



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

December 7, 2017

Mr. Joseph W. Shea  
Vice President, Nuclear Regulatory Affairs  
and Support Services  
Tennessee Valley Authority  
1101 Market Street, LP 3R-C  
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - ISSUANCE OF AMENDMENT  
REGARDING VENTILATION FILTER TESTING PROGRAM (CAC NO. MF9584;  
EPID L-2017-LLA-0207)

Dear Mr. Shea:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 117 to Facility Operating License No. NPF-90 for the Watts Bar Nuclear Plant, Unit 1. This amendment is in response to your application dated March 31, 2017.

This amendment corrects an administrative error introduced into the Watts Bar, Unit 1, Technical Specifications (TSs) by Amendment No. 92, issued to Tennessee Valley Authority on June 19, 2013. Specifically, Amendment No. 92 approved, in part, deletion of TS 3.9.8, "Reactor Building Purge Air Cleanup Units," from the Watts Bar, Unit 1, TSs; however, the amendment did not delete associated references to the reactor building purge filters from TS 5.7.2.14, "Ventilation Filter Testing Program (VFTP)."

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

Sincerely,

A handwritten signature in black ink, appearing to read "Robert G. Schaaf".

Robert G. Schaaf, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures:

1. Amendment No. 117 to NPF-90
2. Safety Evaluation

cc: Listserv



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. 117  
License No. NPF-90

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Tennessee Valley Authority (TVA, the licensee) dated March 31, 2017, 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 Appendix A as revised through Amendment No. 117 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 30 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Undine Shoop, Chief  
Plant Licensing Branch II-2  
Division of operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Operating License  
and Technical Specifications

Date of Issuance: December 7, 2017

ATTACHMENT TO AMENDMENT NO. 117  
WATTS BAR NUCLEAR PLANT, UNIT 1  
FACILITY OPERATING LICENSE NO. NPF-90  
DOCKET NO. 50-390

Replace Page 3 of Operating License NPF-90 with the attached Page 3.

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

5.0-18  
5.0-19  
5.0-20

Insert Pages

5.0-18  
5.0-19  
5.0-20

- (4) TVA, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required, any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis, instrument calibration, or other activity associated with radioactive apparatus or components; and
  - (5) TVA, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect, and is subject to the additional conditions specified or incorporated below.
- (1) Maximum Power Level

TVA is authorized to operate the facility at reactor core power levels not in excess of 3459 megawatts thermal.
  - (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A as revised through Amendment No. 117 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) Safety Parameter Display System (SPDS) (Section 18.2 of SER Supplements 5 and 15)

Prior to startup following the first refueling outage, TVA shall accomplish the necessary activities, provide acceptable responses, and implement all proposed corrective actions related to having the Watts Bar Unit 1 SPDS operational.
  - (4) Vehicle Bomb Control Program (Section 13.6.9 of SSER 20)

During the period of the exemption granted in paragraph 2.D.(3) of this license, in implementing the power ascension phase of the approved initial test program, TVA shall not exceed 50% power until the requirements of 10 CFR 73.55(c)(7) and (8) are fully implemented. TVA shall submit a letter under oath or affirmation when the requirements of 73.55(c)(7) and (8) have been fully implemented.

5.7 Procedures, Programs, and Manuals (continued)

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5.7.2.14 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in accordance with Regulatory Guide 1.52, Revision 2; ASME N510-1989, and the exceptions noted for each ESF system in Table 6.5 of the FSAR.

- a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass within acceptance criterion when tested in accordance with Regulatory Guide 1.52, Revision 2, the exceptions noted for each ESF system in Table 6.5 of the FSAR, and ASME N510-1989 at the system flowrate specified below.

ESF VENTILATION SYSTEM	ACCEPTANCE CRITERIA	FLOW RATE
Emergency Gas Treatment	< 0.05%	4,000 cfm $\pm$ 10%
Auxiliary Building Gas Treatment	< 0.05%	9,000 cfm $\pm$ 10%
Control Room Emergency	< 1.00%	4,000 cfm $\pm$ 10%

(continued)

5.7 Procedures, Programs, and Manuals

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5.7.2.14 Ventilation Filter Testing Program (VFTP) (continued)

- b. Demonstrate for each of the ESF systems that an in-place test of the charcoal adsorber shows a penetration and system bypass within acceptance criterion when tested in accordance with Regulatory Guide 1.52, Revision 2, the exceptions noted for each ESF system in Table 6.5 of the FSAR, and ASME N510-1989 at the system flowrate specified below.

ESF VENTILATION SYSTEM	ACCEPTANCE CRITERIA	FLOW RATE
Emergency Gas Treatment	< 0.05%	4,000 cfm ± 10%
Auxiliary Building Gas Treatment	< 0.05%	9,000 cfm ± 10%
Control Room Emergency	< 1.00%	4,000 cfm ± 10%

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, and the exceptions noted for each ESF system in Table 6.5 of the FSAR, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of ≤ 30°C and greater than or equal to the relative humidity specified below.

(continued)

5.7 Procedures, Programs, and Manuals

5.7.2.14 Ventilation Filter Testing Program (VFTP) (continued)

ESF VENTILATION SYSTEM	METHYL IODIDE PENETRATION	RELATIVE HUMIDITY
Emergency Gas Treatment	< 0.175%	70%
Auxiliary Building Gas Treatment	< 0.175%	70%
Control Room Emergency	< 1.0%	70%

- d. Demonstrate for each of the ESF systems that the pressure drop across the entire filtration unit is less than the value specified below when tested in accordance with Regulatory Guide 1.52, Revision 2, the exceptions noted for each ESF system in Table 6.5 of the FSAR, and ASME N510-1989 at the system flowrate specified below.

ESF VENTILATION SYSTEM	PRESSURE DROP	FLOW RATE
Emergency Gas Treatment	< 7.6 inches water	4,000 cfm $\pm$ 10%
Auxiliary Building Gas Treatment	< 7.6 inches water	9,000 cfm $\pm$ 10%
Control Room Emergency	< 3.5 inches water	4,000 cfm $\pm$ 10%

(continued)





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 117 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 March 31, 2017 (Agency Documents Access and Management System (ADAMS) Accession No. ML17093A854), the Tennessee Valley Authority (TVA, the licensee), submitted a request for changes to the Watts Bar Nuclear Plant (Watts Bar), Unit 1, Technical Specifications (TSs). The proposed changes would correct an administrative error introduced into the Watts Bar, Unit 1, TSs by Amendment No. 92, issued to TVA on June 19, 2013 (ADAMS Accession No. ML13141A564). Specifically, Amendment 92 approved, in part, deletion of TS 3.9.8, "Reactor Building Purge Air Cleanup Units," from the Watts Bar, Unit 1, TSs; however, the amendment did not delete associated references to the reactor building (RB) purge filters from TS 5.7.2.14, "Ventilation Filter Testing Program (VFTP)."

2.0 REGULATORY EVALUATION

The NRC's regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36. The regulations at 10 CFR 50.36 require that the TSs include items in the following categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. Administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner. However, the regulation does not specify the particular requirements to be included in a plant's TSs.

3.0 TECHNICAL EVALUATION

3.1 System Description

As noted by the licensee in its March 31, 2017, application, the RB purge filters have been in the Watts Bar, Unit 1, TSs since the TSs were initially issued with the Watts Bar, Unit 1, operating license. As the NRC staff noted in Section 3.3 of the Amendment 92 safety evaluation:

The reactor building air cleanup units are ESF [engineered safety feature] passive components and are part of the non-safety related reactor building purge ventilation system (RBPVS). The RBPVS provides ventilation for personnel to perform work in the primary containment and the annulus during all normal operations. In the event of a FHA [fuel-handling accident], the RBPVS is isolated. In the current licensing basis, immediately after a FHA, the reactor building air cleanup units are required to always be operable to perform their safety function by filtering the exhaust air to limit the offsite dose. The licensee proposes to delete TS 3.9.8, in its entirety, because no credit is taken [in the revised licensing basis] for the operation of reactor building air cleanup units for the dose analysis during a FHA.

The staff concluded in the Amendment 92 safety evaluation regarding the proposed deletion of TS 3.9.8, that the revised FHA did not credit the RB air cleanup units and, therefore, TS 3.9.8 was no longer required.

### 3.2 Description of Administrative Error and Proposed Change

In its March 31, 2017, application to delete references to the RB purge filters from TS 5.7.2.14, the licensee described the circumstances leading to the introduction of the administrative error in the Watts Bar, Unit 1, TSs. The licensee stated that the references to the RB purge filters were inadvertently not deleted with the deletion of TS 3.9.8. The licensee proposed to revise the Watts Bar, Unit 1, TSs to correct this administrative error by deleting references to the RB purge filters from TS 5.7.2.14.

### 3.3 NRC Staff Evaluation of Proposed Change

The NRC staff finds that the references to the RB purge filters in TS 5.7.2.14 are the result of an administrative error introduced in Amendment 92, which approved the deletion of the associated RBPVS from the Watts Bar, Unit 1, TSs. The proposed amendment does not constitute a change in the Watts Bar, Unit 1, facility design or the operation of the facility. The RB purge filters are not credited in any design-basis accident radiological analyses, as previously evaluated by the NRC staff in Amendment 92. The staff concludes that the failure to delete references to the RB purge filters in Amendment 92 was an administrative oversight, and that the TSs, as revised, continue to meet the requirements of 10 CFR 50.36. Based on the considerations discussed above, the NRC staff concludes that the proposed change to TS 5.7.2.14, to delete references to the RB purge filters, 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 on November 21, 2017. The State official had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the format of the license or permit or otherwise makes editorial, corrective or other minor revisions, including the updating of NRC-approved references. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10)(v). 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) there is reasonable assurance that 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: Robert G. Schaaf

Date: December 7, 2017

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - ISSUANCE OF AMENDMENT  
REGARDING VENTILATION FILTER TESTING PROGRAM (CAC NO. MF9584;  
EPID L-2017-LLA-0207) DATED DECEMBER 7, 2017

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