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SUBJECT: Forwards WCAP-12012 & proprietary WCAP-12011, "Technical Justification for Eliminating Large Primary...."

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Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - ELIMINATION OF PRIMARY LOOP PIPE BREAKS

- References:
1. 10 CFR 50, Appendix A, General Design Criterion 4
 2. NUREG-1061, Volume 3, dated November 1984
 3. Standard Review Plan 3.6.3 (Proposed), published in the Federal Register, Volume 52, No. 167, on August 28, 1987
 4. NRC Question/Response 5.18 on Final Safety Analysis Report, Section 5.2.7, "Reactor Coolant Pressure Boundary Leakage Detection Systems"
 5. Quality Information Release SQP-SQN-88-789, revision 0
 6. NRC Safety Evaluation Report, NUREG-0011, section 5.2.4, dated March 1979

The enclosed documents reflect analyses performed by TVA and its contractor in accordance with the requirements established in references 1, 2, and 3 to demonstrate the applicability of leak-before-break (LBB) technology to SQN units 1 and 2. Based upon these submittals and in recognition of the current NRC regulatory stance relative to postulated primary loop pipe breaks contained in reference 1, TVA requests approval to eliminate these postulated breaks from the structural design basis for these units.

In performing these analyses, the guidance provided by NRC in references 2 and 3 was followed. Specific compliance with the detailed technical requirements relative to evaluation for potential erosion/corrosion, water hammer, water chemistry, and intergranular stress corrosion cracking (IGSCC) is addressed in the fracture mechanics study (enclosures 1 and 2).

Design measures taken to prevent or mitigate the potential effects of indirect causes of damage such as fire, flooding, missiles, seismic events, and overpressurization are discussed in SQN Final Safety Analysis Report (FSAR), sections 3.4.1, 3.5, 3.7, 3.9.2.4, 5.2.2, and 9.5.1. These measures are consistent with NRC guidance. It can be concluded from a review of these sections that adequate measures have been taken to reduce to an acceptably low probability the likelihood of these events resulting in degradation or failure in the SQN primary loop piping.

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MAR 30 1989

U.S. Nuclear Regulatory Commission

The existing leakage detection capabilities are described in reference 4. These systems were reviewed previously by the staff as documented in reference 6. An additional evaluation was performed in support of the LBB effort (reference 5). It was concluded that the SQN leakage detection capabilities are equivalent to those required by Regulatory Guide (RG) 1.45 as stipulated in reference 3. Regarding the specific intent of RG 1.45, it should be noted that, in lieu of following the RG 1.45 recommendation that the containment air radioactivity monitors be functional following a safe shutdown earthquake (SSE) event, SQN has opted to install a sump level monitoring system that is qualified to remain functional following an SSE event.

Following approval of this submittal by NRC, TVA will submit proposed revisions to the SQN FSAR to reflect application of LBB in the design basis. As stipulated in reference 1, no credit for elimination of the primary loop pipe breaks will be taken toward mitigation of containment global design or equipment qualification requirements or toward reduction of emergency core cooling system design requirements.

The principal advantage to be gained at this time from elimination of the primary loop pipe breaks at SQN is the reduction of rupture loads on the primary component supports. This reduction will permit the resolution of previously identified nonconformances with regard to the reactor coolant pump support columns. TVA has committed to resolve these nonconformances by the end of September 1990.

Dynamic loadings on other component supports will also be reduced. A significant feature of ice condenser plants is the response of the steel containment vessel (SCV) to dynamic local pressurizations caused by large pipe breaks. Elimination of these breaks will not change the design basis of the SCV or affect the manner in which global thermal and pressurization effects are considered, but it will allow recalculation of the dynamic response using the next most severe postulated pipe break events. This in turn will be considered in qualifying component supports attached to the SCV and will allow TVA to minimize the number of hardware modifications required to resolve postrestart commitments in this area.

Credit for the elimination of primary loop pipe breaks may also be taken in the design of piping attached to the primary loop, should that piping be reanalyzed in the future for snubber reduction or other reasons.

Any additional applications that may be identified will be reflected in revisions to the appropriate design and licensing documents before implementation.

Enclosed are:

1. Westinghouse Electric Corporation WCAP-12011 (enclosure 1), "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Sequoyah Units 1 & 2," dated October 1988 (proprietary).

U.S. Nuclear Regulatory Commission

MAR 30 1989

2. Westinghouse WCAP-12012 (enclosure 2), "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for Sequoyah Units 1 & 2," dated October 1988 (nonproprietary).
3. Enclosure 3 is a Westinghouse application for withholding proprietary information from public disclosure, CAW-88-113, with accompanying affidavit and proprietary information notice.

Because this submittal contains information proprietary to Westinghouse, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR, section 2.790, of the Commission's regulations.

Accordingly, it is respectfully requested that the information, which is proprietary to Westinghouse, be withheld from public disclosure in accordance with 10 CFR, section 2.790, of the Commission's regulations. Correspondence with respect to the proprietary aspects of the application for withholding or the supporting Westinghouse affidavit should reference CAW-88-113 and should be addressed to R. A. Wiesemann, Manager, Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230.

The staff is requested to review these submittals at their earliest convenience in order to permit immediate implementation.

Enclosure 4 contains the commitment contained in this submittal.

If you have any questions, please telephone E. T. Knuettel at (615) 843-7215.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



R. Gridley, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 4

MAR 30 1989

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cc (Enclosures 2, 3, and 4):

Ms. S. C. Black, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Ms. L. J. Watson, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Sequoyah Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Enclosure 3

Westinghouse Application For Withholding Proprietary
Information from Public Disclosure
CAW-88-113
Accompanying Affidavit and Proprietary Information Notice