

TENNESSEE VALLEY AUTHORITY

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May 19, 1986

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Project Director
PWR Project Directorate No. 4
Division of Pressurized Water Reactor (PWR)
Licensing A
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Youngblood:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

Enclosed is our response to E. Adensam's letter to H. G. Parris dated July 26, 1985, "Request for Additional Information Regarding Generic Letter 83-28 (Salem ATWS Rule) for the Watts Bar Nuclear Plant, Units 1 and 2."

If there are any questions, please get in touch with W. C. Ludwig at FTS 858-4882.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. Gridley, Director
Nuclear Safety and Licensing

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
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ENCLOSURE

WATTS BAR NUCLEAR PLANT

NRC Question I - Item 4.1 - Reactor Trip System Reliability (Vendor-Related Modifications)

I.1 The applicant response states that the modifications described in the March 31, 1983 letter from Westinghouse will be implemented at Watts Bar before fuel loading. He also states that this was the only vendor-related modification applicable to Watts Bar.

The applicant did not refer to the vendor recommendations for the DS-416 breakers that supercede those of March 31, 1983, specifically the Westinghouse April 21, 1983 letter to R. C. DeYoung. In this letter, Westinghouse committed to replace UVTAs on DS-416 breakers. The new attachments have modified (widened) grooves to accommodate the new retaining rings. Quality control and field installation procedures are also provided to ensure proper critical design dimensions and alignment. The applicant is to submit to the NRC either:

1. A statement confirming that all vendor-recommended DS-416 modifications have been implemented, or
2. A written evaluation of the technical reasons for not implementing any vendor recommended modification.

Watts Bar Response to NRC Question I

The subject modifications were addressed by field change notices (FCNs) WATM-10687 and WBTM-10659 for units 1 and 2, respectively. The modifications have been completed for both units.

NRC Question II - Item 4.2.1 - Periodic Maintenance Program for Reactor Trip Breakers

II.1

Criteria for Evaluating Compliance with Item 4.2.1

The Watts Bar Nuclear Plant units 1 and 2 reactor trip system utilized W DS-416 circuit breakers. The primary criteria for an acceptable maintenance program for the DS-416 reactor trip breaker (RTB) are contained in Westinghouse Maintenance Manual for the DS-416 Reactor Trip Circuit Breaker, Revision 0, October 1984. The NRC staff, Equipment Qualification Branch, has reviewed this document and endorsed the maintenance program described in it. More specifically, the criteria used to evaluate compliance include those items in this document that relate to the safety function of the breaker, supplemented by those measures that must be taken to accumulate data for trending.

II.2

Issues Relating to Item 4.2.1

The applicant response states that a technical standard on reactor trip breakers has been drafted. Watts Bar MI-99.1 will be released "to reflect the recommendations in the technical standard on reactor trip breakers by licensing."

The Watts Bar Nuclear Plant units 1 and 2 periodic maintenance program for the reactor trip breakers should include, on a six-month basis, (or when 500 breaker operations have been counted, whichever comes first):

1. General inspection to preclude checking of breaker's cleanliness, all bolts and nuts, pole bases, arc chutes, insulating links, wiring, and auxiliary switches;
2. The retaining rings inspection, including those on the undervoltage trip attachment (UVTA) and shunt trip attachment (STA);

3. Arcing and main contacts inspection as specified by the Westinghouse maintenance manual;
4. UVTA check as specified by the Westinghouse maintenance manual including replacement of UVTA if dropout voltage is greater than 60 percent or less than 30 percent of rated UVTA coil voltage;
5. STA check as specified by the Westinghouse maintenance manual;
6. Lubrication as specified by the Westinghouse maintenance manual;
7. Functional check of the breaker's operation prior to returning it to service.

The Watts Bar Nuclear Plant units 1 and 2 periodic maintenance program for the reactor trip breakers should include, on a refueling interval basis (or when 500 breaker operations have been counted, whichever comes first):

1. Precleaning insulation resistance measurement and recording;
2. RTB dusting and cleaning;
3. Postcleaning insulation resistance measurement and recording as specified by the Westinghouse maintenance manual;
4. Inspection of main and secondary disconnecting contacts, bolt tightness, secondary wiring, mechanical parts, cell switches, instruments, relays, and other panel mounted devices;
5. UVTA trip force and breaker bad check as specified by the Westinghouse maintenance manual;
6. Measurement and recording RTB response time for the undervoltage trip;
7. Functional test of the breaker prior to returning to services as specified by the Westinghouse maintenance manual.

The maintenance procedure should include a caution to the maintenance personnel against undocumented adjustments or modifications to RTBs.

The applicant is to confirm that the periodic maintenance program includes these 14 items at the specified intervals or commit to their inclusion.

Watts Bar Response to NRC Question II

MI-85.6, "480-Volt CRDM (Reactor Trip) Switchgear Inspection" outlines the periodic maintenance requirements for the RTBs. This instruction contains or will contain most of the elements of the Westinghouse Maintenance Manual. Revision 2 is currently being prepared and will incorporate a few outstanding items. It is expected to be issued by May 25, 1986. The differences that will remain after revision 2 is issued are discussed below.

1. Functional testing of the auxiliary switches is performed by Surveillance Instructions (SI)-3.1.1 and 3.1.37 at least once per refueling outage.
2. Functional testing of the RTBs is performed by SI-3.1.26.
3. RTB response time is measured and recorded by SI 3.1.29 at the frequencies specified in the technical specifications.
4. The maintenance schedules are based on the schedules recommended in the Westinghouse maintenance manual for DS-416 breakers. The first seven items listed in question II.2 are performed on the following schedules:

<u>Item</u>	<u>Schedule</u>
Initial maintenance for new or completely refurbished breakers	After first 6 months or 500 cycles, whichever occurs first
All subsequent maintenance	After 500 cycles or every refueling outage, whichever occurs first

The second set of seven items listed in question II.2 are performed on the following schedule:

<u>Item</u>	<u>Schedule</u>
All maintenance	After 500 cycles or every refueling outage, whichever occurs first

These schedules are different than those recommended in question II.2. The NRC has reviewed the DS-416 maintenance manual and endorsed the maintenance program described in it, as noted in item II.1 above. Yet alternate maintenance schedules are proposed in question II.2. TVA has

received the maintenance manual into its vendor manual program, as described in response to items 2.1 and 2.2.2 of Generic Letter 83-28. TVA has reviewed it and cannot justify the increased frequency for maintenance. More frequent maintenance will increase the total number of cycles on the breakers with the corresponding increase in component wearout. It will also increase the vulnerability of the reactor protection system because the breaker will have to be removed from service and replaced with the bypass breaker for some period of time to accomplish at-power maintenance. The reactor protection system is reduced to single train status and subject to single failures during the period of time that the bypass breaker is replacing the reactor trip breaker. The NRC has offered no basis for increasing the maintenance frequency. TVA has identified no benefit that would offset the increased vulnerability of the reactor protection system. As such, TVA will maintain the vendor recommended maintenance schedule.

5. The maintenance procedure does not contain a caution to the maintenance personnel against undocumented adjustments or modifications to RTBs. The procedure does contain instructions to document repair or replacement work through the established maintenance request program. Modifications are controlled through the established design change program. As a matter of policy, Watts Bar procedures do not reference other programmatic procedures that may be used. Instead, responsible personnel are trained on the scope of these programs and the proper process to follow to implement them.

NRC Question III - Item 4.2.2 - Trending of Reator Trip Breaker Parameters to Forecast Degradation of Operability

III.1 Criteria for Evaluating Compliance with Item 4.2.2

Four parameters have been identified as trendable and are included in the criteria for evaluation. These are (a) undervoltage trip attachment dropout voltage, (b) trip force, (c) breaker response time for undervoltage trip, and (d) breaker insulation resistance.

III.2 Issues Relating to Item 4.2.2

The applicant states that the following three suggestions will be used at Watts Bar in developing a program for trending of parameters to assess any possibility of performance degradation by licensing.

1. The compilation of all maintenance activity records into a historical file.
2. The use of the Nuclear Plant Reliability Data System for breaker failure data.
3. A Maintenance Request (MR) form TVA 6436. The MR system is described in Section 3.1.1 of the applicant's response.

The applicant is to commit to inclusion of trip force, breaker response time and dropout voltage for undervoltage trip and breaker insulation resistance as trending parameters. The applicant should also identify how often the analysis will be performed and how the information derived from the analysis will be used to affect periodic maintenance.

Watts Bar Response to NRC Question III

Items a, b, and d identified in Section III.1 will be measured in MI-85.6 and recorded in the electrical maintenance RTB trending log book. Item C will be measured in SI-3.1.29 and trending will be performed by instrument maintenance. The electric maintenance RTB trending log book will be reviewed prior to any performance of MI-85.6 and reviewed after the performance of the procedure. The log will also be reviewed each time a completed MR is reviewed and logged by the responsible engineer.

The data reviewed will be used to establish trends that could place the circuit breaker out of acceptance criteria before the next scheduled maintenance if not corrected. The data will also be used to identify "weak links" and specify additional maintenance to be performed during scheduled MI performances.