SNUPPS
Standardized Nuclear Unit
Power Plant System

5 Choke Cherry Road
Rockville, Maryland 20850
(301) 869-8010

Nicholas A. Petrick
Executive Director

September 16, 1981

SLNRC 81-104 FILE: 0541
SUBJ: MEB Review

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Docket Nos. STN 50-482, STN 50-483, and STN 50-486

Reference: SLNRC 81-95, dated September 9, 1981, NRC Request for Information - Mechanical Engineering

Dear Mr. Denton:

The referenced letter provided information that was requested by the NRC's Mechanical Engineering Branch. In discussions with Dr. Gordon Edison it was determined that changes to that information were required. The attached FSAR page 3.6-10 replaces the same page included with the reference. This page will be included in the next FSAR revision.

Very truly yours,

Nicholas A. Petrick

RLS/mtk

Enclosure

cc: J. K. Bryan UE
D. F. Schnell UE
G. L. Koester KGE
D. T. McPhee KCPL
T. E. Vandel NRC/WC
W. A. Hansen NRC/CAL

B001
S
1/1

MEB
Q-210.2

in order to verify the design basis break locations in the reactor coolant loop noted therein.

At all postulated circumferential break locations, the maximum loop piping displacements, as determined by the dynamic RCS analysis or the location of pipe restraints, are such that the separation results in a limited flow area.

For all postulated circumferential breaks, hydraulic forcing functions associated with full double-ended breaks are assumed in the RCS structural analysis except for the reactor vessel inlet and outlet nozzle breaks. At these locations the break area is limited to approximately one square foot. This reduced break area is justified based on the configuration of the plant. Specifically, reactor coolant piping restraints located in the shield wall annulus (as described in Section 5.4.14) limit the movement of the reactor coolant pipe such that a full double-ended break could not develop.

When performing other plant analyses such as the RCS piping jet impingement analyses and containment mass and energy release calculations, limited break areas are assumed at all other postulated circumferential break locations in the RCS. The application of limited break areas is based on RCS piping restraint design, primary component support design, and maximum calculated RCS displacements. The Westinghouse-designed RCS restraints and primary component supports physically limit RCS displacement following a postulated pipe break. Generic analyses performed by Westinghouse were used to determine conservative upper bound values of maximum break opening areas at each postulated break location in the Westinghouse RCS. These limited break areas were used in the SNUPPS jet impingement and containment mass and energy release analyses. Longitudinal breaks are assumed to have an opening area equal to one flow area of the pipe.

2. Pipe breaks are postulated to occur in the following locations in Class 1 piping runs or branch runs outside the primary reactor coolant loops and pressurizer surge line as follows:

   (a) The terminal ends of the piping or branch run.

   (b) Any intermediate locations between the terminal ends where stresses, calculated using equations (12) and (13) of the ASME B&PV Code, Section III, Subsection NB, exceed 2.4 Sm, where Sm is the design stress intensity, as given in the ASME B&PV Code, and the stress range calculated, using equation (10) of the ASME B&PV code, exceeds 2.4 Sm.

   (c) Any intermediate locations between terminal ends where the cumulative usage factor, derived from the piping fatigue analysis, under the loadings associated with the OBE and operational plant conditions, exceeds 0.1.