UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

July 17, 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: NOTICE OF VIOLATION (NRC OFFICE OF INVESTIGATIONS REPORT NOS. 2-98-023 AND 2-98-023S, AND NRC INSPECTION REPORT NOS. 50-390, 391/99-06)

Dear Mr. Scalice:

The purpose of this letter is to inform the Tennessee Valley Authority (TVA) of the completion of our review of two apparent violations involving an issue associated with the Watts Bar Nuclear facility's ice condenser ice basket screws. This issue was the subject of our letter to you dated January 31, 2000, as well as other correspondence.

As you recall, our letter of January 31, 2000, documented the NRC's conclusions regarding the significance of a crack found in an ice condenser ice basket screw in 1995, and whether TVA withheld or assisted in concealing information regarding defective ice condenser screws from 1995 to 1998. The NRC conclusions were based on the results of NRC Office of Investigations (OI) Report No. 2-98-023 and NRC Inspection Report Nos. 50-390, 391/99-06. The NRC's January 31st letter informed TVA that based on the inspection and OI investigation results, two apparent violations (described below) were identified and were 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 NRC also concluded that, based on the evidence, the two apparent violations were willful. Our letter also noted that the technical issue involving the integrity of ice basket screws had been re-evaluated and resolved by TVA, and no current ice condenser operability issues existed regarding ice basket screws at Watts Bar.

In accordance with the Enforcement Policy, we advised TVA of our intent to hold a closed, predecisional enforcement conference to discuss these issues on April 14, 2000. Based on receipt of new, additional information (Enclosure 3) on March 27, 2000, we postponed the conference so that a complete review of this information could be conducted. The NRC's review consisted of additional inspection effort and a supplemental OI investigation. We have reviewed the information and have concluded that sufficient information is now available to determine the appropriate enforcement action in this matter without the conduct of a predecisional enforcement conference.

The NRC has determined that two violations of regulatory requirements occurred. The first violation involved a non-compliance with 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, a crack in an ice condenser screw, was identified and documented in a June 2, 1995 Central Laboratory and Field Testing Services (CLS) report, and in a second CLS report of June 19, 1995. However, TVA did not pursue this issue in a timely manner. The NRC has concluded that this violation was not willful, but rather was more likely the result of a combination of factors, including mis-communication between TVA organizations, poor record keeping, and inattention to detail. Based on the low safety significance and in accordance with the Enforcement Policy, this issue has been categorized at Severity IV. In addition, the NRC has concluded that this violation should be characterized as a non-cited violation in accordance with Section VI.A.1 of the Enforcement Policy.

The second violation involved a non-compliance with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, and TVA procedures, in that TVA did not request Westinghouse Electric Corporation 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 NRC has concluded that this violation was willful. Specifically, TVA closed PER WBPER950246 as evidenced by the signature of the lead civil engineer on July 28, 1995. However, at the time this individual signed the PER as completed, he knew, or should have known, that Step 3 of the PER was a part of the corrective action plan, and that this action had not been performed as stated in the PER. The NRC's evidence did not indicate that TVA's actions constituted an attempt to conceal information regarding defective ice condenser ice basket screws. The NRC also has concluded that timely completion of Step 3 of this PER may have precluded the violation of Appendix B, Criterion XVI, as described above.

The NRC has determined that the safety significance of the second violation is low, for several reasons. These include a Westinghouse statistical analysis of broken screws (completed on June 22, 1995) which appears to have been used by the lead civil engineer and others in lieu of completion of Step 3 of the PER, TVA's subsequent metallurgical re-analysis of the ice basket screws which determined that the screws were adequate, and subsequent NRC inspections which confirmed that this issue was not safety significant. Based on the technical significance, this violation could be considered minor. However, the willful aspects of this violation warrant a cited Notice of Violation (Notice) at Severity Level IV in accordance with Section VI.A.1 of the Enforcement Policy. No response to this Notice is required, as sufficient information has been documented in previous correspondence and in this letter to fully describe the issue and your corrective actions.

Enclosure 2 provides additional details and background information regarding the basis for the NRC's conclusions in this matter, including the NRC's evaluation of the additional information provided by TVA, subsequent NRC inspections, and a summary of the results of OI's supplemental investigation. Enclosure 3 provides a copy of the correspondence transmitting the new information from Mr. Paul Pace of your staff, received by the NRC on March 27, 2000.

You are not required to respond to this letter unless these descriptions do not adequately reflect your corrective actions or your position. If you contest the violations as documented in this letter, you should provide a response within 30 days of the date of this letter, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region II, and the

Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and your response, if you chose to provide one, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

If you have any questions regarding this letter, please contact Mr. Bruce S. Mallett, Deputy Regional Administrator, of my staff at 404-562-4411.

Sincerely,

/RA/

Luis A. Reyes
Regional Administrator

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

Enclosures:
1. Notice of Violation
2. Summary of NRC Review
3. Additional Information provided by TVA

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NOTICE OF VIOLATION

Tennessee Valley Authority
Watts Bar Nuclear Plant, Unit 1

Docket Nos. 50-390
License Nos. NPF-90
EA-99-115

During an NRC inspection conducted during the period February 22 through May 3, 1999, and NRC Office of Investigations (OI) investigations completed on November 19, 1999, and June 15, 2000, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

> 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.
>
> The approved corrective action plan of WBPER950246, Step 3 of Part C11, directed TVA’s Nuclear Engineering to request Westinghouse to evaluate data collected from the metallurgical testing and evaluation performed by CLS.
>
> Contrary to the above, as of approximately July 28, 1995, the licensee failed to follow procedure SSP-3.06 and SSP 3.04, in that TVA’s 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.

This is a Severity Level IV violation. (Supplement I)

The NRC has concluded that information regarding the reasons for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the dates when full compliance was achieved are addressed on the docket in Inspection Report 50-390, 391/99-06, in the NRC’s letter to TVA dated January 31, 2000, and in the letter transmitting this Notice of Violation (Notice). However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if these descriptions therein do not accurately reflect your corrective actions or your position. In that case, or if you chose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice.

Enclosure 1

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, any response shall be submitted under oath or affirmation.

If you choose to respond, your response will be made publicly available. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 17th day of July 2000
Atlanta, Georgia

SUMMARY OF NRC REVIEW

NRC LETTER OF JANUARY 31, 2000:

The NRC's letter of January 31, 2000, advised TVA of its intent to conduct a closed, predecisional enforcement conference as a result of the findings associated with Office of Investigations (OI) Report No. 2-98-023 and NRC Inspection Report 50-390,391/99-06. The OI report 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. The NRC's January 31st letter identified two apparent violations, and also concluded that the evidence indicated that both apparent violations were willful. Enclosures to the NRC's January 31st letter included a summary of OI Report No. 2-98-023, and a summary of the apparent violations. The following provides the salient background information, much of which was included in the NRC's January 31st letter:

- 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 figure (Figure #7) that depicted a crack in a new screw, identified as a Set B screw. The report also 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.
- Based on concerns that certain information and conclusions contained in the June 2, 1995 report could not be adequately supported by the CLS laboratory observations, a second Report, 95-1021, was issued by CLS on June 19, 1995. Information material to the NRC's OI investigation that was omitted from the second report included Figure #7 depicting a crack in a new screw, conclusion #6 from the list of seven factors which probably caused the screws to fail (in fact, all seven conclusions were removed), and references to cracks formed in new screws during the fabrication process.
- 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.

- The January 31st letter documented the NRC's conclusion that the licensee willfully violated 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, a condition adverse to quality involving defective new ice condenser ice basket screws was identified and documented in the June 2, 1995, Central Laboratory and Field Testing Services (CLS) report. 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. In addition, 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.
- The January 31st letter also documented the NRC's conclusion that the licensee willfully violated 10 CFR Part 50 Appendix B, Criterion V, Instructions, Procedures and Drawings. Specifically, as of approximately July 28, 1995, the licensee failed to follow procedures in that TVA's 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. In addition, 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.

NEW INFORMATION PROVIDED BY TVA:

Based on the willful aspects of the apparent violations identified in the NRC's January 31, 2000 letter, a closed, predecisional enforcement conference was scheduled to be conducted on April 14, 2000. However, in preparing for the enforcement conference, TVA became aware of new information. Based on our receipt of this information (Enclosure 3) on March 27, 2000, the NRC postponed the conference so that a complete review of this information could be conducted. The purpose of TVA's facsimile was to clarify that certain figures in the June 2 and June 19, 1995 metallurgical reports were of the same cracked screw, and that the screw originated from the ice melt tank and not from the WBN warehouse, as the NRC originally believed. The new information depicts a figure from the "Set B" (Figure 7) screw of the June 2, 1995 metallurgical analysis report compared to a "Set A" (Figure 7) screw from the June 19, 1995 metallurgical analysis report.

SUMMARY OF NRC REVIEW OF NEW INFORMATION PROVIDED BY TVA:

Based on this new information, the NRC conducted a supplemental OI investigation (OI Report No. 2-98-023S), which was completed on June 15, 2000. The NRC technical staff provided support for the OI supplemental investigation. Based on the supplemental OI investigation, the NRC determined the following:

- The NRC technical staff confirmed TVA's assertion that Figure 7 from "Set B" of the June 2, 1995 metallurgical analysis report and Figure 7 from "Set A" (Figure 7) of the June 19, 1995 metallurgical analysis report, were in fact, duplicate figures of the same screw. The NRC concluded that the screw in question was obtained from the ice melt tank, and not the WBN warehouse.
- The CLS metallurgical engineer who prepared the two reports mislabeled a photograph (Figure 7) of a screw in the June 2, 1995 report. The photograph was actually a whole screw ("Set A") obtained from the ice condenser melt tank rather than a new unused screw ("Set B") obtained from the WBN warehouse. Textual references were also removed from the June 2, 1995 report related to manufacturing defects in a new, unused screw.
- The CLS Metallurgical Laboratory Supervisor and the TVA Chief Metallurgist and Codes Engineer, Nuclear, may not have had a complete understanding of the facts related to why the June 2, 1995 report was revised, and were not clear regarding which screw (a "warehouse screw" or a "screw from the melt tank") exhibited a defect.

NRC CONCLUSIONS:

The new information provided by TVA, the OI supplemental investigation, and review of the NRC technical staff has resulted in a re-evaluation of the conclusions as described in the NRC's letter of January 31, 2000. In particular, the NRC no longer concludes that the licensee willfully chose not to properly evaluate defective new ice condenser ice basket screws from the WBN warehouse. NRC investigation and inspection confirmed that no defective new warehouse ice condenser ice basket screws existed (as mistakenly documented in the June 2, 1995 metallurgical report). The evidence continues to indicate that a whole screw obtained from the ice melt tank contained a crack, which represented a condition adverse to quality, and which should have been promptly identified and evaluated in accordance with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Based on OI reports 2-98-023 and 2-98-023S, and NRC Inspection Report No. 50-390,391/99-06, the NRC has concluded the following:

The licensee violated 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, a condition adverse to quality was identified and documented in the June 2, 1995, Central Laboratory and Field Testing Services (CLS) report regarding a defect in an ice condenser ice basket screw. 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 no longer indicates that this violation was willful, but rather was more likely the result of a combination of factors, including mis-communication between TVA organizations, poor record keeping, and inattention to detail.

The licensee willfully violated 10 CFR Part 50 Appendix B, Criterion V, Instructions, Procedures and Drawings. As of approximately July 28, 1995, the licensee failed to follow procedures in that TVA's 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, TVA closed PER WBPER950246 as evidenced by the signature of the lead civil engineer on July 28, 1995. However, at the time this individual signed the PER as completed, he knew, or should have known, that Step 3 of the PER was a part of the corrective action plan, and that this action had not been performed as stated in the PER. The NRC's evidence, however, did not indicate that TVA's actions constituted an attempt to conceal information regarding defective ice condenser ice basket screws.