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

August 3, 1983

BLRD-50-438/81-35
BLRD-50-439/81-38

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

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - AUXILIARY BUILDING FUEL HANDLING ZONE VENTILATION FANS - BLRD-50-438/81-35, BLRD-50-439/81-38 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on May 6, 1981 in accordance with 10 CFR 50.55(e) as NCR BLN BLP 8111. This was followed by our interim reports dated June 5 and December 14, 1981, June 11, and September 28, 1982, and February 16, 1983. Enclosed is our final report.

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

L. M. Mills by RHS

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

OFFICIAL COPY
IE 27
1/1

ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
AUXILARY BUILDING FUEL HANDLING ZONE VENTILATION FANS
NCR BLN BLP 8111
BLRD-50-438/81-35, BLRD-50-439/81-38
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The auxiliary building fuel handling zone ventilation supply air fans are mounted inside the common zone air intake plenums on elevation 686' along with hot water heating coils and chilled water cooling coils. Since these fans provide ventilation and cooling of fuel handling engineered safety features (ESF) zones, they are safety related. The heating and cooling coils are not qualified for seismic conditions since they were purchased nonseismic. Seismic qualification became necessary as the design evolved and it became apparent that the coils would be installed in the same plenum as ESF fans.

Safety Implications

During a seismic event, a hot water heating coil or chilled water cooling coil could rupture causing flooding of the air intake plenum and subsequent failure of both fuel handling zone ventilation supply air fans. Loss of ventilation supply air and cooling could occur during a safe shutdown earthquake (SSE) or a design basis accident (DBA).

Corrective Action

A contract was awarded to the coil manufacturer to provide seismic qualification for both the hot water heating coils and the chilled water cooling coils (reference requisition No. 831434, N4M-682). Results of the coil manufacturer's seismic analysis required structural modifications of the coil support frame to upgrade and qualify the coils to seismic category I(L) and also provided maximum allowable nozzle loads at the coil/piping interface connections. Reanalysis of hot water and chilled water pipe support configurations at each coil/pipe interface connection by TVA indicates that the presently designed supports are adequate for the maximum allowable nozzle loads (Reference "Seismic Qualification of Heating Coil Nozzles" and revised calculation BLN-VF-D053-11R3 for "Seismic Qualification of Cooling Coil Nozzles.") To qualify the coils to seismic category I(L) the coil manufacturer's hot water and chilled water coil drawings including auxiliary building heating and ventilation construction drawings have been revised under engineering change notice (ECN) 1895 to add the required coil support frame structural modifications and appropriate drawing references. This work will be completed for both units by January 1, 1984.

This deficiency is an isolated occurrence with no additional action required to prevent recurrence since no more coils will be purchased. However, all personnel engaged in the submitting of equipment procurement requests have been advised to pay closer attention to system design requirements.