December 17, 1998

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: ISSUANCE OF AMENDMENT FOR STEAM GENERATOR ATMOSPHERIC DUMP VALVES - ACTION STATEMENT FOR INOPERABLE SAFETY RELATED AIR SUPPLY, WATTS BAR NUCLEAR PLANT (TAC NO. MA1133)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 16 to Facility Operating License No. NPF-90 for Watts Bar Nuclear Plant, Unit 1. This amendment is in response to your application dated February 18, 1998, concerning Technical Specification (TS) 3.7.4, Steam Generator Atmospheric Dump Valves (ADVs), and its associated bases by adding a new TS CONDITION, REQUIRED ACTION, and COMPLETION TIME to address a potential condition where two ADVs are made technically inoperable when one train of the safety-related auxiliary control air system is taken out of service.

A copy of the safety evaluation is also enclosed. Notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

Robert E. Martin, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures: 1. Amendment No. 16 to NPF-90
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Robert Martin

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Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-390

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WATTS BAR NUCLEAR PLANT

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Mr. Michael H. Mobley, Director
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-390

WATTS BAR NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 16
License No. NPF-90

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 18, 1998, 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 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. NPF-90 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 16 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. TVA shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, to be implemented no later than 30 days of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 17, 1998

ATTACHMENT TO AMENDMENT NO. 16

FACILITY OPERATING LICENSE NO. NPF-90

DOCKET NO. 50-390

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 Pages	Insert Pages
3.7-9	3.7-9
B 3.7-22	B 3.7-22
B 3.7-23	B3.7-23

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 Four ADV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ADV line inoperable.	A.1	--------NOTE---------- LCO 3.0.4 is not applicable. ---------- Restore required ADV line to OPERABLE status.	7 days
B. One train (two ADV lines) inoperable due to one train of ACAS inoperable.	B.1	Restore ADV lines to OPERABLE status.	72 hours
C. Two or more required ADV lines inoperable for reasons other than Condition B.	C.1	Restore all but one ADV line to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1 AND	Be in MODE 3.	6 hours
	D.2	Be in MODE 4 without reliance upon steam generator for heat removal.	18 hours

BASES

LCO (continued)

An ADV is considered OPERABLE when it is capable of providing controlled relief of the main steam flow and capable of fully opening and closing on demand.

APPLICABILITY

In MODES 1, 2, and 3, and in MODE 4, when a steam generator is being relied upon for heat removal, the ADVs are required to be OPERABLE.

In MODE 5 or 6, an SGTR is not a credible event.

ACTIONS

A.1

With one required ADV line inoperable, action must be taken to restore OPERABLE status within 7 days. The 7 day Completion Time allows for the redundant capability afforded by the remaining OPERABLE ADV lines, a nonsafety grade backup in the Steam Dump System, and MSSVs. Required Action A.1 is modified by a Note indicating that LCO 3.0.4 does not apply.

B.1

The four ADVs are supplied with safety-related Train A and Train B control air by the Auxiliary Control Air System (ACAS). Two valves receive Train A air and two valves receive Train B air. With one train (two ADV lines) inoperable due to an inoperable ACAS train, action must be taken to restore operability of the ACAS train to ensure operability of the ADV lines. The 72 hour Completion Time is reasonable since alternate means are available to operate the ADVs assuming an inoperable ACAS train, and the low probability of an event occurring during this period that would require the ADV lines. Normal control air is used to operate the valves, if available. In addition, the ADVs can be manually operated with the valve hand wheel, or by manually aligning a bottled nitrogen system to the valve operators. Each ADV is provided with a main and alternate nitrogen bottle designed to operate the valves if normal and emergency air supplies are lost. Further, the MSSVs will provide system over pressure protection if the ADVs fail to function, and the condenser steam dump valves will normally be available for plant cooldown.

C.1

With two or more ADV lines inoperable, action must be taken to restore all but one ADV line to OPERABLE status. Since the block valve can be closed to isolate an ADV, some repairs may be possible with the unit at power. The 24 hour Completion Time is reasonable to repair inoperable ADV lines, based on the availability of the Steam Dump System and MSSVs, and the low probability of an event occurring during this period that would require the ADV lines.

(Continued)

BASES

ACTIONS (continued)

D.1 and D.2

If the ADV lines cannot be restored to OPERABLE status within the associated Completion Time. the plant must be placed in a MODE in which the LCO does not apply. To achieve this status. the plant must be placed in at least MODE 3 within 6 hours. and in MODE 4. without reliance upon steam generator for heat removal. within 18 hours. The allowed Completion Times are reasonable. based on operating experience. to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

To perform a controlled cooldown of the RCS. the ADVs must be able to be opened either remotely or locally and throttled through their full range. This SR ensures that the ADVs are tested through a full control cycle at least once per fuel cycle. Performance of inservice testing or use of an ADV during a unit cooldown may satisfy this requirement. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. The Frequency is acceptable from a reliability standpoint.

SR 3.7.4.2

The function of the block valve is to isolate a failed open ADV. Cycling the block valve both closed and open demonstrates its capability to perform this function. Performance of inservice testing or use of the block valve during unit cooldown may satisfy this requirement. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. The Frequency is acceptable from a reliability standpoint.

REFERENCES

1. Watts Bar FSAR. Section 10.3. "Main Steam Supply System."

2. Watts Bar FSAR. Section 15.0. "Accident Analysis."

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 16 TO FACILITY OPERATING LICENSE NO. NPF-90

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-390

1.0 INTRODUCTION

By letter dated February 18, 1998, the Tennessee Valley Authority (the licensee) submitted a request for changes to the Watts Bar Nuclear Plant, Unit 1, Technical Specifications (TS). The requested changes involve TS 3.7.4, Steam Generator Atmospheric Dump Valves (ADVs), and its associated bases by adding a new TS CONDITION, REQUIRED ACTION, and COMPLETION TIME to address a potential condition where two ADVs are made technically inoperable when one train of the safety-related auxiliary control air system (ACAS) is taken out of service. The change proposes to extend the time allowed to return the ADVs to service from 24 hours to 72 hours for this condition.

Also, a change is proposed to modify the existing requirements to clarify the required actions when more than one ADVs is declared inoperable for reasons other than taking the ACAS system out of service.

2.0 EVALUATION

The four steam generator (SG) ADVs, one per SG, provide a method for cooling the reactor coolant system to the residual heat removal system entry conditions should the preferred heat sink via the steam dump system to the condenser be unavailable. Each SG has five safety relief valves in addition to the ADV, which provide emergency overpressure protection for the SGs.

The design of the ADVs is based on the capability to cool the reactor with an ADV capacity sufficient to achieve a cooldown rate of 50° F/hr throughout the cooldown using two ADVs. The SG tube rupture (SGTR) accident is the design event for the ADVs, recovery from which requires the operator to perform a limited cooldown to establish adequate subcooling and subsequent reactor coolant system (RCS) depressurization in order to terminate the break flow into the ruptured SG. The ADVs can be operated using the normally aligned control air system or the backup safety-related ACAS system. Supply piping from these two air systems is divided into two trains, each train supplying air to two ADVs. The ADVs can also be operated manually using a handwheel or by aligning a nitrogen supply to the valve operator in the event of a complete loss of control air. A main and alternate supply of bottled nitrogen is staged at each ADV.

ENCLOSURE

The current TS requires four ADVs be operable in Modes 1, 2, 3, and in Mode 4 when steam is relied upon for heat removal. TS specify varying actions depending upon the number of operable ADVs. If one ADV is inoperable, current TS require that the inoperable ADV be returned to service within seven days. If two or more ADVs are inoperable, current TS require the licensee to restore one ADV to operable status within 24 hours. If the required actions cannot be met, the plant must be placed in Mode 3 within 6 hours and in Mode 4 without reliance on the SG for heat removal within 18 hours.

The licensee proposed to modify TS 3.7.4 and its associated bases to address the condition where one train of ACAS becomes inoperable. This change precludes undesirable plant transients during repairs, trouble-shooting, or preventive maintenance on a train of ACAS that takes longer than 24 hours. With a train of ACAS inoperable, two ADVs, although functional, would be technically inoperable due to the out of service ACAS train. The proposed required action for this condition (new CONDITION B) would be to restore the ADV lines to the OPERABLE status within 72 hours. While the ACAS train is inoperable, the "inoperable" ADVs could still be operated by their normally aligned control air system, by using the manual handwheel, or by operating the valves with the nitrogen supply staged in the event there is a complete loss of air. In addition, dumping steam to the condenser as a form of heat removal will normally be available. Regardless of whether the technically inoperable ADVs can perform their function, for the period proposed in the completion time of this change, two ADVs will be operable and available to perform their safety-related function from the other train of ACAS. The staff reviewed the completion time for other out-of-service equipment in systems of similar importance to safety and found the allowed completion time was consistent with the proposed completion time for the ADVs.

Based on adequate heat removal capability from the two operable, safety-related ADVs and from the normally available main steam system, and the redundant methods available to plant operators to operate the ADVs that were made inoperable by the out-of-service ACAS train, the staff concludes that extending the completion time is consistent with plant conditions where postulated events that require the ADVs for heat removal can be addressed with the remaining equipment, provided there are no additional single failures. The staff, therefore, finds the proposed changes acceptable.

The licensee also proposed to change the designation for existing CONDITION B and C to new CONDITION C and D to account for the proposed changes described in the preceding paragraphs, and to edit an unclear REQUIRED ACTION statement. The current TS requires that if two or more ADVs are inoperable, one ADV must be restored to operable status within 24 hours. The licensee proposed to change the REQUIRED ACTION to say that if two or more ADVs are inoperable for any reason other than an out-of-service ACAS train, all but one ADV must be returned to operable status within 24 hours. Existing provisions of TS 3.7.4 provides for a completion time of 7 days for one inoperable ADV. The staff concludes that the proposed changes to the wording of the current TS 3.7.4 CONDITION B (proposed CONDITION C) are acceptable because they clarify the intent of the specification thus reducing the potential for improper interpretation.

The staff reviewed the administrative changes (e.g., renumbering) associated with the proposed modification to the TS and their Bases and have concluded they have no effect on safety and are, therefore, acceptable.

SUMMARY

The staff reviewed the licensee's proposed changes to TS 3/4.3.7.4 for the ADVs and its associated Bases. Based on its review, the staff concludes that the proposed change to allow two ADVs to be inoperable for 72 hours due to an inoperable train of ACAS is acceptable because there remains sufficient capacity in the two operable ADVs to remove the required amount of heat from the reactor coolant system. The staff concludes that, even though two ADVs are technically inoperable, they are functional and can be operated using several backup methods should the need arise. Heat removal can also be accomplished by dumping steam to the main condenser under most plant conditions. The staff also concludes that the proposed changes to the wording of the current TS 3.7.4 CONDITION B (proposed CONDITION C) are acceptable because they clarify the intent of the specification thus reducing the potential for improper interpretation. The staff therefore concludes that the proposed changes to TS 3.7.4 and its Bases are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (63 FR 43213, dated August 12, 1998). 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. Gratton

Date: December 17, 1998