ENCLOSURE 1

NOTICE OF VIOLATION

Tennessee Valley Authority
Watts Bar

Docket No.: 50-390
License No.: CPPR-91

During an NRC inspection conducted on July 1-30, 1993, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, the violations are listed below:

A. 10 CFR Appendix B, Criterion V, "Instructions, Procedures, and Drawings," as implemented by TVA Nuclear Quality Assurance (NQA) Plan, TVA-NQA-PLN 89-A (Revision 3), in Section 6.1, requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Site Standard Procedure (SSP) 2.07, Document Control (Revision 5 dated June 7, 1993) section 3.15, Using Vendor Drawings, specifies the following requirements:

SSP-2.07 paragraph 3.15.A, Determine if a TVA generated configuration control drawing (CCD) or as-constructed drawing (ACD) exist that shows the configuration, dimensions, inspection and testing criteria needed for the prescribed activity.

SSP-2.07 paragraph 3.15.D, If a TVA CCD or ACD drawing can not be found in the control program that shows the needed information, ensure the vendor drawing to be used is reviewed and evaluated by Nuclear Engineering before use.

Contrary to the above, as of July 30, 1993 Startup and Test Group personnel used Vendor drawing 774A759 (Revision 6), Computer System Division Standard Drawing Resistance Temperature Detector (RTD) and 845A349 (Revision 5) Resistance to Temperature (RT) Card Schematic Diagram in the development of Preoperational Test Instruction (PTI) 261.02 Plant Process Computer Input and Data Printout Verification (dated June 4, 1993) without these drawings having been reviewed and evaluated by Nuclear Engineering.

This is Severity Level IV violation (Supplement II)

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B. 10 CFR 50 Appendix B, Criterion V as implemented by TVA Nuclear Quality Assurance (NQA) Plan, TVA-NQA-PLN 89-A (Revision 3), Section 6.1 requires that activities effecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings. Instructions, procedures or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Startup Manual Procedure (SMP-8.0), Administration of Preoperational Test Procedures (Revision 11) sections 2.1, 2.2, 2.3 and 2.4 specifies the requirements under which the preoperational test instruction (PTI) is developed, reviewed and approved.

SMP-8.0 paragraph 2.4.A specifies that the test engineer is responsible for ensuring that the PTI is technically and administratively accurate. Paragraph 2.4.D of SMP 8.0 requires that after completion of PTI technical review and resolution of comments by the test engineer, the Startup and Test Manager will sign the approval sheet as reviewer. This signature indicates the technical review is complete. Paragraph 2.4.G of SMP-8.0 specifies the Startup Manager provides the final approval of the PTI.

SMP-3.0 (Revision 7), Joint Test Group Charter, paragraph 2.3.B.1 requires the Joint Test Group (JTG) to review and recommend approval of all PTIs. Paragraph 2.3.B.4 of SMP 3.0 requires the JTG to perform technical reviews of documents and advise the Startup Manager on the disposition of those items reviewed.

Contrary to the above as of July 30, 1993 licensee personnel failed to perform adequate review of the following preoperational test instructions. These PTIs were approved for use with significant technical and administrative deficiencies which would adversely affect the PTI test objective, test results and acceptance criteria.

PTI-261.02 (Revision 0, Approved June 4, 1993), Computer Input and Data Verification:

PTI-261.02 Section 6.2, Cold Junction Box RTD Calibration Curve Development. Licensee personnel made calculation errors when developing the resistance input values for the RTDs and the millivolt input values for the thermocouples. The calculation errors would have resulted in the plant process computer displaying temperatures in excess of PTI-261.02 acceptance criteria of ±0.1°F.

PTI-261.02 Section 6.6, RTD Signal Scaling and Section 6.7 Thermocouple Signal Scaling, utilize conversion constants from data sheets 8.4 and 8.5. The test steps of section 6.6 and 6.7 direct the test director to the wrong data sheets for selecting the conversion constants to be programmed into the plant process computer.

The Measuring and Test Equipment of PTI-261.02, Appendix A specifies the use of decade resistance boxes with an accuracy of ± 0.12% of setting. This accuracy introduces error of approximately ± 0.4°F. This value exceeds PTI-261.02 acceptance criteria of ± 0.1°F.

PTI-261.02, Section 4.0 Prerequisite Action 4.1.15 specifies that the RT cards, normal-loaded reference voltages be verified within a tolerance of approximately ± 0.1%. Vendor drawing 845A349, Revision 5, RT Card Schematic Diagram, specifies a tolerance of approximately ± 0.006%.

PTI-002.02 (Revision 0, Approved April 30, 1993) Condenser Vacuum Preoperational Test:

The following examples describe instances where licensee personnel failed to follow SMP-8.0 requirements during the preparation, review and approval of PTI-002.02.

PTI-002.02 did not list any reference to the FSAR although FSAR sections 10.4.1.4, 10.4.2, and Table 14.2-1 were used to develop the PTI. The flow diagrams utilized to develop the valve lineup, boundaries and interface system requirements were not listed. Prerequisites were not provided to verify piping system cleanliness requirements. A prerequisite was not provided to ensure current boundary drawings have been reviewed for impact on test instruction performance.

PTI-002.02 steps 6.1.3, 6.1.5, 6.1.7, 6.1.9, 6.1.11, 6.1.13 verifies quantitative acceptance criteria without provisions for recording the actual value observed or the measuring and test equipment identification number. In addition, second party verification for these steps (signoff and date) is not provided.

PTI-002.02 steps 6.3.54, 6.3.62 and 7.1.3 restore temporary modifications but do not provide for the required second party verification.

Test Scoping Document - 15, Condenser Vacuum, section 4.1.3 and FSAR section 10.4.1.4 specifies that the condenser shell leak test be verified complete as a prerequisite for PTI-002.02. There was no prerequisite step for this verification in the PTI.

PTI-27.01 section 6.1 Condenser Circulating Water (CCW) Inlet and Outlet Valve Interlock Logic Test:

PTI-27.01 section 5.12 acceptance criteria requires that the CCW inlet/outlet valve on one flow path can not be closed if both valves on the other flow path are not fully open. The test method provided was for these valves to be fully shut. Testing in this manner does not properly test valve interlock function which is derived from valves being in a not fully open position.

PTI-70.01 (Revision 1, Approved July 8, 1993) Component Cooling System Pump/Valve Logic Test:

The following examples describe instances where licensee personnel failed to follow SMP-8.0 requirements during the preparation, review and approval of PTI-70.01.

PTI-70.01 test steps 6.23.35 and 6.24.35 do not correctly specify the thermal barrier booster pump light indication, as shown on design basis drawing CP45W760-70-9, Revision 2.

PTI-70.01 failed to incorporate acceptance criteria in section 5.14 and 5.23D for test requirements specified in sections 6.29 and 6.7. In addition acceptance criteria of section 5.23D is erroneously shown for a test requirement in section 6.7, which does not exist.

PTI-70.01 incorrectly identifies numerous numerical step designations in section 4.0 and 6.0 caused by deletion of valve 2-FCV-70-153.

PTI-74.01 (Revision 0, Approved June 18, 1993) Residual Heat Removal System:

PTI-74.01 had many steps throughout the procedure which required "C" handswitches to be manually placed in the open or closed position without returning the switches to the normal position. The "C" handswitches are three position maintain type switches that do not automatically return (spring return) to the normal position. In several sections of the procedure, for example steps 6.1.38, 6.2.38, 6.3.30 and 6.4.30, the as-left status of these switches had not been properly considered in that unexpected operations of valve motor operators would have occurred in subsequent test steps.

Test Scoping Document (TSD) No. W4.1, Revision 3, Change No. 1, section 8.0 Instruction (at paragraph 8.10), required that each RHR pump motor ammeter be verified operational during testing. This requirement had not been incorporated into the test objectives or acceptance criteria of PTI-74.01, Revision 0.

Sections 6.11 and 6.12 of PTI-74.01 provide instructions for testing the control logic for the RHR HX outlet flow control valves 1-FCV-74-16 and -28. These valves are air-operated valves that utilize an analog signal to maintain valve position at a setpoint established in the Main Control Room or Auxiliary Control Room. An SI signal removes the control signal and causes the valves to open fully, and remain open while the signal is present. Once the SI signal is removed, the valves remain fully open until reset to remote manual control by handswitches HS-74-16 and -28. The handswitches (i.e. HS-74-16 and HS-74-28) function to restore remote manual control by deenergizing a seal-in circuit. The handswitches are wired with two normally closed contacts in series with an SI contact and relay. The series switch contacts can be opened separately by turning the handswitch right or left (clockwise or counter clockwise). Instruction Steps 6.11.24, 6.11.28, 6.12.24, and 6.12.28 required that the appropriate handswitches be placed in the reset position. However, the procedure failed to consider that the switch could be reset by turning the switch, either right or left. In order to correctly test the design features of handswitches (HS-74-16 and -28) reset circuitry the handswitches must be placed in both left and right positions as each position operates different contacts.

TSD W-4.1, Revision 3, Change No. 1, provides in Table 9-4 the acceptance criteria for the annunciator control circuit of flow control valves 1-FCV-74-16 and -28. These valves are maintained in the open position during normal plant operations and are alarmed to indicate when they are not fully open. The test objective and acceptance criteria as described in Table 9-4 was to verify that the valves annunciated and alarmed ("ESF Component Not Normal") when valves 1-FCV-74-16 and -28 were "not open". However, the acceptance criteria in PTI-74.01, Revision 0, did not meet the intent of the TSD in that the alarms were only being verified with the valves in the fully closed or the fully open positions.

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

Pursuant to the provisions of 10 CFR 2.201, Tennessee Valley Authority is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If an adequate reply is not

received within the time specified in this Notice, an order or Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Dated at Atlanta, Georgia
this 27th day of August 1993