

AUG 0 1 1989

Docket Nos. 50-390
and 50-391

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. Kingsley:

SUBJECT: CLOSURE OF NOTICE OF VIOLATION AND INSPECTION REPORT 50-390/86-22
AND 50-391/86-22 DATED JANUARY 28, 1987

The purpose of this letter is to address the TVA responses submitted as a result of the Notice of Violation and Inspection Report findings (50-390/86-22 and 50-391/86-22) which are applicable to the Watts Bar Nuclear Plant.

Enclosure 1 provides the resolution of the violations and findings identified as a result of the NRC inspection and the resolution of each of the issues based on TVA actions and NRC review. One violation which TVA denied has been re-evaluated by the NRC and the conclusion is that the denial does not provide information which would change the basis for the violation. The violation remains.

Enclosure 2 provides a listing of the key documents relevant to these issues.

Based on our review of the TVA responses and actions, the issues raised as a result of the original special inspection are considered by the NRC staff to be resolved except for the TVA denial of the violation cited against Criterion XVI of 10 CFR Part 50, Appendix B for failure to promptly remedy a situation of missing calculations. The technical aspects of the alleged violation, to have the necessary calculations prior to plant startup, are being remedied as part of one of the major corrective action programs. This letter serves as the closure for all of the other issues at the Watts Bar Nuclear Plant.

If there are any questions, please contact this office.

Sincerely,

Original signed by

B. D. Liaw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:

1. Resolutions of Violations and Issues
2. Relevant Documents

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cc w/enclosure:

See next page

*SEE PREVIOUS CONCURRENCE

NAME	:TVA:EB	:TVA:EB/BC	:TVA:AD/TP	:TVA:AD/P	:TVA:AD/P	:TVA:AD/P	:TVA:AD/P	:TVA:AD/P
DATE	:7/26/89	:7/26/89	:7/27/89	:7/27/89	:7/27/89	:7/27/89	:7/27/89	:7/27/89

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cc w/enclosure:
See next page

TO :	TVA:EB	TVA:EB/BC	TVA:AD/TP	TVA:AD	TVA:D	F. A. PIP
NAME :	RShewmaker	DTerao	RPierson	SBlack	BDLiaw	R. A. ...
DATE :	7/26/89	7/26/89	7/26/89	7/27/89	7/ /89	7/27/89

Mr. Oliver D. Kingsley, Jr.

- 2 -

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OFC	: TVA:EB	: TVA:EB/BC	: TVA:AD/TP	: TVA:AD/P	: TVA:D	
No.	: RShewmaker	: DTerao	: RPierson	: SBlack	: BDLiaw	: R. Antide
DATE	: 6/29/89	: 6/29/89	: 6/29/89	: 6/ /89	: 6/ /89	: 7/18/89

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ENCLOSURE 1

RESOLUTIONS OF VIOLATIONS AND ISSUES FROM
INSPECTION REPORT 50-390/86-22 AND 50-391/86-22

1.0 VIOLATION, SAMPLE #26

Issue: TVA was cited for failing to report, under 10 CFR 50.55(e), an item which TVA had internally identified in a nonconformance report (NCR). This item was identified as WBNCEB8508 and related to the level of stress in pipe clamps used to support valve operators for isolation valves FCV 72-2 and FCV 72-39 in the containment spray system. Specifically, the condition identified the fact that, for certain design conditions, the stresses in the pipe clamps exceeded the limits defined in the design criteria. At the time of the original inspection, no documentation was available to justify not reporting this condition to the NRC and information was not available to assess the extent of the problem. TVA had taken the position of not reporting, based on a judgment, that the overstress condition would not cause a failure of the clamps and that the increased deformations would not affect the operability of the valve operator.

Action: TVA in a letter dated March 23, 1987, provided additional information and denied the violation of 10 CFR 50.55(e). The basis for the denial was that the procedures for the engineering evaluation and determination for reportability were in place and the records did show these were followed. The technical conclusion was based on engineering judgment and supported by a calculation which was not retained. This was consistent with the procedure. As a result of the NRC Notice of Violation, TVA recalculated the stresses arising during the adverse loading conditions. The maximum value was 0.79f. TVA concluded again that the original judgment was correct since this stress level would not result in any significant permanent deformation of the clamp nor in failure of the clamp. TVA restated that this item did not constitute an issue that is reportable under 10 CFR 50.55(e).

Based on the re-evaluation and the calculations performed by TVA, the NRC staff agrees that the stress levels were not sufficiently high to cause concern regarding deformations and the ability of the valve operators to function, nor was there a concern relative to failure of the clamps subjected to the higher stresses. Consequently, this information which was not supported by documentation, and was not available at the time of the inspection, now verifies the TVA judgment. Therefore, this matter is considered closed and the denial of the proposed Notice of Violation is accepted by the NRC.

2.0 VIOLATION, SAMPLE #29

Issue: TVA was cited for failure to meet Criterion XVI of 10 CFR Part 50, Appendix B which requires that conditions adverse to quality be promptly identified and corrected. TVA identified the fact that required design calculations for the design of safety-related pipe supports were not available in the fall of 1982. A series of TVA internally generated documents used to identify non-conforming condition deficiencies and deviations were generated and some evaluations were performed and some samples taken in order to justify the existing as-built pipe supports. The missing calculations were, however, not completed by March 18, 1986 when yet another target date was set in the resolution of Revision 1 to SCRWBNCB8531. It was noted in the citation that the problem of the missing calculations was not corrected and completion of the task was continually delayed and was not categorized to be essential prior to startup. Manpower estimates made in January of 1986 for completing the missing calculations was set at 61,000 man-hours by TVA which represented a significant increase over the original estimate, yet the resources were not allocated for completion of the work.

Action: TVA in a letter dated March 23, 1987 denied the violation and provided the basis for that position. TVA noted that the organization was aware of the missing EDS calculations, made efforts to obtain them and when that was unsuccessful established a sampling program in order to attempt to assess the validity of the EDS designed safety-related pipe supports as they existed. TVA also noted in the denial that the NRC Region II staff in a meeting and in a letter dated February 15, 1985 stated that, "the design verification work provides reasonable assurance that there are no safety concerns which would preclude issuance of an operating license." That letter also agreed to TVA's position that the completion of the effort by the first refueling for Watts Bar 1 and by the initial fuel load for Watts Bar 2 would be reasonable.

TVA also noted that the issue was being tracked as a result of an NRC Unresolved Item 390/89-76-01. TVA also reported under 10 CFR 50.55(e), in January 1986, the inability to locate the calculations to document the design of a significant proportion of the pipe supports. In summary, the TVA denial of the violation stated the following:

"Thus, TVA was aware of the problem, took action which determined that it did not create a condition which reduced the safety margin of the plant, and established a long-term corrective program and timetable. Further, TVA has kept NRC apprised of corrective actions in response to an unresolved item, by formal meeting, and through 10 CFR 50.55(e) reporting. Since this problem was identified by TVA, fits in Severity Level IV or V, was reported under 10 CFR 50.55(e), will be corrected within a reasonable time, and was not representative of a previous violation, TVA believes that a violation is not warranted."

The NRC in the re-examination of this issue and the citation found only two disagreements with the TVA summary statement of the violation denial. They are, however, part of the basis for the citation. The NRC position developed during the evaluation of the TVA denial was founded on the following issues:

The citation was written against the failure of TVA to ensure that conditions adverse to quality were promptly identified and corrected. This is a requirement of Criterion XVI of Appendix B to 10 CFR Part 50. In this case, the condition which was adverse to quality was the fact that documents required under Criterion III and VI, of Appendix B were not available to demonstrate the design and document control of the stress analysis (design) of the supports shown on design drawings detailing safety-related piping supports. Consequently, without these documents it was not possible to verify design adequacy. The schedule of the TVA action was not considered to be timely since the original problem involved in this issue resulted mainly from the authority given by TVA to EDS to destroy the calculation records in 1981. The attempt to obtain the calculations began sometime in 1982, culminating in a letter from EDS on November 1, 1982 which indicated the records were destroyed in accordance with TVA instructions. This was approximately two and one-half years prior to TVA's initial certification made to the NRC for fuel loading. While it is recognized there was apparently some agreement reached with NRC Region II on the schedule for completion, it is the NRC position that when a plant is to be licensed, a known quality deficiency such as involved in this instance would jeopardize the licenseability of a facility until the documents were available and could be verified as having undergone a design review. It is a fact that under the current corrective action for the Hanger Analysis and Update Program (HAAUP) this issue will be resolved before start-up.

In conclusion, the NRC does not accept the TVA denial of the Notice of Violation and concludes the violation is valid.

3.0 FINDING FROM SAMPLE #6

Issue: Reanalysis by TVA of piping at the Sequoyah Nuclear Plant resulted in a change of high stress locations in the lines with a corresponding change in the locations of the postulated high energy line breaks. This created a discrepancy with the design basis for break locations as defined in the FSAR. The implications of this issue were not documented as having been considered on the Watts Bar Nuclear Plant.

Action: As described in a submittal dated July 29, 1987, TVA indicated that the Pipe Rupture Design Criteria, WB-DC-40-31.50, Section 4.2.1.5 was revised (Revision 4, September 19, 1985) in order to address instances where pipe reanalysis is performed and the effect on originally designated pipe break locations. The revision also incorporates the exceptions to Regulatory Guide 1.46 as submitted to the NRC on May 29, 1981. TVA has also committed to revise Section 3.6A.2.1.2 of the Watts Bar Nuclear Plant FSAR prior to Unit 1 fuel loading.

Based on the fact that TVA has addressed this issue for the Watts Bar Nuclear Plant and has committed to complete the necessary actions prior to fuel loading, the item is closed. The FSAR revisions and Regulatory Guide exceptions will be considered in the NRC review process.

4.0 FINDING FROM SAMPLE #10

Issue: At the Sequoyah Nuclear Plant the qualification of seal material (caulking) was questioned based on revisions to the accident temperatures causing higher temperatures to which the material would be subjected. The design criteria were also found to be deficient in that the caulking compounds were only required to remain functional under normal conditions. TVA was requested to address this issue at the Watts Bar Nuclear Plant.

Action: TVA, in a letter dated July 29, 1987, stated that this issue did apply to the Watts Bar Nuclear Plant since the caulking material was used in the seal installation between the ice condenser and the containment vessel. TVA indicated that the conflict between TVA Specification 2883 and Design Criteria WB-DC-20-6 will be resolved by revision of the criteria which will require that the caulking perform its required function under accident conditions. TVA issued two significant condition reports (SCRs) which address the issue of the seal design and documentation. TVA has concluded, that based on an evaluation performed by the TVA MEB Equipment Qualification Section, the General Electric RTV 108 caulking which was used is qualified for the accident conditions. The qualification of the Dow Corning caulking material to perform adequately under accident conditions is being addressed as part of the two SCRs.

Based on these TVA actions the NRC concludes that this issue has been properly identified and is being addressed by TVA. Consequently, the item is closed.

5.0 FINDING FROM SAMPLE #12

Issue: Piping analysis computer program T-PIPE, Version 4.6D and special post-processor (SPP) Version 6.0C, obtained from PMB Systems Engineering Incorporated, produced erroneous results for support load table maximum pipe movements at one node during an analysis run. The potential problems for such an error were considered generic for all TVA plants, except Browns Ferry, since the identical program was used for piping analysis at Watts Bar Nuclear Plant.

Action: TVA, in a letter dated July 29, 1987, committed to a reanalysis of all rigorously analyzed piping as part of the Corrective Action Program (CAP) for the Hanger and Analysis Update Program (HAAUP). Within this program the reanalysis will be conducted by utilizing a later corrected version of T-PIPE and a new post-processor. For other piping analysis problems (non-rigorous) using a simplified analysis, there will be a review conducted to determine whether or not the erroneous versions of T-PIPE and the post-processor were

utilized. Where these versions of the program were used, corrections to the work will be completed. This work will be performed under the HAAUP CAP effort.

Based on the incorporation of this issue within the CAP efforts, the item has been identified and will be resolved as the CAP is completed by TVA. The NRC staff will be reviewing the work completed by TVA for the CAP prior to the startup of either unit. Therefore, the issue is closed since the item has been incorporated into an active corrective action program.

6.0 FINDING FROM SAMPLE #23

Issue: It was found that the motor-bearing cooling lines for the motor-driven auxiliary feedwater pumps were supplied by TVA and not by the pump vendor, Ingersoll-Rand, as shown on Drawing 47W427-9. This situation arose as a result of higher than acceptable temperatures in the housing for the pump motors found prior to pre-operation testing and resulted in the subsequent modifications to the piping system. The design documentation, however, was not available to substantiate the field conditions. There was a need to perform an as-built inspection and provide the supporting design documentation or make any necessary field modifications.

Action: In a letter dated July 29, 1987, TVA stated that the as-built conditions would be determined to ascertain whether or not the installation was within the design boundary conditions. Necessary drawing revisions or design revisions will be made by TVA prior to the fuel loading of either unit.

Based on these commitments, the NRC staff has concluded that the issue is closed. The issue has been recognized and commitments have been made for corrective action.

7.0 FINDING FROM SAMPLE #24

Issue: The instrumentation and control equipment tabulation, the panels and the wiring drawings indicated that Fisher pressure transmitters were utilized when in fact those units were replaced with Foxboro instruments. The replacement apparently occurred because the Fisher units were not seismically qualified. The documentation had not been corrected.

Action: In a letter dated July 29, 1987, TVA responded to this issue by indicating that the documentation would be corrected prior to fuel loading. Additionally, it was indicated that a CAQR was initiated (CAQR WBP870381) to address the generic aspects of the issue relative to installation of Fisher equipment and its qualification, as well as the development of the documentation.

The NRC staff, based on these TVA actions and commitments, finds the response acceptable and the issue is closed.

8.0 FINDING FROM SAMPLE #25

Issue: The high-pressure fire protection (HPFP) pumps provide a safety function in addition to supporting the fire suppression system by serving as an emergency source of water for the auxiliary feedwater system in the case of the loss of auxiliary feedwater pumps. As a result of pump dynamics and the resonant shaft frequencies being excited, testing indicated that several pump frequencies were below the 33Hz which had been believed to be the lower limit of low cycle frequencies. As a result of these pump frequencies being lower than 33Hz, no consideration of pump and motor vibrations were provided for in the design of the attached piping system since the 33Hz limit had been considered as the critical value. Therefore, the ability of the TVA Class C piping and supports downstream of the pump discharge nozzle to function during and after a safe shutdown earthquake (SSE) was in question. There is a necessity for an analysis under these conditions in order to verify the adequacy of the current design configuration.

Action: TVA, in a letter dated July 29, 1987, stated that a re-evaluation of the ability of the Class C piping and supports downstream of the pump discharge nozzle to function during and after an SSE would be completed. If that re-evaluation revealed that modifications are needed, those required changes will be completed before the fuel loading of the particular unit.

Based on these commitments the NRC staff has concluded that the issue will be addressed since identification and tracking is being performed under NCR W-293-PR2. This issue is considered to be closed.

9.0 FINDINGS FROM SAMPLE #30

Issue: Pipe supports designed and fabricated consistent with the typical pipe supports designated as 47A058 and 47A059 for use on TVA Category I(L) piping systems were found to have been installed so as to encounter lateral loads. This was noted as a condition which had not been considered in the design.

Action: In a letter dated July 29, 1987, TVA stated that a significant condition report (SCR) was written on this issue and that, as a result, an evaluation was performed. The evaluation revealed that the installed pipe supports of the 47A058 and 47A059 type used in the Category I(L) piping systems met the requirements set forth in the revised design criteria designated as WB-DC-40-31.9. TVA closed the SCR on October 10, 1986.

Based on this information, the NRC staff considers this issue to be closed.

10.0 FINDINGS FROM SAMPLE #61

Issue: TVA in 1984 identified instances at the Bellefonte Nuclear Plant where the design change report procedures as applied to component supports were not properly used. These instances raised the question of the impact of these failures on the design control of supports for the Bellefonte facility. This question was also considered to possibly be applicable to the other TVA facilities.

Action: TVA, in a letter dated July 29, 1987, stated that as a result of this issue a potential generic condition evaluation request was issued on February 13, 1987 by TVA to review the issue. It was determined that the condition did not exist at the Watts Bar Nuclear Plant. This issue is closed.

ENCLOSURE 2

RELEVANT DOCUMENTS

1. January 28, 1987, letter from J. Taylor (NRC) to S. White (TVA) including Inspection Report 50-390/86-22 and 50-391/86-22.
2. February 27, 1987, letter from R. Gridley (TVA) to J. Taylor (NRC) requesting time extension to reply to January 28, 1987 report.
3. March 11, 1987, NRC response to February 27, 1987 letter granting time extension.
4. March 23, 1987, letter from R. Gridley (TVA) to S. Ebnetter (NRC) responding to January 28, 1987 report.
5. July 29, 1987, letter from R. Gridley (TVA) to NRC in response to follow-up actions from the January 28, 1987 report.