May 3, 1983

Docket Nos: 50-327
and 50-328

Mr. H. G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Dear Mr. Parris:

Subject: Issuance of Amendment No. 28 to Facility Operating License No. DPR-77 and Amendment No. 17 to Facility Operating License No. DPR-79 - Sequoyah Nuclear Plant, Units 1 and 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 28 to Facility Operating License No. DPR-77 and Amendment No. 17 to Facility Operating License No. DPR-79.

The amendments change the Technical Specifications related to the Upper Head Injection (UHI) accumulator water level setpoint and tolerances. The amendments are in response to your letter dated March 28, 1983.

A copy of the related safety evaluation supporting Amendment No. 28 to Facility Operating License DPR-77 and Amendment No. 17 to Facility Operating License DPR-79 is enclosed. Also enclosed is a copy of the Federal Register Notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/s/

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:
1. Amendment No. 28 to DPR-77
2. Amendment No. 17 to DPR-79
3. Safety Evaluation
4. Federal Register Notice

cc w/enclosures:
See next page

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	DL:LB #4			
SURNAME	MDuncan/hmc	MMiller	CStahle	EAdensam			
DATE	4/27/83	4/27/83	4/28/83	5/3/83			

SEQUOYAH

Mr. H. G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

cc: Herbert S. Sanger, Jr., Esq.
General Counsel
Tennessee Valley Authority
400 Commerce Avenue
E 11B 33
Knoxville, Tennessee 37902

Mr. H. N. Culver
Tennessee Valley Authority
400 Commerce Avenue, 249A HBB
Knoxville, Tennessee 37902

Mr. Bob Faas
Westinghouse Electric Corp.
P.O. Box 355
Pittsburgh, Pennsylvania 15230

Mr. Jerry Wills
Tennessee Valley Authority
400 Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Mr. Donald L. Williams, Jr.
Tennessee Valley Authority
400 Commerce Avenue, W10C131C
Knoxville, Tennessee 37902

Resident Inspector/Sequoyah NPS
c/o U.S. Nuclear Regulatory
Commission
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Director, Office of Urban
& Federal Affairs
108 Parkway Towers
404 James Robertson Way
Nashville, Tennessee 37219

Attorney General
Supreme Court Building
Nashville, Tennessee 37219

U.S. Environmental Protection
Agency
ATTN: EIS Coordinator
345 Courtland Street
Atlanta, Georgia 30308

Honorable Don Moore, Jr.
County Judge
Hamilton County Courthouse
Chattanooga, Tennessee 37402

Regional Administrator
Nuclear Regulatory Commission,
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Reactor Training Center
U.S. Nuclear Regulatory Commission
Osburne Office Center, Suite 200
Chattanooga, Tennessee 37411

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

May 3, 1983

AMENDMENT NO. 28 TO FACILITY OPERATING LICENSE DPR-77 - SEQUOYAH UNIT 1
AMENDMENT NO. 17 TO FACILITY OPERATING LICENSE DPR-79 - SEQUOYAH UNIT 2

DISTRIBUTION w/enclosures:

Docket No. 50-327/328
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Local PDR
NSIC
TERA
A. Rosenthal, ASLAB
ASLBP
ACRS (16)
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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 28
License No. DPR-77

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

   A. The application for amendment to the Sequoyah Nuclear Plant, Unit 1 (the facility) Facility Operating License No. DPR-77 filed by the Tennessee Valley Authority (licensee), dated March 28, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the license, as amended, 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 hereby amended by page changes to the Appendix A Technical Specifications as indicated in the attachments 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 Appendix A, as revised through Amendment No. 28 , are hereby incorporated into the license.

OFFICE ▶							
SURNAME ▶							
DATE ▶							

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

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Appendix A Technical
Specification Changes

Date of Issuance: May 3, 1983

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	OELD	DL:LB #4	AD:L:DL	
SURNAME	MDuncan/hmc	MMiller	CStahle		EAdensam	INovak	
DATE	4/28/83	4/28/83	4/ /83	4/28/83	5/3/83	5/3/83	

ATTACHMENT TO LICENSE AMENDMENT NO. 28

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change.

Amended Page
3/4 5-4

OFFICE ▶							
SURNAME ▶							
DATE ▶							

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the solution in the water-filled accumulator.

c. At least once per 18 months by:

1. Verifying that each accumulator isolation valve closes automatically when the water level in the water-filled accumulator is 82.1 $\pm$ 5.6 inches above the tank vendor working line. This corresponds to 87.1 $\pm$ 5.6 inches when corrected for the mass of cover gas.

2. Verifying that the total dissolved nitrogen and air in the water-filled accumulator is less than 80 SCF per 1800 cubic feet of water (equivalent to 5×10^{-5} pounds nitrogen per pounds water).

d. At least once per 5 years by removing the membrane installed between the water-filled and nitrogen bearing accumulators and verifying that the removed membrane bursts at a differential pressure of 40 $\pm$ 10 psi.

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 17
License No. DPR-79

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

   A. The application for amendment to the Sequoyah Nuclear Plant, Unit 2 (the facility) Facility Operating License No. DPR-79 filed by the Tennessee Valley Authority (licensee), dated March 28, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the license, as amended, 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 hereby amended by page changes to the Appendix A Technical Specifications as indicated in the attachments 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 Appendix A, as revised through Amendment No. 17 , are hereby incorporated into the license.

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
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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

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Appendix A Technical
Specification Change

Date of Issuance: May 3, 1983

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	OELD	DL:LB #4	AD:L:DL	
SURNAME	MDuncan/hmc	MMiller	CStahle		EAdensam	fNovak	
DATE	4/28/83	4/29/83	4/0/83	4/28/83	5/3/83	5/3/83	

ATTACHMENT TO LICENSE AMENDMENT NO. 17

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change.

Amended Page
3/4 5-4

OFFICE ▶	.....	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....	.....

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the solution in the water-filled accumulator.

c. At least once per 18 months by:

1. Verifying that each accumulator isolation valve closes automatically when the water level in the water-filled accumulator is 82.1 $\pm$5.6 inches above the tank vendor working line. This corresponds to 87.1 $\pm$ 5.6 inches when corrected for the mass of cover gas.

2. Verifying that the total dissolved nitrogen and air in the water-filled accumulator is less than 80 SCF per 1800 cubic feet of water (equivalent to 5×10^{-5} pounds nitrogen per pounds water).

d. At least once per 5 years by removing the membrane installed between the water-filled and nitrogen bearing accumulators and verifying that the removed membrane bursts at a differential pressure of 40 $\pm$ 10 psi.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 28 TO FACILITY OPERATING LICENSE DPR-77

AND AMENDMENT NO. 17 TO FACILITY OPERATING LICENSE DPR-79

TENNESSEE VALLEY AUTHORITY

INTRODUCTION

In a submittal dated March 28, 1983, Tennessee Valley Authority (TVA) submitted a proposed Technical Specification change for the Upper Head Injection (UHI) accumulator water level setpoint and tolerances. The accumulators are presently required to isolate at 103.4 0.5 inches above the tank vendor working line. During an 18-month surveillance required by the Sequoyah Technical Specifications, the inability to remain within this setpoint and tolerance was initially discovered. For the interim period of time until resolution of the situation, TVA has adhered to a 30-day surveillance period to ensure that the accumulator water level would be within Technical Specification limits. TVA has been unable to comply with the accumulator water level Technical Specification requiring TVA to recalibrate the setpoint every 30 days. TVA has applied a Westinghouse evaluation to justify changing Technical Specification 4.5.1.2.c setpoint and tolerance to 87.1 5.6 inches.

EVALUATION

The licensee considers the setpoint and tolerance on the accumulator water level unnecessarily restrictive for safe plant operation. TVA has provided an assessment (Ref. 1) which supports changing the water level setpoint to 82.1 inches above the tank vendor working line (87.1 inches after correction of mass of cover gas) with a tolerance of 5.6 inches. The proposed setpoint and tolerance corresponds to an increased allowable water delivery from the accumulator of 50 ft^3.

Two sets of calculations were discussed in Reference 1. The first set (using the 1978 UHI model (Ref. 2)) was performed for the limiting break with perfect and imperfect mixing assumptions in the upper head. TVA has shown previously (Ref. 3) that minimizing the amount of water delivered to the upper head is conservative for imperfect mixing, and maximizing the delivered UHI water is conservative for perfect mixing. Therefore, both cases need to be assessed to determine an allowable setpoint and tolerance. A summary of the worst case results follows:

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Table 1

Worst Case Sequoyah ECCS Performance with the 1978 model

Break	Mixing Model	Volume of UHI Delivered (ft^3)	F_Q	PCT (^oF)
0.6 DECLG	Imperfect	900	2.237	2200
0.6 DECLG	Perfect	1053	2.32	2111

Since the imperfect mixing case is already at the 10 CFR 50.46 limit of 2200^{o}F, only the perfect mixing case can be adjusted to increase the water volume and, thus, increase the tolerance. Based on previous analyses, the sensitivity of peak cladding temperature (PCT) to volume of UHI water delivered (Ref. 3), change in F_Q (Ref. 4), and reduction in pellet temperature uncertainty (Ref. 5) has been determined. By applying the results of these sensitivity studies, the licensee estimated that the net effect on PCT would be nearly zero if the delivered water was increased to 1105 ft^3 (an increase of about 50 ft^3) and the F_Q was reduced to the 2.237 value used for imperfect mixing. The second set of calculations discussed used the 1981 model revisions appropriate for UHI plants (Ref. 6) with the following results:

Table 2

Worst Case Sequoyah ECCS Performance with the 1981 model

Break	Mixing Model	Volume of UHI Delivered (ft^3)	F_Q	PCT (^oF)
0.8 DECLG	Imperfect	900	2.237	2147
0.8 DECLG	Perfect	1049	2.237	1982

Applying the same sensitivity factors of Ref. 3 thru 5 to the results using the 1981 model, shows that even more margin exists for increasing the level setpoint and tolerance than was the case for the 1978 model. This method of applying sensitivity factors has been used for ECCS assessment on several cases for steam generator tube plugging and cladding swelling and rupture. For the Sequoyah application, the sensitivity factors are applied over a narrow temperature range and are well established. After applying the sensitivity factors to the calculated results, the peak cladding temperature would still be below the 10 CFR 50.46 limit of 2200^{o}F. The staff, therefore, finds the licensee's justification for expanding the UHI volumetric delivery limits to be acceptable, and therefore finds the proposed amendment acceptable.

ENVIRONMENTAL CONSIDERATION

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

REFERENCES:

1. Letter from L. M. Mills (TVA) to E. Adensam (NRC) dated March 28, 1983.

2. WCAP-8479 (Rev. 2) "Westinghouse Emergency Core Cooling System Evaluation Model Application to Plants Equipped with Upper Head Injection," November 1977.

3. Telecopy from TVA dated 4-25-83.

4. Sequoyah Final Safety Analysis Report dated February 1974 and subsequent amendments.

5. WCAP-9180, "Consideration of Uncertainties in the Specification of Core Hot Channel Factor Limits," September 1977, (WCAP-9181 Nonproprietary).

6. WCAP-9220-p-A Rev. 1, "Westinghouse ECCS Evaluation Model 1981 Version," Appendix B, February 1982, (WCAP-9221-A Nonproprietary).

Date: May 3, 1983

Principal Contributors: Norman Lauben, Reactor Systems Branch, DSI
Melanie Miller, Licensing Branch No. 4, DL
Cari Stahle, Licensing Branch No. 4, DL

OFFICE	DL:LB #4	LA:DL:LB #4	DL:LB #4	DSI/RSB	DL:LB #4	AD:L:DL	
SURNAME	MMiller/hmc	MDuncan	CStahle	BSheron	EAdensam	TNovak	
DATE	4/28/83	4/29/83	4/29/83	5/2/83	5/3/83	5/3/83	

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-327 AND 50-328

TENNESSEE VALLEY AUTHORITY

NOTICE OF ISSUANCE OF AMENDMENTS

FACILITY OPERATING LICENSE NOS. DPR-77 AND DPR-79

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 28 to Facility Operating License No. DPR-77 and Amendment No. 17 to Facility Operating License No. DPR-79, issued to Tennessee Valley Authority (licensee) for the Sequoyah Nuclear Plant, Units 1 and 2 (the facilities) located in Hamilton County, Tennessee. These amendments change the Technical Specifications related to the Upper Head Injection (UHI) accumulator water level setpoint and tolerances. The amendments are effective as of their dates of issuance.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

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For further details with respect to this action, see (1) Tennessee Valley Authority letter dated March 28, 1983, (2) Amendment No. 28 to Facility Operating License No. DPR-77 with Appendix A Technical Specification page change; (3) Amendment No. 17 to Facility Operating License No. DPR-79 with Appendix A Technical Specification page change; and (4) the Commission's related Safety Evaluation.

All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C., and the Chattanooga Hamilton County Bicentennial Library, 1001 Broad Street, Chattanooga, Tennessee 37402. A copy of Amendment No. 28 and Amendment No. 17 may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 3rd day of May 1983.

FOR THE NUCLEAR REGULATORY COMMISSION

S/

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

OFFICE	LA:DL:LB #4	DL:LB #4	DL:LB #4	OELD	DL:LB #4		
SURNAME	MDuncan/hmc	MMiller	CStahle		EAdensam		
DATE	4/28/83	4/29/83	4/29/83	4/29/83	5/3/83		

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

DISTRIBUTION:
Docket File
LB#4 Reading
CStahle
MDuncan

May 9, 1983

Docket Nos. 50-327
50-328

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: **Sequoyah Nuclear Plant, Units 1 and 2 (TENNESSEE VALLEY AUTHORITY)**

One is
~~Two~~ signed originals of the Federal Register Notice identified below ~~are~~ enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (12) of the Notice are enclosed for your use.

☐ Notice of Receipt of Application for Construction Permit(s) and Operating License(s).

☐ Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.

☐ Notice of Availability of Applicant's Environmental Report.

☐ Notice of Proposed Issuance of Amendment to Facility Operating License.

☐ Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.

☐ Notice of Availability of NRC Draft/Final Environmental Statement.

☐ Notice of Limited Work Authorization.

☐ Notice of Availability of Safety Evaluation Report.

☐ Notice of Issuance of Construction Permit(s).

☒ Notice of Issuance of Facility Operating License(~~s~~) or Amendment(s).

☐ Other: _____

Office of Nuclear Reactor Regulation

Enclosure:
As Stated

OFFICE→	DL:LB#4					
SURNAME→	MDuncan					
DATE→	5/9/83					

NRC FORM 102 (1-76)