



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 213.03

"INADEQUATE ELECTRICAL DESIGN CRITERIA

INADEQUATE CONSIDERATION GIVEN TO ELECTRICAL

STANDARDS AND GUIDES"

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT UNITS 1 AND 2

I. SUBJECT

Category: Engineering (20000)  
Subcategory: Electrical Procedures (21300)  
Element: Inadequate Electrical Design Criteria. Inadequate  
Consideration given to Electrical Standards and  
Guides. (21303)  
Employee Concern: WI-85-100-019

The basis for Element Report 21303 Revision 1, dated January 19, 1987, is an employee concern stating "Electrical Standards and Guides are treated as guides and are not incorporated in design criteria requirements. Electrical design criteria, where it exists, is not complete, is vague and in general is inadequate."

II. SUMMARY OF ISSUE

In 1986, TVA contracted Gilbert/Commonwealth Inc. to perform a technical review of Sequoyah modifications. Gilbert/Commonwealth concluded that design criteria were "fragmented." As a result, TVA established a Design Basis Document Program (DBDP) to update the design criteria documents and capture licensing commitments and regulations. The DBDP program had an evaluation team to review the electrical design criteria. The evaluation team found the criteria to be adequate with some exceptions. These exceptions were incorporated into the design criteria documents. The team also reviewed the Sequoyah Design Criteria Manual index and was unable to verify the existence of design criteria for: (1) Overall Plant Security System, (2) Instrumentation and Controls, (3) Communications, and (4) Lighting. Additionally, several design criteria were identified in the index but were never issued. These unissued criteria are for (5) Emergency Operations Facility, (6) Safety Related Display Instrumentation, (7) Emergency Fire Protection Communications System, and (8) Thermal Overload and Torque.

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### III. EVALUATION

Based on the material presented in EN 21303, Rev. 1, we agree with the TVA resolutions of these eight issues which are discussed below:

1. Sufficient design criteria for plant security exist in two other design documents SQN-DC-V-23.0 "Security-Power Block" and SQN-DC-V-23.1 "Electrical Security and Communication Equipment - Power Block Project."
2. TVA will issue design criteria before September 30, 1987. TVA justifies the delay as follows: (a) requirements exist in the system's design criteria, (b) I&C calculations have been evaluated for restart, (c) requirements for instrument sense lines exist, (d) no major I & C changes are planned.
3. TVA will issue communication system design criteria by December 15, 1987. Portions that are important to safety are covered by other systems.
4. TVA will issue lighting criteria by December 31, 1987. Portions are covered by other systems.
5. The TVA central emergency control center is now in Chattanooga and a site EOF is no longer required.
6. The safety-related display instrumentation has been incorporated into the post accident monitoring design criteria.
7. The criteria for fire protection communication are included in the communications system and will be revised by December 15, 1987.
8. The criteria for thermal overloads and torque will be developed and issued prior to restart.

### IV. CONCLUSION

TVA has reviewed many systems for adequate design criteria even though only electrical design criteria are addressed in the employee concern. The corrective action and time frame proposed by TVA are reasonable.

Based on our review, we find TVA's investigation, evaluation and the corrective action plans to resolve the employee concern as described in EN-21303 SQN, Rev. 1 acceptable and believe that implementation of these corrective actions will close the issue. Verification of corrective actions which TVA has identified as a restart item should be verified by NRC inspectors in a future inspection.