

May 7, 2008

Mr. Ashok S. Bhatnagar
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6A Lookout Place
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SUBJECT: WATTS BAR NUCLEAR PLANT UNIT 2 – LICENSING BASIS REGARDING
EAGLE-21 PROCESS PROTECTION SYSTEM (TAC NO. MD6311)

Dear Mr. Bhatnagar:

In a letter dated August 3, 2007, the Tennessee Valley Authority (TVA) notified the Nuclear Regulatory Commission (NRC) of its intent to resume licensing and construction of Watts Bar Nuclear Plant (WBN) Unit 2. The letter was submitted in accordance with the Commission's Policy Statement on Deferred Plants, dated October 14, 1987 (52 FR 38077).

In a Staff Requirements Memorandum dated July 25, 2007, the Commission had previously informed the NRC staff that it supported a licensing review approach that would employ the current licensing basis for WBN Unit 1 as the reference basis for the review and licensing of Unit 2.

By letter dated December 5, 2007, TVA informed the NRC of its intent to use of the Westinghouse Electric Corporation Eagle-21 process protection system at WBN Unit 2. In a letter dated February 28, 2008, TVA had responded to a request for additional information dated December 27, 2007.

TVA has indicated that the Eagle-21 system will be built to the same specifications as used for the system installed at WBN Unit 1 and that the hardware would be identical or equivalent and the safety-related firmware would be identical. TVA and Westinghouse did identify that certain hardware changes would be needed because of obsolescence and vendor supply changes. On the basis of the NRC staff's prior approval of the Eagle-21 system at Unit 1, the reliable performance at Unit 1 and other nuclear plants, and the need to maintain the licensing approach for the reference basis for Unit 2, the NRC staff recognizes TVA's intent to incorporate the Eagle-21 process protection system into the WBN 2 design and licensing basis. NRC staff approval will be predicated on the satisfactory evaluation of an application that presents the applicable design bases and safety analyses.

After reviewing these letters, the NRC staff has determined that further information would be needed to ensure a sufficiently complete application for staff review when TVA references the

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use of the Eagle 21 system in an application. The details of the specific issues are provided in the enclosure to this letter. TVA should ensure that these items are adequately addressed and incorporated, as necessary, into a future amendment application for WBN Unit 2.

If you should have any questions, please contact me at 301-415-1457.

Sincerely,

/RA/

Patrick D. Milano, Senior 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: See next page

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Ashok S. Bhatnagar
Tennessee Valley Authority

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UNIT 2

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Design Bases and Analyses Issues

Related to Westinghouse Eagle-21 Process Protection System

Tennessee Valley Authority

Watts Bar Nuclear Plant Unit 2

Docket No. 50-391

By letter dated December 5, 2007, as supplemented on February 28, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML073440022 and ML080640269, respectively), Tennessee Valley Authority (TVA) informed the Nuclear Regulatory Commission (NRC) of its intent to use of the Westinghouse Electric Corporation Eagle-21 process protection system for Watts Bar Nuclear Plant, Unit 2 (WBN 2).

After reviewing the information presented by TVA, the NRC staff finds that the following will need to be addressed when TVA submits an amendment covering this system:

1. On page E1-1 of Enclosure 1 to the February 28 letter, TVA stated that an external communication interface was added that included a serial-to-ethernet controller board in each Eagle-21 multibus chassis. TVA further stated that the link is designed such that it is not possible for the nonsafety-related integrated computer system signals to feedback to the safety-related Eagle 21.

Has this addition and associated changes been tested to prove the statement? If so, provide the test procedures and test results.

2. On page E1-1 of Enclosure 1, TVA stated that the main control room annunciator printer was replaced with a central processing unit and a monitor as part of a prior design change.

Identify whether this modification has any impact on the defense against common mode failure, since TVA's analysis was based on manual action. Is there a possible common mode failure that could disable both the Eagle-21 and the central processing unit?

3. In its December 27, 2007, request for additional information (ADAMS Accession No. ML073610443), the NRC staff requested the list of commitments made by TVA for the Eagle-21 system. In its response, TVA listed four items that will remain open pending completion of these activities. However, the NRC staff has noted that in Supplement 13 of its Safety Evaluation Report for Unit 1, its acceptance was based on a TVA commitment to maintain administrative control on the use of walkie-talkie, portable telephones, and temporary equipment in areas where the use of walkie-talkies is already prohibited.

Identify any further commitments made by TVA during the acceptance of the Eagle 21 system.

4. In Item 3 of Enclosure 2, TVA states that the flow measurement uncertainty will be validated as part of the reactor protection system evaluation, which is included in the scope of the Eagle-21 installation.

Provide further details to clarify the meaning of this commitment.

5. On page E1-8 of Enclosure 1, TVA discusses instrument setpoint methodology. The NRC staff has had much interaction with the industry on this issue, and the staff has issued Regulatory Information Summary (RIS) 2006-17, which provides guidance on the acceptable instrument setpoint methodologies.

Provide the instrument setpoint methodology and a discussion about how the requirements RIS 2006-17 are met.

6. On pages 2 and 3 of Attachment 1 to Enclosure 1, hardware changes made to the Eagle-21 system after it was approved for WBN 1 were identified.

- a. Five of these changes are safety-related.

Have these hardware changes been qualified for the environment including radio frequency interference/electro-magnetic interference? Have these changes been through the hardware verification and validation program?

- b. Three changes are identified as nonsafety-related.

Have these changes been analyzed to ensure that their failure will not create any effect on the safety-related components? Provide the test reports for each of these issues.

7. Confirm that the scope of Eagle-21 system for WBN 2 is the same as Unit 1. Also, identify all the functions where Eagle 21 has been applied.