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DEC 10 1993

U.S. Nuclear Regulatory Commission  
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Gentlemen:

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

WATTS BAR NUCLEAR PLANT (WBN) - UNITS 1 AND 2 - NRC INSPECTION REPORT NO. 390, 391/93-66 REPLY TO NOTICE OF VIOLATION

The purpose of this letter is to provide a reply to Notice of Violation 390/93-66-01 and 390/93-66-02 cited in the subject inspection report dated October 29, 1993. Violation 390/93-66-01 identifies examples of incorrect and incorrectly implemented design basis document requirements. Violation 390/93-66-02 identifies various examples where installed hardware differs from the plant drawings. Enclosure 1 to this letter addresses the concerns described in the inspection report.

Enclosure 2 lists the commitments made in this submittal.

The revised submittal date for this response was coordinated with the Region II staff. Should there be any questions regarding this submittal, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

William J. Museler

Enclosures  
cc: See page 2

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U.S. Nuclear Regulatory Commission  
Page 2

DEC 10 1993

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## ENCLOSURE 1

### WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 RESPONSE TO NRC'S OCTOBER 29, 1993 LETTER TO TVA NRC VIOLATION 390/93-66-01 AND 390/93-66-02

#### DESCRIPTION OF VIOLATION 390/93-66-01

10 CFR 50 Appendix B, Criteria III, as implemented by the TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, Rev. 3, requires measures which assure that regulatory requirements and design bases are correctly translated into specifications, drawings, procedures, and instructions for safety-related nuclear plant structures, systems, and components. At Watts Bar these measures include development and use of System Descriptions which describe design basis requirements for plant systems. Implicitly, the design basis requirements contained in these System Descriptions must be correct; the specifications, drawings, procedures, and instructions which implement system design requirements must be consistent with the System Descriptions; and the installed equipment design configuration must be in conformance with the System Descriptions.

Contrary to the above, on September 13 - 17, 1993, examples were identified in which System Description design basis requirements were incorrect, an inconsistency existed between the alarm setting prescribed by an instruction and the related System Description design basis; or installed design configurations did not conform with System Descriptions: (Examples defined below).

#### TVA RESPONSE TO VIOLATION 390/93-66-01

TVA concurs with the Violation. The corrective action for each example of Violation 390/93-66-01 will be addressed individually. The discussion that follows defines collectively the reason for Violation 390/93-66-01 and for Violation 390/93-66-02 along with the corrective steps to avoid further violations.

#### REASON FOR VIOLATION 390/93-66-01 AND 390/93-66-02

The violations occurred because the cited errors were overlooked during the verification process. The cited errors are indicative of the type of errors identified and corrected as part of the DBVP corrective action program (CAP). While a large number of such errors were corrected, this type of error can be difficult to find. The DBVP process included a systematic review for inconsistencies of all kinds. However, minor errors can be missed during a systematic review. This is especially true as the level of errors is reduced.

#### CORRECTIVE STEPS TO BE TAKEN TO AVOID FURTHER VIOLATIONS

TVA has reviewed the cited deficiencies collectively to determine if a programmatic concern exists that could impact the safe, normal operation of a component, system, or structure. With the exception of Example 1 of Violation 390/93-66-02, no such concern can be identified. The other cited errors do not

create a situation where a component, system, or structure would fail to perform its function.

As part of the DBVP CAP an improved design change control system, the Design Change Notice (DCN) process, has been implemented. The system includes the issue of the design as a completed package. The package is verified within Engineering and further reviewed by plant personnel for impacts. This process minimizes the likelihood of creating errors such as these.

In addition, Site Standard Practice (SSP) 2.11, "Drawing Deviation Program," has been implemented. This process allows for the timely identification and correction of minor errors such as the ones described in Violations 390/93-66-01 and 390/93-66-02.

Outside of the DBVP, several systematic reviews have been performed which provide confidence that the design and configuration of the plant is appropriate. An Electrical and Mechanical Integrated Design Inspection (IDI) was docketed as NRC Inspection Report 390/91-201 and a Civil IDI was performed and docketed as NRC Inspection Report 390/92-201. Several deficiencies were identified during Inspection 390/91-201 and 390/92-201. However, Inspection Report 390/93-201 documents NRC Staff's review of the corrective actions and subsequent closure of all but two deficiencies. The NRC has also recently conducted an additional Mechanical IDI on the Essential Raw Cooling Water System and the Component Cooling System. This IDI was docketed as Inspection Report 390/93-303 and in general, concluded with positive results. Additional vertical slice reviews have been performed by Nuclear Assurance under the audit/assessment program and the Program for Assurance of Completion and Assurance of Quality (PAC/AQ). The implementation of the PAC/AQ vertical slice reviews were recently included within the scope of an NRC team inspection which concluded with an overall positive assessment of the program. Although each of these reviews identified some discrepancies, the conclusions of the reviews, including the assessment of the corrective actions, have reflected that the plant was constructed as set forth in the WBN design documents. Based on the results of these reviews and the testing activities required for plant licensing, actions to try and locate additional examples, similar to those identified in the Violations, are not considered warranted.

#### 390/93-66-01. Example 1

The Residual Heat Removal (RHR) System Description (N3-74-4001, Rev. 4) incorrectly indicated that a loss of RHR pump seal water would not result in an unsafe condition. Referenced information indicated acceptable short term operability but did not support safe operation for the full duration of the design basis accident.

#### CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

Design Change Notice (DCN) S-27128-A has been issued to revise the RHR System Description to clarify that only short term loss of component cooling water does not result in an unsafe condition.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on October 13, 1993, with the issuance of DCN S-27128-A.

390/93-66-01, Example 2

The jacket cooling water outlet upper temperature limit of 190°F indicated in Diesel Generator System Description (N3-82-4002, Rev. 4) was incorrectly implemented in an alarm setting. Alarm Response Instruction, ARI-195-201, Rev. 0, incorrectly specified an upper temperature alarm set point of 195°F, exceeding the System Description limit by 5°F, and the alarms had been incorrectly set at 195°F.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

DCN S-27156-A was issued on October 4, 1993, to update the affected vendor drawings, the System Description, and the instrument tabulations.

ARI 195-201 will be revised prior to fuel load to incorporate the corrected set point data. Based on DCN S-27156-A, the high temperature limit of 190° F is correct and the set point limit of 187° is now specified to allow for plus or minus three degrees instrument error.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance will be achieved when the revision to ARI 195-201 becomes effective prior to fuel load.

390/93-66-01, Example 3 and 4

- (3) Accumulator local pressure transmitters described by the Safety Injection System (SIS) System Description (N3-63-4001, Rev. 5) were not included in the design that had been installed.
- (4) The SIS System Description only indicated two pressure transmitters were installed in each Accumulator room, whereas a third transmitter was installed to provide an indication and alarm function in the Auxiliary Control Room.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

DCN S-27128-A was issued to revise the SIS System Description to delete the reference to the local instrumentation. In addition, a revision to the SIS System Description will be initiated that clarifies the indication that is provided in the Main and Auxiliary Control Rooms.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The revision to the System Description will be completed by February 11, 1994.

390/93-66-01. Example 5

The SIS System Description indicated that diaphragm valves could not be used where system design pressure exceeded 200 psig. Two diaphragm valves (63-301A and 63-302A) were installed in the system's suction piping, which had a 220 psig design pressure.

CORRECTIVE STEPS TO BE TAKEN

A DCN will be issued by February 11, 1994, to reference, in the SIS System Description, calculation EPM-GRS-022693 and to state that valves 63-301A, 63-302A, 63-506A, and 63-507A are qualified by this reference to a higher pressure of 220 psig.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance will be achieved with the issuance of the DCN by February 11, 1994.

#### DESCRIPTION OF VIOLATION 390/93-66-02

10 CFR 50 Appendix B, Criterion V, as implemented by TVA Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A, Rev. 3, requires activities affecting quality be prescribed and accomplished in accordance with documented instructions, procedures, and drawings, of a type appropriate to the circumstances. Implicit in these requirements, drawings used to depict the proper installation of safety-related equipment must be correct and the installed equipment must conform to the drawings.

Contrary to the above, on September 15, 1993, it was determined that installed safety-related equipment did not conform to the applicable Configuration Control Drawings in the following examples:

#### TVA RESPONSE TO VIOLATION 390/93-66-02

TVA concurs with the Violation. The corrective action for each example of Violation 390/93-66-02 will be addressed individually. The reason for the Violation 390/93-66-01 and for Violation 390/93-66-02 are defined collectively above, along with the corrective steps to avoid further violation.

#### 390/93-66-02, EXAMPLE 1

Example 1 contains three specific elements:

- A. Safety Injection System Configuration Control Drawing 1-47W811-1 showed 12 manual injection line valves as needle types, but the valves installed were globe types.
- B. Drawing 1-47W811-1 also showed two Safety Injection pump drain valves as diaphragm types, but the valves installed were globe types.
- C. Drawing 47W811-1 incorrectly showed valve 63-836 as 63-826.

#### CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

For Example 1-A, Drawing Deviation (DD) 93-0491 was written to confirm the installed valves were globe valves and to initiate correction of drawing 1-47W811-1. The inappropriate application of the globe valves was documented initially as Problem Evaluation Report WBP930316. This PER was subsequently escalated to Significant Corrective Action Report (SCAR) WBSA930218 and reported to NRC under 10 CFR 50.55(e) on December 1, 1993. In an effort to establish whether additional examples of this condition exists, other Westinghouse supplied systems at WBN have been reviewed for additional cases of high head pumps which can discharge to low pressure. The only other case identified was that of the centrifugal charging pumps supplying flow to the reactor coolant pump seal injection lines after a large break LOCA. It was established that the seal injection line throttle valves were procured with physical attributes suited for throttling service.

For Example 1-B, DD 93-0489 was written to correct the drawing to depict globe valves. For Example 1-C, drawing 1-47W811-1 was revised to correct the valve

number on September 13, 1993, by an Administrative Change in accordance with Engineering Administrative Instruction (EAI) 3.09 "Incorporation of Change Documents into Drawings."

CORRECTIVE ACTION THAT WILL BE TAKEN

For Example 1-A, a DCN will be issued to correctly indicate the valves as globe valves on drawing 1-47W811-1 and to install pressure reduction orifices which will allow for the continued use of the installed globe valves. For Example 1-B, to resolve the DD, a DCN will be written to incorporate the required drawing changes. No additional corrective action is required for Example 1-C.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

For Example 1-A, the corrective action associated with SCAR WBSA930218 will be completed prior to performing preoperational testing of the injection line portion of the system. For Example 1-B, the DCN will be issued by February 11, 1994. For Example 1-C, the required corrective action was completed by the issuance of the Administrative Change to drawing 1-47W811-1.

390/93-66-02. EXAMPLE 2

On Diesel Generator Auxiliary Board 1A2-A, the model number of the breaker installed in Compartment 4D was different than the model number shown on electrical wiring Diagram 1-45W732-2, Rev. 4. The diagram indicated that the spare breaker should be a Model No. EF3-L050; however, the breaker installed was a Model No. EF3-A010.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

The connection drawing and plant installation are correct but the single line was discrepant. DD 93-0497 was initiated to correct the single line drawing. The required design change was issued as DCN S-28160-A on November 30, 1993.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved with the issuance of DCN S-28160-A on November 30, 1993.

390/93-66-02. EXAMPLE 3

Valves 62-535 and 62-536 are depicted on Configuration Control Drawing 1-47W809-1 as globe valves but the installed valves are gate valves.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

DD 93-0488 was written to confirm that the installed valves are gate valves and to initiate correction of the drawing. The resolution of the DD will require the initiation of a DCN to update the affected drawing.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The DCN will be issued by February 11, 1994.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
RESPONSE TO NRC'S OCTOBER 29, 1993 LETTER TO TVA  
NRC VIOLATION 390/93-66-01 AND 390/93-66-02

LIST OF COMMITMENTS

1. ARI 195-201 will be revised prior to fuel load to incorporate the corrected set point data. Based on DCN S-27156-A, the high temperature limit of 190°F is correct and the set point limit of 187° is now specified to allow for plus or minus three degrees instrument error.
2. In addition, a revision to the SIS System Description will be initiated that clarifies the indication that is provided in the Main and Auxiliary Control Rooms. The revision to the System Description will be completed by February 11, 1994.
3. A DCN will be issued by February 11, 1994, to reference, in the SIS System Description, calculation EPM-GRS-002693 and to state that valves 63-301A, 63-302A, 63-506A, and 63-507A are qualified by this reference to a higher pressure of 220 psig.
4. For Example 1-A, a DCN will be issued to correctly indicate the valves as globe valves on drawing 1-47W811-1 and to install pressure reduction orifices which will allow for the continued use of the installed globe valves.
5. For Example 1-B, to resolve the DD, a DCN will be written to incorporate the required drawing changes. The DCN will be issued by February 11, 1994.
6. DD 93-0488 was written to confirm that the installed valves are gate valves and to initiate correction of the drawing. The resolution of the DD will require the initiation of a DCN to update the affected drawing. The DCN will be issued by February 11, 1994.