

U.S. Nuclear Regulatory Commission
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Enclosure

cc (Enclosure):

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1
RESPONSE TO NRC'S AUGUST 11, 1993 LETTER TO TVA
NRC VIOLATION 390/93-202-01

Description of Violation 390/93-202-01

10 CFR 50, Appendix B, Criterion XVI, Corrective Action, states in part that measures shall be established to assure that conditions adverse to quality such as deficiencies, defective material and equipment, and nonconformances are promptly identified and corrected.

On March 18, 1981, NRC Violation 390, 391/81-03-01 identified that freeze protection was not provided for motor bearing cooling lines. The documented response to the violation stated that corrective actions would be implemented by reworking these lines to obtain proper slope. Rework was accomplished/completed and the work package closed in 1982.

Significant Corrective Action Report (SCAR) No. WBP900084SCA, Revision 3, describes that the HVAC system for the Essential Raw Cooling System intake pumping structure (IPS) mechanical equipment rooms are not designed to assure that the room temperature can be maintained above 40 degrees F due to being non-safety related, non-seismically qualified, and non 1E powered. The SCAR was dispositioned based on calculations that addressed the reliability of offsite power sources, the maximum duration of loss of individual offsite sources, and the time until freezing temperatures are reached in the rooms.

Contrary to the above, conditions adverse to quality were not promptly corrected in that:

1. As of April 23, 1993, the motor bearing cooling line slope deficiencies had not been corrected. The 1982 rework had not addressed the slope deficiency issue as required by the documented response to NRC Violation 390, 391/81-03-01.
2. As of April 23, 1993, the corrective actions for SCAR WBP900084SCA failed to address freeze protection in the IPS as required by 10 CFR 50, Appendix A, Criterion XVII, Electric Power Systems, during a total loss of offsite power.

Example 1

Reason for Violation

TVA agrees that the ERCW pump bearing oil cooling water lines are not installed with acceptable line slope for proper drainage. The physical piping drawings were revised to show the required slopes for the lines to be self draining, during the carbon steel to stainless steel change-out under Engineering Change

Notice (ECN) 2756. In addition, it appears some piping was damaged after the installation such that it no longer meets the slope requirements for adequate drainage.

Corrective Steps Taken and Results Achieved

Work Request No. C 135764 was submitted to verify slopes in accordance with as-constructed drawing 37W206-8, Revision T.

Subsequent Work Requests and Work Orders were initiated for each of the pumps as indicated below to correct identified slope deficiencies:

PUMP	WORK ORDER	STATUS
AA	93-10612-00	COMPLETE
BA	93-10611-00	OPEN
CA	93-10610-00	COMPLETE
DA	93-10609-00	COMPLETE
EB	93-10608-00	OPEN
FB	93-10607-00	OPEN
CB	93-10606-00	OPEN
HB	93-10604-00	OPEN

Corrective Steps Which Will Be Taken To Avoid Further Violations

TVA will review other safety related systems to determine other areas where the piping was required to be self draining to ensure concerns about the freezing of piping were resolved. If other areas are identified, these lines will be walked down to ensure the piping is installed correctly. Any deficient areas will be reworked to be in compliance with the drawings.

Date When Full Compliance Will Be Achieved

TVA will be in full compliance with respect to Example 1 by March 27, 1994.

Example 2

Reason for Violation

TVA did not consider that freezing of safety-related equipment in the Intake Pumping Station would be a credible condition in the time frame during which off-site power would not be available. TVA, therefore, did not provide freeze protection for safety-related equipment within the station which may be affected by low temperatures. TVA thus, had not provided an on-site power capability to ensure that the environmental conditions necessary to assure functionality of the Essential Raw Cooling Water (ERCW) system are maintained within allowable limits.

TVA had previously identified the potential freezing problem in the Intake Pumping Station as Significant Condition Adverse to Quality (SCAR) WBSA900084. This condition and the associated corrective actions were reported to the Commission under 10 CFR 50.55(e), by correspondence dated November 4, 1991. TVA believed the stated corrective actions were appropriate for the condition identified and were acceptable to the Commission.

The corrective action for the potential freezing condition in the Intake Pumping Station incorrectly relied on the availability of the off-site power system to provide electrical heating necessary to prevent freezing of the ERCW system components and other non-safety systems which could have had a detrimental effect on the ERCW system.

Corrective Steps Taken and Results Achieved

TVA will revise the corrective action plan for SCAR900084 to satisfy Criterion XVII of 10 CFR 50 Appendix A. Both off-site and on-site electrical power (portable electric generators) will be provided to supply electrical heating for the Intake Pumping Station and to ensure that the environmental conditions necessary for reliable operation of the ERCW system are maintained.

This corrective action will require a combination of preventive and compensatory measures through operators involvement to prevent freezing of ERCW and other piping and components. Specific requirements will include ventilation systems shutdown during freezing weather conditions to delay or mitigate the effects of low temperatures, surveillance monitoring of building space temperatures during freezing weather, and compensatory actions to provide temporary heating through the usage of portable generators and heaters during loss of heating conditions. TVA has completed time-dependent temperature analysis for the Intake Pumping Station and has determined that sufficient time exists to provide supplemental heating to prevent freezing conditions within the equipment rooms.

Corrective Steps Which Will Be Taken To Avoid Further Violation

TVA will revise the plant operating instructions and emergency operating procedures necessary to implement these required actions.

TVA will revise the Intake Pumping Station Design Criteria to specify requirements for temperature surveillance and operator compensatory actions required to provide supplementary heating for loss of heating in the Intake Pumping Station during site freezing weather conditions.

TVA will revise the FSAR to state these commitments for temperature surveillance requirements and operator compensatory actions necessary to satisfy the design basis.

Date When Full Compliance Will Be Achieved

TVA will be in full compliance with respect to Example 2 by system turnover to Operations.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANTS UNIT 1
RESPONSE TO NRC'S AUGUST 11, 1993 LETTER TO TVA
NRC VIOLATION 390/93-202-01

LIST OF COMMITMENTS

1. The following Work Orders will be completed to correct sloping conditions in accordance with as-constructed drawing 37W206-8, Rev. T.

93-10611-00	93-10608-00	93-10607-00
93-10606-00	93-10604-00	

2. TVA will review other safety related systems to determine other areas where the piping was required to be self draining to ensure concerns about the freezing of piping were resolved.
3. If other areas are identified, these lines will be walked down to ensure the piping was installed correctly.
4. Any deficient areas will be reworked to be in compliance with the drawings.

The completion date for the above listed activities is March 27, 1994.

5. TVA will revise the corrective action plan for SCAR900084 to satisfy Criterion XVII of 10 CFR 50, Appendix A. This corrective action will require a combination of preventive and compensatory measures through operator involvement to prevent freezing of ERCW and other piping and components.
6. TVA will revise the Intake Pumping Station Design Criteria to specify requirements for temperature surveillance and operator compensatory actions required to provide supplementary heating for loss of heating in the Intake Pumping Station during site freezing weather conditions.
7. TVA will revise the plant operating instructions and emergency operating procedures necessary to implement these required actions.
8. TVA will revise the FSAR to state these commitments for temperature surveillance requirements and operator compensatory actions necessary to satisfy the design basis.

The completion date for items 5-8 is system turnover to operations.