critical functional testing operations. This change allowed the reload of the Unit 2 core and it was approved by the NRC on October 3, 1988.

The CREVS problem also has been identified by the licensee in Licensing Event Report 88-025. The design baseline review program determined that unfiltered air from the control bay supply duct would leak into the control room.

The licensee's review of its own Conditions Adverse to Quality Reports revealed that non-safety related equipment associated with stack ventilation was also

required to be operable during an emergency to avoid a ground level release from the standby gas treatment system. This was reported in LER 88-039.

Conditions leading to both LERs were attributed to inadequate design and design reviews. In the LERs TVA has committed to procedural improvements to minimize the occurrence of future design errors, completion of modification of the stack ventilation system prior to Unit 2 restart from the current outage and completion of modifications of the CREVS prior to Unit 2 restart after the next outage (Cycle 7).

3.0 PROPOSED TS CHANGE

Since the CREVS is common to all three units, its operability is required for the operation of any unit. Therefore, the proposed technical specification changes apply to all three BFN units. These temporary changes would allow Unit 2 Cycle 6 operation and permit the subsequent defueling, refueling, and subcritical functional testing activities required until just prior to startup for Unit 2 Cycle 7.

The BFN design of CREVS was addressed in TVA's Final Safety Analysis Report (FSAR) response to NRC question 10.2 and the Technical Specification Bases 3.7.E/4.7.E. "The control room emergency ventilation system is designed to automatically start up on control room isolation and to maintain the control room pressure at a slight positive pressure so that all leakage should be out leakage." Also, ".... in emergencies, the makeup air to the control room will pass through at least three and possibly four air cleanup stages. (The fourth stage is the optional high efficiency particulate absolute (HEPA) filter in the ventilation system inlet tower)." In their submittal TVA estimates that 2,750 cubic feet per minute (CFM) would bypass the CREVS (which contains three of the four cleanup stages). Therefore, the conditions of providing filtered air are not being met. However, control room pressurization can be accomplished and some of the pressurizing air (500 CFM per CREVS) is properly filtered to reduce radiation doses.

The proposed TS change would delete the current subscript and replace it with the following:

> CREVS is considered inoperable only because it does not meet its design basis for essentially zero unfiltered in-leakage. REACTOR POWER OPERATION and fuel movement are acceptable until just PRIOR TO RESTART for Unit 2 Cycle 7. During Cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

In addition, the following is proposed to be appended to the first paragraph of the Bases Section 3.7.E/4.7.E for Units 1, 2 and 3:

> During Cycle 6, CREVS has been declared inoperable only because it does not meet its design basis for essentially zero unfiltered in-leakage. Reactor power operation and fuel movement are acceptable until just prior to start-up for Unit 2 Cycle 7. During Cycle 6, CREVS must be demonstrated to be functional by performing all applicable surveillances. In the event that the applicable surveillances are not successfully performed, the actions required by the LCO's must be complied with.

3.1 Discussion of Proposed Changes

The changes remove constraints to plant operation until just prior to Unit 2 Fuel Cycle 7. The staff has reviewed the current TS, surveillance requirements and concludes that these requirements can still be met because the requirements do not address duct leakage.

4.0 DISCUSSION OF JUSTIFICATION OF PROPOSED CHANGES

During an August 11, 1988 meeting, TVA presented arguments to the NRC in favor of the proposed TS change (meeting summary dated August 19, 1988). TVA committed to:

(1) Provide technical justification for one more cycle of operation in terms of worst case dose calculations for design basis accident cases.

(2) Commit to compensatory actions such as breathing apparatus to protect the operating staff.

(3) Provide the NRC with a proposal for resolution of the CREVS design problem within 90 days after restart of Unit 2.

The NRC, in turn, agreed to review TVA's proposed interim technical specification changes relative to CREVS. The licensee's technical justification and proposed compensatory actions were provided in the February 14, 1989 submittal. TVA reviewed the BWR operating status and applicable design bases events to determine which events had the potential for causing fuel damage and radioactive release which could require the filtration provided by CREVS. The selected events are addressed briefly as follows:

Loss of Fuel Pool Cooling

The fuel pool cooling and cleanup system is supplemented by the residual heat removal (RHR) system. The design includes a permanently installed crosstie. The staff agrees with the licensee that fuel damage is essentially precluded by the availability of the RHR system as a backup.

Control Rod Drop and Main Steamline Break

TVA reevaluated the Control Rod Drop and Main Steamline Break accidents to determine the resulting doses to control room operator and technical support center (TSC) personnel. The results from both accidents confirmed that doses were well within 10 CFR 50, Appendix A, General Design Criteria 19 guidelines of 5 rem whole body or its equivalent to any part of the body (30 rem thyroid), even when the control room is not isolated and the normal heating, ventilation and air conditioning (HVAC) flow of unfiltered outdoor air is supplied. Based upon the above, the staff finds the dose levels to be acceptable.

Fuel Handling Accident

This conservative reanalysis assumed the dropped fuel bundle strikes additional bundles, fracturing 125 fuel rods. The limiting case is the fuel drop into the storage pool as described in FSAR Section 14.6.4. With appropriate assumptions relative to the CREVS, doses over 30 days to the control room operators and TSC personnel following the fuel handling accident were predicted to be 0.03 rem gamma (whole body), 0.26 rem beta and 14 rem thyroid (inhalation). These results are below the 5 rem whole body, or its equivalent to any part of the body (30 rem thyroid) limits and are acceptable to the staff.

Loss-of-Coolant Accident (LOCA)

The design basis LOCA was reevaluated considering 2,750 CFM CREVS bypass air leakage. Subsequent analysis was performed to determine the operator dose. Stack releases were included but the dominant source was determined to be reactor building exfiltration due to high winds concurrent with the LOCA. The exfiltration was modeled as a puff release beginning at the time of maximum concentration in the Reactor Building. The rate of exfiltration was calculated considering the pressure differential induced across the exterior walls and roof of the reactor building as a function of wind speed and direction. The worst case occurred with the secondary containment internal pressure at - 0.25" W.G. [associated with only one of the three Standby Gas Treatment Systems (SGTS) operational]. The bounding case projected 332.9 rem total without compensatory actions. With potassium iodide (KI) tablets taken within thirty minutes as a proposed compensatory action, the control room operators and TSC personnel would have ample time to metabolize the KI tablets before thyroid limits would be exceeded. Breathing apparatus is available but was not proposed because it could detract from critical communications among personnel during the emergency. The staff finds this acceptable.

4.1 Summary Discussion of Events

The NRC staff has reviewed the cases submitted by TVA and has performed some independent analysis of the events. The NRC results are in general agreement with the TVA results. The staff reviewed the circumstances of the bounding event in accordance with Regulatory Guide 1.7, Section 2.3.4.2, and determined

the event to be too infrequent to be credible. TVA also considers it an unlikely event and further points out that the release or infiltration could be detected at either of the two intakes and corrective action could be taken; i.e., shut down one ventilation system and/or take KI per prepared instructions.

5.0 STAFF REVIEW OF DRAWINGS AND FACILITY

The NRC staff discussed with TVA the history of this design deficiency which has existed for over four years including the two temporary TS changes issued to TVA. The staff reviewed drawings and walked down the plant, and then agreed that the installed system was unable to achieve the design objectives of zero unfiltered in-leakage during certain postulated emergencies. TVA identified seven design considerations involved in resolving the deficiency. Briefly, the ducts are not leak proof, the roof would have to be strengthened to support the filters for 100% filtration and the CREVS is probably too small in capacity to achieve pressurization if the duct leakage is eliminated. Significant modifications will be needed to correct these problems.

The NRC discussed with TVA whether modifications to the CREVS were required since the system satisfies all requirements except for infiltration with unfiltered air and no credible event had been identified which would provide undue exposure to personnel in the control room. It was concluded that the BFN CREVS problem was a design problem which should be fixed to support the NUREG-0737, Section III.D.3.4 position on Control Room Habitability Requirements:

> Licensee(s) shall assure that control room operators will be adequately protected against the effects of accidental release of toxic and radioactive gases and that the nuclear power plant can be safely operated or shut down under design basis accident conditions.

Therefore, the staff has determined the following:

(1) The current surveillance requirements of the TS address the performance of individual filters and blowers but do not address the operability concerns related to in-leakage. The licensee will be required to address this TS deficiency as a part of the redesign of the system and include in the TS a surveillance of in-leakage.

(2) As stated above, no credible combination of events was identified by the staff which resulted in a significant radiation dose to the control room operators or technical support center personnel. The unique combination of events analyzed by the licensee were not considered credible by the staff.

(3) The staff believes that the temporary TS change will not make the occurrence of an accident any more likely, the consequences of postulated accidents any more severe, or create the possibility of a new or different kind of accident from those previously evaluated.

(4) The staff believes that there is reasonable assurance that doses to emergency personnel will be little affected in the event of an accident. Temporary Change No. 265 T is acceptable based upon the licensee's commitments to modify the Standby Gas Treatment System as committed in LER 88-039 prior to startup.

6.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32 and 51.35, an environmental assessment and finding of no significant impact have been prepared and published in the Federal Register on September 18,1989 (54 FR 38467). Accordingly, based upon the environmental assessment, we have determined that the issuance of the amendment will not have a significant effect on the quality of the human environment.

7.0 CONCLUSION

The Commission issued a Consideration of Issuance of Amendment to Facility Operating License and Opportunity for Hearing which was published in the Federal Register (54 FR 15572) on April 18, 1989 and consulted with the State of Alabama. The licensee's letter of July 14, 1989 provided clarification that the projected radiation doses to control room operators and Technical Support Center personnel were within acceptable limits as defined in 10 CFR Part 50, Appendix A, General Design Criteria 19. No requests for hearing 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. Watt

Dated: September 18, 1989

UNITED STATES NUCLEAR REGULATORY COMMISSION

TENNESSEE VALLEY AUTHORITY

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

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (Commission) has issued Amendment Nos. 171, 173 and 142 to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68, respectively, issued to Tennessee Valley Authority (TVA or the licensee), which revised the Technical Specifications (TS) for operation of Browns Ferry Nuclear Plant, Units 1, 2 and 3, located in Limestone County, Alabama. The amendment is effective as of the date of issuance and shall be implemented within 30 days.

The amendment revises the TS to permit operation of Browns Ferry, Unit 2, for one cycle without all modifications to the Control Room Emergency Ventilation System (CREVS) completed.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter 1, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the Federal Register on April 18, 1989 (54 FR 15572). The licensee's letter of July 14, 1989 provided clarification that the projected radiation doses to control room

operators and Technical Support Center personnel were within the acceptable limit of 10 CFR Part 50, Appendix A. No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of this amendment will not have a significant effect on the quality of the human environment.

For further details with respect to the action, see (1) the application for amendment dated April 3, 1989 and supplemental letter dated July 14, 1989, (2) Amendment No. 173 to License No. DPR-52 (3) the Commission's related Safety Evaluation, and (4) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C., and at the Local Public Document Room, Athens Public Library, South Street, Athens, Alabama 35611.

Dated at Rockville, Maryland, this 18th day of September, 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne C. Black

Suzanne C. Black, Assistant Director
for Projects
TVA Projects Division
Office of Nuclear Reactor Regulation