

TENNESSEE VALLEY AUTHORITY

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APR 21 1988

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

In the Matter of ) Docket Nos. 50-327  
Tennessee Valley Authority ) 50-328

SEQUOYAH NUCLEAR PLANT (SQN) - NRC INSPECTION REPORT 50-327/87-48 AND  
50-328/87-48 - INTEGRATED DESIGN INSPECTION (IDI)

Reference: S. A. White's letter to NRC dated December 29, 1987, "Sequoyah  
Nuclear Plant (SQN) - Integrated Design Inspection (IDI): Response  
to NRC Inspection Report 50-327/87-48 and 50-328/87-48"

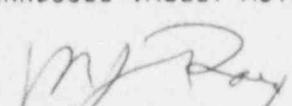
The referenced letter provided TVA's response to the subject inspection report. In this response, TVA made a number of commitments to NRC concerning proposed Final Safety Analysis Report (FSAR) revisions for the 1988 annual update. Based on discussions with Gene Imbro, NRC IDI Team Leader, on March 15, 1988, it was agreed that the commitments on IDI items D2.4-2 and D5.6-1 would be revised to document TVA's revised approach to resolution of the items. Additionally, on March 31, 1988, Mr. Imbro agreed that a commitment made in the reference on IDI item D2.2-5 would also be revised because of schedular constraints.

Enclosure 1 provides TVA's supplemental responses for IDI items D2.2-5, D2.4-2, and D5.6-1. Enclosure 2 provides a list of commitments being made by TVA in this submittal.

If you have any questions, please telephone D. L. Williams at (615) 632-7170.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
M. J. Ray, Deputy Director  
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Enclosures  
cc: See page 2

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U.S. Nuclear Regulatory Commission

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Enclosures

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Sequoyah Nuclear Plant  
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ITEM NO.: D2.4-2

TITLE: Cutting a Hole in the Containment During Flood

SUMMARY OF ITEM:

The FSAR description of flood mode operation states in Section 2.4A.2.1, ". . . minor seepage through the concrete walls will be collected in the Reactor Building sump and pumped out of the building." However, the FSAR does not describe that a hole will be cut in the steel containment to allow that seepage to drain into the Reactor Building sump.

CLASSIFICATION: Documentation

SUPPLEMENTAL RESPONSE:

TVA is reviewing the Sequoyah Nuclear Plant (SQN) flood plan to possibly eliminate the need to cut a hole in containment. Indications are that it will be possible to do this. The principal considerations in this decision process are:

- ° Flooding effects upon equipment located in the annulus: The shield building is designed to be leak tight. However, from a practical standpoint, some small leakage rate into the annulus must be expected. Because this leakage would accumulate throughout the duration of the flood, an evaluation must be performed (a) to identify the elevation of the lowest component in the annulus that is required for flood mode operations that would be sensitive to submergence; (b) based upon the elevation of this component, to calculate the associated volume of water and leak rate that would result in submergence during the duration of the flood; and (c) to confirm that the bounding value for the actual expected leak rate is less than the maximum acceptable leak rate. Preliminary indications are that TVA can demonstrate that the maximum leak rate expected is less than this number.
- ° Structural loading effects on containment: Based on existing information, it is expected that TVA can demonstrate that there will be no unacceptable structural effects.

The results of the evaluation may require TVA to revise its approach from ensuring a relatively dry annulus via a hole cut through the containment, to an approach that allows limited leakage into the annulus based upon analyses that demonstrate: (1) all equipment in the annulus that is required for flood mode operation and that is sensitive to flooding effects is located in an elevation above any projected actual flooding; and (2) flood-related structural loads upon containment are acceptable.

Therefore, TVA will not revise the FSAR in this year's amendment, as committed to in the December 29, 1987 letter; but TVA will provide NRC with an action plan on this issue by July 1, 1988, based upon the results of the ongoing evaluation.

ITEM NO.: D5.6-1

TITLE: Inadequate Specification of Background Radiation for ERCW Effluent Liquid Radiation Monitors

SUMMARY OF ITEM:

During the Integrated Design Inspection (IDI), the NRC asked for information on the radiation background for the ERCW radiation monitors. Based on the area dose maps and existing dose calculations, TVA provided the information that post-loss-of-coolant-accident (LOCA) dose rates in the area of the ERCW monitor assemblies would exceed 1 roentgen per hour (R/hr). NRC concluded from a review of the specification on ERCW radiation monitors that under accident conditions the calculated background of 1 R/hr would cause the monitors to read off-scale rendering them unable to perform their function. The basis for the postaccident monitoring requirement of the monitors is FSAR Section 11.4.2.1.2.

CLASSIFICATION: Documentation

SUPPLEMENTAL RESPONSE:

FSAR Section 11.4.2.1.2 states that the ERCW monitors serve as accident monitors "to detect leakage from either the component cooling heat exchangers or containment spray heat exchangers (during accident)." At the time the deficiency was identified by NRC, TVA stated that the monitors did not have a required postaccident monitoring function and proposed a revision to FSAR Section 11.4.2.1.2 to remove this requirement. Since that time, TVA has performed an analysis, documented in calculation SQNAPS3-079, to determine the location specific post-LOCA background radiation and the leakage detection capability for the ERCW radiation monitors. The results of the calculation show that FSAR Section 11.4.2.1.2 accurately describes the capability of the monitors after an accident and, therefore, does not need to be revised to remove the statement of the postaccident function of the monitors. A copy of the calculation has been informally transmitted to Gene Imbro and Jim Leivo of NRC.

It was found that the calculated maximum postaccident background for the monitors is 101 milliroentgen per hour (mR/hr). The maximum background of 101 mR/hr would produce an on-scale monitor count rate of  $1.2 \times 10^6$  counts per minute (counts/min). (The specified monitor scale of 10 to  $10^6$  counts/min as listed in FSAR Table 11.4.2-1 is not the true monitor scale. The scale of the monitors as supplied by the vendor is 10 to  $10^7$  counts/min). With this background, the monitors are capable of detecting an Iodine-131 concentration of  $1.9 \times 10^{-4}$  curies per milliliter in the ERCW discharge. The monitors are capable of detecting a leak of about  $2.3 \times 10^{-4}$  gallons per minute from the containment spray heat exchangers after a LOCA.

There is no impact on safety, and no modifications are required. TVA will revise FSAR Table 11.4.2-1 to correct the monitor scale for the liquid radiation monitors in the next FSAR update, which is scheduled for April 1989.

TVA has evaluated other postaccident radiation monitors and has found no other monitors that have a problem similar to the one found by NRC with regard to background radiation.

REFERENCES:

1. FSAR Section 11.4.2.1.2, "Essential Raw Cooling Water Effluent Liquid Monitors (ERCW)."
2. TVA Calculation SQNAPS3-079, RO, "Post-accident Background for the ERCW Liquid Monitors," 3/18/88 (B45 880318 239).

ENCLOSURE 2

LIST OF COMMITMENTS

IDI D2.2-5

TVA will revise the FSAR as it relates to the automatic isolation of the ERCW system in the next FSAR update, which is scheduled for April 1989.

IDI D2.4-2

TVA will provide NRC with an action plan on this issue by July 1, 1988, based upon results of the ongoing evaluation.

IDI 5.6-1

TVA will revise FSAR Table 11.4.2-1 to correct the monitor scale for the liquid radiation monitors in the next FSAR update, which is scheduled for April 1989.