

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE
37401



April 15, 1974

Mr. V. A. Moore, Assistant Director
for Light Water Reactors, Group 2
Directorate of Licensing
United States Atomic Energy Commission
Washington, DC 20545



Dear Mr. Moore:

In the Matter of the Applications of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

By letter dated November 21, 1973, we proposed a change in criteria for the design of the concrete divider barrier for the Watts Bar containments which involved dropping a working stress method approved during the CP review. You informed us that our proposed load factor design approach would be unsatisfactory and stated that any criteria other than those committed to in the PSAR should be at least as conservative as the Structural Engineering Branch's position, transmitted to us by letter dated January 16, 1974.

TVA accepts the criteria outlined in that position, a copy of which is enclosed for reference.

Very truly yours,

J. E. Gilleland
Assistant to the Manager of Power

Enclosure



FOR

LOADS, LOAD COMBINATIONS AND ALLOWABLE STRESSES

FOR

*CONCRETE DIVIDER BARRIERS OF ICE-CONDENSER CONTAINMENTS

SERVICE LOAD CONDITIONSNormal Condition (1) $S = 1.0 D + 1.0 L + 1.0 T_o + 1.0 R_o + 1.0 E$ Equiv. Test Condition (2) $S = 1.0 D + 1.0 L + 1.0 P_a$ FACTORED LOAD CONDITIONSExtreme Environmental (3) $U = 1.0 D + 1.0 L + 1.0 T_o + 1.0 R_o + 1.0 E'$ Abnormal (4) $U = 1.0 D + 1.0 L + 1.5 P_a + 1.0 T_a + 1.0 R_a$ (5) $U = 1.0 D + 1.0 L + 1.25 P_a + 1.0 T_a + 1.0 R_a + 1.0 (Y_r + Y_j + Y_m)$ Abnormal/Severe Environ. (6) $U = 1.0 D + 1.0 L + 1.25 P_a + 1.0 T_a + 1.25 E + 1.0 R_a + 1.0 (Y_r + Y_j + Y_m)$ Abnormal/Extreme Environ. (7) $U = 1.0 D + 1.0 L + 1.0 P_a + 1.0 T_a + 1.0 E' + 1.0 R_a + 1.0 (Y_r + Y_j + Y_m)$

NOTE: In (4), (5), (6) and (7), the time lag between the peak values of T_a , P_a , R_a , Y_r , Y_j and Y_m can be considered, provided a proper time-history dynamic analysis is performed.

NOMENCLATURE

D ---- Dead loads, or their related internal moments and forces.

*Steel portions of the divider barrier shall be designed in accordance with AISC Section III, Subsection ME.

- L --- Live loads, or their related internal moments and forces.
- P_a --- Accident maximum differential pressure across compartments.
- T_o --- Operational temperature loads, including thermal gradients across walls and slabs.
- T_a --- Accident temperature loads, including thermal gradients across walls and slabs, and including T_o .
- E --- Operating Basis Earthquake or 1/2 SSE.
- E^s --- Safe Shutdown Earthquake or DBE.
- R_o --- Piping reactions during operating conditions.
- R_a --- Piping reactions due to increased temperature resulting from the design accident, and including R_o .
- Y_r --- Reaction load on broken pipes due to fluid discharge.
- Y_j --- Jet impingement on walls or slabs due to fluid discharge.
- Y_m --- Missile impingement load on walls or slabs.
- S --- Concrete section capacity at service load stresses given in CC-3420 of ASME-ACI-359. Concrete and reinforcement stresses may not be increased by 33-1/3% for seismic conditions. Reinforcement stresses may be increased by 33-1/3% for test conditions.
- U --- Concrete section capacity at factored load stresses given in CC-3410 of ASME-ACI-359.