

February 7, 2005

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

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 — ISSUANCE OF AMENDMENT
REGARDING 125 VOLT DIRECT CURRENT ELECTRICAL POWER
SUBSYSTEM (TAC NO. MC3714)

Dear Mr. Singer:

The Commission has issued the enclosed Amendment No. 54 to Facility Operating License No. NPF-90 for Watts Bar Nuclear Plant, Unit 1. This amendment is in response to your application dated July 8, 2004 (WBN-TS-04-05).

The amendment revises Technical Specification (TS) Section 3.8.4, "DC Sources-Operating." Specifically, the amendment removes the term 'inter-rack' and associated wording from TS Surveillance Requirements 3.8.4.6 and 3.8.4.10 for the 125 Volt Direct Current electrical power subsystems of the emergency diesel generators.

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

Sincerely,

/RA/

Douglas V. Pickett, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures: 1. Amendment No. 54 to NPF-90
2. Safety Evaluation

cc w/enclosures: See next page

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Mr. Karl W. Singer
Tennessee Valley Authority

WATTS BAR NUCLEAR PLANT

cc:

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-390

WATTS BAR NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 54
License No. NPF-90

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated July 8, 2004, 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. NPF-90 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 54, 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, and shall be implemented no later than 60 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael L. Marshall, Jr., Chief, Section 2
Project Directorate II
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 7, 2005

ATTACHMENT TO AMENDMENT NO. 54

FACILITY OPERATING LICENSE NO. NPF-90

DOCKET NO. 50-390

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages

3.8-26

3.8-27

Insert Pages

3.8-26

3.8-27

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 54 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 July 8, 2004 [Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML041950090], Tennessee Valley Authority (the licensee) submitted a request for license amendment to the Technical Specifications (TSs) for Watts Bar Nuclear Plant, Unit 1. The proposed amendment would revise TS Section 3.8.4, "DC Sources-Operating." Specifically, the proposed amendment would remove the term 'inter-rack' and associated wording from TS Surveillance Requirements (SRs) 3.8.4.6 and 3.8.4.10 for the 125 Volt (V) Direct Current (DC) electrical power subsystems of the emergency diesel generators (DGs).

2.0 REGULATORY EVALUATION

The regulatory requirements which the staff applied in its review of the application include:

General Design Criterion (GDC) 17, "Electric power systems," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10, Part 50, of the Code of Federal Regulations (CFR) requires, in part, that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure. The offsite power system is required to be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

GDC-18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

3.0 TECHNICAL EVALUATION

The proposed change would revise TS Section 3.8.4, "DC Sources-Operating," by removing the phrase "# 50 E-6 ohm for inter-rack connections" from SRs 3.8.4.6 and 3.8.4.10 for the 125 V DC electrical power subsystems of the DGs.

The purpose of SRs 3.8.4.6 and 3.8.4.10 is to check the continuity for battery interconnections and terminals for each DG battery in the DG power subsystems. The licensee incorporated the term "inter-rack" into the SRs during the draft TS time period after adopting generic SRs for multi-rack batteries. Inter-rack implies that there are two or more racks per battery; however, each DG battery at Watts Bar utilizes a one-rack design. The licensee stated that during surveillance testing, Watts Bar personnel use the term inter-rack interchangeably with inter-tier. The licensee contends that this misunderstanding is likely further enhanced by the single rack battery configuration since it contains two rows of battery cells with one tier elevated above the other, thus, the one jumper cable between the upper and lower tiers could be misinterpreted as being between two racks rather than tiers. Additionally, the licensee stated that, the proper jumper cable was field tested since the intent of both terms was to test the same cable. The purpose of this TS change is to clarify that the one jumper cable between tiers is the inter-tier jumper cable by omitting other inter-rack references.

Control power for the DGs is provided by one DG battery system per DG. Each system is comprised of a battery, a battery charger, distribution center, cabling, and cable ways. The DG 125 V DC control power and field-flash circuits have power supplied from their respective 125 V distribution panel. The normal supply of DC current is from the associated charger. The battery provides control and field-flash power when the charger is unavailable. The charger supplies the normal DC loads, maintains the battery in a fully charged condition, and recharges (480 V Alternating Current (AC) available) the battery while supplying the required loads regardless of the status of the unit. The batteries are physically and electrically independent. The battery has sufficient capacity when fully charged to supply required loads for a minimum of 30 minutes following a loss of normal power. Each battery is normally required to supply loads during the time interval between loss of normal feed to its charger and the receipt of emergency power to the charger from its respective DG.

The initial conditions of Design Basis Accident and transient analyses at Watts Bar assume that Engineered Safety Feature systems are operable. The vital DC electrical power system provides normal and emergency DC electrical power for the emergency auxiliaries and control and switching during all modes of operation. The DG battery systems provide DC power for the DGs.

The OPERABILITY of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the plant. This includes maintaining the DC sources operable during accident conditions in the event of an assumed loss of all offsite AC power or all onsite AC power and a worst case single failure.

The staff has reviewed the proposed modification of the Watts Bar TSs to SRs 3.8.4.6 and 3.8.4.10. On the basis of our review, the staff finds that removing the phrase "50 E-6 ohm for inter-rack connections" from SRs 3.8.4.6 and 3.8.4.10 for the 125 V DC electrical power subsystems of the DGs will provide clarification to the Watts Bar TSs while continuing to meet

GDC 17 and 18. Therefore, the staff concludes that the amendment to SRs 3.8.4.6 and 3.8.4.10 is acceptable.

4.0 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.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (69 FR 46593). 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.

6.0 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: M. McConnell

Date: February 7, 2005