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OCT 16 1987

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) - REGION II INSPECTION REPORT NOS. 50-390/87-11 AND 50-391/87-11 - RESPONSE TO NOTICE OF VIOLATION

Enclosed is our response to G. G. Zech's letter dated September 9, 1987, to S. A. White, which transmitted the subject inspection report, citing activities at WBN that appear to be in violation of NRC regulations. The response addresses violation 50-390/87-11-02.

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

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

OCT 16 1987

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ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
RESPONSE TO VIOLATION 50-390/87-11-02 -
FAILURE TO CONTROL LIFTED CABLES AND
WIRES PER APPROVED PROCEDURES OR DRAWINGS

Description of Violation (390/87-11-02)

10 CFR 50, Appendix B, Criterion V, as implemented by TVA's Quality Assurance (QA) Topical Report, TVA-TR75-1A, Rev. 9, Paragraphs 17.1.5 and 17.2.5, both titled "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings.

Engineering Procedure, WBEP 5.31, Revision 0, "Cable Record Development and Issue," requires that deleted or abandoned cables be identified as spare cables. This procedure specifies the procedures for entering cables into the spare cable program.

AI-2.15, Rev. 16, "Temporary Alterations," prescribes the controls on temporary alterations.

Contrary to the above, cables and/or wires were found lifted on July 6, 1987, and were not being controlled in accordance with prescribed procedures or drawings as follows:

1. The following cables are installed in the relay panels of the unit 1 auxiliary instrument room but are not being used and are not listed in the spare cable program:

1-R-72	2-3M-30-625
1-R-72	SP-72-82-555
1-R-72	0-3V-26-4345
1-R-73	0-35P-285-10
1-R-73	Spare (no identification tag)
1-R-73	0-35P-285-21
1-R-73	1-35G-3-201-A
1-R-73	0-35P-285-22
1-R-73	1-35G-3-202-A
1-R-71	SP-285-554
1-R-71	0-3V-26-1023
1-R-71	SP-285-553
1-R-71	0-3V-26-2438
1-R-78	1-35G-3-320-B
1-R-78	1-35G-3-188-B
1-R-78	SP-885-566
1-R-78	2-3PL-26-5021-B

2. Four unterminated wires labeled F6-B2, F6-L2, F6-H2, and F6-E2 inside unit 1 Panel 1-R-78 were identified. These wires are not shown on as-constructed drawing 45N1693-3, Rev. 23 LL, "Connection Diagram for Panel 1-R-78," and are not properly controlled as temporary alterations.

3. Cable 1-3PP-211-1101-B was installed as a three conductor cable but drawings 45W1677-5 and 45W1677-7 indicate it to be a two conductor cable.

This is a Severity Level IV Violation (Supplement II) and applies to unit 1.

TVA Response

Violation, Part 1 - Spare Cable Control

1. Admission or Denial of Violation

   TVA admits the violation.

2. Reason for the Violation

   The Division of Nuclear Construction (DNC) procedure for spare cable identification and documentation required the following:

   - Craft personnel to identify to DNC engineering personnel that a spare cable exists;
   - DNC engineering personnel to issue a spare cable number to the craft personnel and generate a Field Change Request (FCR) to DNE requesting that the number be entered into the spare cable program database; and
   - Craft personnel to tag the spare cable with the spare cable number.

   TVA WBN failed to follow the DNC spare cable procedure in that:

   A. Cables that were installed and subsequently spared (left in the installed condition and unused) were not identified in the spare cable program database.

   B. Spare cable numbers that were issued by DNC engineering personnel were duplicated so that not all installed spare cables are included in spare cable program database.

   C. Poor spare cable tagging practices have created problems in establishing that installed spare cables are included in the spare cable program database.

   Contributing to the violation is the lack of QC verification of spare cable installation and tagging. TVA WBN failed to establish the quality assurance necessary to support the requirement that all spare cables be identified in the spare cable program database.

3. Corrective Actions Taken and Results Achieved

   WBN Condition Adverse to Quality Report (CAQR) WBP 870632 documented the deficiencies identified with spare cables installed in the auxiliary

instrument room relay panels. Listed below are the specific cable numbers initially identified in the CAQR by TVA and the associated programmatic deficiency A, B, or C described in the Reason for the Violation above.

Cable Numbers (As listed on the CAQR)	Programmatic Deficiency	Description and Corrective Action
• 2-3M-30-625 • Spare (Unidentified-No tag) • 1-35G-3-188-B	A	These cables are not identified in the spare cable program database. Corrective action for the cables includes signal tracing to verify routing; FCR generation to include their identification in the spare cable database per DNC unit 1 (DNC-Modifications) procedure MAI-3, "Installation and Inspection of Insulated Control, Signal, and Power Cables"; and correct tagging of the spare cables.
• SP-72-82-555/0-3V-26-4345 • SP-285-554/0-3V-26-1023 • SP-285-553/0-3V-26-2438 • SP-285-566/2-3PL-26-5021-B	B	These cables have spare cable numbers assigned that are duplicate numbers originally assigned to other spare cables. Corrective action for these cables includes FCR generation to include them in the spare cable program database with a new spare cable number per DNC-Modifications procedure MAI-3, and correct tagging of the spare cables.
• 1-35G-3-188-B (Note: This cable is also included in "A" above)	C	This cable has been tagged in a manner that is not sufficiently durable. The corrective action for this cable

includes permanent retagging per DNC-Modifications procedure MAI-3.

An additional cable, 1-35G-3-320-B, which was listed on the CAQR could not be located in the referenced panel. A thorough inspection of the panel revealed no spare cable with that tag identifier. A review of work documents and accountability records indicates that this cable was authorized to be deleted by DNE and was removed from the panel in 1982, prior to the generation of the CAQR. TVA has therefore determined that this cable number had been listed in error in generating the CAQR.

The two cables, 0-35P-285-10 and 0-35P-285-22/1-35G-3-202-A, were misread in the field and subsequently in error on the CAQR. A field inspection performed by DNC-Modifications has verified that these cables are tagged 0-35P-285-105 and 0-35P-285-22/1-35G-3-208-A, respectively. These cables are identified in the spare cable program database.

Also listed on the CAQR is cable 0-35P-285-21/1-35G-3-201-A that is included in the spare cable program database as tagged. TVA has determined this entry on the CAQR to be personnel error in failing to locate the number in the database.

CAQR WBP 870632 will be revised to delete cable Nos. 1-35G-3-320-B, 0-35P-285-10, 0-35P-285-22/1-35G-3-202-A, and 0-35P-285-21/1-35G-3-201-A from the description of the condition adverse to quality.

The corrective action plan for this CAQR will specify the steps to be taken to address the specific deficiencies as described above as well as the programmatic deficiencies that were determined to be the root cause of the violation.

The impact of the spare cable identification deficiency is the uncertainty it infers with respect to the identification of installed spare cables in the spare cable program database for evaluation of cable raceway loading conditions. The evaluation includes calculations based on raceway loading conditions as determined from the DNE-controlled cable schedule computer database that identifies all installed cables. Spare cables appear in the database as System 285.

With respect to the first deficiency for failure to identify spare cables in the spare cable program database (item A in the Reason for the Violation above), two sources of uncertainty in spare cables identification exist:

- unused cables that were deleted by DNE after installation were spared (left in the installed condition) by DNC but may not have been identified by an FCR for inclusion in the spare cable program database.

- unused cables that were rerouted by DNE after installation were spared by DNC but may not have been identified by an FCR for inclusion in the spare cable program database.

For Deleted Cables: TVA will identify all cables that were issued to the site for installation and later deleted by DNE. Subsequently, DNC unit 2 (DNC-Construction) will review the deleted cables that were issued for installation and identify those for which an FCR had been issued and included in the spare cable program database. For those deleted cables determined to not be in the database, DNC-Construction will enter these cables into the spare cable program by an FCR and the raceway loading calculations will conservatively assume that all questionable cables are installed.

For Rerouted Cables: The DNC-Construction identification effort described above will include the review of Construction Records Accountability Program (RAP) documentation to determine those rerouted cables for which a new cable was installed and the old cable not identified by an FCR for inclusion in the spare cable program database. The originally installed cable will be identified by an FCR to DNE for inclusion in the spare cable program database. The raceway loading calculations will conservatively assume that these originally installed cables were not removed by DNC and remain installed in raceways.

Since the computer database for spare cable identification (System 285) has not been transferred to the unit 1 Site Director's organization, both units 1 and 2 spare cables (including deleted and rerouted cables) are within the scope of the DNC-Construction spare cable identification effort.

A generic DNC review is being performed to identify and correct units 1 and 2 duplicated spare numbers (item B in the Reason for the Violation above). The review is evaluating FCRs that were previously initiated by DNC to identify spare cables. Spare cables with duplicated numbers will be subsequently uniquely identified by an FCR to DNE and included into the spare cable program database.

In addition, a generic review of all DNC-Modifications workplans and ONP maintenance requests is scheduled to be completed by January 1, 1988, to identify all cables that were spared (left in the installed condition and unused) after transfer of unit 1 to the Site Director's organization. This review will ensure that cables that were spared by the Site Director's organizations are identified in the spare cable program database.

As described in CAQR WBP 870632, a spare cable was found installed that was untagged. With respect to the deficient tagging (item C in the Reason for the Violation above), TVA has determined that the deficient tagging practice for spare cables has no safety impact. This is because the spare cable program will conservatively address spare cables in the raceway loading calculations and all safety-related cables have been quality control (QC) verified for proper tagging. Therefore, a generic review of tagging for spare cables is not necessary.

The corrective action plan for CAQR WBP 870632 described above addresses generic problems resulting from the spare cable program deficiencies. TVA has also generated CAQR WBQ 870694 to identify and resolve the lack of a QA program procedure for controlling spare cables. The corrective action plan for this CAQR will provide clear assignment of responsibility and QC verification as elements of the QA program for future spare cable installation. This program will provide assurance that future spare cables are identified in the spare cable program database for application in the raceway loading calculations. The DNC-Construction and the Division of Nuclear Quality Assurance (DNQA) will develop QA program procedures CEP-3.05-1 and QCP-3.05-1 to specify the responsibilities of craft, engineering, and QC inspection personnel in the identification and documentation of future spare cables installed by DNC-Construction. Spare cable installation by DNC-Modifications and ONP Maintenance will be completed in accordance with procedure MAI-3 that specifies the clear assignment of responsibility and has been recently revised to include the QC verification of spare cable installation and tagging. MAI-3 also requires the responsible engineer to generate an FCR to DNE to identify the spare cable in the spare cable program database before workplan closure.

4. Corrective Steps That Will Be Taken to Avoid Further Violation

The DNQA and DNC-Construction QA program procedures described above will be in place and personnel training completed by March 1, 1988. Until the QA program procedures are in place, all spare cable activity except that required to address the program deficiencies, has been suspended by the issuance of an administrative hold applicable to units 1 and 2.

DNC-Modification procedure (MAI-3) for controlling spare cables is in place for unit 1. The procedure specifies the responsibilities of crafts, engineers, and QC inspectors required to control and identify spare cables for inclusion in the spare cable program database.

5. Date When Full Compliance Will Be Achieved

TVA's WBN will be in full compliance by December 1, 1988, which is the scheduled completion of our review for units 1 and 2 which will ensure that spare cables are identified to DNE for inclusion in the spare cable program database and subsequently applied in the raceway loading calculations.

Violation, Part 2 - Unterminated Wires

1. Admission or Denial of Violation

TVA admits the violation as stated.

2. Reason for the Violation

TVA WBN DNC failed to adequately develop work instructions to completely implement a design change that deleted the four internal wires in panel

1-R-78. Workplan 2555 was issued to implement Engineering Change Notice (ECN) 2396 that deleted the four wires. The workplan instructed the craft personnel to determinate the wires but failed to specify whether the wires were to be removed or reused.

3. Corrective Actions Taken and Results Achieved

TVA issued CAQR WBP 870633 to document the determinate wires. A corrective action plan has been completed that removed the four wires to fully implement the design change.

Since the timeframe of the cited deficiency, TVA has implemented improved procedural controls on the development of work instructions. DNC-Construction procedure WBN-CEP-1.60, "Work Control" (unit 2) and DNC-Modification procedure AI-8.8 "Control of Modification Work After Unit Licensing" (unit 1) now require individual work activities to be specifically addressed step-by-step in work instructions to create a "stand alone" document that reflects all work performed by the workplan. Additionally, only those steps included in the work instructions may be performed by craft personnel as required by the work control procedures. As a further improvement in work control, the applicable unit 1 modification and maintenance procedures have been revised to require the tagging of lifted leads when they are left unattended before the work is completed. This additional measure of control will provide immediate reference to work documents associated with lifted leads in the future. This improved work control program will prevent recurrence of the deficiency associated with inadequate work instruction development.

4. Corrective Steps That Will Be Taken to Avoid Further Violation

In addition to improved work control procedures, DNC-Modification will perform and document a field survey of all safety-related panels in the unit 1 control room and auxiliary instrument room to determine whether a generic problem exists with regard to abandoned internal wires inside the panels. This field survey will provide assurance that any determinated wires inside these safety-related panels are either identified by a work control document or a temporary alteration order per AI-2.15, "Temporary Alterations." Any additional deficiencies identified will be addressed in accordance with WBN's procedure AI-2.8.5, "Conditions Adverse to Quality - Corrective Actions."

5. Date When Full Compliance Will Be Achieved

TVA WBN will be in full compliance by March 1, 1988, which is the scheduled completion of the DNC-Modification field survey described above.

Violation, Part 3 - As-Built Configuration

1. Admission or Denial of Violation

TVA admits the violation as stated.

2. Reason for the Violation

The applicable design and as-constructed drawings failed to reflect the actual installed conditions. The installed condition consists of a three-conductor cable that includes one (1) spare wire. The wiring connection diagrams (design and "as-constructed" drawings) reflect a two-conductor cable with no spare identified.

The identification of spare conductors on the design drawings is a good industry practice that is implemented by TVA. However, in this case, an inadvertent personnel oversight occurred.

The failure of the as-constructed drawing program to identify this discrepancy is an example of a deficiency with the as-constructed drawing program described in Construction Deficiency Report WBRD-50-390/85-51 for unit 1 and WBRD-391/86-06 for unit 2, initially reported to NRC on October 9, 1985.

3. Corrective Actions Taken and Results Achieved

CAQR WBP 870634 was generated to document the discrepancy between the "as-built" configuration and the applicable design and as-constructed connection diagrams. A corrective action plan has been developed to revise these drawings to reflect the "as-built" configuration and to insulate the ends of the spare conductor.

4. Corrective Steps That Will Be Taken to Avoid Further Violation

DNE-approved design output documents other than the connection diagram (i.e., the cable pull card and the cable schedule) indicate that a three-conductor cable is installed. For loading calculations, raceway loading conditions are based on the cable schedule. Therefore, TVA has determined that a back fit review of all connection diagrams to identify spare conductors is not required. However, DNC-Modifications will perform and document a field survey by March 1, 1988, of all the safety-related unit 1 auxiliary instrument room panels to provide assurance that this deficiency is not widespread. This field survey will compare the as-built configuration of spare conductors with the as-constructed connection diagrams and any additional drawing deficiencies will be addressed in accordance with WBN's procedure AI-2.8.5, "Conditions Adverse to Quality - Corrective Actions."

As part of the CAQR WBP 870634 disposition, a procedure will be issued to enhance the cable program by requiring that ends of spare conductors be insulated. This procedure will be issued by November 1, 1988, as part of engineering document ER-WBN-EEB-002.

TVA, as outlined in Volume 1 of the Nuclear Performance Plan, is implementing a new "package" process for design change control that will consolidate the present two-drawing system (i.e., as-designed versus

as-constructed drawings) into a single drawing system that matches the plant configuration. This improved control process places all design engineering functions within DNE and causes improved organizational interfaces.

5. Date When Full Compliance Will be Achieved

WBN will be in full compliance by April 30, 1988, which is the scheduled date for issue of the revised design drawings to reflect the as-built configuration.