

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

March 28, 1983

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

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

By letter dated June 9, 1982 from R. L. Tedesco to H. G. Parris, TVA was requested to provide additional information concerning the Watts Bar Nuclear Plant Initial Test Program. Enclosed are TVA's responses to the NRC concerns on this subject.

If you have any questions concerning this matter, please get in touch with D. P. Ormsby at FTS 858-2682.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills
L. M. Mills, Manager
Nuclear Licensing

Sworn to and subscribed before me
this 28th day of March, 1983

Paulette J. White
Notary Public
My Commission Expires 9-5-84

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

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WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
INITIAL TEST PROGRAM

1. NRC Concern

Leakage tests of ECC systems and testing of leak detection and pumping systems provided to control leakage from ECC systems.

Your May 20, 1982 submittal states that these systems will be tested under Test No. TVA-44B. The staff has previously notified you that additional information is needed for the TMI Action plan Item III.D.1.1 of NUREG-0737. This item calls for a program to reduce leakage from systems outside containment that could contain highly radioactive fluids during a serious transient or accident. A preoperational test of the leakage control systems and Test No. TVA-44B, ECCS Leak Detection System, should be consistent with the leak reduction measures and leakage rate measurements set forth in NUREG-0737 and should contain appropriate acceptance criteria that demonstrate the effectiveness of the leakage reduction program.

TVA Responses

The ECCS leak detection test is covered under preoperational test TVA-44B. This test complies with the criteria of NUREG-0737, Item III.D.1.1. The test abstract for this system will be included in Amendment 48 of the FSAR as a revision to table 14.2-1.

2. NRC Concern

Ventilation systems for the intake pumping systems.

Your May 20, 1982 submittal states that this system will be tested under Test No. TVA-69. We have been informed during a May 25, 1982 telecon with your staff that this test is in the process of being written and has not yet been included in the Watts Bar FSAR.

The Watts Bar FSAR, page 9.4-37, states that ". . .the Intake Pumping Station Ventilation System has the capabilities needed for normal operations and for accident mitigation. These are described below.

The functional analysis of this system shows that:

1. Adequate flow-through ventilation is provided for the ERCW pump area during all credible environmental conditions.
2. Forced air ventilation will be provided to each mechanical equipment room and the electrical equipment room to maintain acceptable temperatures. See Section 9.4.5.1.1."

With this in mind, we request your staff to write the abstract for the initial plant test to demonstrate the adequacy of The Intake Pumping Station Ventilation System and ensure that equipment and room temperatures would remain within acceptable limits under all credible environmental and accident conditions.

TVA Response

Preoperational test TVA-69 demonstrates the adequacy of the IPS ventilation system. The test abstract for this system will be included in FSAR Amendment 48 as a revision to table 14.2-1.

3. NRC Concern

Failed Fuel Detection System

Your May 20, 1982 submittal stated that this system will be tested under Test No. TVA-28. We have been informed during the May 25, 1982 telecon with your staff that this test is being revised to include the failed fuel detection system and has not yet been included in the Watts Bar FSAR.

This system is described in Section 9.3.5 of the Watts Bar FSAR. It is designed to detect delayed neutrons in the reactor coolant to give a prompt indication of fuel cladding failure. The response time of the system is given as 60 seconds.

This system is provided for early detection of fission products in the reactor coolant system so action can be taken to limit the release of radioactive materials. To minimize potential releases of radioactive materials, this system should be tested prior to significant power operation. With this in mind, we request your staff to revise Test No. TVA-28 to demonstrate satisfactory performance of this system.

TVA Response

The test abstract for the failed fuel detection system (preoperational test TVA-28) in FSAR table 14.2-1 will be revised by Amendment 48 to include an additional item under "Test Objectives Summary of Testing and Acceptance Criteria." This item will state, "Verify gross failed fuel detector operation and operation of the associated annunciator in the main control room."

4. NRC Concern

48 Volt D.C. system

The Watts Bar FSAR, Section 8.3.2.1.2, refers to this system as nonsafety related. However, this system supplies the PAX communications system. Section 9.5.2.2 of the FSAR states:

"Private Automatic Exchange (PAX) - A 200-line PAX is installed to provide primary 2-way communications throughout the Watts Bar Nuclear Plant. This PAX is equipped with provisions for:

1. Regular 2-way telephone conversation
2. Code call and answer
3. Fire alarm
4. Paging call and answer over PAX instruments
5. Executive right of way
6. Single digit access to electrical control room manual telephone switchboard
7. Single digit access to system direct dialing circuits
8. Revertive call switch

The power for the PAX is supplied from a 48V d.c source consisting of two 100-ampere battery chargers, . . .".

Since this system is critical to performance of operations to mitigate the consequences of accidents, provide an abstract of a preoperational test that will demonstrate satisfactory system performance in all modes of operation.

TVA Response

The 48V dc power system was originally intended to supply power to a communication system designated as PAX. However, this system has been replaced by a new combination of the commercial telephone system (Southern Bell) and the PAX system. This new system is a Southern Bell DIMENSION system whereby Southern Bell supplies the equipment and TVA supplies the operating power. The primary source of power will be from a 120V ac common source and the 48V dc power system will be the secondary power source.

The DIMENSION system is one of several communication systems within the plant. (Others are the administrative telephone and intercom system, and the code-call, alarm, and paging system). It, as was true with the PAX system, is designed to be a high-use communication system during normal operations and certain emergency situations (such as fire or medical emergencies). However, it is not the communication system required to mitigate the consequences of a nuclear accident. The emergency sound-powered telephone system has equipment in vital locations which perform this required function. The equipment for the sound-powered telephone system has primary and secondary lines between stations to provide redundant capabilities for communications.

The emergency sound-powered telephone system is tested by performing preoperational test instruction (PTI) TVA-11A "Plant Communications System, Emergency Sound-Powered Telephone System" for the Watts Bar Nuclear Plant. The emergency sound-powered telephone system requires no plant power for operation.

For the above reasons, TVA does not consider the DIMENSION system (and therefore the 48V dc power system) as being required for plant safety. At best, the DIMENSION system could be used as an auxiliary support system, but is not required by operations to mitigate the consequences of an accident. The 48V dc power system has been tested by TVA's Division of Construction who performed TVA quality control tests (WBNP-QCT 3.6) for the system functional checks (Test 6-75). Battery periodic maintenance checks are made whereby maintenance personnel check the battery specific gravity and observe and correct connection problems, electrolyte spills, etc. However, TVA maintains that the 48V dc power system should not be added to the Watt Bar Nuclear Plant preoperational testing program.

5. NRC Concerns

Condensate storage tank auxiliaries including systems used for temperature control of tanks and suction lines and indication and alarm functions.

On page 10.4-40 of the Watts Bar FSAR, it is stated that "The preferred sources of water for all auxiliary feedwater pumps are the two 397,000 gallon condensate storage tanks. A minimum of 200,000 gallons in each tank. . .".

Since the water from these tanks is the preferred source used to cool the plant under normal and emergency conditions, this entire system should be tested prior to significant power operation. Provide an abstract of a test that demonstrates proper operation of all indicators, instruments and controls.

TVA Response

TVA is still evaluating this item. TVA's position will be provided by June 3, 1983.