



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

SAFETY EVALUATION REPORT BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 24102

"CRIMP CONNECTIONS"

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 (24100)  
Element: Crimp Connections (24102)  
Employee Concern: JLH-85-004, PH-85-003-003

Element Report 24102, Revision 2, prepared January 26, 1987 involves two employee concerns regarding the practice of terminating diodes using crimping rather than soldering of the leads. One concern states, "PIDG lugs have apparently been used for making crimps on solid conductors resulting in reduced current capacity for CSSC fire dampers." Another concern states, "The practice of terminating diodes and rectifiers without soldering the wiring but only splicing by crimping to the lead-ins needs to be reevaluated for quality construction (control room 757' elevation)."

II. SUMMARY OF ISSUE

The concerned employee was aware that AMP Products Corporation, manufacturer of pre-insulated diamond grip (PIDG) terminal lugs, sent a letter to all users stating that the use of crimper PIDG terminal lugs with solid copper conductors proved unsatisfactory in tests under any voltage or current condition. TVA investigated the employee concern and concurred that the potential for degradation of safety-related systems existed. Moreover, a Non-Conformance Report (NCR) was generated for Watts Bar to correct this condition but apparently no NCR was generated for Sequoyah. As a result of this investigation TVA initiated an extensive inspection and rework program addressing the installation of PIDG terminal lugs at Sequoyah. At the time the employee concern was prepared the rework on Sequoyah Unit 2 was completed for all PIDG terminal lugs except for surge suppression networks. In addition, no plan or schedule for reworking the surge suppression networks was presented.

III. EVALUATION

NRC and its consultant, SAIC, reviewed the TVA employee concern. NRC requested a definition of the plan and schedule to review the surge suppression networks

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and an explanation of how correct inductive current ratings would be determined by the TVA field inspectors.

The TVA response of October 7, 1987 stated that PIDG terminals could be successfully crimped on stranded wire connectors but not on solid wire connectors. As a result, a TVA work request was issued by construction which requested inspection of all surge suppression networks for Sequoyah Unit 2. The work request provided specific instructions to look for the use of insulated ring tongue connector on solid leads. All suppression networks found with this condition requiring rework have been corrected and verified by TVA. In addition, Bechtel randomly reviewed the TVA corrective action and verified the TVA results.

#### IV. CONCLUSION

Based on our review, we find the employee concern was valid and that the TVA's investigation, evaluation and corrective actions resolve the employee concern as described in EN-24102, Revision 2.