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

SAFETY EVALUATION REPORT BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 24105

"WIRE CORROSION AND DETERIORATION OF SEALANT MATERIAL"

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

I. SUBJECT

Category: Engineering (20,000)
Subcategory: Cable termination and splices (24,100)
Element: Wire Corrosion and Deterioration of Sealant Material (24,105)
Employee Concern: ECTG-6

The basis for Element Report 24105, Revision 1, prepared November 23, 1987 is a concern stating:

> "Corrosion of wiring through the penetration, breakdown of the sealant that is potted around the conductor as part of the penetration, resulting from breakdown because of the environment, they either violated --- used the wrong one, wrong application --- a breakdown of insulation, wrong application."

II. SUMMARY OF ISSUE

This concern raised two generic problems, one with the corrosion of wiring and the other with the deterioration of sealant in penetration modules may exist in the electrical containment penetrations. The containment penetrations at Sequoyah are manufactured by Westinghouse and Conax to address the concern, TVA reviewed the CAQ (conditions adverse to quality) data base and discovered a report on Watts Bar regarding the crazing and/or cracking of the sealant material on the end of the Conax penetration. Conax personnel performed a walkdown at Watts Bar and determined that cable coating material (Vimasco No. 2-B) is not compatible with the penetration sealant material (polysulfone). TVA has determined that the Conax penetrations at Sequoyah have not been encapsulated. However, Westinghouse penetrations have been encapsulated with a coating material (Flammastic 77). TVA has reviewed the chemical compatibility of this material and determined that Flammastic 77 will not have a detrimental effect on the penetrations.

Since the corrosion of wiring in penetration cannot be visually observed, it is believed the concerned employee may have observed the corrosion at the point where pigtails is spliced to the field wiring rather than the wiring in

the feed through. Since TVA procedure M&AI-7 specifies the cleaning method before splicing, it can be reasonably assumed that any corrosion present in the pigtails would have been removed.

TVA has also evaluated the response to NRC IE Bulleting 77-07, "Potential Problems with Containment Penetration Assemblies," and concluded that the problem does not exist in the Sequoyah penetrations because of differences in design.

III. EVALUATION

NRC and its consultant, SAIC reviewed the employee concern and the TVA findings and requested the additional information (Letter from J. Zwolinski, NRC to S. A. White, TVA, dated July 15, 1987). TVA provided the responses to the staff's request by their letter of August 13, 1987 from J. R. Russel to NRC. During a telephone conference, NRC staff requested further information regarding material compatibility for Conax penetrations and wire corrosion problem in the penetration assembly. TVA revised the employee concern report to address the staff concerns. Based on the information it can be reasonably determined that the document review did not identify any corrosion of wiring problems in the electrical penetration assembly. The staff believes that destructive testing of the penetration assemblies is not warranted as the problem with the corrosion of wiring cannot be substantiated. Also TVA evaluation clearly demonstrates that the problem of deterioration of sealant material due to the incompatibility of the coating material is not applicable at Sequoyah.

IV. CONCLUSION

Based on this, the NRC staff concludes that the concern regarding wire corrosion and deterioration of sealant material is not valid for Sequoyah and that TVA's investigation and evaluation resolves the employee concern.