TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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January 10, 1985

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION REPORT 50-390/84-59, 50-391/84-45 - REVISED RESPONSE TO VIOLATION

The inspection report mentioned above cited TVA with four Severity Level IV violations (390/84-59-01, 03, 04, and 05) and a Severity Level V violation (390/84-59-02) in accordance with 10 CFR 2.201. On December 19, 1984, TVA submitted its response to the stated violations. Enclosed is information related to NRC concerns noted during January 3 and 4, 1985 discussions with the NRC on this subject. Included are revised responses to the subject violations.

If you have 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
Licensing and Regulations

Enclosure
cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
REVISED RESPONSE TO VIOLATIONS

On January 3 and 4, 1985, in discussions with M. B. Shymlock and S. P. Weise of your staff, it was identified that the response to violations 390/84-59-01, 02, 03, and 04 was unacceptable for the following reasons:

1. The report cover letter had a special paragraph added requesting TVA to describe the improvements made to its nuclear power maintenance program that will ensure that maintenance and modification documents are adequately written and reviewed and that activities are conducted and inspected consistent with their importance to the safe operation of the Watts Bar facility. The response did not include this additional information.

2. The July 1, 1985 completion date identified by TVA when full compliance would be achieved was assumed by NRC to be the final date before further component cooling water heat exchanger (CCWHX) retubing work was to continue. It is now understood that removing of the tubes for the retubing effort on "A" CCWHX has begun. The intent of the completion date is unclear.

3. Response to violation 50-390/84-59-01 had the following deficiencies:

   a. Corrective steps which have been taken and results achieved do not address removal of the particulate contamination from the CCWHX. Evaluations conducted need to be addressed.

   b. Corrective action steps taken to avoid further violations do not indicate training status as to completion dates.

4. Response to violation 50-390/84-59-02 does not address cleanliness criteria checklist documentation.

The purpose of this letter is both to document our agreement with the concerns as expressed by your staff and to resubmit our response to the discrepant violations.

Maintenance Program Improvements

Improvements to the Nuclear Power maintenance program as they relate to the Watts Bar facility developed as a result of the CCWHX modification effort consist of:

1. A revision to Technical Instruction TI-27, Part III, was made to provide for the selection of specific cleanliness acceptance criteria by the cognizant engineer for any work accomplished on CSSC-related items. This was accomplished January 4, 1985.

2. Special training was accomplished for all plant quality assurance personnel responsible for the review of work instructions on the specifics of this work and its generic implications to other work. This was accomplished December 7, 1984.

ATTACHMENT

Watts Bar Nuclear Plant Units 1 and 2

NRC-OIE Region II Inspection Report

50-390/84-59 and 50-391/84-45

Severity Level IV Violation - 390/84-59-01

1. 10 CFR 50, Appendix B, Criterion V, as implemented by TVA's QA Topical Report TVA-TR75-1a, revision 7, paragraph 17.2.5, requires that activities affecting quality be accomplished in accordance with documented instructions.

   a. Administrative Instruction AI-9.1, Maintenance Program, Revision 11, Attachment 7, Standardized Guidelines for Preparation and Review of MRs, delineates that appropriate housekeeping/cleanliness requirements and acceptance criteria be specific.

      Contrary to the above, activities affecting quality were not accomplished in accordance with AI-9.1 in that Maintenance Request (MR) MR A-408902 for the "C" Component Cooling Water Heat Exchanger (CCWHX) did not contain adequate controls to prevent entry of foreign materials into the heat exchanger during removal and replacement of heat exchanger shell access windows. This resulted in entry of foreign material into the heat exchanger.

   b. Technical Instruction TI-27, Part III, Chemical Specification (Cleanliness Criteria for Piping Systems), Revision 16 establishes requirements for the use of an Attachment B, Cleanlines Criteria, Class B - Primary Systems and Class C - Stainless Steel and High Nickel/Corrosion Resistant Alloy Systems Checklist for retubing activities on the CCWHXs.

      Contrary to the above, activities affecting quality were not accomplished in accordance with TI-27 in that the cleanliness control instructions of Attachment B of TI-27 were not implemented for those retubing activities on the "C" CCWHX which were accomplished on MR A-408902 and Workplan 4459.

   c. AI-8.5, Control of Modification Work on Transferred Systems Before Unit Licensing, Revision 10, and QA Section Instruction Letter 5.4, MR Review, Revision 2 establish review requirements with respect to MRs and Workplans to ensure proper quality assurance controls for modification of quality systems and components.

      Contrary to the above, activities affecting quality were not accomplished in accordance with AI-8.5 in that MR A-408902 and Workplan 4459 on the "C" CCWHX were not adequately reviewed which resulted in work being accomplished without requiring the proper cleanliness controls.

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reasons for the Violation

a. This error resulted from the failure of the procedure to require the craft personnel to use shields provided to help prevent foreign materials from entering into the heat exchanger.

b. Step 12 of Workplan 4459 stated that "the CCS cleanliness will be accomplished during system startup, per Chemical Engineering Section." The workplan originator mistakenly assumed this would take care of cleanliness criteria for the CCS. The chemical engineer later stated that the statement was only for CCS "chemistry" requirements.

   MR A-408902 did require TI-27, Part III, "Cleanliness Criteria for Piping Systems", Class C, to be performed but the MR originating engineer mistakenly attached the worksheet for Class C carbon steel and not the worksheets for carbon and stainless steel as required.

c. On Workplan 4459 the reviewing QA engineer made the same mistake as the originator of the workplan that the statement made by chemical engineering in step 12 was adequate for CCS cleanliness. MR A-408902 listed cleanliness per TI-27, but as stated in b above, after the QA review only the data sheet for carbon steel was added to the MR by the originating engineer.

Corrective Steps Which Have Been Taken and the Results Achieved

The "C" CCWHX was cleaned using a feed and bleed method after it was placed in service. This was accomplished by flushing approximately 50,000 gallons from the base of the heat exchanger at approximately 5 to 10 gallons per minute for 81 hours from October 13, 1984, to October 16, 1984, 92 hours from November 14, 1984, through November 16, 1984 and November 17, 1984, through November 18, 1984. This was judged by engineering to be adequate in removing any particulates (i.e., grinding dust) or contamination that might have been left in the heat exchangers.

Corrective Steps Taken to Avoid Further Violations

a. Meetings have been held with Mechanical Maintenance Section engineers to discuss the problems with this workplan and the lack of cleanliness controls incorporated in the workplan. The workplans to modify the two remaining heat exchangers will include specific steps to address cleanliness.

b and c. A training class was held for QA personnel involved with workplan and MR review. The training class reviewed the problems with the subject MR and workplan. MR entries, instruction detail, instruction clarity, and requirements for QC hold points were also covered.

Date when Full Compliance Will be Achieved

QA training was completed by December 7, 1984: and mechanical maintenance meetings were completed by January 1, 1985.

Severity Level V Violation - 390/84-59-02

3. 10 CFR 50, Appendix B, Criterion XVII, as implemented by TVA's QA Topical Report, TVA-TR75-1A, Revision 7, paragraph 17.2.17, requires that inspection and test records identify the type of observation, the results, and the acceptability of the inspection. TI-27, Part III, provides cleanliness criteria checklists for implementation of these requirements.

   Contrary to the above, cleanliness inspection records were inadequate in that the cleanliness criteria inspection checklist completed for "C" CCWHX retubing activities associated with MR A 408902 did not document specific criteria accomplished and their results.

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reasons for the Violation

The format of TI-27, Part III, only required the QC inspector to determine the applicable criteria listed, then indicate the acceptability with a sign-off at the bottom of the checklist.

Corrective Steps Which Have Been Taken and the Results Achieved

TI-27, Part III, was revised to include indication of each criterion to be used. The cognizant engineer using TI-27, Part III, will check the required criteria for the appropriate inspections to be performed. The QC inspector will only be required to sign the sheet indicating the acceptability of the criteria checked.

Corrective Steps Taken to Avoid Further Violations

The corrective action above should eliminate further violations.

Date When Full Compliance Will Be Achieved

The instruction was revised by January 4, 1985.

Severity Level IV Violation - 390/84-59-03

4. 10 CFR 50, Appendix B, Criterion V, as implemented by TVA's Topical Report TVA-TR75-1A, Revision 7, paragraph 17.2.5, requires that procedures include appropriate qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. TI-27, Part III, requires an engineering evaluation after the identification of an unsatisfactory cleanliness condition.

   Contrary to the above, procedures did not include qualitative acceptance criteria in that TI-27 did not contain qualitative acceptance criteria for the engineering evaluation performed in Part III, which resulted in undocumented engineering evaluations associated with MRs A-226219 and A-189149 and Workplan WP-3816.

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reasons for the Violation

When TI-27 was written, it was felt that just placing the criteria in the data sheet with a signoff for acceptance would be adequate.

Corrective Steps Which Have Been Taken and the Results Achieved

TI-27, Part III, was revised to require the engineer making an evaluation of the identified exception to document his bases for determining systems acceptability. Also, the engineering section supervisor will be required to give final approval of acceptability by signing the cleanliness acceptance criteria sheets.

Corrective Steps Taken to Avoid Further Violations

A training class will be held with the Chemical Engineering Section engineers who perform evaluations of exceptions to cleanliness criteria. This class will emphasize the changes to TI-27 and how exceptions to cleanliness criteria are evaluated and documented. Consistent evaluation of exceptions to cleanliness criteria is the training objective.

Date When Full Compliance Will be Achieved

The procedure was revised by January 4, 1985. The training class will be completed by January 11, 1985.

Severity Level IV Violation - 390/84-59-04

2. 10 CFR 50, Appendix B, criterion V, as implemented by TVA's QA Topical Report TVA-TR-75-1A, Revision 7, paragraph 17.2.5, requires that affecting quality be prescribed by documented instructions.

   Contrary to the above, activities affecting quality were not adequately prescribed by documented instructions in that MR A-408902 did not contain controls to prevent damage to the new stainless steel tubes replaced in the "C" CCWHX. This resulted in grinding damage to several tubes of the heat exchanger.

3. A discussion session was held with mechanical maintenance engineers to stress the importance of detail and clarity in the work instructions and to determine actions required to prevent future cleanliness degradations. This action was complete by January 1, 1985.

4. A general training session will be held for appropriate mechanical maintenance personnel (engineers, foremen, general foremen, dual rates) to stress the need for the achievement of quality in the conduct of their activities and if work instructions are not clear, to revise them before work is continued. The controls governing the use of MRs for additional work on workplans and the review needed will also be reemphasized. This action will be complete by January 11, 1985.

5. The chemical engineering staff engineers will be trained on the new revision to TI-27, Part III, as to the technical basis of each cleanliness criteria provided. This is to ensure that identified exceptions to specific criteria are evaluated, interpreted, and documented consistently. The chemical engineers are responsible for evaluating and documenting exceptions to acceptance criteria for the engineering section supervisor's documented approval on TI-27, Part III, Attachments. This action will be complete by January 11, 1985.

6. A discussion session was held with the QC inspectors to stress the importance of the inspectors' awareness of all work activities that could affect quality when they are performing their inspections. A QA section letter was revised to emphasize the need for monitoring of activities any time QC inspectors are in the plant. These actions were completed prior to the completion of the inspection.

7. A general training session will be held with appropriate personnel in the Electrical Maintenance, Instrument Maintenance, and Modifications Groups to stress the problems that were found with the Mechanical Maintenance work on the CCWHX. This action will be completed by January 31, 1985.

8. The Site Director will cover these findings with Sequoyah, Browns Ferry, and Bellefonte Site Directors at the next Site Directors meeting.

July 1 1985 Completion Date

The July 1, 1985 completion date was used in "the date when full compliance will be achieved" section for violations 390/84-59-01 and 04 to reflect the completion of the modification effort for the remaining two CCWHXs "A" and "B." This was an oversight, and we should have addressed action completion dates prior to resumption of the CCWHX retubing effort. The revised response reflects this intention.

Response to Violation 50-390/84-59-01

Revised response attached.

Response to Violation 50-390/84-59-02

Revised response attached.

In addition to the above, Watts Bar identified that the committed completion date for violation 50-390/84-59-03 of December 31, 1984, was not achieved. Actual completion for this item was not achieved until January 4, 1985. The cause of this oversight was inadequate management attention. Corrective action for this item is addressed in the following section:

1. We concur with the fact that the response to these violations was inadequate. The inadequacy of this response is not a reflection of plant attitude toward NRC findings, and the following steps listed in 2 below are being taken to improve our program of preparation, review, and followup on NRC violations.

2. Root cause conclusions derived from this experience were inadequate management attention in the response preparation, response review, and follow-up tracking of commitments made. Further, inattention to detail resulted in the missed response requirement in the cover letter. Actions taken to prevent recurrence of this matter will include:

   a. A formal adequacy review of future responses to NRC violations by senior management will occur before response transmission. This review will normally include the Site Director, Plant Manager, Plant QA Staff Supervisor, and the Compliance Group Supervisor.

   b. Violation responses made will be covered in plant principal staff meetings concerning the problem, causes, corrective actions, and due dates.

   c. The commitment tracking system will be revised to ensure that responsible sections are fully aware of response preparation due date needs and action completion required dates. This action will be completed by January 18, 1985.

   d. Completion of commitments in response to NRC violations will be independently verified by the Plant QA Staff or Compliance Group.

3. The violation responses will be explicit in the action completion dates as to the cited noncompliance.

Admission or Denial of Violation

TVA agrees with the violation as stated.

Reasons for the Violation

The craftsmen were given verbal instructions to use the shield plugs and, therefore, the required steps were left out of the MR. Some of the craftsmen misunderstood the verbal instructions and did not use the shield plugs provided.

Correctiv Steps Which Have Been Taken and the Results Achieved

The tubes which were damaged were plugged in order to expedite closing of the heat exchanger and its return to service. This, while not our most desirable path, was a management decision due to the fact that a low percentage of tubes was involved.

Corrective Steps Taken to Avoid Further Violations

As discussed previously, meetings have been held with Mechanical Maintenance Section engineers and Plant Quality Assurance engineers and inspectors to discuss the problems encountered during this work and to ensure areas of concern were adequately addressed in later workplans. The need for detailed work instructions was also emphasized.

The following are some specific examples of instruction improvements made on Workplan 2597 for the next heat exchanger work:

a. During movement of new tubes, every precaution shall be taken to prevent damage to the tubes (scratching, kinking, denting, etc.). Foreman shall discuss this note with personnel involved.

_____ / _____
Foreman/General Foreman Date

b. All efforts shall be made to prevent the entry of foreign material into the shell. When leaving the area, ensure that the inspection holes are adequately covered to exclude foreign material. Foremen shall discuss this note with personnel involved.

_____ / _____
Foreman/General Foreman Date

c. QC Hold Point: QC inspectors verify shell side cleanliness (including tube sheet holes) just prior to new tube installation and after preps to shell holes (step C.10) per TI-27, Part III, cleanliness Class C (carbon steel).

_____ / _____
QC Inspector Date

ENCLOSURE

Watts Bar Nuclear Plant Units 1 And 2

NRC-OIE Region II Inspection Report

50-390/84-59 and 50-391/84-45

Response To Violation

Severity Level IV Violation - 390/84-59-01

1. 10 CFR 50, Appendix B, Criterion V as implemented by TVA's QA Topical Report TVA-TR75-1a, Revision 7, paragraph 17.2.5, requires that activities affecting quality be accomplished in accordance with documented instructions.

   a. Administrative Instruction AI 9.1, Maintenance Program, Revision 11, Attachment 7, Standardized Guidelines for Preparation and Review of MRs, delineates that appropriate housekeeping/cleanliness requirements and acceptance criteria be specified.

      Contrary to the above, activities affecting quality were not accomplished in accordance with AI 9.1 in that Maintenance Request (MR) MR A-408902 for the "C" Component Cooling Water Heat Exchanger (CCWHX) did not contain adequate controls to prevent entry of foreign materials into the heat exchanger during removal and replacement of heat exchanger shell access windows. This resulted in entry of foreign material into the heat exchanger.

   b. Technical Instruction TI-27, Part III, Chemical Specification (Cleanliness Criteria for Piping Systems), Revision 16 establishes requirements for the use of an Attachment B, Cleanliness Criteria, Class B - Primary Systems and Class C - Stainless Steel and High Nickel/Corrosion Resistant Alloy Systems Checklist for retubing activities on the CCWHXs.

      Contrary to the above, activities affecting quality were not accomplished in accordance with TI-27 in that the cleanliness control instructions of Attachment B of TI-27 were not implemented for those retubing activities on the "C" CCWHX which were accomplished on MR A-408902 and Work Plan 4459.

   c. AI-8.5 Control of Modification Work on Transferred Systems Before Unit Licensing, Revision 10, and QA-Section Instruction Letter 5.4, MR Review, Revision 2 establish review requirements with respect to MRs and Work Plans to assure proper quality assurance controls for modification of quality systems and components.

      Contrary to the above, activities affecting quality were not accomplished in accordance with AI-8.5 in that MR A-408902 and Work Plan 4459 on the "C" CCWHX were not adequately reviewed which resulted in work being accomplished without requiring the proper cleanliness controls.