

February 7, 2007

Mr. Karl W. Singer  
Chief Nuclear Officer and  
Executive Vice President  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - AUDIT REPORT OF NEW  
STRAINER DESIGN IN RESPONSE TO GENERIC LETTER 2004-02 AND  
GENERIC SAFETY ISSUE-191

The enclosed report provides the results of the U.S. Nuclear Regulatory Commission (NRC) staff audit of the design, and the associated analysis and testing of the new sump strainer design at the Tennessee Valley Authority's (the licensee) Watts Bar Nuclear Plant, Unit 1 (WBN).

The audit report includes a review of the design of the planned sump modifications, the evaluation of upstream and downstream blockage, and other post-accident debris effects identified in Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors." It also provides detailed feedback on each section of the licensee's sump performance evaluation (e.g., debris generation, debris transport, head loss), identifying areas that were adequately addressed, as well as areas for which further analysis or justification may be warranted. Overall, the staff's impression is that the WBN new sump modifications appear to be robust with sufficient design margin. However, the final conclusions regarding the adequacy of the licensee's corrective actions for GL 2004-02 will be based on the staff's review of open items resulting from this audit and on any other supplemental responses to GL 2004-02.

This was the first of several audits to be conducted by the NRC staff to help verify the adequacy of corrective actions to address GL 2004-02. The WBN staff was very supportive during the audit. In particular, the NRC staff appreciates the effort to obtain detailed reactor vessel internal structure hydraulic data. This first audit was a learning process for both the licensee and the NRC staff, and the licensee's flexibility and cooperation were crucial in the successful completion of the audit.

In addition to providing feedback on the WBN sump performance evaluation, the report also documents staff findings that have significant generic implications. Thus, the report will serve as a vehicle to inform other licensees of the staff's technical positions. The staff provided the draft audit report to the licensee on November 28, 2006, and requested that it be reviewed for any proprietary information. On January 25, 2007, Mr. James Smith, WBN Licensing Manager, informed the staff that no proprietary information was found in the report.

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Therefore, the report will be made available to the public in the NRC's Agencywide Document Access and Management System (Accession Number ML062120469) and through the NRC public web site ([www.nrc.gov](http://www.nrc.gov)).

If you have any questions, please contact me at (301) 415-3974.

Sincerely,

*/RA/*

Brendan T. Moroney, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Audit Report

cc w/o enclosure: See next page

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Mr. Karl W. Singer  
Tennessee Valley Authority

cc:

Mr. Ashok S. Bhatnagar, Senior Vice President  
Nuclear Operations  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Preston D. Swafford, Senior Vice President  
Nuclear Support  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Larry S. Bryant, Vice President  
Nuclear Engineering & Technical Services  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Michael D. Skaggs, Site Vice President  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

General Counsel  
Tennessee Valley Authority  
6A West Tower  
400 West Summit Hill Drive  
Knoxville, TN 37902

Mr. John C. Fornicola, Manager  
Nuclear Assurance  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Robert H. Bryan, Jr., General Manager  
Licensing and Industry Affairs  
Tennessee Valley Authority  
4X Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

## **WATTS BAR NUCLEAR PLANT**

Ms. Beth A. Wetzel, Manager  
Corporate Nuclear Licensing and  
Industry Affairs  
Tennessee Valley Authority  
4X Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. James D. Smith, Acting Manager  
Licensing and Industry Affairs  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

Mr. Michael J. Lorek, Plant Manager  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

Senior Resident Inspector  
Watts Bar Nuclear Plant  
U.S. Nuclear Regulatory Commission  
1260 Nuclear Plant Road  
Spring City, TN 37381

County Executive  
375 Church Street  
Suite 215  
Dayton, TN 37321

County Mayor  
P. O. Box 156  
Decatur, TN 37322

Mr. Lawrence E. Nanney, Director  
Division of Radiological Health  
Dept. of Environment & Conservation  
Third Floor, L and C Annex  
401 Church Street  
Nashville, TN 37243-1532

Ms. Ann P. Harris  
341 Swing Loop Road  
Rockwood, TN 37854