



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

OCT 21 1994

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 - NRC INSPECTION REPORT NO. 390, 391/94-53 - REPLY TO NOTICE OF VIOLATIONS

The purpose of this letter is to provide a reply to Notice of Violations (NOVs) 390/94-53-01 and 390/94-53-02 cited in the subject inspection report dated September 20, 1994. NOV 390/94-53-01 identified several examples of procedure problems which are addressed in Enclosure 1. NOV 390/94-53-02 identified examples of design control problems which are addressed in Enclosure 2. Enclosure 3 contains a list of commitments made in this letter.

In addition, as requested by the NRC Staff during the 390/94-53 inspection and in accordance with Supplemental Safety Evaluation Report (SSER) number 9, Appendix Y, the long term bend radius program will be submitted by January 28, 1995.

If you should have any questions, contact P. L. Pace at (615)-365-1824.

Sincerely,

Dwight E. Nunn
Vice President
New Plant Completion
Watts Bar Nuclear Plant

Enclosures
cc: See page 2

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1
REPLY TO NOTICE OF VIOLATION
NRC'S SEPTEMBER 20, 1994 LETTER TO TVA
NRC VIOLATION 390/94-53-01

DESCRIPTION OF VIOLATION

"10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, requires in part that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, and shall be accomplished in accordance with these instructions, procedures, or drawings.

Tennessee Valley Authority Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Revision 4, Section 6.1, Procedures and Instructions, requires that quality-related activities shall be prescribed by documented procedures and instructions appropriate to the circumstances. It further requires that activities shall be accomplished in accordance with these procedures and instructions.

Contrary to the above, Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Site Standard Practice SSP-7.53, Modifications and Addition Instructions MAI-3.2, and MAI-3.3, Workplan D-11422-06 were not complied with in the following cases:"

EXAMPLE 1

"Site Standard Practice SSP-7.53, Modifications Workplans, Revision 11, Appendix A, General Requirements for All Workplans, Criterion 3, requires that work instructions be written to include installation requirements from approved design outputs.

On July 29, 1994, Workplan D-11131-01 did not contain the requirements provided in Design Change Notice M-11131-A. The design change notice requirements were to lift the subject cables from support points prior to installing cable supports to ensure cables were not damaged from excessive sidewall bearing pressure. If cables could not be lifted from the support point, the cables were to be replaced. As a result of the omission, cable supports were added for cable in conduits 1VC4403B, 1PLC1072A, 1PLC1078A, 1PLC1082A, and 1PLC1087B without verifying that the cable could be lifted from the support point."

TVA RESPONSE - Example 1

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 1

This violation example occurred because the workplan writer failed to include appropriate instructions in the workplan during its preparation. This failure was caused by the lack of a procedural requirement to include block 16

information into workplan instructions. At that time, only the requirements of the Design Change Authorizations (DCAs) were being transferred into workplan instructions. Although workplan writers were instructed verbally to translate block 16 information into workplan instructions, it was not done in this instance.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 1

TVA has reviewed previously issued DCNs addressing the vertical cable support issue to determine if any of them contain the requirement to lift cables off the support point prior to the installation of a cable support. DCN M-11131-A is the only DCN which contains this requirement.

Since DCN was issued in July 1990, implementation of DCN M-11131-A occurred under both the old work control program (prior to the 1990 construction stop work) and under the current work control program (since construction restart). TVA's review of old program workplan K-M11131A-1 found adequate installation instructions which required the lifting of the cables prior to the installation of a cable support. TVA believes that any other instances of this example are, therefore, limited to the new program workplans which implemented this DCN.

To address the block 16 concern with the DCN, TVA has determined that conduits 1VC4403B, 1PLC1072A, 1PLC1078A, 1PLC1082A, and 1PLC1087B, identified in this example, are the only ones contained in DCN M-11131 which were implemented under the current work control program. Work Order 94-016919-00 was issued and performed to evaluate the condition of these cables subsequent to support installation. The results of this effort show that cables contained in four of the conduits had not been damaged and had sufficient slack. Cables in the fifth conduit had been replaced with cables of a different type, thereby negating the need to perform the lift. No further actions are required for these cables.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 1

In May 1992, Revision 5 of Engineering Administrative Instruction (EAI)-3.05 was issued to require DCN construction notes, such as those in block 16, to be placed on DCAs as part of the DCN package.

Significant Corrective Action Report WBSA940039 has been issued to track the block 16 issue. TVA will determine the extent of the block 16 issue as part of this SCAR. A population of DCNs will be sampled to provide reasonable assurance of the extent of condition.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Upon confirmation of resolution of the block 16 issue, TVA will be in full compliance by February 1, 1995.

EXAMPLE 2

"Modification and Addition Instruction MAI-3.2, Cable Pulling For Insulated Cables Rated Up to 15,000 Volts, Revision 12, Appendix B, Supporting Conductors in Vertical Raceways, requires that cables in vertical raceways be

supported if the maximum unsupported installation length exceeds the limits in Table B-1 in Appendix B.

On August 5, 1994, the cables installed in conduits MC906B and 1NM3256F did not have cable supports provided and the installed unsupported cable lengths exceed the limits of Procedure MAI-3.2, Appendix B, Table B-1."

TVA RESPONSE - Example 2

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 2

This violation example occurred as a result of personnel failing to follow procedure and to implement DCN requirements. Supports for cables in conduits MC906B and 1NM3256F were not installed as required by MAI-3.2, "Cable Pulling for Insulated Cables Rated Up To 15,000 Volts."

Previously, TVA had evaluated a portion of the vertical cable support requirements under design calculation WBPEVAR9007011. This calculation identified 223 conduits requiring cable support due to the vertical length of conduit. DCNs were issued to provide support for some of these conduits. The remaining conduits, which had cable being reworked for other reasons (i.e., ampacity, cable damage, and other cable replacement type DCNs), were not included in these DCNs. The requirements for cable supports in approximately 186 conduits were "passed off" to other DCNs which required field personnel to perform the installations in accordance with site procedures. However, it was determined by reviewing the calculation that approximately 113 of these "pass offs" were not legitimate because the cables in the conduits were not being replaced or reworked.

DCN P-07267-A was issued to replace the cables within conduit MC906B. Workplan K-P07267-A installed cables in this conduit on September 15, 1990. The cable support attribute of this workplan was marked as "NA" (not applicable). The personnel involved failed to follow procedure, which resulted in cable supports not being installed in conduit MC906B.

TVA has determined that the cables in conduit 1NM3256F were installed in 1978. In addition, no documentation could be found of any work performed on the conduit and cables between the installation time and the vertical support installation work of DCN M-11600-A. DCN M-11600-A required a vertical support to be installed for this conduit. However, this requirement was removed by DCN F-14454-A initiated on November 1, 1990. The F-DCN took credit for a firestop which had been located in an EYS fitting under panel 1-M-13. This firestop cannot now be found in the fitting. The conduit is identified as 1NM3256G in the F-DCN, indicating there may have been some confusion on the part of the F-DCN initiator. The conduit appears to have been incorrectly deleted from the scope of DCN M-11600-A. The result was a failure to implement the DCN requirements which required installation of a cable support in a vertical conduit longer than 25'.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 2

Work orders 94-17723-00 and 94-17781-00 have been issued to install cable supports for cables in conduits MC906B and 1NM3256F, respectively.

TVA is reviewing calculation WBPEVAR9007011 to determine which conduits had specific DCNs issued for cable supports and which conduits were passed off to other cable work. For those conduits which had specific DCNs issued, TVA will inspect 25 percent of these conduits with a portion from each of the DCNs to determine if the support requirements have been met.

For those conduits which were evaluated by the calculation and "passed-off," TVA will perform a 100 percent inspection (excluding cables replaced for ampacity) to determine if the support requirements were met and will correct any nonconformances.

To address the extent of condition involving conduit 1NM3256F where a cable support requirement was deleted by an F-DCN, TVA is performing a review of 100 percent of F-DCNs associated with the cable support DCNs to determine if other cable supports were deleted inappropriately. Coupled with the re-inspection described above, this will bound the extent of condition for the cable support DCNs.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 2

Subsequent to the construction stop work of December 1990, and the restart of construction in November 1991, new procedures were written and construction forces were retrained. Therefore, no specific recurrence control is required in the conduit MC906B issue since it occurred under the pre-restart work program.

The F-DCN issue involving conduit 1NM3256F appears isolated. However, pending the results of the above F-DCN review, additional corrective actions and recurrence control measures may be required and will be documented in Significant Corrective Action Document (SCAR) WBSA940051.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by December 23, 1994.

EXAMPLE 3

"Workplan D-11422-06 required the installation of cable supports for all cables installed at the following cable tray nodes, below the respective containment electrical penetrations:

<u>Tray Node</u>	<u>Penetration</u>
4A1922	1-PENT-293-6A
4A1921	1-PENT-293-8A
4A1911	1-PENT-293-21A
3A1910	1-PENT-293-27A

On August 1, 1994, the workplan instructions for the installations of cable supports were signed as completed by the craftsmen, field engineer, and quality control inspector without installing cable supports for all the installed cables."

TVA RESPONSE - Example 3

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 3

This violation example occurred because workplan instructions were misinterpreted by field engineers, craft, and quality control inspectors. The requirements in General Specification G-38 and Modifications procedure MAI-3.2 were not clear.

The G-38 and MAI-3.2 requirements were interpreted by field engineer, craft, and QC to indicate that tie wraps could be used in lieu of Kellem grips for cable support. Therefore, Kellem grips were not installed in accordance with the DCN. This resulted in workplan D-11422-06 being considered and signed off as field complete when the requirements of the DCN had not been adequately performed.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 3

TVA has revised workplan D-11422-06 to provide adequate work instructions for DCN M-11422-A requirements.

As DCN M-11422-A was the only DCN issued for supports in vertical cable trays, TVA will inspect the cable trays identified in this DCN to ensure the installation of cable supports is in accordance with this DCN and MAI-3.2 requirements.

In addition, TVA will develop a list of conduits which may have Kellem grips installed based upon Kellem grip part numbers which have been requisitioned from the warehouse since the restart of construction in November 1991. To avoid duplicate inspections, the conduits from the cable support DCNs and the "pass off" DCN will be eliminated from the list. Once this list is established, TVA will reinspect these conduits to determine if the support requirements were met and will correct those found in nonconformance.

These inspections are sufficient to identify any improperly installed Kellem grips and mounting hardware.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 3

TVA will perform training of electrical modifications, field engineers, and electrical quality control personnel on vertical cable support installations.

TVA has developed an inspection attribute matrix which defines the inspection requirement associated with selected electrical MAI procedure.

TVA has revised G-38 and MAI-3.2 to clarify cable support requirements.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by December 23, 1994.

EXAMPLE 4

"Procedure SSP-3.01, Revision 9, Quality Assurance Program, requires in Section 2.4.A., that the responsible organization shall perform work in accordance with approved Work Instructions.

On August 5, 1994, a permanent cable tray segment in manhole 5A was removed without documented work instructions. As a result, the cable tray has not been re-installed and the cable and splice that should have been in the tray segment were being supported with ropes."

TVA RESPONSE - Example 4

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 4

While TVA could not determine the exact cause of this condition, it appears that the removal of the cable tray segment was performed without an authorizing document under the old work control program; a failure to follow procedures.

TVA has conducted a thorough review of design output documents which affected the cable tray and electrical cables running through the referenced manhole, the associated "old program" cable workplan, and the remaining work list (RWL) item for that workplan. DCN M-08852-A, which reworked cable in manhole 5, was issued and partially worked before the construction stop work order of December 1990. Review of old program workplans K-MO8852A-1 and K-MO8852A-2, associated with this DCN, found no reference to removal of the subject cable tray segment.

After construction restart, this DCN was completed by new program workplans D-08852-05, -06, -07, -08, and -09. Review of these workplans found no documentation of work on the subject cable tray in manhole 5. However, notes entered in workplan D-08852-07 indicate that a cable tray in manhole 5 was missing on May 18, 1993. In addition, on April 5, 1994, a quality control inspector involved with splice inspections in manhole 5 generated an out-of-scope unsatisfactory inspection report WBN-SWEC-E94-01506, documenting missing cable tray segments in this manhole. Subsequently, work order 94-17516-00 was generated to correct this deficiency.

Based on the new program emphasis on work control and the limited scope of work performed by the new program workplans, it appears that the subject cable tray segment was removed during performance of the old program workplans.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 4

Work order 94-17516-00 has been generated to replace the cable tray segment.

Two previously planned walkdown programs to address cable tray covers and the damaged, loose, and missing hardware (DLMH) issues are to be completed prior

to fuel load. Both of these walkdowns inspect seismic category cable trays for various attributes and would identify missing cable tray segment. Therefore, no further extent of condition action is required.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 4

Subsequent to the construction stop work issued in December 1990, new procedures were written and the construction forces were retrained prior to construction restart in November 1991. Because TVA believes this example is the result of old program work, no new recurrence control is required.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by final CAP closure.

VIOLATION EXAMPLES 5, 6, AND 7

"Modification and Addition Instruction MAI-3.2, Cable Pulling For Insulated Cables Rated Up to 15,000 Volts, Revision 12, Appendix G, Cable Deleting, Abandoning, and Sparring, contains the requirements for abandoning and sparring conductors. Step G1.0 requires that cables shall be deleted, abandoned, and spared in accordance with design output documents. Step G3.2 requires that the ends of abandoned and/or spared cables be insulated with three layers which are at least half-lapped Scotch 33+ tape or sealed with a Raychem end cap or sealing kit.

On August 5, 1994, the following conditions were identified:"

EXAMPLE 5

"Spare cable marked as 0-3SP-285-944B was properly spared (sealed and identified) and located at cable tray node 3B2384. However, the Computerized Cable Routing System reflected this cable to be spared at cable tray node 3B2383."

EXAMPLE 6

"A three-conductor cable was cut with the conductor ends exposed at cable tray segments 4A2009-4A2010. Work Request Tag C094442, dated January 9, 1992, was attached to this cable to properly abandon the cable. However, this work request was canceled when the tagged cable could not be subsequently located in the field. As a result, the improperly abandoned cable remained at the subject tray segments."

EXAMPLE 7

"Cable 1-3M-3-1452-A, located at tray node 3A2002, was improperly spared in that it had exposed conductor strands and no end caps."

TVA RESPONSE - Examples 5, 6, and 7

TVA agrees that these violation examples occurred.

REASON FOR THE VIOLATION - Examples 5, 6, and 7

While TVA could not determine an exact cause for examples 5 and 7, they appear to be the result of poor work practices which occurred under pre-restart work program.

Violation example 6 occurred due to what appears to be confusion by the planner, investigating the problem in the field, who thought that a cable identified as LABN1931A was the cable identified as requiring tagging by work request C094442. This resulted in the cable being improperly abandoned.

Work request C094442 was initiated on January 9, 1992, to abandon a cable found in cable tray 4A2010 near column A2T on elevation 692 in the Auxiliary Building. This work order was subsequently cancelled on April 14, 1994. The basis for this cancellation, written on the back of the WR card, was that due to planner walkdown and research, no problem or tag (WR tag) was found. In addition, a note was also written indicating that a cable identified as LABN1931A was found at this location.

Review of the CCRS database indicates that LABN1931A is located in tray segment 3A2009/3A2010 near column A2S which is near where the WR description places the location of the cable to be abandoned. As cable LABN1931A was found near this location by the planner, and because of the lengthy time between the discovery of the problem and planning of the WR, it is likely that the planner mistook cable LABN1931A as being the problem and discontinued the search.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Examples 5, 6, and 7

With regard to violation example 6, drawing deviation (DD) 94-0329 was issued to resolve the difference between field installation and CCRS. DCN S-32214-A was subsequently issued to document the update of CCRS to reflect cable 0-3SP-285-944B as being abandoned at tray node 3B2384.

Work order 94-17328-00 has been issued to properly abandon cables identified in examples 6 and 7.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Examples 5, 6, and 7

TVA has added an attribute to the cable tray walkdown discussed in example 4 above. This attribute requires walkdown personnel to visually inspect accessible tray segments to identify spare and abandoned cables (excluding segments concealed by Vimasco, firestops, firewraps, existing tray covers, or other structural obstructions, etc.) found in trays. In addition, this walkdown is to verify that cables found with abandoned numbers are in CCRS and those not found tagged are tagged and added to CCRS. This walkdown is required to be completed as part of CAP closure.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by CAP closure.

ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNIT 1
REPLY TO NOTICE OF VIOLATION
NRC'S SEPTEMBER 20, 1994 LETTER TO TVA
NRC VIOLATION 390/94-53-02

DESCRIPTION OF VIOLATION

"10 CFR 50, Appendix B, Criterion III, Design Control, requires in part that measures be established to assure that applicable regulatory requirements are correctly translated into drawings and procedures. The measures shall include provisions to assure that appropriate quality standards are specified and included in design documents. The design control measures shall also provide for verifying or checking the adequacy of design.

Tennessee Valley Authority Nuclear Quality Assurance Plan TVA-NQA-PLN89A, Revision 4, Section 7.0, Design Control, requires that measures be established to ensure that applicable design requirements are correctly translated into procedures or instructions. It also requires that design assumptions and inputs be identified and provisions made to relate the final design to the source of the design input. It further requires that measures shall include criteria to ensure that adequate technical and quality requirements are incorporated prior to issuance.

Contrary to the above, on August 5, 1994, the established design control measures were deficient in that the following deficiencies were identified:"

EXAMPLE 1

"General Engineering Specification G-38, Installation, Modification, and Maintenance of Insulated Cables Rated Up to 15,000 volts, Revision 13, Watts Bar Variance 11, provides the engineering basis for not having vertical support for cables routed in conduits 2PLC3727A and 2PLC2737B. The basis was that installed cables were signal and control cables and the presence of a 90 degree conduit bend at the top of the vertical conduit provided horizontal restraint for the cables. However, cables installed in these conduits were power cables, not signal and control cables, and there was no 90 degree conduit bend at the top of the vertical conduit runs. At the top of the conduit run, the cables were free-air routed into cable trays. Therefore, the engineering basis for not having vertical cable supports was inadequate."

TVA RESPONSE - Example 1

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 1

This violation example occurred due to a lack of design control caused by personnel error. During field evaluations of conduit lengths, conduits 2PLC3727A and 2PLC2737B were accepted "as-is" without adequate or correct

justification in calculation WBPEVAR9007011. This is a failure to follow standard engineering procedural requirements contained in Nuclear Engineering Procedure (NEP)-3.1.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 1

Attachment C of calculation WBPEVAR9007011 contains a column labeled pass/fail (G-38) which shows whether a conduit passed the vertical drop limit requirements. A review of sketches for those conduits which did not pass will be performed to verify that conduit segments which exceed these limits have been accepted with proper justification.

Calculation WBPEVAR9007011 will be revised to adequately document the disposition of the conduits reviewed, if required, design change notices (DCNs) will be issued for additional supports.

This review has been completed for the two subject conduits in this example. Conduit 2PLC3727A should have been accepted based on actual field measurement of 9'-6 1/2" which is within the 10' maximum allowable limit. However, for conduit 2PLC2737B, there was no walkdown sketch evaluation found in the calculation which supports the calculation acceptance of the conduit's configuration. The vertical drop for this conduit is 14', which is greater than the 10' maximum allowable limit.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 1

To address the extent of condition, TVA has conducted a review of the approximately 30 calculations associated with the Electrical and Cable Issues Corrective Action Program (CAP) Plans. This review was performed to determine if technical justifications were correct and adequately documented. These calculations were chosen because the balance of the CAP subissues are representative of the time frame and similar in nature to the cable vertical drop calculation. In addition, the majority of the work performed by the contractor, who performed the vertical drop calculation, was done in these areas. As a result of this review, no calculations were identified with inadequate documentation.

Based upon this review, this condition is considered to be isolated to calculation WBPEVAR9007011 performed by contract personnel no longer employed at WBN, and no recurrence control actions are required.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The review and revision to calculation WBPEVAR9007011 will be completed by December 16, 1994. DCNs issued as a result of this calculation revision will be field implemented and closed prior to final CAP closure.

EXAMPLE 2

"The Computerized Cable Routing System multi-card for cable 1PL4706 did not reflect the as-installed cable route through cable trays nodes 4B2620 and 4B2621. As a result, the Computerized Cable Routing System indicated

13 conductors routed through the tray nodes while the as-installed configuration consisted of 16 conductors."

TVA RESPONSE - Example 2

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 2

This violation example occurred because a designer failed to properly enter cable routing information for cable 1PL4706 (3-single conductor cables) into the Computerized Cable Routing System (CCRS) cable card set. This resulted in CCRS not reflecting this cable in tray segment 4B2620-4B2621.

Routing for a particular cable in CCRS is updated by entering this information into its CCRS record. Multi-card cable record sets are common for various reasons (e.g., length of route, change of cable mark number, etc.). For a cable route to be recognized in CCRS as continuous, the last cable tray node point on the first card must be the first cable tray node point on the second card. This allows CCRS to account for each tray segment between the node points. However, in the case of cable 1PL4706, the designer failed in this requirement between card set number 3 of 7 and card set number 4 of 7. This resulted in CCRS indicating 13 cables in cable tray segment 4B2620-4B2621, when in reality this tray segment contained 16 cables.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 2

DCN S-32214-A has been issued to update CCRS to properly reflect cable 1PL4706 in tray segment 4B2620-4B4621.

TVA has performed a review of CCRS cable records to determine if other examples exist. As a result of this review, 178 cables were identified where tray segments were not overlapped. DCN S-32713-A will be issued to correct these examples. These corrections do not impact resolutions to issues such as ampacity or tray loading.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 2

Engineering Administrative Instruction, (EAI)-3.15, "Cable and Conduit Record Development and Issue Procedure," will be revised to provide precautions as to how cable routing information should be entered into cable records.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

TVA will be in full compliance by December 16, 1994.

EXAMPLE 3

"The Computerized Cable Routing System reflects the as-designed cable route of cable PL3501B as through cable tray segments 3B2387, 3B2388, 3B2389, and continuing into conduit PLC3971B. However, the as-installed cable route did not match CCRS in that the cable was not routed through cable tray node 3B2389 prior to entering conduit PLC3971B."

TVA RESPONSE - Example 3

TVA agrees that this violation example occurred.

REASON FOR THE VIOLATION - Example 3

This violation example occurred due to the lack of attention to detail by both craft personnel and the quality control (QC) inspector during installation of cable PL3501B. This error was caused by a failure to follow procedural requirements for cable installation as required by MAI-3.2.

Modification Additions Instruction (MAI)-3.2, "Cable Pulling For Insulated Cables Rated Up To 15,000 Volts," requires installation of cable in accordance with the CCRS sheets. The CCRS sheets identify the raceways in which cables are to be installed.

One end of cable PL3501B was shown in CCRS to be routed through tray 3B nodes 2386, 2387, 2388, and 2389 into conduit PLC3971B, which connects to 480V Shutdown Board 2B2-B, compartment 4. Conduit PLC3971B is shown on design output to be installed from compartment 4 to a point between tray 3B nodes 2388 and 2389. However, the conduit, which is approximately 6" long, is actually installed from compartment 4 of the board to between tray 3B nodes 2387 and 2388.

When the craft installed cable PL3501B, due to the location of the node number on the tray and the placement of the conduit, the point most convenient for entry/exit of the cable to the tray fell between nodes 2387 and 2388, rather than between 2388 and 2389, although the cable should have been routed on to node point 2388/2389 as originally shown on the CCRS. The craft personnel involved did not self-check that the cable actually entered the tray between the correct node points, neither did the quality control inspector adequately check the final node points.

CORRECTIVE STEPS TAKEN AND RESULT ACHIEVED - Example 3

F-DCN 24097 has been initiated to correct the CCRS route for cable PL3501B and to correct DCA-M08809-99 to reflect the installed configuration for conduit PLC3971B. Workplan D-08809-22 was revised and field completed to verify that the cable route and conduit location was in accordance with the above F-DCN.

TVA has reviewed the performance of the QC inspector involved in the cable installation. Records indicate that this inspector had been monitored 46 times during the period of January 1994 to August 1994. No unsatisfactory performance was identified.

TVA has reviewed the performance of the foreman involved with the cable installation. Records indicate that this foreman had a cumulative inspection acceptance of 98.1 percent (267 inspections with 5 rejections) during the period of March 12, 1994 to June 12, 1994.

TVA has also performed a search of the Tracking and Reporting of Open Items (TROI) database to determine if other similar examples have been identified. The results identified five additional instances of cables not routed in accordance with CCRS for new program work.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - Example 3

Based upon the reviews discussed above, incorrect cable routing problems have not been found to occur on a regular basis or in a manner which would indicate that a pattern of problems exists. TVA has, however, provided additional training to QC inspectors and electricians to ensure they are aware of the installation requirements regarding verification of cable routing in accordance with design output documents.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

In regards to this violation example, TVA is in full compliance.

ADDITIONAL EXAMPLE

Based on discussions with the resident NRC inspectors, the following example is to be cited in the October NRC monthly exit as an additional example. This item was previously identified as part 1 of Unresolved Item 50-390/94-53-03 involving the reliance of horizontal tray runs above vertical conduit runs as providing restraint. Therefore, TVA takes this opportunity to address this example here.

"The calculation errors identified as part of the unresolved item are, therefore, identified as a violation of 10CFR50, Appendix B, Criterion III, and the fourth example of 50-390/94-53-02."

TVA RESPONSE - Additional Example

TVA agrees that this example occurred.

REASON FOR THE VIOLATION - Additional Example

This example occurred due to a lack of design control caused by personnel error. This is a failure to follow standard engineering procedural requirements contained in NEP-3.1.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED - Additional Example

As discussed in example 1 above, a review will be made of the sketches for those conduits which did not satisfy vertical drop requirements to verify that

conduit segments which exceed these limits have been accepted with proper justification.

Calculation WBPEVAR9007011 will be revised to adequately document the disposition of the conduits reviewed, and if required, issue DCNs for additional supports.

As discussed in example 1 above, TVA has conducted a review of calculations associated with the Electrical and Cable Issues CAP Plans. This review was performed to determine if technical justifications were correct and adequately documented. As a result of this review, no calculations were identified with inadequate documentation.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS - ADDITIONAL EXAMPLE

Based upon the review described above, this condition is considered to be isolated to calculation WBPEVAR9007011; and, therefore, no recurrence control actions are required.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The review and revision to calculation WBPEVAR9007011 will be completed by December 16, 1994. DCNs issued as a result of this calculation revision will be field implemented and closed prior to fuel load.

ENCLOSURE 3

WATTS BAR NUCLEAR PLANT UNIT 1
LIST OF COMMITMENTS

1. In addition, as requested by one of the NRC team inspectors during the 390/94-53 inspection and in accordance with Supplemental Safety Evaluation Report (SSER) number 9, Appendix Y, the long term bend radius program will be submitted by January 28, 1995.

VIOLATION 390/94-53-01

2. Significant Corrective Action Report WBSCA940039 has been issued to track the block 16 issue. TVA will determine the extent of the block 16 issue as part of this of SCAR. A population of DCNs will be sampled to provide reasonable assurance of the extent of condition. This activity will be completed by February 1, 1995. (Example 1)
3. Work orders 94-17723-00 and 94-17781-00 have been issued to install cable supports for cables in conduits MC906B and 1NM3256F, respectively. (Example 2)
4. TVA is reviewing calculation WBPEVAR9007011 to determine which conduits had specific DCNs issued for cable supports and which conduits were passed off to other cable work. (Example 2)
5. For those conduits which had specific DCNs issued, TVA will inspect 25 percent of these conduits with a portion from each of the DCNs to determine if the support requirements have been met. (Example 2)
6. For those conduits which were evaluated by the calculation and "passed off," TVA will perform a 100 percent inspection (excluding cables replaced for ampacity) to determine if the support requirements were met and will correct any nonconformance. (Example 2)
7. To address the extent of condition of conduit 1NM3256F where a cable support requirement was deleted by an F-DCN, TVA is performing a review of 100 percent of F-DCNs associated with the cable support DCNs to determine if other cable supports were deleted inappropriately. Coupled with the inspection described above, this will bound the extent of condition for the cable support DCNs. (Example 2)
8. As DCN M-11422-A was the only DCN issued for supports in vertical cable trays, TVA will inspect the cable trays identified in this DCN to ensure the installation of cable supports is in accordance with this DCN and MAI-3.2 requirements. (Example 3)
9. In addition, TVA will develop a list of conduits which may have Kellem grips installed based upon Kellem grip part numbers which have been requisitioned from the warehouse since the restart of construction in November 1991. To avoid duplicate inspections, the conduits from the support DCNs and the "pass off" DCN will be eliminated from the list. (Example 3)

10. Once this list is established, TVA will reinspect these conduits to determine if the support requirements were met and will correct those found in nonconformance. (Example 3)
11. TVA will perform training of electrical modifications, field engineers, and electrical quality control personnel on vertical cable support installations. (Example 3)
12. Work order 94-17516-00 has been generated to replace the cable tray segment. (Example 4)
13. Work order 94-17328-00 has been issued to properly abandon cables identified in examples 6 and 7. (Examples 6 and 7)

Items 3 through 13 will be completed by December 23, 1994.

VIOLATION 390/94-53-02

14. Attachment C of calculation WBPEVAR9007011 contains a column (G-38) which shows whether a conduit passed the vertical drop limit requirements. A review of sketches for those conduits which did not pass will be performed to verify that conduit segments which exceed these limits have been accepted with proper justification. This review will be completed by December 7, 1994. (Example 1)
15. Calculation WBPEVAR9007011 will be revised to adequately document the disposition of the conduits reviewed, if required, design change notices (DCNs) will be issued for additional supports. (Example 1)

Items 14 and 15 will be completed by December 16, 1994

16. DCNs issued as a result of this calculation revision will be field implemented and closed prior to final CAP closure. (Example 1)
17. DCN S-32713 will be issued by December 16, 1994 to correct these examples. (Example 2)
18. Engineering Administrative Instruction, (EAI)-3.15, "Cable and Conduit Record Development and Issue Procedure," will be revised by October 28, 1994 to provide precautions as to cable routing information entered into cable records. (Example 2)