TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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October 24, 1984

BLRD-50-438/82-21
BLRD-50-439/82-19

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - SEISMIC ANALYSIS OF THE AUXILIARY-CONTROL BUILDING - BLRD-50-438/82-21, BLRD-50-439/82-19 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Ross Butcher on February 26, 1982 in accordance with 10 CFR 50.55(e) as NCR BLN CEB 8201. This was followed by our interim reports dated March 26, July 22, September 20, and December 22, 1982 and June 15, 1983 and June 14, 1984. Enclosed is our final report. Please note that a several day delay of this submittal was discussed with Inspector S. Weise on October 19, 1984.

If you have any questions concerning this matter, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D S Kammer

for L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
SEISMIC ANALYSIS OF THE AUXILIARY-CONTROL BUILDING
NCR BLN CEB 8201
BLRD-50-438/82-21, BLRD-50-439/82-19
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The original seismic analysis of the Bellefonte Nuclear Plant (BLN) Auxiliary-Control Building was performed in 1973 and was based on issued concrete general outline feature drawings that were not intended for use by the Division of Construction (CONST). Subsequently, outline drawings for use by CONST were issued and, in portions of the building, significant changes in the structural configuration were made. However, the seismic analysis personnel were unaware of the changes made by the later drawings. While assessing the potential changes in the original seismic analysis, that the location of the postaccident sampling facility in this structure would make, the discrepancy between the original and later outline drawings was noted. Preliminary investigations indicate potential significant changes in the structural responses. Consequently, the results of the present seismic analysis do not adequately reflect those of the current geometry. A revised seismic analysis is required.

The cause of the deficiency was a failure to coordinate design changes with appropriate organizations in accordance with the Office of Engineering (OE) Engineering Procedure EP 4.01.

Safety Implications

Because the changes to the structural configuration of the Auxiliary Control Building increased torsional loading and significantly changed the response spectra, this situation if left uncorrected could have subjected safety-related piping and equipment located above elevation 686 feet to seismically induced loads which could have exceeded design considerations. These unexpected loads could then have damaged the piping and/or equipment and could have adversely affected safe plant operation.

Corrective Action

A revision to the original seismic analysis has been completed. Design review meetings with all affected organizations have been held to formally discuss this new analysis and required design. Construction modifications have been completed, as has an evaluation of all other BLN category I structures. The modifications required by this analysis were the addition of two walls from elevation 686 feet to elevation 704.5 feet, and these modifications were performed through engineering change notice (ECN) 1561. The evaluation of the other category I st[illegible]ures indicates that the as-built configuration of these structures is consistent with the configuration used in the seismic analysis.

To prevent a recurrence of this problem, OE-EP 3.02 has been revised to supplement EP 4.01 and to assure that all drawings affecting the seismic analysis of category I structures are coordinated with seismic analysis personnel when changes are made to the drawings.