

March 6, 1989

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: EMERGENCY GAS TREATMENT SYSTEMS (TAC R00042/R00043) (TS 80)  
SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

The Commission has issued the enclosed Amendment No. 103 to Facility Operating License No. DPR-77 and Amendment No. 92 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 April 16, 1987 as supplemented by information provided in submittals dated June 17, 1987 and November 21, 1988.

These amendments modify the Sequoyah Nuclear Plant, Units 1 and 2 Technical Specifications (TS) to delete Surveillance Requirement (SR) 4.6.1.8.d.4 for the emergency gas treatment system heaters. A typographical error in SR 4.7.8.d.4 (Unit 1 only) is also corrected.

In your letter dated November 21, 1988, you withdrew the proposed changes to SR 4.7.8.d.4 and 4.9.12.d.3 and their associated Bases of the TS for the auxiliary building gas treatment system.

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. 103 to License No. DPR-77
- 2. Amendment No. 92 to License No. DPR-79
- 3. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. Oliver D. Kingsley, Jr.

-2-

Sequoyah Nuclear Plant

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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. 103  
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 April 16, 1987, as clarified and amended by the letters dated June 17, 1987 and November 21, 1988, respectively, 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.

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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. 103, 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, Assistant Director  
for Projects  
TVA Projects Division  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 6, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 103

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.

REMOVE

3/4 6-14

3/4 7-20

INSERT

3/4 6-14

3/4 7-20

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
  - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5 inches Water Gauge while operating the filter train at a flow rate of 4000 cfm  $\pm$  10%.
  - 2. Verifying that the filter train starts on a Phase A containment isolation Test Signal.
  - 3. Verify the operation of the filter cooling bypass valves.
  - 4. Verifying that each system produces a negative pressure of greater than or equal to 0.5 inches W. G. in the annulus within 1 minute after a start signal.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm  $\pm$  10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm  $\pm$  10%.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
  - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 3 inches Water Gauge while operating the filter train at a flow rate of 9000 cfm  $\pm$  10%.
  - 2. Verifying that the filter trains start on a Containment Phase A Isolation test signal; or a high radiation signal from the fuel pool radiation monitoring system or the auxiliary building ventilation monitoring system.
  - 3. Verifying that the system maintains the spent fuel storage area and the ESF pump rooms at a pressure equal to or more negative than minus 1/4 inch water gage relative the outside atmosphere while maintaining a vacuum relief flow greater than 2000 cfm and a total system flow of 9000 cfm  $\pm$  10%.
  - 4. Verifying that the heaters dissipate  $32 \pm 3.2$  kw when tested in accordance with ANSI N510-1975.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm  $\pm$  10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 9000 cfm  $\pm$  10%.



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. 92  
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 April 16, 1987, as clarified and amended by the letters dated June 17, 1987 and November 21, 1988, respectively, 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.

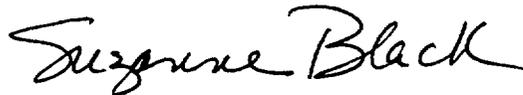
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-79 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 92, 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, Assistant Director  
for Projects  
TVA Projects Division  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 6, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 93

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.

REMOVE

3/4 6-14

INSERT

3/4 6-14

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52. Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52. Revision 2, March 1978.
- d. At least once per 18 months by:
  - 1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5 inches Water Gauge while operating the filter train at a flow rate of 4000 cfm + 10%.
  - 2. Verifying that the filter train starts on a Phase A containment isolation Test Signal.
  - 3. Verify the operation of the filter cooling bypass valves.
  - 4. Verifying that each system produces a negative pressure of greater than or equal to 0.5 inches W.G. in the annulus within 1 minute after a start signal.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm + 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 4000 cfm + 10%.



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. DPR-77  
AND AMENDMENT NO. 92 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 April 16, 1987, the Tennessee Valley Authority (TVA or the licensee) proposed changes to Sequoyah Nuclear Plant (SQN), Units 1 and 2 Technical Specifications (TS). The changes would delete Surveillance Requirement (SR) 4.6.1.8.d.4 (Units 1 and 2) for the Emergency Gas Treatment System (EGTS) and revise SRs 4.7.8.d.4 and 4.9.12.d.3 and associated Bases (Units 1 and 2) for the Auxiliary Building Gas Treatment System (ABGTS). These changes are based on calculations which indicate that the minimum heater capacity required is significantly less than the manufacturer's ratings currently listed in the TS. The licensee stated that the original heater power requirements reflect manufacturer's ratings based on a conservative analysis. A typographical error in SR 4.7.8.d.4 (Unit 1) is also corrected.

Subsequently, in their November 21, 1988 letter, the licensee withdrew the Technical Specification change request for both units on the ABGTS. Therefore, our evaluation concerns only the EGTS and the typographical errors.

By letter dated June 17, 1987, the licensee provided a copy of Nonconformance Report SQN NEB 8408. This report was referenced in the licensee's justification of the proposed changes for the EGTS. By letter dated November 21, 1988, the licensee withdrew its proposed changes on the ABGTS. The information in these letters did not change the substance of the Federal Register Notice (52 FR 47793) published on December 16, 1987 on the proposed amendments for the ABGTS and the typographical error and did not affect the staff's initial determination of no significant hazards consideration on these proposed amendments in that notice.

2.0 EVALUATION

2.1 TS Change

This change deletes Surveillance Requirement (SR) 4.6.1.8.d.4 which states: that "Verifying that the heaters dissipate  $16 \pm 1.6$  kW when tested in accordance with ANSI N510-1975."

The EGTS was constructed with heaters in the ductwork upstream of the air cleanup units. These heaters were installed to maintain the relative humidity (RH) of the airstream passing through the cleanup units to less than or equal to 70 percent.

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The requested change was based on TVA calculation, EN DES Calculation TI-ECS-98, "Maximum Annulus Relative Humidity Resulting from a Loss of Coolant Accident (LOCA) or High Energy Line Break (HELB) Inside Containment." The maximum RH as calculated in the cited analysis in the annulus after a LOCA or HELB inside containment would be approximately 60 percent. This value is lower than the upper-bound RH of 70 percent that the duct heaters were installed to maintain. Therefore, the licensee determined that the duct heaters in EGTS are not required for safety.

The licensee's analysis is based on conservative assumptions. Initial steam pressure and temperature in the containment (23.0 psia and 327°F respectively) are assumed to remain constant as the accident progresses even though they would gradually decrease. A constant containment leak rate of 1.5 cubic feet per minute into the annulus is assumed. This is conservative since this leak rate is expected to decrease to half of the initial value after the first 24 hours (Reference: TVA-EN-DES Calculation TI-ECS-98).

Based on the above, the staff concludes that the EGTS duct heaters are not required for safety and the licensee's proposed change is acceptable.

#### 2.2 TS Change - SR 4.7.8.d.4

This change corrects a typographical error in SR 4.7.8.d.4 for Unit 1, from "dispite" to "dissipate."

The staff agrees with the licensee that the word in SR 4.7.8.d.4 for Unit 1 should be "dissipate" instead of "dispite" in referring to the requirement that heaters will "dissipate  $32 \pm 3.2$  kW." Therefore, the staff concludes that this proposed change is acceptable.

#### 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 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 (52 FR 47793) on December 16, 1987 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: S. B. Kim

Dated: March 6, 1989