

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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WBRD-50-390/81-63, -391/81-59
BLRD-50-438/81-46, -439/81-49

U.S. Nuclear Regulatory Commission
Region II
ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR AND BELLEFONTE NUCLEAR PLANTS -REPORTABLE DEFICIENCY - DESIGN
REVIEW PROCESS - INTERFACE COORDINATION ACTIVITY - WBRD-50-390/81-63,
-50-391/81-59 - BLRD-50-438/81-46, -439/81-49

The subject deficiency was initially reported to NRC-OIE, Region II, Inspector R. V. Crlenjak on July 17, 1981 as Audit JA 8100-03 Findings 0-1 and 0-2. Further TVA review of Finding 0-2 concluded that the finding was not significant and should not have been reported to NRC. This conclusion was discussed with and approved by Inspector Don Quick on August 11, 1981. In compliance with paragraph 50.55(e) of 10 CFR Part 50, enclosed is our final report on the subject deficiency.

If you have any questions, please call Ralph Shell at FTS 858-2676.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D S Kammer

for L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc (Enclosure):

Mr. R. C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE
WATTS BAR AND BELLEFONTE NUCLEAR PLANTS
DESIGN REVIEW COORDINATION
10CFR50.55(e) REPORT NO. 7 (FINAL)
AUDIT JA8100-03, FINDING 0-1

Description of Deficiency

TVA's Division of Engineering Design (EN DES) commitments to 10CFR50 Appendix B, Criterion V, and ANSI N45.2.11-1974, as translated into the QA program description, in applicable plant safety analysis reports and TVA Topical Report TR75-1, and EN DES engineering procedures (EPs) related to design review process and in particular interface coordination activities, require the EN DES section supervisor to determine whether a document requires "squadchecking" and puts the responsibility of ensuring that all the required interface coordination has been accomplished on the checker.

However, contrary to the above commitments and requirements, EN DES has not clearly defined the basis on which the determination by the supervisor and the assurance by the checker is made nor has the division established measures to control this activity. Hence, any given TVA drawing could have been issued without proper interface coordination and/or without initials by organizations within EN DES that are affected.

Safety Implications

If design documents were not properly reviewed, deficiencies might not be discovered which could result in the installation and use of an improperly designed structure, system, or component and, thereby, adversely affect the safety of operations of the plant.

Corrective Action

A memorandum was issued on November 9, 1981, from the EN DES Manager to the affected branch chiefs and design project managers reminding them of the existing requirements of EN DES-EP 1.28, "Control of Documents Affecting Quality," (originally issued January 3, 1978, now on revision 5, issued August 11, 1983). This EP specifies that before issuance, each design document shall be checked for verification of content, interface effects, suitability of materials for their application, format, and identification. This procedure also requires that design documents which may affect other design sections or require specialized knowledge for adequate, independent verification shall be reviewed by those other organizations. The EN DES Manager's memorandum clarifies the EP 1.28 review requirements which must be adhered to in addition to those spelled out in the procedures governing specific design documents.

Belton

TVA has in the past and continues to take the position that its final design adequately reflects the intent as defined by the PSARs, FSARs, and SERs on all of its nuclear plants operating and under construction. This position is supported by the results of the many audits and reviews performed on our plants such as:

Watts Bar (WBN) - Black and Veatch
Bellefonte (BLN) - Institute for Nuclear Power Operations (INPO)
BLN - NRC Construction Appraisal Team (CAT)
WBN & BLN - NRC-OIE on-site inspections

While each of these audits/reviews have resulted in findings, none have identified what we believe to be deficiencies attributed to a major design program breakdown.

It is, therefore, TVA's position that no additional reviews of past designs for our nuclear plants need be performed. We have, however, seen the need to evaluate our design program to determine what improvements can be made to our design review process in order to reduce the number of random deficiencies which arise. In order to accomplish this review, the TVA Office of Engineering Design and Construction (OEDC) established an Action Plan for Quality Improvement. EN DES, as part of this plan, initiated a comprehensive analysis of the EN DES design control process. The action team assigned to this task made three recommendations which, in combination with the design process in place, would improve the quality of TVA's design output. The recommendations of the Design Control Action Team were:

1. Prepare a formal description of the design processes and use that description as the basis for training in the division.
2. Improve the surveillance of the design process through the initiation of design evaluations and detail technical evaluations.
3. Identify to the Task Force on Staffing and Training the areas in which expanded training is needed.

The Division is implementing these three recommendations by preparing both a formal report which will describe the design process and procedures, EN DES EPs 3.57, "Design Evaluations," and 3.58, "Detail Technical Evaluations," which direct the performance of design evaluations and detail technical evaluations. The report and the procedures are scheduled to be issued by October 21, 1983. These procedures will then be included in the training on EPs on the normal training schedule.

The design evaluations will be multi-discipline system reviews and are intended to ensure that (1) design requirements are understood and are being met, (2) design inputs are adequately established, defined, and are being controlled, and (3) outputs are understandable to the user. Detail technical evaluations on the other hand will be conducted on selected systems, subsystems, or design details at key steps in the design process and will assess the technical adequacy of the design output. Both types of evaluations are in addition to the design verification reviews we presently perform.

TVA believes the above changes will resolve the subject coordination deficiency. These changes to the design review process will be implemented by January 1, 1984.