



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERNS PROGRAM

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

I. INTRODUCTION

The issues addressed in this Safety Evaluation Report (SER) for the Sequoyah Nuclear Plant (SQN) are in the civil/structural and pipe support design areas. This report provides an evaluation of 2 individual concerns categorized in the following 2 element and/or subcategory reports:

<u>ELEMENT/SUBCATEGORY</u>	<u>DESCRIPTION</u>
21510/25000	Feedwater Heater Monorail Design
22110/22100	Use of Snubbers

If determined to be valid these issues must be resolved for the Sequoyah Plant.

II. EVALUATION

The NRC consultant, Parameter, Inc., has reviewed the 2 employee and/or subcategory reports and prepared the attached Technical Evaluation Reports (TER).

The staff has reviewed the TERs and concurs in their bases and findings. There were no allegations identified during the review pertinent to those reports.

Those elements that were initially submitted as non-restart justification issues were reviewed as part of a sub-category report. The review included the evaluation of the employee concerns as well as addressing the SQN restart issue.

Where corrective action has been warranted, the staff's acceptance is based upon satisfactory fulfillment of all commitments as described in the TVA corrective action plan.

III. CONCLUSION

Based on the staff review of the attached TERs relating to the employee concerns program for SQN, the staff concludes that TVA has adequately addressed the employee concerns and that their conclusions and corrective actions are acceptable.

Certain corrective actions have been implemented for SQN Unit 2 only. It is the responsibility of TVA to assure that acceptable implementation of such corrective action will be performed for Unit 1. Any additional program changes should be submitted for staff review and should not be implemented prior to review and approval by the staff.

SEQUOYAH NUCLEAR POWER PLANTS, UNITS 1 AND 2

TECHNICAL EVALUATION REPORT FOR EMPLOYEE CONCERN ELEMENT  
REPORT 21510(B), "FEEDWATER HEATER MONORAIL HANGER DESIGN"

I. SUBJECT

Category: Engineering (20000)  
Subcategory: Civil/Structural Design (25000)  
Element: Feedwater Heater Monorail Hanger  
Design (21510)

The Basis for Element Report 21510(B), Rev.0, 12/2/86 is employee concern LDA-86-001, which questions the structural integrity of the feedwater heater monorail hangers.

II. SUMMARY OF ISSUE

The structural integrity of hangers for the feedwater heater monorails located in the turbine building is questionable.

III. EVALUATION

TVA subcategory report 25000, Rev.2, 10/26/87, and TVA element report 21510(B), Rev.0, 12/2/86, identify the issue as not safety related because of the monorail function and location within the turbine building. The TVA reports also identify the issue as not valid. The chronology of events affecting this issue is given as follows:

- The concern was expressed orally on or before August 5, 1985.
- On August 6, 1985, the concerned employees met with the TVA design engineer who explained the design approach and details of the monorail hangers. In a statement documenting the meeting, it is recorded that the employees expressed satisfaction and gave their assent to closing the issue.
- A TVA structural engineer made an independent review of the feedwater heater monorail design on August 13, 1985 and affirmed its adequacy.
- A 3rd party review was made on August 19, 1985 by Impell Corporation, which confirmed the design as adequate.
- The scope of these reviews and the conclusion reached are stated within subcategory report 25000 as: "The design calculations and drawings were reviewed for assumptions, logic, analysis, code interpretations, member selections, connections, and clarity of presentations. The evaluation team found the design documents well organized, complete, and meeting the AISC requirements."
- TVA performed a load test of the system on August 25, 1985, using a load 40% heavier than the operating load to be carried. The test was successful.

IV. CONCLUSION.

TVA evaluation, action, and resolution of the expressed concern is adequate and acceptable for Sequoyah Units #1 and #2 restart.

SEQUOYAH NUCLEAR POWER PLANTS, UNIT 2

TECHNICAL EVALUATION REPORT FOR EMPLOYEE  
CONCERN ELEMENT REPORT 22110(B), "USE OF SNUBBER"

I. SUBJECT

Category: Engineering (20000)  
Subcategory: Pipe Support Design (22100)  
Element: Use of Snubber (22110)

The basis for Element Report 22110(B), Rev.1, 12/30/86, is employee concern SQN-86-001-02 which states that the Upper Head Injection System vertical riser requires a rigid support where a snubber was used.

II. SUMMARY OF ISSUE

A rigid type support is specified in the piping analysis for a specific location on the vertical riser of the Upper Head Injection (UHI) system, but the detail drawings and as-built condition show use of a snubber at this location. UHI has a plant safety-related function.

III. EVALUATION

TVA element report 22110(B), Rev.1, 12/30/86 recognized the employee concern as valid. In a subsequent letter J.A. McDonald (TVA) to B.J. Youngblood (NRC), 2/17/87, responding to an NRC request for additional information, the root cause of this disparity between the pipe support analysis and the as-built condition was given as a lack of attention to detail, specifically, that an engineering judgement was made regarding support orientation and design without proper documentation and communication to interfacing groups. The letter also identified a 100% engineering review of all snubbers in the plant against the piping analyses, and confirmed this instance to be a single, isolated case. The report indicates that TVA re-analysis of the UHI pipe restraint at this location utilizing a snubber demonstrated the use of the snubber to be an adequate design, able to sustain required seismic and thermal stress levels. The TVA evaluation identified this as an acceptable resolution in the report, but also described TVA's decision and commitment to replace the snubber type support with a rigid type support prior to re-start. TVA recognizes the necessity to fulfill applicable requirements of design control and configuration control of 10 CFR 50, Appendix B, Criterion III and ANSI N 45.2.11 in TVA work performed to SQN Pipe Support Design Manual (PSDM), Volume III.

The depth and extent of the evaluation team review of this issue is adequate, including identification of root cause of the problem. Corrective actions regarding both the engineering design activities and replacement of the pipe support are adequate.

The replacement action has been tracked under Corrective Action Tracking Document (CATD) 22110 SQN01, and is reported as completed and verified for Sequoyah Unit #2 only, on 8/27/87.

IV. CONCLUSION

TVA evaluation and resolution of this employee concern is adequate, acceptable and appropriate for Sequoyah Unit No. 2 restart.