



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS
EMPLOYEE CONCERN ELEMENT REPORT 21301
"INADEQUATE MANAGEMENT CONTROL AND STATUS LISTING OF
AC AND DC ELECTRICAL LOADS,
INCLUDING DIESEL GENERATOR MARGINS"
TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-327 AND 50-328

I. SUBJECT

Category: Engineering
Subcategory: Electrical Procedures (21300)
Element: Inadequate Management, Control and Status Listing of AC and DC Electrical Loads, Including Diesel Generator Margins (21301)
Employee Concern: WI-85-100-010 and XX-85-122-030, 031, 032

Element Report 21301, Revision 2, prepared January 5, 1987, involves an employee concern stating, "Inadequate management, control and status listing of AC and DC electrical loads, including diesel generator loads. This involves inadequate control of or preparation of, calculations for loads, and inadequate management and control of load margins, including electrical loads and mechanical loads (heat, BHP, etc.) that translate into electrical loads."

II. SUMMARY OF ISSUE

The employee concern raises issues regarding the adequacy of TVA electrical calculations, electrical loads definition and control by TVA. TVA performed several internal audits and investigations into this concern and had an external technical investigation of this concern. Sargent and Lundy and Gilbert/Commonwealth performed the external reviews. The internal and external reviews substantiated the employee concerns for the Sequoyah Nuclear Power Plant. Moreover, it was also determined that the employee concern is generic to all TVA plants. TVA reviews found that:

- a. There is no adequate system to ensure that calculations performed by the electrical engineering branch are updated or appropriately revised.
- b. Many electrical calculations were not formally prepared nor retrievable.

III. EVALUATION

NRC and its consultant, SAIC, reviewed the employee concern and the TVA findings. Employee concern reports EN-20501 and 20502 addresses the concern regarding programmatic inadequacy with regard to preparation and control of calculations. During a March, 1987, visit to the TVA Knoxville offices, NRC reviewed the Sequoyah 6.9 KV, 480 VAC, electrical penetration and several other TVA electrical calculations. NRC confirmed that the original Sequoyah calculations were not available and that TVA was preparing the required calculation to document the adequacy of the electrical systems. These calculations either have been prepared in the last quarter of 1986, the first quarter of 1987 or were being prepared. TVA committed to complete a minimum set of electrical calculations before restart of Unit 2. NRC again visited TVA in June, 1987, to review the TVA calculations. All calculations were available for NRC review. Based on this audit, it is evident that the calculations are being performed to reasonable electrical engineering standards and practice. These calculations have shown that the installed equipment in general meets normal industry and good engineering practice. Any open item discovered during this audit will be addressed in the audit report and closed accordingly. NRC will be following these items under electrical calculation review. Diesel generator loading issue will also be addressed under that review.

IV. CONCLUSION

NRC staff concludes that the employee concerns were valid and that TVA's investigation, evaluation and corrective action plans for the concerns, as described in element report EN-21301-SQN, Rev. 2 are adequate. We also conclude that TVA's action to provide a minimum set of electrical calculations before restart is reasonable and acceptable. The NRC staff believes that implementation of these corrective actions will close the issue. NRC staff will review the TVA implementation of these actions under electrical calculation review.