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SEP 14 1995

CDR-50-390/95-05
CDR-50-391/95-05

10 CFR 50.55(e)

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

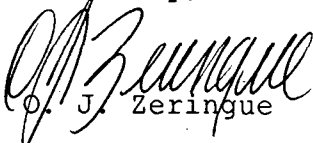
WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - CONSTRUCTION
DEFICIENCY REPORT (CDR) 50-390, 391/95-05 - DEFICIENCY INVOLVING
VENDOR WIRED SAFETY-RELATED ELECTRICAL PANELS - FINAL REPORT

The purpose of this letter is to provide a final report for the subject deficiency in accordance with 10 CFR 50.55(e). The subject deficiency was initially reported to the NRC Operations Center on August 18, 1995, as Finding Identification Report WBFIR930012307. The subject deficiency was subsequently upgraded to Significant Corrective Action Report WBSCA950014.

The Enclosure 1 contains a final report for the subject deficiency. Enclosure 2 contains a list of commitments made in this submittal.

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Sincerely,



O. J. Zeringue

Enclosures
cc: See page 2

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2
VENDOR WIRED SAFETY RELATED ELECTRICAL PANELS
SIGNIFICANT CORRECTIVE ACTION REPORT WBSA950014
10CFR50.55(e) CONSTRUCTION DEFICIENCY REPORT (CDR)
CDR 50-390, 391/95-05
FINAL REPORT

DESCRIPTION OF DEFICIENCY

Loose connections have been identified in vendor wired safety-related electrical panels. The loose connections involve both the termination of incoming field cables as well as vendor terminations.

BACKGROUND

Deficiencies in vendor wired safety-related electrical panels had been identified during a configuration control walkdown of 40 Unit 1 panels in 1984. The deficiencies were documented in Nonconformance Report (NCR) W-205-P. The deficiencies can be categorized as: (1) labeling deficiencies (primarily on vendor wiring); (2) wiring/configuration control deficiencies (e.g., wires on different terminal than shown on drawings); or (3) physical problems (e.g., nicks on insulation and loose terminal connections). The deficiencies which required correction were resolved through rework or drawing changes. The NCR was determined to not be significant and was closed in 1985 without requiring a walkdown of any additional panels.

In 1987 an Employee Concerns Special Project (ECSP) review team did not recognize that the physical deficiencies associated with NCR W-205-P had not been adequately dispositioned for the uninspected panels. However, in January 1993, WBN Site Quality Assurance personnel reviewed the ECSP evaluation of NCR W-205-P during an audit (WBA93307). In February 1993 the significance determination of the NCR was questioned and documented in Finding Identification Report (FIR) WBFIR930012307. An action was initiated against that FIR to evaluate any deficiencies identified through the walkdown inspection of the previously uninspected vendor wired safety-related electrical panels required for Unit 1 operation and determine whether they could have created a substantial safety hazard, if left uncorrected. That action has been completed.

SAFETY IMPLICATIONS

Based on a review of the work implementing documents associated with deficiencies identified during the above walkdowns, four categories of deficiencies were identified: (1) terminal blocks; (2) loose connections; (3) cables/conductors; and (4) cable/conductor insulation gaps. Categories 1, 3, and 4 have been evaluated as not having an adverse impact on plant safety. However, Category 2 was determined to potentially have an adverse impact on plant safety.

Although some of the identified loose connections could involve nonsafety-related circuits fed from the safety-related panel, a significant portion of

the loose connections have been confirmed to be associated with safety-related circuits in various safety-related systems (e.g. Component Cooling System, Safety Injection System, Ventilating System, Essential Raw Cooling Water System, Residual Heat Removal System, etc.), and involve redundant divisions of safety-related circuits. Assurance cannot be provided that the identified loose connections would maintain circuit continuity during a seismic event. Therefore, those loose connections would be assumed to create an open circuit during a seismic event. The resulting condition may affect the capability to mitigate the consequences of design basis events or safely shut down the reactor and maintain it in a safe shutdown condition.

CAUSE OF THE DEFICIENCY

The cause for the deficiencies existing past closure of NCR W-205-P was personnel error.

A configuration walkdown of vendor wired safety-related electrical panels was conducted in 1984. The walkdown was designed to identify and correct electrical deficiencies. After inspecting 40 vendor wired safety-related electrical panels, numerous identified deficiencies were documented in NCR W-205-P. The responsible organization incorrectly determined that the NCR was non-significant. By the procedure in effect at the time, non-significant NCRs were not required to be reviewed for Unit 2 generic applicability, extent of condition, root cause, or recurrence controls. Therefore, the incorrect significance determination resulted in the remaining vendor wired safety-related electrical panels not being inspected.

CORRECTIVE ACTIONS

The cause for this construction deficiency was the subject of Notice of Violation (NOV) 50-390, 391/93-24-01. TVA initially replied to that NOV on June 8, 1993.

The loose connections identified in previously uninspected vendor wired safety-related electrical panels required for Unit 1 operation have been corrected as part of the Unit 1 closure of WBFIR930012307.

Unit 2 vendor wired safety-related electrical panels not inspected by NCR W-205-P or WBFIR930012307 will be dispositioned prior to Unit 2 fuel load.

ENCLOSURE 2

LIST OF COMMITMENTS

Unit 2 vendor wired safety-related electrical panels not inspected by
NCR W-205-P or WBFIR930012307 will be dispositioned prior to Unit 2 fuel load.