



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

November 18, 2011

Mr. Michael D. Skaggs
Senior Vice President
Nuclear Generation Development
and Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 – REQUEST FOR ADDITIONAL
INFORMATION REGARDING SUPPLEMENTAL SAFETY EVALUATION
REPORT OPEN ITEMS 80, 81, 94, 105, AND 108 (TAC NO. ME0853)

Dear Mr. Skaggs:

By letters dated September 1 and 30, and October 13, 2011, Tennessee Valley Authority (TVA) responded to open items published in Appendix HH of NUREG-0847, Supplement 23, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 2." The U.S. Nuclear Regulatory Commission (NRC) staff has been reviewing the information provided by TVA in support of the operating license application for Watts Bar Nuclear Plant, Unit 2.

After reviewing the response provided by TVA, the NRC staff has determined that additional information is needed to complete its review.

A response is required within 30 days of receipt of this letter as agreed to by your staff. If you cannot provide your response within the required time, please provide a letter to the NRC staff with the reason and a new date for your response.

If you should have any questions, please contact me at 301-415-2048.

Sincerely,

A handwritten signature in black ink, appearing to read "Justin C. Poole", written over a horizontal line.

Justin C. Poole, Project Manager
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

WATTS BAR NUCLEAR PLANT, UNIT 2

SAFETY EVALUATION REPORT

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-391

Open Item 80:

- a. Tennessee Valley Authority (TVA) tests used a frequency range of 30 Hz to 50 kHz for low frequency conducted susceptibility test instead of the required 30 Hz to 150 kHz. In letter dated September 30, 2011, under Item Number 8, TVA stated that the TUV tests were conducted with test frequencies from 30 Hz to 150 kHz. Staff has noted that the TUV tests were conducted on the older model of RM-1000 processors and not the models for which credit is taken. TVA is requested to provide its justification for using the TUV tests for the new RM-1000 processors.
- b. In response to staff request for an explanation for using an alternate method for high frequency radiated emissions tests, TVA in its September 30, 2011, letter under Item Number 15, stated that the alternate method EN 55022 is more restrictive than the Regulatory Guide 1.180 and Electric Power Research Institute (EPRI) suggested methods. This statement is not backed by specific examples of how the EN 55022 is more restrictive for the test levels and the frequency ranges. Therefore, TVA is requested to provide further explanation of how the test method is more restrictive over the test levels and frequencies.

Open Item 81:

Item Number 1 of the letter dated September 30, 2011, provided a revised General Atomics (GA) procedure, OP-7.3-240, Safety-Related Commercial Grade Item Parts Acceptance, Revision K, to demonstrate compliance with EPRI Topical Report (TR)-106439. EPRI TR-106439 has been previously reviewed and accepted by the Nuclear Regulatory Commission (NRC) by letter dated July 17, 1997, therefore the revised procedure OP-7.3-240, Revision K is acceptable to staff. Further, TVA committed to provide a white paper to describe the commercial dedication program and how it conforms to the current regulations in a subsequent submittal.

In its October 13, 2011, letter, TVA provided a "White Paper" describing the General Atomics (Sorrento Electronics (GA-ESI)) Qualification of RM-1000 Processors, which includes a description of the commercial dedication processes. In part this White Paper states, "For example, the RM-1000 High Range Area Monitors supplied to Watts Bar utilize a commercial grade 120 VAC Filter (subcomponent), which is dedicated in accordance with procedure GA-ESI OP-7.3-240. Per procedure requirements, GA-ESI performs a complete Receipt Inspection of the component. Additionally, per procedure requirements, a Quality Control Critical Characteristic Acceptance Plan (CCAP) was developed, which included identification of all critical characteristics, and a Commercial Grade Item Engineering Evaluation (CGIEE) was

Enclosure

conducted to verify the critical characteristics. The procedure also required that the vendor provide a Certificate of Conformance certifying the component was fully manufactured, tested, and inspected to ensure compliance with all applicable specifications and requirements. GA-ESI also performs Supplier Surveys of the component vendor. The attachment to this White Paper includes the Receipt Inspection Documentation, including the CCAP and the CGIEE for the AC Filter.” Attachment 1 to this White Paper (25402-011-V1A-HARA-00204-001) includes the commercial dedication package including the receipt inspection for an AC Filter (Isotrol IC+105) as an example.

After reviewing the receipt inspection documents, staff observed that no functional test results for the AC Filter are enclosed in this package. TVA is requested to provide the functional test documentation to enable the staff to complete its evaluation of this package. If the functional test document is not available, then TVA needs to justify why the requested document is not available and submit a complete inspection documentation package for another component to demonstrate compliance to commercial dedication processes and procedures.

Open Item 94:

By letter dated September 1, 2011, TVA provided a response to Open Item Number 94. The response provided by TVA is incomplete since it only addressed Institute of Electrical and Electronics Engineering Standard 603-1991 Clause 4; the response was silent on the other clauses (e.g., Clauses 5 & 6). The response also did not identify how the Common Q Post-Accident Monitoring System (PAMS) design meets the documented design basis requirements.

- a. Please provide detail and specific design basis information for core exit thermocouple and subcooled margin monitor indications associated with “Type A” manual actions.
- b. Please provide to the staff information that demonstrates that the Watts Bar Nuclear Plant (WBN), Unit 2 Common Q PAMS design meets the applicable design basis requirements (e.g., trace from design basis to design).

Note: Clauses 5.2, 6.1, 6.6, 7, & 8 are not applicable to the technical review of the Common Q PAMS.

Open Item 105:

TVA did not provide the information requested. The evaluation documented above against Action Item Number 94 describes the reasons why the NRC staff considers that Attachment 1 does not identify or include adequate design basis documentation. The intent of Action Item Number 105 was to request an explicit mapping between the design bases (provided in response to Action Item Number 94) and the detailed design requirements. This mapping has not been provided.

Please provide an explicit mapping between the design bases and the detailed design requirements (i.e., between the information provided in response to Action Item Number 94 and the WBN Unit 2 Common Q PAMS SysRS).

Open Item 108:

Upon review of the response to Action Item Number 94, it was noticed that TVA's response to these two action items provided different environmental conditions in each response (see Action Item Number 94 Clauses 4.5.3 and 4.7). It is no longer clear, in what environment the Common Q PAMS is required to operate or how qualification to this environment is demonstrated.

- a. Please provide EPM-MCP-071689, "Cooling/Heating Load & Equipment/Component Performance Analysis for the Control Building Electrical Board Room Areas (EL. 692.0 and 708.0)," Revision 19.
- b. Please provide EPM-LCP-072489, "Cooling and Heating Load Analysis, Main Control Room HVAC [Heating, Ventilating, and Air Conditioning]," Revision 13.
- c. Please provide the maximum temperature and the associated maximum relative humidity in which the Common Q PAMS is required to be operable.
- d. Please provide the minimum temperature and the associated minimum relative humidity in which the Common Q PAMS is required to be operable.
- e. Please explain why the relative humidity during a loss of coolant accident event is lower than the humidity during summer or winter.
- f. Please describe how it is demonstrated that the Common Q PAMS equipment is qualified to the environments in which that equipment is required to operate. Please pay particular attention to the potential synergistic effects of temperature and humidity.

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Sincerely,

/RA/

Justin C. Poole, Project Manager
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*per memos dated October 11 and 31, 2011

OFFICE	LPWB/PM	LPWB/LA	EICB/BC	OGC /NLO	LPWB/BC
NAME	JPoole	BClayton	GWilson*	DRoth	SCampbell (PMilano for)
DATE	11/15/11	11/15/11	10/31/11	11/16/11	11/18/11

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