

TENNESSEE VALLEY AUTHORITY

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DEC 11 1986

Director of Nuclear Reactor Regulation  
Attention: Mr. B. Youngblood, Project Director  
PWR Project Directorate No. 4  
Division of Pressurized Water  
Reactor (PWR) Licensing A  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Youngblood:

In the Matter of the Application of ) Docket Nos. 50-390  
Tennessee Valley Authority ) 50-391

WATTS BAR NUCLEAR PLANT - ADEQUACY OF CONTAINMENT ISOLATION FEATURES

The purpose of this letter is to provide a progress report on TVA activities regarding containment isolation features at the Watts Bar Nuclear Plant (WBN). My letter to you 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 issue arises from the fact that the WBN 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 regulatory requirements. TVA recognizes that, because of differences in cost, schedule, and ALARA considerations, the optimum upgrades for WBN may not be identical to those that are appropriate for the Sequoyah Nuclear Plant (SQN).

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

The next major milestone will be when TVA approves the upgrade actions at the conceptual design level. At that time, it would be appropriate to provide the next progress report and may be desirable to meet with the NRC staff in Bethesda to discuss the technical aspects of these upgrade actions.

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Director of Nuclear Reactor Regulation

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I would like to mention that, while TVA is hereby committing to provide the next progress report on this subject by February 15, 1987, TVA senior management is reevaluating schedules for WBN activities. This action is a followup to the announced decision to concentrate TVA resources on the restart of SQN, which is expected to cause schedule readjustments for WBN activities.

If you have any questions on this topic please get in touch with John McDonald at (615) 365-8524.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
R. Gridley, Director  
Nuclear Safety and Licensing

Enclosure

cc (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 Plant (SQN) identified an unresolved item on the design of the containment isolation features for certain piping penetrations regarding conformance with 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, this item became a deficiency requiring corrective action.

The isolation scheme primarily at issue is 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 Plant (WBN), like SQN, was designed to the 1967 interim AEC/NRC general design criteria 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 was of the position that the SQN and WBN designs conformed with the regulatory requirements via these other defined bases, as provided for in the GDCs. The licensing basis for 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 also for WBN.

TVA-WBN ACTIONS

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 regulatory requirements. Realizing that the containment isolation issue that 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 weakness, (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 with the explicit requirements of the current GDCs.
2. Those that conform with the current GDCs via a basis defined by the NRC Standard Review Plan section 6.2.4.
3. Those for which upgrade actions would be necessary to conform with the current GDCs either explicitly or by way of the NRC Standard Review Plan.

TVA realizes also that the WBN situation is not identical to that at SQN. Cost, schedule, and ALARA considerations may be different. Therefore, the optimum upgrade actions at WBN may not be identical to those most appropriate for SQN.

### RESULTS

There are a total of 188 containment penetrations, including spares. The first category consists of approximately 100 containment penetrations, i.e. those for which the isolation features were found to conform with the explicit requirements of the GDCs and, therefore, no further consideration is needed.

The second category consists of approximately 35 containment penetrations which were found to have isolation features that conform with 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 a second isolation valve.

Section II f: Acceptability of blind flanges.

Section II g: Acceptability of using relief valves as containment isolation valves.

The third category consists of approximately 20 penetrations which were found to have isolation features that would need to be upgraded to conform with the current 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.

The TVA-WBN task force is presently evaluating various engineering options for upgrade actions for these containment penetrations. Some of these options are:

Reclassification of certain existing safety-related valves to be also containment isolation valves.

Reclassification of certain relief valves as containment isolation valves.

Providing additional valves outside containment to provide enhanced containment isolation.

The task force is considering the safety classification, environmental qualification, testability, etc., of valves that might be reclassified or added. In some cases it appears that periodic leak rate testing may not be necessary in view of a supply of water that would keep the outside of the valve pressurized for a guaranteed minimum of 30 days, even if a single failure is postulated.

#### PLANNED ACTIONS

Having completed the problem definition, the task force will proceed to complete its consideration of the various options for upgrade actions. The initial output of the task force will be recommended actions at the conceptual-design level. These recommendations will undergo review and coordination by 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, installation scheduling, etc.

The final phase of this effort will be the final implementation phase, during which the Site Director's design review, actual installation and post-modification testing will be completed. This phase will also include the attendant revisions to operating, surveillance and maintenance, emergency procedures, etc.

Although not a containment isolation issue, the WBN task force is also considering changes to the containment hydrogen purge line at the containment boundary to improve the availability of this system.

#### NEXT PROGRESS REPORT

The next major milestone in this effort will be the TVA approval of the conceptual upgrade actions. This milestone should be reached within the next two months. However, senior TVA management reevaluations of scheduling of WBN activities are underway in view of the decision to concentrate resources on the restart of the SQN. TVA will provide its next progress report on this subject no later than February 15, 1987.