LICENSE AUTHORITY [illegible] DO NOT REMOVE

October 3, 1988

Docket Nos. 50-259/260/296

Posted
Amdt 156 to DPR-33

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Dear Mr. White:

SUBJECT: TECHNICAL SPECIFICATION ON CONTROL ROOM EMERGENCY VENTILATION SYSTEM (TAC 00447, 00448, AND 00449) (TS 253)

The Commission has issued the enclosed Amendments Nos. 156, 152, and 127 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 August 17, 1988. These amendments modify Technical Specifications Limiting Conditions for Operation 3.7.E.1, 3.7.E.3, and 3.7.E.4 for the Control Room Emergency Ventilation System (CREVS) by defining them as being not applicable until the withdrawal of the first control rod for the purpose of making the reactor critical from the Unit 2, Cycle 5 outage.

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,

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

Enclosures:
1. Amendment No. 156 to License No. DPR-33
2. Amendment No. 152 to License No. DPR-52
3. Amendment No. 127 to License No. DPR-68
4. Safety Evaluation

cc w/enclosures:
See next page

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NAME	:MSimms:as	:GGeanes	:BDLiaw	:	:SBlack	:	:
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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. 156
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 August 17, 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. 156, 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: October 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 156

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

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 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.

* LCO not applicable until just prior to withdrawing the first control rod for the purpose of making the reactor critical from the unit 2 cycle 5 outage.

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. 152
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 August 17, 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. 152, 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: October 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 152

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

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 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.
* LCO not applicable until just prior to withdrawing the first control rod for the purpose of making the reactor critical from the unit 2 cycle 5 outage.	d. Each circuit shall be operated at least 10 hours every month.

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. 127
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 August 17, 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. 127, 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: October 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 127

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

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 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.

* LCO not applicable until just prior to withdrawing the first control rod for the purpose of making the reactor critical from the unit 2 cycle 5 outage.

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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 156 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 152 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 127 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 July 20, 1988, the Commission issued amendments to the Browns Ferry licenses changing the operability requirements for the Standby Gas Treatment System (SGTS) and the Control Room Emergency Ventilation System (CREVS) to permit system modifications and maintenance necessary for restart to proceed in parallel with the Browns Ferry, Unit 2 fuel inspection and reconstitution program. These temporary amendments were in effect only until the start of the Browns Ferry, Unit 2 fuel load. Tennessee Valley Authority (TVA or the licensee) again requested a similar temporary change to its Technical Specifications (TS) to permit system modifications and maintenance activities needed to support restart to proceed in a timely fashion by permitting other needed activities to run in parallel. This amendment request was dated August 17, 1988 and would be in effect until Unit 2 restart.

The Commission's staff has previously granted the temporary relaxation of the operability requirements for CREVS based upon the licensee's analysis that the only significant isotope is Kr-85 and since CREVS function is to filter any iodine, CREVS would not be needed to perform any mitigation function. In addition, the staff believed at that time that this was a one-time, temporary change. However, the licensee and the Commission's staff are still seeking long-term resolution of the CREVS operability issue at Browns Ferry. To that end, the licensee has again requested temporary relaxation of the CREVS operability requirements to continue to permit system modifications and maintenance to be expedited to support Unit 2 restart. Long-term resolution of the CREVS issue may involve certain system hardware modification during the next refueling outage. This could result in still one additional amendment request involving a temporary relaxation of CREVS operability requirement.

EVALUATION

The CREVS is designed to protect the control room operators by pressurizing the main control room (MCR) 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, to less than the allowable levels stated in Criterion 19 of the General Design Criteria (GDC) for Nuclear Power Plants, Appendix A to 10 CFR 50.

The licensee has proposed a relaxation of the operability requirements of Section 3.7.E.1, 3.7.E.3 and 3.7.E.4 of the CREVS TS until just before the withdrawal of the first control rod for the purpose of making the Unit 2 reactor critical. This change will enable work to be performed on the CREVS and the associated control room duct work while at the same time permitting in parallel, the refueling operations.

The filtration function that the CREVS provides is not presently needed in the event of a fuel handling accident. The reason for this is that GDC 19 requires that, in the event of an accident, the radiation dosage to the occupants in the MCR 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 specified in Section 6.4.2 of NUREG-0800 (Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, July 1988). TVA has evaluated the potential consequences to the control room operators in the event of a fuel handling accident. Currently, all three units are defueled with the irradiated fuel stored in the 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. Kr-85 is an inert gas that is not filtered by the CREVS. Essentially, no iodine is present in the decayed fuel. Because of the "scrubbing" effect of the fuel pool water and since Kr-85 is the only radioisotope of any significance, virtually no 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 MCR dose would be .002 REM whole body gamma, 0.200 REM beta, and 0.0 REM inhalation. These calculated doses are far below the dose level acceptable in the event of an accident. In order to reach the dose limit of 10 CFR 50, Appendix A (GDC 19) approximately 300 of the assemblies currently stored in the Browns Ferry fuel pool would have to fail.

The licensee analyzed other events that might occur during fuel load. The licensee's analysis indicated that the only other event that has a potential to cause fuel damage, other than a fuel handling accident, is a pipe break inside the primary containment after the fuel had been loaded in the vessel. This would result in a loss of reactor water inventory. The Browns Ferry TS require the Core and Containment Cooling System (CCCS) to be operable when there is irradiated fuel in the reactor vessel (3.5.A). Therefore, if a pipe break occurred, the CCCS would provide an adequate supply of water to mitigate any fuel cladding damage which would result in a release of fission products. The licensee again concluded that, because of the current fission product inventory of the fuel, the only significant isotope is Kr-85. Since CREVS function is to filter any iodine, the licensee concluded, and the staff concurs, that it would not be needed to perform any mitigation function.

Based upon the above, the staff concluded that the proposed 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 33887) on September 1, 1988 and consulted with the State of Alabama. No public comments were received and the State of Alabama did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: G. Gears

Dated: October 3, 1988