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TENNESSEE VALLEY AUTHORITY

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January 3, 1986

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U.S. Nuclear Regulatory Commission
Region II
Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - RESPONSE TO VIOLATIONS 390/85-53-01,
391/85-43-01 - FAILURE TO ESTABLISH AND IMPLEMENT PROCEDURES

This is in response to R. D. Walker's letter dated October 25, 1985, report numbers 59-390/85-53 and 50-391/85-43, citing activities at the Watts Bar Nuclear Plant which appeared to be in violation of NRC regulations. Enclosed is our response to the citations.

Delay in submittal of this response was discussed with W. K. Poetner on December 31, 1985.

If there are any questions, please get in touch with R. H. Shell at FTS 858-2688.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. W. Hufham
Manager of Licensing

Enclosure

cc (Enclosure):

Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
RESPONSE TO NRC LETTER FROM ROGER D. WALKER TO H. G. PARRIS
DATED OCTOBER 25, 1985

Reference: Report No. 50-390/85-53 and 50-391/85-43

This report responds to the notice of violation described in enclosure 1 of the OIE inspection report referenced above. This is our final report on this item of noncompliance.

Violation 390/85-53-01

10 CFR 50, Appendix B, Criterion V as implemented by TVA's QA Topical Report TVA-TR-75-1A, Rev. 8, paragraphs 17.1.5 and 17.2.5 requires that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures.

- a. Administrative Instruction (AI)-8B, Rev. 1, "Control of Modification and Construction Completion Work on Transferred Systems Before Unit Licensing," requires that any field changes made to drawings must be supported by an approved field change request.

Contrary to the above, Office of Nuclear Power personnel failed to accomplish work activities in accordance with AI-8B in that no field change request was processed for the addition of a plywood end spacer to the diesel generator batteries.

- b. Division of Engineering Design (EN DES) Procedure EN DES-EP-4.03, Rev. 4, "Field Change Requests", requires that specific actions and reviews be performed to evaluate a field change request prior to reissuance of a drawing.

Contrary to the above, Engineering Design personnel failed to accomplish work activities in accordance with EN DES-EP-4.03 in that they issued drawing 15N210-4, Rev. 6, showing a spacer without performing reviews or evaluations of a field change package. As a result, the plywood spacer was shown in the wrong location.

- c. AI-8B, Rev. 1, and Quality Control Instruction (QCI)1.30, Rev. 2, "Control of Work on Transferred Systems and Untransferred Systems Behind Unit 1 Security," requires that work on transferred systems be performed as specified on an approved workplan.

Contrary to the above, activities affecting quality were not prescribed by procedures of a type appropriate to the circumstances in that work on the diesel generator (D/G) two step battery racks was performed without an adequate workplan to establish the controls necessary for proper installation of the batteries and rack hardware per the vendor design. As a result, the adjustable steel end brackets were improperly installed and insulated hold down straps were not included.

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- d. Division of Engineering Design Procedure EN DES-EP-3.10, Rev. 4, "Design Verification Methods and Performance of Design Verification," requires that design changes shall be subjected to design verification measures commensurate with those applied to the original design, that a minimum of one established identification verification method will be used to assure design adequacy, and that suitable documentation will be provided.

Contrary to the above, Engineering Design personnel failed to accomplish work activities in accordance with EN DES-EP-3.10 in that an evaluation of the effects of changes on the overall design by suitable measures, independent reviews of design changes, and documentation of the design change verification for configuration changes to the C&D battery racks by addition of a plywood end spacer were not performed.

- e. Technical Instruction (TI)-10, Rev. 24, "Calibration Program for Measuring and Test Equipment," requires that all activities involving the use of non-conforming measuring and test equipment (M&TE) shall be investigated and necessary corrective actions taken in a timely manner, that an investigation of all activities involving the M&TE subsequent to its previous acceptable calibration shall be performed, and that an evaluation to determine the need to increase the calibration frequency be performed when an out-of-tolerance condition is discovered.

Contrary to the above, Office of Nuclear Power personnel failed to accomplish work activities in accordance with TI-10 in that investigation reports and evaluations of the calibration frequency for various M&TE were not performed.

- f. Administrative Instruction (AI)-2.8.3, Rev. 7, "Nonconformances 20 CFR 50.55(e)," requires that a nonconforming condition report (NCR) be promptly initiated after the nonconforming condition is identified.

Contrary to the above, Office of Nuclear Power personnel failed to implement AI-2.8.3 in that an NCR was not issued when improper oil seals were found installed on new clutch assemblies for the essential raw cooling water pumps. As of August 15, 1985, failure to issue the NCR resulted in no reportability review of the issue.

This is a severity level IV violation (Supplement II). These violations apply to unit 1 only.

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RESPONSE TO ITEM a

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reason for the Violation

At the time the workplan was prepared, it was recognized by electrical maintenance personnel that the removal of three battery cells would create a void space which must be filled by some means. The problem was discussed with OE personnel and a verbal agreement was made to use a plywood spacer to fill the void. Since the drawings were being revised by OE to show a new rack and battery arrangement, OE agreed to incorporate the spacer as part of the new arrangement design. This verbal agreement between OE and NUC PR was not in accordance with AI-8B.

Due to the lack of experience and lack of knowledge of the procedural requirements for performing plant modifications, electrical maintenance personnel were unaware that the verbal agreement with OE was inadequate.

Corrective Actions Taken and Results Achieved

Nonconforming Condition Report W-245-P was issued by electrical maintenance to document and resolve the deficiencies associated with the battery rack modifications. The design drawings were revised on Engineering Change Notice (ECN) 5872 to remove the plywood spacer and define the use of an adjustable end piece.

Corrective Action Taken to Avoid Further Violation

A training session was conducted by the electrical maintenance engineering supervisor to ensure that all electrical maintenance engineering personnel are aware of the requirements of AI-8.5 (formerly AI-8B) and AI-8.4 which relates to Field Change Request (FCR) processing and approval.

Date When Full Compliance Will be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM b

Admission or Denial of Violation

TVA admits the violation occurred as stated.

Reason for the Violation

Drawing 15N210-4, Rev. 5, was issued to show the removal of the battery container. After issuance of Rev. 5 it was recognized that the removal of the battery container would leave a vacant space (void) which could allow the other battery containers to move. Therefore, it was decided that a replacement spacer was needed to fill the void. The void was filled with a plywood spacer having the same dimensions as the battery container. An FCR was not processed to document the change, apparently in anticipation of the spacer being included on the drawing which was being revised to show a new two step battery rack (the immediate design personnel involved with this noncompliance are no longer employed by TVA; therefore, the exact cause of not processing an FCR is not known). However, due to the lack of proper coordination and review, drawing 15N210-4, Rev. 6, was issued showing the spacer in the wrong location as a result of OE's failure to require an FCR from OC to describe the change.

Corrective Actions Taken and Results Achieved

Since the two-step battery rack has adjustable end pieces, it has been determined that the spacer is not needed. The design drawing was revised per engineering change notice (ECN) 5872 as revision 8 to remove the spacer and define the use of the adjustable end piece. As a result, the installed configuration, the vendor drawing, and the TVA drawings are all in agreement.

Corrective Action taken to Avoid Further Violation

New Office of Engineering (OE) procedures have been prepared which are clearer and easier to use. All OE personnel were trained in June of 1985 in the new procedures which involve change control of design documents. This included training in the requirements of field change requests which should prevent recurrence of similar violations.

Date When Full Compliance Will be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM c

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reason For The Violation

At the time the workplan was performed (August 1981) the program for control of work on transferred systems was newly established and the procedures for coordinating and controlling work items with multiple responsibilities were not fully developed. Electrical Maintenance personnel were not accustomed to the procedural requirements for performing plant modifications. As a result of inadequate procedures, lack of experience in performing plant modifications, and lack of adequate coordination, the work was performed on the battery racks without adequate work instructions for installation of the adjustable end brackets and hold down straps.

Corrective Actions Taken and Results Achieved

Electrical maintenance initiated NCR W-245-P to document and disposition the deficiencies associated with the battery rack modifications. The adjustable end brackets were installed per vendor drawings on MR A-529616. The battery cell hold down straps (retainer clips) were installed per vendor drawings on MR A-581042.

Corrective Action Taken to Avoid Further Violation

The procedures for control of work on transferred systems have been revised many times since the battery rack modification work was performed in August 1981. The personnel who prepare workplans and perform modifications on transferred systems have become more proficient in the preparation of work instructions and in the coordination of work activities when several groups are involved. We believe that the procedures and controls in place at this time are adequate to avoid further violations of this type.

Date When Full Compliance Will Be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM d

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reason for the Violation

When the OE design drawings were revised to depict installation of the plywood spacer, there was a failure to obtain design verification documentation that the addition of the plywood spacer would not degrade the seismic qualification of the rack and that the spacer was seismically qualified. An analysis of the effects of adding the spacer to the rack should have been performed and documented by either C&D Batteries or OE's Civil Engineering Branch (CEB) Central Staff (which is responsible for determining seismic requirements for OE design changes). However, the plywood spacer, being less massive than the batteries, was considered by OE to be of no consequence to the seismic qualification of the battery rack. As such, the drawing (15N210-4, Rev.6) depicting the plywood spacer was not coordinated by Sequoyah/Watts Bar Project personnel with the appropriate OE personnel in CEB Central Staff at the time of issuance. The immediate design personnel involved with this noncompliance are no longer employed by TVA; therefore, the exact cause is not known. This interface review process was confusing at times and, in part, led to the failure to obtain adequate design verification and analysis of the change to the rack.

Corrective Action Taken and Results Achieved

As noted under Section b, since the rack is adjustable, it has been determined that the spacer is not required. The drawing was revised to remove the spacer.

Corrective Action Taken to Avoid Further Violation

As noted under Section b, new OE procedures have been prepared which are clearer and easier to use. All OE personnel have been trained in the use of the procedures which more clearly define the lines of responsibility for interface review. The CEB Central Staff has the responsibility for determining and verifying the adequacy of the seismic requirements of design changes. These changes alleviate the confusion with and enhances interdiscipline coordination, which should prevent recurrence of similar violations.

Date When Full Compliance Will be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM e

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reason for the Violation

Failure of sections which use M&TE to investigate and take corrective action on out-of-tolerance M&TE in a timely manner as required by TI-10. Failure to establish a program for followup notification of open out-of-tolerance investigation reports. Failure to establish a program for historical trending of M&TE.

Corrective Action Taken and Results Achieved

Investigation reports have been completed on all M&TE identified by NRC in the inspection report except E01010. Each out-of-tolerance condition has been evaluated and the calibration frequency has been adjusted or the M&TE has been retired where appropriate.

Corrective Actions Taken to Avoid Further Violation

Administrative Instruction AI-5.9 has been issued to replace TI-10 as the controlling document for M&TE. AI-5.9 will be revised to define timeliness as it applies to out-of-tolerance investigation report closure as:

- a. Thirty (30) days for compliance/SI applications and
- b. Sixty (60) days for all other applications

The CSSC toolroom now has in place an ADP program which will be used for follow-up notification to sections which use M&TE twenty (20) days after an investigation has been initiated and for notification to the plant maintenance superintendent thirty-one (31) days after an investigation has been initiated.

The TVA Central Calibration Lab has initiated a program for historical trending of M&TE calibration data so that the calibration frequency can be revised or the M&TE can be replaced as the data analysis indicates.

Date When Full Compliance Will Be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM f

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reason for the Violation

Electrical maintenance was in the process of replacing the existing clutch assemblies in accordance with NCR W-174-P when the oil seals were discovered to be improper. Since the work was being performed to correct a deficiency which had been previously documented, electrical maintenance was not aware that a new NCR was required to document the oil seal deficiency.

Corrective Actions Taken and Results Achieved

Electrical maintenance issued NCR W-255-P to document and resolve the deficiency with the clutch oil seals. The clutch assemblies were returned to the vendor to correct the deficiency. The corrected oil seal assemblies were returned from the vendor and installed by electrical maintenance.

Corrective Action Taken To Avoid Further Violation

A training session was conducted by the electrical maintenance engineering supervisor to ensure that all electrical maintenance engineering personnel are aware of the requirements in AI-2.8.3 for reporting of deficiencies.

Date When Full Compliance Will Be Achieved

TVA is now in full compliance.

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VIOLATION 50-391/85-43-01

10 CFR 50, Appendix B, Criterion V as implemented by TVA;s QA Topical Report TVA-TR-75-1A, Rev. 8, paragraphs 17.1.5 and 17.2.5, require that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures.

- a. Administrative Instruction (AI)-9.2, Rev. 15, "Maintenance Requests and Equipment Maintenance History" requires that within 30 days after tentative transfer, transferred equipment will be entered into the preventive maintenance scheduling (PMS) program.

Contrary to the above, the Office of Nuclear Power personnel failed to accomplish work activities in accordance with AI-9.2 in that centrifugal charging pumps 2A-A and 2B-B were tentatively transferred to their department on September 29, 1983; and as of August 30, 1985 these pumps had not been entered into the PMS program.

- b. Quality Control Procedure (QCP)-1.52, Rev. 4, "Preventive Maintenance" requires that inspection and documentation of performance of preventive maintenance of safety-related equipment shall be accomplished until tentative transfer of the equipment to the Office of Nuclear Power. Also QCP-1.36, Rev. 6, "Storage and Housekeeping," describes the storage and housekeeping surveillance inspection and documentation requirements for work activities, conditions and environments that can affect safety-related structures, equipment, and components.

Contrary to the above, procedures were inadequately established or not implemented in that:

1. Office of Construction (OC) personnel terminated safety injection pump motor PM inspections for unit 2 pumps on May 10, 1985, but had not transferred the pump motors to NUC PR-WBN as of September 13, 1985.
2. OC personnel terminated unit 2 centrifugal charging pump reduction gear assembly PM inspections on September 29, 1983, but had not transferred these assemblies to NUC PR-WBN as of September 1, 1985.
3. QCP-1.52 and QCP-1.36 did not require inspections for cleanliness or removal of foreign objects in open safety-related electrical junction boxes and did not establish controls to assure that temporary power supplies used to maintain safety-related equipment were not disconnected.
4. Quality Control program for housekeeping inspections did not contain provisions for identification of degradation of safety-related systems, structures, and components during the housekeeping inspections.

This is a severity level V violation (Supplement II). This violation applies to unit 2 only.

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RESPONSE TO ITEM a

Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

Reason for Violation

The charging pumps were transferred from OC to NUC PR so that the pump internals could be shipped to Sequoyah Nuclear Plant as repair parts. The equipment transfer did not clearly identify the reduction gears as part of the transfer because they did not have a unique identifier and were not considered by NUC PR to be included in the transfer boundary.

NUC PR Mechanical Maintenance completed a transfer check list on the transferred equipment and made the decision that no preventive maintenance was required since the pumps were to be disassembled and parts shipped to Sequoyah. After transfer of the pumps, OC terminated all PM inspections on the pumps and reduction gears.

The result of these actions was that no preventive maintenance was performed on the pumps or reduction gears after transfer to NUC PR.

TVA does not consider this to be a violation of AI-9.2 requirements, but a breakdown in the transfer process due to the unique nature of this transfer.

Corrective Steps Taken and Results Achieved

A discrepancy report (WB-DR-85-213R) was written by mechanical maintenance to document and correct the deficiency. Pump 2A-A was transferred back to OC on transfer No. 62-16RT on October 8, 1985, and has been entered into the PM program by OC. Specific PM requirements have been identified for pump 2B-B and it has been entered into the preventive maintenance program by mechanical maintenance and will be inspected monthly per PM 62-88. Pump 2B-B will be reassembled and transferred back to OC when pump internals are received from Sequoyah.

The responsible OC engineer has initiated PM inspections on the charging pump reduction gears and all deficiencies associated with the reduction gears will be corrected by the OC PM crew.

Corrective Steps Taken to Avoid Further Violation

The centrifugal charging pump reduction gears have been assigned unique identifier numbers to ensure that the reduction gears are clearly identified in the OC PM program in the transfer package. Since the deficiencies identified were a result of the failure to perform PM inspections on the reduction gears, we believe the assignment of unique identifiers will prevent this type of deficiency in the future.

Date When Full Compliance Will Be Achieved

TVA is now in full compliance.

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RESPONSE TO ITEM b

Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

Reason for the Violation

1. This deficiency is the result of a procedural inadequacy in that revision 4 of WBN-QCP-1.52, R4, "Preventive Maintenance," which specified the preventive maintenance (PM) requirements during storage, in paragraph 4.3 stated that motors are considered to be in storage from the time of receipt at the construction site until an initial operation release (IOR) has been initiated or the motors are tentatively transferred to NUC PR. This provision applied to electric motors only and was in effect May 24, 1985, until October 14, 1985. During this period, motors IOR'd prior to transfer were subject to this deficiency and as such were not included in a PM program by construction or operations. This resulted from a literal interpretation of an upper-tier document which did not specify the need for provisions for PM inspections after installation.

IOR E-789 was issued May 5, 1985. PM inspection of these motors was terminated on May 9 based on the anticipated approval and implementation of revision 4 to the procedure prior to the next scheduled PM inspection. The vendor assumed responsibility for the motors on May 16 when the vendor representative arrived on site to oversee startup of the pumps. The pumps were run continuously for three weeks to support a flush. At that time, procedure revision 4 was, in fact, the effective revision.

2. The termination of PM inspection on the reduction gears on 2A-A and 2B-B charging pumps when the charging pumps were transferred to NUC PR resulted from the transfer boundary not being clearly defined during transfer of the pumps. The pumps were transferred due to the urgent need to send the pump internals to TVA's Sequoyah Nuclear Plant. There was no common agreement on what boundaries were to be transferred as the usual pattern was not followed for completion of construction activities prior to transfer. There were no drawings used, walkdowns were not performed, and there was not an OWIL generated. At the time this deficiency was cited, the same identifier was used for both pump and gearbox. This is an isolated occurrence caused by the extraordinary nature of this transfer.
3. The requirement to inspect electrical junction boxes for cleanliness was added to QCP-1.36, R6, in June 1985. However, the requirement does not address the removal of items from the boxes. Controls to assure that temporary power supplies are not disconnected was not previously addressed in QCP-1.36. This deficiency is attributed to procedural oversight in that the program did not anticipate uncontrolled activities including random unplugging of power supplies.

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4. The Quality Control program for housekeeping inspections was primarily established to control housekeeping deficiencies such as dirt and debris and did not initially address degradation of safety-related systems, structures, and components resulting from long-term, in-place storage.

Corrective Steps Taken and Results Achieved

1. The pump motors for unit 2 safety injection pumps have been reinstated in the preventive maintenance program. All IORs issued while WBN-QCP-1.52, R4, was in effect have been reviewed. All motors for which PM was prematurely terminated have been reinstated in the program. Any deficiencies resulting from lack of PM will be identified and resolved under provisions of the continuing PM program.
2. Attachment A of WBN-QCP-1.52 has been reinitiated for PM on the gearboxes. Inspection was completed November 1, 1985. Minor damage has been documented on PM Deficiency Reports 52-Q-1185-01 and 52-Q-1185-02. The contaminated oil has been replaced with a temporary lubricant pending receipt of the specific lubricant which is on order.
3. Preventive Maintenance Deficiency Reports have been issued to resolve identified deficiencies; dirt and debris including foreign objects have been removed from the junction boxes.
4. The Preventive Maintenance Unit has been alerted to place particular emphasis on degradation of safety-related features.

Corrective Steps to Avoid Further Violation

1. Revision 5 of WBN-QCP-1.52 was issued to delete paragraph 4.3 from the procedure. This will preclude premature termination of PM on electric motors.
2. A unique identifier has been specifically assigned for gearboxes in the PM program. Adherence to transfer procedures in the future will preclude recurrence of this type of deficiency.
3. WBN-QCP-1.36 and WBN-QCI-1.36 have been revised to include the requirement for the removal of foreign objects in open safety-related electrical junction boxes. PM inspections will be performed on a periodic basis to ensure that temporary power supplies remain energized.
4. WBN-QCP-1.36, R7, "Storage and Housekeeping," was revised September 27, 1985, in part to address degradation of equipment. Paragraph 7.5.1 now states: "Any item damaged or degraded is identified as a deficiency."

Date of Full Compliance

TVA is now in full compliance.