

November 28, 1988

Docket No. 50-328

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

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Dear Mr. Kingsley:

SUBJECT: WEIGHING OF ICE - SEQUOYAH NUCLEAR PLANT, UNIT 2 (TAC R00457)
(TS 88-18)

The Commission has issued the enclosed Amendment No. 80 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Unit 2. This amendment is in response to your application dated September 21, 1988.

The amendment modifies the Sequoyah Nuclear Plant, Unit 2 Technical Specifications. The change revises surveillance requirement (SR) 4.6.5.1.b.2 to allow a one-time extension to the next refueling outage for weighing of ice. A footnote is added to the current requirement that SR 4.6.5.1.b.2 be performed at least once per 12 months. The footnote states that the SR will be performed no later than the Unit 2, Cycle 3 refueling outage or January 22, 1989, whichever comes first. By your request, this will only apply to the weighing of ice in the ice baskets.

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 Special Projects

Enclosures:

- Amendment No. 80 to License No. DPR-79
- Safety Evaluation

cc w/enclosures:

See next page

*SEE PREVIOUS CONCURRENCE

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PDC

OFC	:OSP:TVA/LA*	:OSP:TP/PM*	:TVA:AD/TP*	:OGC* with	:TV:AD/P	:	:
NAME	:MSimms	:JDonohew	:as	:BDLiaw	:SBlack	:	:
DATE	:11/14/88	:11/14/88	:11/19/88	:11/21/88	:11/28/88	:	:

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

Dear Mr. White:

SUBJECT: WEIGHING OF ICE - SEQUOYAH NUCLEAR PLANT, UNIT 2 (TAC R00457)
(TS 88-18)

The Commission has issued the enclosed Amendment No. to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Unit 2. These amendments are in response to your application dated September 21, 1988.

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Sincerely,

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

Enclosures:

- Amendment No. to License No. DPR-79
- Safety Evaluation

cc w/enclosures:
See next page

OFC	:OSP:TVA/LA	:OSR:TVA/PM	:TVA:AD/TB	:OGC	:TV:AD/P	:	:
NAME	:MSimms <i>mes</i>	:JDonohew:as	:BDLiaw <i>BR</i>	:SBlack <i>SB</i>	:SBlack	:	:
DATE	:11/14/88	:11/14/88	:11/14/88	:11/21/88	:11/ /88	:	:

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. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 80
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 September 21, 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-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. 80, 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 Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 28, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 80

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

3/4 6-27

3/4 6-28

INSERT

3/4 6-27

3/4 6-28*

CONTAINMENT SYSTEMS

3/4.6.5 ICE CONDENSER

ICE BED

LIMITING CONDITION FOR OPERATION

3.6.5.1 The ice bed shall be OPERABLE with:

- a. The stored ice having a boron concentration of at least 1800 ppm boron as sodium tetraborate and a pH of 9.0 to 9.5,
- b. Flow channels through the ice condenser,
- c. A maximum ice bed temperature of less than or equal to 27°F,
- d. A total ice weight of at least 2,333,100 pounds at a 95% level of confidence, and
- e. 1944 ice baskets.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1 The ice condenser shall be determined OPERABLE:

- a. At least once per 12 hours by using the ice bed temperature monitoring system to verify that the maximum ice bed temperature is less than or equal to 27°F.
- b. At least once per 6 months during the first 2 years following initial criticality and at least once per 12 months* thereafter by:
 1. Chemical analyses which verify that at least 9 representative samples of stored ice have a boron concentration of at least 1800 ppm as sodium tetraborate and a pH of 9.0 to 9.5 at 20°C.

* One time extension to be performed no later than Unit 2, Cycle 3 refueling outage on January 22, 1989, whichever occurs first.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Weighing a representative sample of at least 144 ice baskets and verifying that each basket contains at least 1200 lbs of ice. The representative sample shall include 6 baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8 and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1200 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of ice from the 20 additional baskets and the discrepant basket shall not be less than 1200 pounds/basket at a 95% level of confidence.

The ice condenser shall also be subdivided into 3 groups of baskets, as follows: Group 1 - bays 1 through 8, Group 2 - bays 9 through 16, and Group 3 - bays 17 through 24. The minimum average ice weight of the sample baskets from Radial Rows 1, 2, 4, 6, 8 and 9 in each group shall not be less than 1200 pounds/basket at a 95% level of confidence.

The minimum total ice condenser ice weight at a 95% level of confidence shall be calculated using all ice basket weights determined during this weighing program and shall not be less than 2,333,100 pounds.

3. Verifying, by a visual inspection of at least two flow passages per ice condenser bay, that the accumulation of frost or ice on flow passages between ice baskets, past lattice frames, through the intermediate and top deck floor grating, or past the lower inlet plenum support structures and turning vanes is restricted to a thickness of less than or equal to 0.38 inches. If one flow passage per bay is found to have an accumulation of frost or ice with a thickness of greater than or equal to 0.38 inches, a representative sample of 20 additional flow passages from the same bay shall be visually inspected. If these additional flow passages are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. More than one restricted flow passage per bay is evidence of abnormal degradation of the ice condenser.
- c. At least once per 40 months by lifting and visually inspecting the accessible portions of at least two ice baskets from each 1/3 of the ice condenser and verifying that the ice baskets are free of detrimental structural wear, cracks, corrosion or other damage. The ice baskets shall be raised at least 10 feet for this inspection.



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 80 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-328

1.0 INTRODUCTION

By letter dated September 21, 1988, the Tennessee Valley Authority, the licensee for Sequoyah, Unit 2, proposed a Technical Specifications (TS) change to the Operating License for Unit 2. The proposed change would revise surveillance requirement (SR) 4.6.5.1.b.2 to allow for a one-time extension to the next refueling outage for weighing of ice.

2.0 EVALUATION

The operability of the ice beds in the ice condenser ensures that the required ice inventory will be distributed evenly throughout the ice condenser bays in containment and contain sufficient heat removal capability to condense the reactor system volume released during a loss-of-coolant accident (LOCA). This is to have sufficient pressure suppression capability to limit the containment peak pressure transient during a LOCA.

The current SR 4.6.5.1.b.2 requires ice weighing of the Sequoyah, Unit 2 ice baskets in containment every 12 months. This will require the licensee to shut down Unit 2 to perform the surveillance by December 4, 1988. The expected refueling outage is January 22, 1989, thus this will necessitate a plant shutdown approximately one month before the scheduled refueling outage for the licensee to comply with the SR. The licensee stated that the ice weighing can only be performed during a plant shutdown. In order to avoid the additional plant shutdown, a one time extension was requested by the licensee so that the surveillance could be performed during the upcoming refueling outage or by January 22, 1989, whichever comes first.

Justification for the proposed change is based on data from the previous ice weighing surveillances by the licensee covering the period between May 1982 to September 1985. Based on the average sublimation rate and extrapolation of the data to January 22, 1989, the licensee estimated that the overall weight of the ice condenser would be greater than the minimum required amount of 2,333,100 pounds of ice, with a 95% confidence level, listed in the TS 3.6.5.1.d and 4.6.5.1.b. This amount of ice satisfies the basic safety function of the ice condenser which is to provide sufficient heat removal capability for the containment during the design basis LOCA. The licensee calculated a total weight of 2,397,000 pounds of ice in the ice condenser for January 22, 1989.

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The calculations done by the licensee were based on the data from the previous ice weighing surveillances. This data is for the ice baskets weighed in the previous surveillances required for the 95% level of confidence. The calculations used the average rate of sublimation for the period from May 1982 to September 1985. Because the sublimation rate has decreased since the initial ice weighing, these calculations should be conservative.

The licensee stated that, using the expected sublimation rate, all of the group-row combinations and bays are well in excess of the analytical limit of 1,080 pounds, which is the amount taken credit for in all containment safety analyses. The Bases for the TS state that the weight of 1,200 pounds of ice per bucket contains a 10% allowance for ice loss through sublimation. Description of the group-row combination is provided in the SR. Theoretical weight of a 1,080 pounds is only used in the analysis and the licensee did not request a change of the SR other than one time extension of surveillance to January 22, 1989, indicating that the licensee will continue with the 1,200 pounds SR requirement at the January outage.

Based on the above, the staff finds that the proposed one time extension of the ice basket weighing requirement to no later than January 22, 1989 is acceptable and concludes that the ice condenser has sufficient capability to perform its safety function during the requested extension period. The total weight of ice in the ice condenser should not drop below the TS limit through sublimation before the unit must shut down.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a surveillance requirement. The staff has determined that the amendment involves 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets 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 this amendment.

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 41001) on October 19, 1988 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 amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: S. B. Kim, J. Donohew

Dated: November 28, 1988