

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

August 11, 1972

Mr. Frank E. Kreusi, Director
Directorate of Regulatory Operations
United States Atomic Energy Commission
Washington, DC 20545

Dear Mr. Kreusi:

Westinghouse Electric Corporation has informed us that recent testing of ice baskets associated with the Westinghouse ice condenser containment design resulted in structural failure. We do not consider this failure a design deficiency as defined by AEC regulations [10 CFR 50, 50.55 (c)] since the irregularity was discovered during a preinstallation test at the vendor's site, and the design is not finalized until the preinstallation tests have been satisfactorily completed. However, since our Sequoyah Nuclear Plant (Docket Nos. 50-327 and 50-328) utilizes the ice condenser containment, we would like to make you aware of this matter.

From December 1966 through December 1968, functional steam blow-down tests were performed using baskets made from 12-1/2-gauge wire on 1-inch by 1-inch centers. These tests, reported in WCAP-7183 and supplements 1 and 2, demonstrated the structural and functional adequacy of this design.

Subsequent developments of the ice condenser resulted in the modification of the basket design to 14-gauge wire on 1-inch by 2-inch centers. This change was justified, based on an analytical evaluation of the required strength where the vertical wires were subjected to column loading. However, the analytical evaluation did not adequately consider that eccentric and shear loads contribute to column instability.

Recently, preinstallation ice loading tests were performed at Westinghouse's Waltz Mill site to confirm the basket design. During these tests, it was noted that after ice loading of a complete basket column (48 feet) the bottom basket began to buckle and with melting of the bottom portions of the ice column (approximately 12 inches) the basket buckled. The baskets were manufactured in accordance with design specifications, and quality assurance was performed to assure specifications were met. Therefore, it is concluded that manufacturing deviations did not contribute to this failure.

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Mr. Frank E. Kreusi

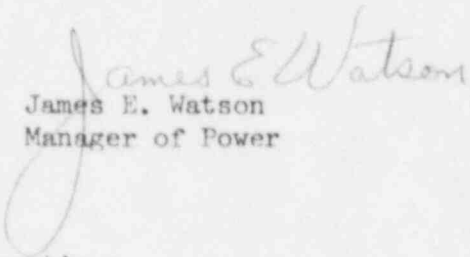
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To correct this inadequacy, all baskets will be replaced using the initial 12-1/2-gauge wire on 1-inch by 1-inch centers. As described previously, these baskets have been tested under actual blowdown conditions and, in addition, tests have been conducted where ice melting was simulated while under equivalent horizontal and vertical earthquake loads.

An initial production run of new baskets will be retested to confirm the structural adequacy.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


James E. Watson
Manager of Power

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