TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

SEP 07 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

WATTS BAR NUCLEAR PLANT (WBN) - NRC INSPECTION REPORT NOS. 50-390/86-14 AND 50-391/86-14 - REPLY TO NOTICE OF VIOLATION 391/86-14-03, FAILURE TO ESTABLISH MEASURES TO ENSURE THAT DEVIATIONS FROM DESIGN SPECIFICATIONS WERE CONTROLLED

Enclosed is our revised response to violation A (391/86-14-03) of NRC Inspection Report Nos. 50-390/86-14 and 50-391/86-14. Steven D. Richardson's letter to S. A. White dated August 6, 1988, concluded, after careful consideration of our response denying violation A (391/86-14-03), that the violation occurred for the reasons stated in an enclosure to that letter. We have reexamined the issues through discussions with the resident inspector, and can now provide a response that addresses both the specific and programmatic inadequacies described by NRC. Enclosure 1 contains our revised response, and enclosure 2 contains a list of commitments made by TVA in this response.

If there are any questions, please telephone G. R. Ashley at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

8809150229 880907
PDR ADOCK 05000390
Q PDC

IE01
1/1

U.S. Nuclear Regulatory Commission

SEP 07 1988

cc (Enclosures):
Ms. S. C. Black, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Mr. F. R. McCoy, Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

U.S. Nuclear Regulatory Commission
Watts Bar Resident Inspector
P.O. Box 700
Spring City, Tennessee 37381

ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 2
REVISED RESPONSE TO NRC LETTER FROM G. G. ZECH
DATED AUGUST 1, 1986
REPORT NOS. 50-390/86-14 AND 50-391/86-14

This report provides a revised response to Notice of Violation 391/86-14-03, Part A described in enclosure 1 of NRC's inspection report and to the letter from S. D. Richardson to S. A. White dated August 6, 1988. This is TVA's (revised) final report on this notice of violation.

Re-Statement of Violation

10 CFR 50, Appendix B, Criterion III as implemented by TVA's QA Topical Report, TVA-TR-75-1A, Rev. 8, paragraph 17.1.3 requires that measures shall be established to ensure that deviations from quality standards are controlled.

Contrary to the above, as of June 20, 1986, measures were not established to ensure that deviations from quality standards are controlled in that General Design Specifications were not considered as mandatory requirements by Division of Nuclear Engineering personnel. Design procedures did not provide guidance to designers to properly control deviations from specifications.

Admission or Denial of Violation

The initial TVA response to the subject violation denied that a violation had occurred. NRC concluded, after careful consideration, that the condition described was still considered to be in noncompliance with 10 CFR 50, Appendix B, Criterion III, "Design Control." Further discussion with the NRC resident inspector has clarified NRC's concern. TVA's understanding of NRC's concern is summarized below.

NRC Concern

1. How does TVA ensure that revisions to General Construction Specifications (G-Specs) and other TVA implementing documents (that are made subsequent to being referenced in the FSAR) have not resulted in decreased commitments or reduced conservatism?

TVA Response

G-Specs are documents issued by engineering which provide construction, erection, installation, and maintenance instructions to field forces for the implementation of plant design. TVA's original intent in providing references in the Final Safety Analysis Report (FSAR) to implementing documents was to describe how TVA meets the intent of the applicable codes, standards, and regulatory requirements. TVA did not intend to invoke these G-Specs as "local codes."

This condition was the result of TVA not anticipating that NRC would view the documents which control the implementation of commitments to codes, standards, and regulatory requirements as equivalent to the commitments themselves. However, it is now TVA's understanding that NRC does consider reference to G-Specs in the FSAR to constitute commitments commensurate to codes and standards. TVA misunderstood the basis of the violation when the initial response was issued.

Since G-Specs and other implementing documents referenced in the FSAR were not intended by TVA to be FSAR commitments, the procedures and processes for revising these documents have not considered the need to revise the FSAR for revisions to G-Specs. Therefore, in that context, TVA admits that a violation occurred. However, the specific concern with G-53 described by NRC in the inspection report does not apply to this condition since G-53 is not referenced in the FSAR.

NRC Concern

2. A. How does TVA implement the requirements of American National Standard Institute (ANSI) N45.2.11, paragraph 3.2, with respect to vibration?

   B. Specifically, did TVA adequately control the effects of vibration for the supports identified in the notice of violation?

TVA Response

A. ANSI N45.2.11-1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants," section 3.2, states that "The design input shall include but is not limited to the following, where applicable: . . . . 9. Mechanical requirements such as vibration . . . ." TVA implements this requirement as follows: Nuclear Engineering Procedure (NEP)-3.2, "Design Input," attachment 1, and the predecessor procedures OEP-06 and EN DES-EP-3.01 specify that vibration be considered in the design of structures, systems, and components.

   Additionally, Watts Bar Design Criteria WB-DC-40-31.16, "Displacement Criteria for Vibration Qualification of Piping," and Mechanical Design Standard DS-M2.16-1, "Preoperational Test Program for Vibrations Qualification," specify acceptable limits of vibration for piping, components, and supports, and require that vibration be a specific element addressed during the preoperational test program. The limits given in these design documents were derived from various industry standards such as ANSI, American Society of Mechanical Engineers (ASME), and other specific studies referenced in the design criteria. Details of the preoperational vibration testing program are discussed in section 3.9.2.1 of the FSAR.

   Watts Bar support design is controlled by Watts Bar Design Criteria WB-DC-40-31.9, "Criteria For Design of Piping Supports and Supplemental Steel In Category I Structures," which invokes the 1973 edition of ANSI B31.1, "Power Piping Code." This code (reference paragraph 121.1.3) requires locking devices for screw and equivalent adjustments (e.g., turnbuckles).

General Construction Specification G-53 provides requirements for locking devices on turnbuckles and other equivalent adjustments and reflects the requirements of American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," seventh edition, February 1969, with supplements 1, 2, and 3 for bolt tightness. Quality Control Procedure (QCP)-4.23.8 provides for the inspection of the installation to ensure that the requirements of G-53 have been implemented.

The design of structure, systems, and components has adequately addressed vibrational effects by specifying vibrational limits and ensuring them through the preoperational test program and by specific bolt tightness. TVA considers this to be acceptable as it is consistent with industry codes and standards to which Watts Bar is committed.

B. The design of supports questioned by NRC is reflected in drawings 63-2SIS-R91 and 63-2SIS-R92 and is supported by calculations with the same identifier. The specific designs comply with WB-DC-40-31.9. The drawings refer to TVA drawing series 47A050 which provides general notes for hanger installation. Note 214 on drawing 47A050-1C1 refers to G-Spec G-53 for bolting requirements. G-53, section 9.8, specifies that A307 bolts shall be snug tight. The bolts on these two supports were verified to be snug tight by QCP-4.23-8, paragraph 7.8.2.1. Appropriate vibration limits of the piping will be ensured through the preoperational test program mentioned above (specifically, test No. W-3.1D for the cited example).

In conclusion, vibration is adequately accounted for through TVA's design, construction, inspection, and testing programs, and the specific supports cited are controlled under these programs. Therefore, this aspect of NRC's concern does not constitute a violation.

NRC Concern

3. What document ensures that design input requirements are translated to drawing requirements?

TVA Response

Design input includes requirements that govern the design of all structures, systems, and components. The preparation and maintenance of design input documents are controlled by NEP-3.2. Design input is implemented through design output documents which are prepared and maintained by NEP-5.1, "Design Output," which requires verification (NEP-5.2, "Review") to confirm or substantiate that the design meets the specified inputs. Therefore, this aspect of NRC's concern does not constitute a violation.

NRC Concern

4. How does TVA provide guidance to designers to properly control deviations from design input?

TVA Response

TVA does not allow deviations from design input without a revision to the design input document. Before November 20, 1987, the requirements of NEP-6.1, "Change Control," must be met before a design input document or design output document could be revised. This procedure requires that affected documents be listed on the engineering change notice (ECN) data sheets and appropriately revised before closure of the ECN. After November 20, 1987, NEP-6.2, "Design Change Notice" (DCN), controls the revisions to engineering documents. This procedure requires that affected documents be listed on the DCN. Following Nuclear Engineering (NE) review and approval, the DCN represents formal approval of changes to the affected engineering documents. This process ensures that design input changes are reflected in design output. Therefore, this aspect of the NRC concern does not constitute a violation.

Reason for the Violation (Part 1 only)

As stated earlier, TVA's intent in the FSAR with respect to the use of G-Specs and other implementing documents has been to provide references to TVA-controlled implementing documents which describe how TVA meets the intent of the applicable industry codes, standards, and regulatory requirements. It is not TVA's intent to invoke these G-Specs and treat them as "local codes." This condition was created as a result of TVA not anticipating that NRC would view these implementing documents as equivalent to codes and standards.

Corrective Action Taken, Results Achieved, and Steps to Avoid Further Noncompliance

In order to eliminate the ambiguity created by referring to implementing documents in the FSAR, Watts Bar will discontinue this practice and remove those existing references from the FSAR. TVA will revise the FSAR to remove references to implementing documents and properly characterize commitments as they relate to applicable codes, standards, and regulatory requirements. Removing the reference to implementing documents will not decrease our commitment to codes, standards, and regulatory requirements as applicable to Watts Bar. A preliminary review of the FSAR has identified that less than ten implementing documents have been referenced.

Date When Full Compliance Will Be Achieved

TVA will complete the above corrective steps by six months before fuel load.

ENCLOSURE 2

LIST OF COMMITMENTS

Six months before unit 1 fuel load TVA will have revised the FSAR to remove the references to implementing documents and properly characterize commitments as they relate to applicable codes, standards, and regulatory requirements.