U.S. NRC

FEB -8 PM 2:30 January 31, 2000

EA 99-115

Tennessee Valley Authority
ATTN: Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: CONFIRMATION OF PREDECISIONAL ENFORCEMENT CONFERENCE ARRANGEMENTS (NRC OFFICE OF INVESTIGATIONS REPORT NO. 2-98-023 AND NRC INSPECTION REPORT NOS. 50-390, 391/99-06)

Dear Mr. Scalice:

This is in reference to an investigation conducted by the Nuclear Regulatory Commission's (NRC) Office of Investigations (OI), initiated on November 4, 1998, and NRC inspections conducted at the Watts Bar facility during the period February 22 through May 3, 1999. The inspection results were documented in NRC Inspection Report Nos. 50-390, 391/99-06. Two Unresolved Items, 50-390, 391/99-06-05 and 06, were also identified in the report. The purpose of the OI investigation was to determine whether Tennessee Valley Authority (TVA) withheld or assisted in concealing information regarding defective ice condenser screws from 1995 to 1998. A summary of the OI investigation is included as Enclosure 1.

Based on the results of the inspection and OI investigation, two apparent violations were identified that are being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The apparent violations are listed in Enclosure 2 of this letter, and were discussed with Mr. Mark Burzynski and Mr. Paul Pace of your staff on January 21, 2000. The first issue involved an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, in that a condition adverse to quality was not promptly identified and corrected. Specifically, a condition adverse to quality was identified and documented in a June 2, 1995 Central Laboratory and Field Testing Services (CLS) report regarding defective new ice condenser ice basket screws; however, TVA did not pursue this issue in a timely manner. The second issue involved an apparent violation of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, and TVA procedures, in that TVA did not request Westinghouse to evaluate the data collected from the metallurgical testing and evaluation performed by CLS, as documented in Part C11, Step 3 of Problem Evaluation Report (PER) WBPER950246.
The evidence appeared to indicate that both apparent violations were willful. The facts supporting this conclusion may be derived from Enclosures 1 and 2. No Notice of Violation is presently being issued for these findings; however, please be advised that the number and

characterization of the apparent violations described in Enclosure 2 may change as a result of further NRC review.

A closed, predecisional enforcement conference to discuss these apparent violations will be scheduled with you in the near future. The conference will be conducted at NRC's Region II Office located at 61 Forsyth Street, S.W., Suite 23T85, Atlanta, Georgia 30303, will be closed to public observation in accordance with the Commission's program as discussed in the Enforcement Policy, and will be transcribed. The decision to hold a predecisional enforcement conference does not mean that the NRC has determined that violations have occurred or that enforcement action will be taken. This conference is being held to obtain information to enable the NRC to make an enforcement decision, such as a common understanding of the facts, root causes, missed opportunities to identify the apparent violations sooner, corrective actions, significance of the issues, and the need for lasting and effective corrective action. In addition, this is an opportunity for you to point out any errors in our investigation or inspection findings and for you to provide any information concerning your perspectives on: 1) the severity of the apparent violations, 2) the application of the factors that the NRC considers when it determines the amount of a civil penalty that may be assessed in accordance with Section VI.B.2 of the Enforcement Policy; and 3) any other application of the Enforcement Policy to this case, including the exercise of discretion in accordance with Section VII. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations.

The NRC recognizes that the technical issue involving the integrity of new ice condenser ice basket screws has been re-evaluated and resolved by TVA. Specifically, TVA conducted subsequent metallurgical analysis and testing of the new screws in October 1998, and additional testing and analyses was conducted and observed by the NRC in 1999. Based on this, TVA concluded that, although some cracking defects were identified, these defects would not compromise the ability of the new screws to perform their intended function. The NRC has reviewed the results of TVA's re-evaluation and testing, and has no current operability issues with respect to the ice condenser ice basket screws at the Watts Bar Nuclear Plant. Therefore, your presentation at the closed, predecisional enforcement conference should address only those aspects of the issue as discussed in Enclosures 1 and 2. In addition, as discussed with Mr. Mark Burzynski and Mr. Ed Vigluicci of your staff, the NRC specifically requests the presence of three individuals who held the following positions at the time of the events discussed in Enclosure 1: the CLS Metallurgical Laboratory Supervisor, the WBN Lead Civil Engineer, and TVA's Chief Metallurgist and Codes Engineer, Nuclear. The presence of these individuals at the conference will assist the NRC in fully understanding all relevant facts.

You will be advised by separate correspondence of the results of our deliberations on this matter. No response regarding these apparent violations is required at this time.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact me at (404) 562-4600.

Sincerely,

(Original signed by C. A. Casto)

Charles A. Casto, Director
Division of Reactor Safety

Docket Nos. 50-390, 50-391
License No. NPF-90 and Construction
Permit No. CPPR-92

Enclosures: 1. Summary of OI Report No. 2-98-023
2. Apparent Violations

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SUMMARY OF OFFICE OF INVESTIGATIONS REPORT 2-98-023

The Nuclear Regulatory Commission's (NRC) Office of Investigations (OI) Report No. 2-98-023 involved an investigation to determine whether Tennessee Valley Authority (TVA) willfully withheld or assisted in concealing information regarding the condition of new ice condenser ice basket sheet metal screws at the Watts Bar Nuclear Plant (WBN) from 1995 to 1998.

WBN Problem Evaluation Report (PER) WBPER950246 was initiated on April 19, 1995, to document that ice condenser ice basket sheet metal screws were found in the ice melt tank after ice loading of the Unit 1 ice condenser. As part of the PER WBPER950246 corrective action plan to determine the cause, significance, and resolution of this issue, WBN requested Central Laboratory and Field Testing Services (CLS) to conduct a metallurgical analysis of various screws, including screws found in the ice melt tank, and new screws obtained from the WBN warehouse. Another corrective action, as identified in Part C11, Step 3 of PER WBPER950246, included an action for WBN's Nuclear Engineering Department to request that Westinghouse evaluate the data collected from the metallurgical testing and evaluation performed by the CLS.

The results of the CLS metallurgical analysis were documented in Report 95-1021, approved by the CLS Metallurgical Laboratory Supervisor, and issued on June 2, 1995. The report included a list of seven factors which, according to CLS, were the probable cause of the failed screws. One of these seven factors (conclusion #6) related to the presence of quench cracks in new screws received from the manufacturer, indicating that the crack originated during the fabrication process. The text of the report also discussed the identification of zinc in the new screws based on chemical composition analysis, indicating that the crack may have been present prior to plating (possibly formed when quenched during the manufacturer's heat treatment). In addition, the June 2, 1995 report included a figure (Figure #7) that depicted a crack in a new screw. At the request of WBN, CLS provided a letter to clarify which new and used screw sets tested by CLS contained cracks. This letter was signed by the CLS Metallurgical Laboratory Supervisor, entered into TVA's Records Information Management System (RIMS) on June 12, 1995, and distributed to a WBN metallurgical engineer who had knowledge of the screw issue.

Based on his review of the June 2, 1995 report, the WBN Lead Civil Engineer requested that TVA's Chief Metallurgist and Codes Engineer, Nuclear, discuss the conclusions and related information contained in the report with CLS. The necessity for these discussions arose as a result of the WBN Lead Civil Engineer's belief that certain information and conclusions contained in the June 2, 1995 report could not be adequately supported by the CLS laboratory observations. Based on this request, a meeting was held with various representatives of CLS, WBN, and TVA's Chief Metallurgist and Codes Engineer, Nuclear. This meeting resulted in issuance of a second Report 95-1021 on June 19, 1995 by CLS. The report was also approved by the CLS Metallurgical Laboratory Supervisor, with no revision number. The June 19, 1995 report deleted or revised various information contained in the June 2, 1995 report. Information material to the NRC's OI investigation that had been removed included conclusion #6 from the list of seven factors which probably caused the screws to fail (in fact, all seven conclusions were removed), references to cracks formed in new screws during the manufacturer's heat treatment, and Figure #7 depicting a crack in a new screw. The intent of CLS's issuance of the

June 19, 1995 report was to replace the June 2, 1995 report in its entirety, and attempts were made by CLS and WBN to retrieve all copies of the June 2, 1995 report. However, CLS did not adhere to internal CLS procedures for report revisions and cataloguing documents into RIMS.

WBN subsequently closed PER WBPER950246 as evidenced by the signatures of various WBN reviewers and managers on July 28, 1995, including the signature of the WBN Lead Civil Engineer. In this case, closure of the PER on July 28, 1995, indicated that all steps of the corrective action plan were completed. However, the licensee did not complete Step 3 of PER WBPER950246 as written, in that TVA did not request Westinghouse to evaluate the data collected from the metallurgical testing and evaluation performed by CLS as documented in the June 2, 1995 CLS report, nor was Westinghouse requested to evaluate the June 19, 1995 CLS report. In lieu of completing Step 3 of PER WBPER950246, the licensee used the results of a Westinghouse analysis of broken screws, completed on June 22, 1995. The Westinghouse analysis included an evaluation of the probability and distribution of failed screws (a statistical evaluation), and a discussion of functional aspects for various ice condenser components, to conclude that the ice condenser could be considered operable even with the missing screws. The Westinghouse evaluation, however, did not address the metallurgical aspects of the broken screws, screws currently in use, or new screws.

In 1997, the CLS Metallurgical Laboratory Supervisor, at the request of CLS Quality Assurance organization, prepared a comparison of the June 2 and June 19, 1995, metallurgical analysis reports, to identify all content differences. This comparison, however, did not identify that the June 19, 1995 report removed a reference to cracks formed during the manufacturer's heat treatment (i.e., conclusion #6), nor did it identify the removal of Figure #7 from the June 2, 1995 report.

On September 3, 1998, the CLS Metallurgical Laboratory Supervisor documented in a letter to the TVA Chief Metallurgist and Codes Engineer, Nuclear, an explanation regarding the removal of Figure #7 from the June 2, 1995 CLS report. This letter was provided to support an effort by the TVA Chief Metallurgist and Codes Engineer, Nuclear, to conduct a reconciliation of the two metallurgical analysis reports, at the request of WBN. The September 3, 1998 letter from the CLS Metallurgical Laboratory Supervisor only addressed the omission of Figure #7, and did not address removal of other information related to cracks formed during the manufacturer's heat treatment.

The reconciliation report was issued by the TVA Chief Metallurgist and Codes Engineer, Nuclear, on October 20, 1998, and identified deletion of the conclusion section containing the seven conclusions of probable screw failure, identified the removal of information regarding cracks found in a new screw, as well as other differences between the June 2 and June 19, 1995 CLS reports. The reconciliation report stated that information regarding pre-existing cracks in new screws may have suggested that a fabrication or manufacturing process deficiency existed that could result in the screws not meeting minimum required properties for the intended application. The TVA Chief Metallurgist and Codes Engineer, Nuclear, concluded that this information should have been considered an important finding by the CLS staff, and should have been included in the June 19, 1995 report, as this information could affect

corrective actions to address this issue. The October 1998 reconciliation report also concluded that omission of the information pertaining to cracking in the new screws and Figure #7 in the June 19, 1995 CLS report was inadvertent, although, as stated above, the September 3, 1998 letter from the CLS Metallurgical Laboratory Supervisor does not provide an explanation to address the removal of information pertaining to cracking in new screws.

APPARENT VIOLATIONS

The following is a summary of the apparent violations that were identified as a result of NRC Office of Investigations Report No. 2-98-023:

1. 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, and TVA Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Rev. 8, Section 10.0, collectively require that measures be established to ensure that conditions adverse to quality are promptly identified and corrected.

   As of approximately July 28, 1995, the licensee willfully failed to promptly identify and correct a condition adverse to quality. Specifically, a condition adverse to quality was identified and documented in the June 2, 1995, Central Laboratory and Field Testing Services (CLS) report regarding defective new ice condenser ice basket screws. However, the licensee did not pursue this issue in a timely manner in that actions were not initiated to fully evaluate the condition until approximately October 1998.

   The evidence indicated that the licensee willfully violated this requirement. Specifically, the licensee was knowledgeable of the condition adverse to quality documented in the June 2, 1995 CLS report, knew or should have known that this information was required to be evaluated in accordance with 10 CFR 50, Appendix B, Criterion XVI, and through action or inaction, chose to not properly evaluate this information in a timely manner as required (Unresolved item 50-390/99-06-05).

2. 10 CFR Part 50 Appendix B, Criterion V, Instructions, Procedures and Drawings, and TVA Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Rev. 8, Section 6.0, collectively require that activities affecting quality shall be accomplished by approved procedures.

   SSP 3.06 "Problem Evaluation Reports", Rev. 16, Section 2.4a, and SSP 3.04 "Corrective Action Program", Rev. 14, Section 2.5a, require the licensee to implement and/or monitor implementation of the approved corrective action plan.

   As of approximately July 28, 1995, the licensee willfully failed to follow procedure SSP-3.06 and SSP 3.04, in that TVA' Nuclear Engineering did not request Westinghouse to evaluate the data collected from the metallurgical testing and evaluation performed by CLS, as documented in Part C11, Step 3 of PER WBPER950246. Specifically, WBPER950246 Part C11 was signed as being completed, when in fact Nuclear Engineering had not requested Westinghouse to review the metallurgical test results.

   The evidence indicated that the licensee willfully violated this requirement because individuals who were responsible for closure of PER WBPER950246, knew, or should have known, that Westinghouse was not requested to evaluate the data collected from the metallurgical testing and evaluation performed by CLS, but nonetheless documented Part C11, Step 3 of PER WBPER950246 as completed (Unresolved item 50-390/99-06-06).

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