



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

EMPLOYEE CONCERN ELEMENT REPORT 20101

"INCORPORATION OF REQUIREMENTS AND COMMITMENTS IN DESIGN"

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT UNITS 1 AND 2

I. SUBJECT

Category: Engineering (2000)
Subcategory: 20101
Element: Incorporation of Requirements and Commitments in Design
Employee Concern: WI-85-100-001, XX-85-122-001, -002 and -003

The basis for Element Report 20101 Revision 1, dated January 23, 1987, is an Employee Concern stating, "Electrical and I&C Regulations (Reg. Guides, NUREGs, Bulletins and Notices) have been ignored and violated to a very large degree at all plants. This has been caused by a lack of knowledge, a poor attitude toward safety and regulations, and a lack of knowledge of industry positions on regulations on the part of TVA personnel."

II. EVALUATION

The TVA Employee Concern Task Group (ECTG) in their investigation of Element Report 21303, "Inadequate Electrical Design Criteria and Inadequate Consideration Given to Electrical Standards and Guides" which in part is similar to Element Report 20101, substantiated that in early 1986 TVA determined, through Gilbert/Commonwealth, Inc., reviews of Sequoyah's modifications, that the design criteria did not reflect TVA commitments made in the FSAR, responses to NRC evaluations and generic design criteria. This finding applied to Instrumentation and Controls along with other design items. As a result, TVA established a Design Basis Document Program (DBDP) to update the design criteria documents and capture licensing commitments and regulations. Further details on this overall subject are addressed in the TVA's Element Report 21303 and the NRC's Safety Evaluation Report for Employee Concern 21303.

In TVA's investigations of TVA's knowledge of appropriate regulatory guides, NUREGs, bulletins and notices in Electrical and Instrumentation and Control areas, it was determined that in general appropriate personnel were knowledgeable of design requirements and that they were familiar with the industry positions to these documents. However, it was apparent that regulatory documents committed to by TVA were not, in all cases, properly incorporated in design documents and implemented.

These findings were based on a review of NRC requirements and design documents and interviews with technical personnel. NRC through its investigations essentially agrees with the above findings.

As a result of these investigations TVA took measures to correct existing deficiencies and determine the adequacy of designs and installation of hardware. TVA has developed and implemented several corrective action programs which include the Sequoyah Design Baseline and Verification Program for assessing the adequacy of design criteria through the design basis for systems required to mitigate FSAR Chapter 15 accidents and safely shut down the plant; the Commitments/Requirements Database program for identifying, verifying and maintaining Sequoyah's licensing commitments and design requirements and providing input to reconstruct the original design basis; and the Design Basis Program for providing the Sequoyah Plant Design Basis against which proposed plant modifications can be measured.

The staff has reviewed and inspected these programs and finds that they are being implemented in an acceptable manner and that proper corrective actions have been initiated to assure that the designs and installed hardware are acceptable. Further discussion of this issue are addressed in Section 2.3.3 of Volume 2, Part 1 of NUREG-1232, "Safety Evaluation Report on TVA Sequoyah Nuclear Performance Plan."

In regard to the allegation of TVA's poor attitude towards safety and regulations, it is apparent through TVA's efforts to respond to the NRC 10 CFR 50.54(f) letter of September 17, 1985 that poor management was a significant factor in contributing towards poor attitudes and ineffective implementation of the QA program. The problem with the management of TVA's nuclear program was the widespread shortage of experienced managers. To remedy this situation, TVA has hired new experienced managers to fill key positions. Collectively, these new managers have a broad base of experience and knowledge in the design, construction, modification and operations of nuclear facilities.

Another part of the problem with TVA management was a poorly structured organization. TVA undertook a major reorganization of its nuclear program. The new organization concentrates authority for nuclear operations within a single position (Manager of Nuclear Power) and divorces nuclear operations from all non-nuclear activities within TVA. TVA has assigned the responsibility for its nuclear activities to the Manager of Nuclear Power. The concentration of responsibilities and authority in the Office of the Manager of Nuclear Power provides the incumbent with broad power to identify and correct problems with the nuclear program. TVA has stressed and emphasized the importance of management's new commitment to conduct activities in accordance with TVA's standards and regulatory requirements. To ensure this is accomplished TVA has documented its improved organizational and program changes in TVA's Corporate and Sequoyah Nuclear Performance Plans. These plans provide evidence that TVA management supports the proper implementation of the revised QA program. In addition TVA through its QA Topical Report, TVA-TR5-1A, Revision 9 has revised its QA program commitments in the areas of organization, engineering (design) assurance, technical auditing, nonconformance tracking, trend analysis, corrective actions, and root-cause analysis.

Overall the staff finds these plans and the implementation of these plans acceptable recognizing that NRC continue to inspect and monitor them. Sound corrective measures have taken place in TVA's organization management systems and QA program. In summary the staff finds the corrective measures acceptable with reasonable assurance that TVA now has the capabilities and program improvements to conduct their activities in accordance with SAR and regulatory requirements.

The staff finds these overall management and program improvements acceptable.

III. SUMMARY

Instances were identified where some TVA committed to regulatory documents were not properly incorporated in the design. Also there were examples found where TVA management expressed a poor attitude toward safety and regulations. In general, personnel were knowledgeable of those regulatory requirements referenced in design documents. Corrective action programs have been established to assure the design accurately reflects NRC requirements and that these design documents are properly maintained. Also, TVA's QA program controls and management systems have been restructured and improved to provide the necessary emphasis and direction in assuring regulatory and FSAR commitments are correctly implemented.

IV. REFERENCES

- a. Element Report 21303 "Inadequate Electrical Design Criteria and Inadequate Consideration Given to Electrical Standards and Guides."
- b. NRC Safety Evaluation Report for Employee Concern 21303.
- c. NUREG-1232 "Safety Evaluation Report on TVA Sequoyah Nuclear Performance Plan."