

TENNESSEE VALLEY AUTHORITY

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FEB 13 1987

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Attention: Mr. B. J. Youngblood

In the Matter of the Application of)
Tennessee Valley Authority)

Docket Nos. 50-390
50-391

WATTS BAR NUCLEAR PLANT (WBN) - CONTAINMENT ISOLATION FEATURES

The purpose of this letter is to provide a second progress report on TVA activities regarding containment isolation features at WBN. My letter dated November 7, 1986, informed NRC that TVA had initiated action on this matter and that TVA would provide progress reports as significant milestones are reached. The first progress report was provided December 11, 1986.

The issue is that containment isolation features for certain piping penetrations were designed to the 1967 AEC/NRC interim General Design Criteria (GDC) and staff interpretations which allowed credit for a closed system as the isolation barrier outside containment. TVA is currently reevaluating these features to determine what upgrade actions would be necessary to comply with the current GDCs.

TVA intends to ensure that the containment isolation features are acceptable to TVA with regard to safe and efficient operation of the plant and that they satisfy appropriate regulatory requirements. TVA recognizes that, due to differences in cost, schedule, and ALARA considerations, the optimum upgrades for WBN may not be identical to those that are appropriate for the Sequoyah plant.

The enclosed progress report provides information as to the actions taken to date, the results, the actions planned, and the schedule for the next progress report.

The next major milestone will be when TVA completes its internal review of the conceptual upgrade actions. At that time, TVA would like to have a working-level meeting with the NRC staff in Bethesda to discuss the technical aspects of these potential upgrade actions.

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If you have any questions on this topic, please get in touch with John McDonald at (615) 365-8649.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosure

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ENCLOSURE
PROGRESS REPORT
ADEQUACY OF CONTAINMENT ISOLATION FEATURES
WATTS BAR NUCLEAR PLANT

TECHNICAL ISSUE

In early 1986, an NRC Operational Readiness Inspection at the TVA Sequoyah Nuclear Power Plant (SQN) identified an unresolved item regarding the design of the containment isolation features for certain piping penetrations regarding conformance to the explicit language of the current NRC General Design Criteria (GDC), i.e., Appendix A to 10 CFR 50. When taken in conjunction with an April 19, 1980 TVA-SQN letter to NRC indicating that the SQN design complies with the current GDCs, NRC/NRR has taken the position that the situation at SQN is a deficiency requiring corrective action.

The main isolation scheme at issue was the case of systems that are "closed" outside containment and the use of a check valve inside containment, i.e., the use of the closed system as the isolation barrier outside containment.

The Watts Bar Nuclear Power Plant (WBN), like SQN, was designed to the 1967 interim AEC/NRC General Design Criteria (GDC) and Revisions 0 and 1 of the supporting Westinghouse system design criteria 1.14, "Systems Standard Design Criteria Nuclear Steam Supply System Containment Isolation." Interim GDC 53 and the AEC/NRC staff interpretations allowed the use of a closed system as the outside containment barrier. TVA believes that the use of closed systems outside containment was an acceptable method on an "other defined basis" for complying with the regulatory requirements applicable to the construction permit. The licensing basis for Sequoyah Nuclear Plant (SQN) has now been established to be the current (1971 issuance) GDCs and the current staff interpretations which do not include such an allowance. Therefore, it becomes necessary to reevaluate the containment isolation features for WBN.

TVA-WBN ACTIONS COMPLETED

TVA intends to ensure that the containment isolation features are acceptable to TVA with regard to safe and efficient operation of the plant, and also that they satisfy appropriate regulatory requirements. Realizing that the containment isolation issue which arose at SQN had applicability to WBN, TVA has formed a task force to reevaluate the containment isolation features at WBN. The charter of the task force is: (1) to define the scope of the potential design weaknesses, (2) to recommend corrective action at the conceptual-design level, and (3) to develop an implementation plan to resolve and close this issue.

The first step in this effort was to reevaluate each containment penetration and assign each to one of three categories:

1. Those that conform to the explicit requirements of the GDCs.
2. Those that conform to the GDCs by way of a basis defined by the NRC Standard Review Plan section 6.2.4.
3. Those for which upgrade actions would be necessary to conform either to the explicit requirements of the GDCs or to the GDCs by way of the NRC Standard Review Plan.

The second step was to determine appropriate improvements for each penetration in the third category. TVA realized also that the WBN situation is not identical to the situation at SQN. Cost, schedule, and ALARA considerations are different. Therefore, the optimum upgrade actions at WBN may not be identical to those most appropriate for SQN.

RESULTS

There are a total of about 190 containment penetrations, including spares and hatches. The first category consists of about 100 containment penetrations, i.e., those for which the isolation features were found to conform to the explicit requirements of the GDCs, therefore, no further consideration was needed.

The second category consists of about 30 containment penetrations which were found to have isolation features that conform to the GDC on bases defined in the NRC Standard Review Plan section 6.2.4. These penetrations were generally similar and fell into a small number of groups.

Section IIa: Acceptability of instrument lines.

Section IIe: Acceptability of a single isolation valve in an ESF system where system reliability would be degraded by second isolation valve.

Section II f: Acceptability of blind flanges.

Section IIg: Acceptability of using relief valves as containment isolation valves.

The third category consists of about 20 penetrations which were found to have isolation features that would need to be upgraded to conform to the GDCs either explicitly or by way of one of the bases defined in the Standard Review Plan. These penetrations also fell into a small number of groups.

Normal RCS charging line.

ECCS and Containment/RHR spray lines.

Relief valve discharge lines.

RCP seal injection lines.

Hydrogen analyzer lines.

Although not a containment isolation issue, the WBN task force has also considered changes to the containment hydrogen purge system.

The task force has produced its report which defines the conceptual improvement that the task force recommends for each of the penetrations.

PLANNED ACTIONS

The improvements recommended by the task force are currently being reviewed within TVA. These reviews include design reviews, coordination with plant operations and maintenance staffs, and management reviews including the WBN Change Control Board.

After TVA approval of the conceptual upgrade actions, the task force will develop an implementation plan to complete the engineering design, procurement, and installation scheduling.

The final phase of this effort will be the implementation phase during which the actual installation and postmodification testing will be completed. This phase will also include the attendant revisions to operating, surveillance and maintenance, and emergency procedures.

NEXT PROGRESS REPORT

The next major milestone in this effort will be the TVA approval of the conceptual upgrade actions. The schedule, however, is subject to limited availability of resources, due to the TVA priority on SQN restart. We may have the conceptual improvements approved as early as April 15, 1987. At that point, TVA would like to meet with NRC to discuss the technical aspects of the improvements. TVA plans to provide the next progress report within 30 days after such a meeting.