Docket

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

April 3, 1989

Docket Nos. 50-327/328

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: MOLDED CASE CIRCUIT BREAKERS (TAC 62151, 62152) (TS 72) - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 110 to Facility Operating License No. DPR-77 and Amendment No. 100 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated August 8, 1986.

These amendments revise the surveillance requirements (SR) for the electrical equipment protective devices in the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS). The changes (1) delete the references to specific procedures in SR 4.8.3.1.a.1, 4.8.3.1.a.2, 4.8.3.1.a.3, and 4.8.3.1.b, (2) incorporate a footnote into SR 4.8.3.1.a.3 which allowed this SR to be suspended and (3) delete a resistance measurement test for fuses from SR 4.8.3.1.a.3. The latter changes to SR 4.8.3.1.a.3 incorporate the current plant verification program for fuses into SR 4.8.3.1.a.3. The other proposed changes in the application for SR 4.8.3.1.a.2 and 4.8.3.1.a.3 to delete testing of the instantaneous elements of the molded case circuit breakers were denied in the staff's letter dated November 7, 1986.

In your responses dated December 5 and 29, 1986, to the staff's denial of the proposed changes to the TS related to the molded case circuit breakers, you discussed possible TS interpretations of the trip function testing of these breakers. This was to reduce the number of these breakers exposed to a potentially degrading test current. You stated that within 6 months after restart of Sequoyah Unit 2, you would advise us of any intent to pursue this issue of TS interpretations. In the letter dated October 18, 1988, you stated that this issue would not be pursued further.

DFO1
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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 Nuclear Reactor Regulation

Enclosures:
1. Amendment No.110 to License No. DPR-77
2. Amendment No.100 to License No. DPR-79
3. Safety Evaluation

cc w/enclosures:
See next page

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Memo dated 7/19/85, standard Technical Specifications (Deletion of functional fuse testing)

OFC	:NRR:TVA/LA	:NRR:TVA	NRR:TVA/PM	:NRR:TVA/BC	:TVA:AD/TP	:OGC	:TVA:AD/P
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 110
License No. DPR-77

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated August 8, 1986, 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-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 110, 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.

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: April 3, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 110

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

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
3/4 8-15	3/4 8-15
3/4 8-16	3/4 8-16

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.3.1 All containment penetration conductor overcurrent protective devices specified in appropriate plant instructions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the containment penetration conductor overcurrent protective devices specified in appropriate plant instructions inoperable:

a. Restore the protective device(s) to OPERABLE status or de-energize the circuit(s) by tripping the associated backup circuit breaker within 72 hours and verify the backup circuit breaker to be tripped at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to overcurrent devices in circuits which have their backup circuit breakers tripped, or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 All containment penetration conductor overcurrent protective devices specified in appropriate plant instructions shall be demonstrated OPERABLE:

a. At least once per 18 months:

1. For at least one 6.9 kV reactor coolant pump circuit, such that all reactor coolant pump circuits are demonstrated OPERABLE at least once per 72 months, by performance of:

(a) A CHANNEL CALIBRATION of the associated protective relays specified in appropriate plant instructions, and

(b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.

SURVEILLANCE REQUIREMENTS (Continued)

(c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 1 of the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. The functional test shall consist of injecting a current input at the specified setpoint to each selected circuit breaker and verifying that each circuit breaker functions as designed. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

3. By selecting and verifying a representative sample of each type of fuse on a rotating basis. Verification will be accomplished as described by SR 4.8.3.1.a.3.a. Each representative sample of fuses shall include at least 10% of all fuses of that type. A complete listing of all fuses to be verified in accordance with this requirement will be maintained in appropriate plant instructions. Fuses found inoperable during verification shall be replaced with OPERABLE fuses prior to resuming operation. For each fuse found inoperable during verification, an additional representative sample of at least 10% of all fuses of that type shall be functionally tested until no more failures are found or all fuses of that type have been functionally tested.

(a) A fuse verification and maintenance program will be maintained to ensure that:

1. The proper size and type of fuse is installed,

2. The fuse shows no sign of deterioration, and

3. The fuse connections are tight and clean.

b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with appropriate plant instructions based on manufacturer's recommendations.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 100
License No. DPR-79

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated August 8, 1986, 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-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 100, 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.

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: April 3, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 100

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

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
3/4 8-16	3/4 8-16
3/4 8-17	3/4 8-17

ELECTRICAL POWER SYSTEMS

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.3.1 All containment penetration conductor overcurrent protective devices specified in appropriate plant instructions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the containment penetration conductor overcurrent protective devices specified in appropriate plant instructions inoperable:

a. Restore the protective device(s) to OPERABLE status or de-energize the circuit(s) by tripping the associated backup circuit breaker within 72 hours and verify the backup circuit breaker to be tripped at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to overcurrent devices in circuits which have their backup circuit breakers tripped, or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 All containment penetration conductor overcurrent protective devices specified in appropriate plant instructions shall be demonstrated OPERABLE:

a. At least once per 18 months:

1. For at least one 6.9 kV reactor coolant pump circuit, such that all reactor coolant pump circuits are demonstrated OPERABLE at least once per 72 months, by performance of:

(a) A CHANNEL CALIBRATION of the associated protective relays specified in appropriate plant instructions, and

(b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.

SURVEILLANCE REQUIREMENTS (Continued)

(c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 1 of the curcuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. The functional test shall consist of injecting a current input at the specified setpoint to each selected circuit breaker and verifying that each circuit breaker functions as designed. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

3. By selecting and verifying a representative sample of each type of fuse on a rotating basis. Verification will be accomplished as described by SR 4.8.3.1.a.3.a. Each representative sample of fuses shall include at least 10% of all fuses of that type. A complete listing of all fuses to be verified in accordance with this requirement will be maintained in appropriate plant instructions. Fuses found inoperable during verification shall be replaced with OPERABLE fuses prior to resuming operation. For each fuse found inoperable during verification, an additional representative sample of at least 10% of all fuses of that type shall be functionally tested until no more failures are found or all fuses of that type have been functionally tested.

   (a) A fuse verification and maintenance program will be maintained to ensure that:

      1. the proper size and type of fuse is installed,

      2. the fuse shows no sign of deterioration, and

      3. the fuse connections are tight and clean.

b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with appropriate plant instructions based on manufacturer's recommendations.

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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 110 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 100 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By letter dated August 8, 1986, the Tennessee Valley Authority (TVA) proposed revisions to the surveillance requirements (SR) for the electrical equipment protective devices in the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS). The changes (1) delete the references to specific procedures in SR 4.8.3.1.a.1, 4.8.3.1.a.2, 4.8.3.1.a.3, and 4.8.3.1.b, (2) incorporate a footnote into SR 4.8.3.1.a.3 which allowed this SR to be suspended and (3) delete a resistance measurement test for fuses from SR 4.8.3.1.a.3. The other proposed changes in the application dated August 8, 1986 for SR 4.8.3.1.a.3 to delete testing of the instantaneous elements of the molded case circuit breakers were denied in the staff's letter dated November 7, 1986.

In TVA's response dated December 5 and 29, 1986, to the staff's denial of proposed changes to the TS to the molded case circuit breakers, it discussed possible TS interpretations of the trip function testing of these breakers to reduce the number of these breakers exposed to a potentially degrading test current. TVA stated that, within 6 months after restart of Sequoyah Unit 2, it would advise the staff of any intent to pursue this issue on TS interpretations. In the letter dated October 18, 1988, TVA stated that it would not pursue this issue further.

2.0 EVALUATION

TVA proposed to delete the references to specific Sequoyah Plant surveillance instructions (SI) in the following SR: 4.8.3.1.a.1.a, 4.8.3.1.a.1.b, 4.8.3.1.a.1.c, 4.8.3.1.a.2, 4.8.3.1.a.3, and 4.8.3.1.b. For example, in SR 4.8.3.1.b, TVA has proposed to replace the phrase "in accordance with Surveillance Instruction SNP SI-266 in conjunction with its manufacturer's recommendations" with the phrase "in accordance with appropriate plant instructions based on manufacturer's recommendations." In other cases, the specific SI is simply deleted from the SR. TVA states that these specific references to plant SI are unnecessarily administratively restrictive to the plant and could cause a TS violation if the SI number was inadvertently changed. The staff agrees with these arguments.

The staff has reviewed the proposed changes to remove references to specific SI and concludes that the proposed changes do not change the requirements specified in the SR on electrical equipment protective devices. The TS do not need references to specific plant SI and such references are not given in other parts of the TS for similar requirements. The staff concludes that the proposed changes in the application to remove references to specific SI are acceptable.

TVA also proposed changes to describe its current verification program on fuses in the TS. The proposed changes are to SR 4.8.3.1.a.3. TVA stated that these changes incorporate the fuse verification program that it has been performing, in lieu of meeting the requirements of SR 4.8.3.1.a.3, into the SR. The current SR 4.8.3.1.a.3 has a footnote which states that TVA does not have to meet SR 4.8.3.1.a.3 provided certain surveillance requirements are met. TVA is proposing to incorporate these requirements into SR 4.8.3.1.a.3. TVA has also proposed to revise SR 4.8.3.1.a.3 by the following: (1) replace the words "functional tests" by the word "verification", (2) add the statement that verification will be accomplished by SR 4.8.3.1.a.3.a or the surveillance requirements in the current footnote discussed above, (3) replace the word "inspection" by the word "verification", (4) delete reference to a function test of the fuse using non-destructive resistance measurement and (5) adding the requirement that a complete listing of all fuses to be verified in accordance with the requirements in SR 4.8.3.1.a.3 will be maintained in appropriate plant instructions. Item 5 is part of TVA's proposal to delete references to specific SI discussed above.

In this application, TVA is incorporating its current verification program for fuses into SR 4.8.3.1.a.3 of the TS. TVA is replacing the functional testing (resistance measurement) of fuses by the fuse verification program. This is accomplished by incorporating the surveillance requirements contained in the current footnote in SR 4.8.3.1.a.3 of the TS.

The staff has evaluated the need for periodic testing of fuses including the measurement of fuse resistance as a means of determining a fuse's condition to assure that its ability to clear a fault had not deteriorated. The staff considered the following: (1) periodic field measurement of fuse resistance does not provide any meaningful assurance on the fault interrupting capability of the fuse, (2) periodic removal of a fuse from its holder for test purposes merely compromises the fuse's integrity and (3) operational experience does not indicate that a current limiting fuse ever becomes less protective over its life. Therefore, the staff concluded that the functional test using a non-destructive resistance measurement test is not necessary for a fuse verification program.

Therefore, the staff concludes that the proposed changes on the fuse verification program are acceptable.

Based on the above, the staff concludes that the proposed changes in TVA's application dated August 8, 1986 are acceptable. This is except for the parts of this application on molded case circuit breakers which were denied in the staff's letter dated November 7, 1986.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and 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 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 (51 FR 30582) on August 27, 1986, and consulted with the State of Tennessee. No public comments were received and the State of Tennessee 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. Donohew, H. Garg

Dated: April 3, 1989