

**DUKE POWER COMPANY**

P.O. BOX 33189  
CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

December 20, 1983

TELEPHONE  
(704) 373-4531

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

Attention: Ms. E. G. Adensam, Chief  
Licensing Branch No. 4

Re: Catawba Nuclear Station  
Docket Nos. 50-413 and 50-414

- References: 1) Letter from W. H. Owen (Duke Power Company) to  
W. J. Dircks (NRC), dated September 19, 1983
- 2) Letter from H. R. Denton (NRC) to W. H. Owen  
(Duke Power Company), dated October 17, 1983
- 3) Letter from H. B. Tucker (Duke Power Company)  
to H. R. Denton (NRC), dated November 18, 1983

Dear Mr. Denton:

References 1) and 3) informed the NRC that Duke Power Company was evaluating the technical feasibility and potential benefits of eliminating postulated pipe breaks in the Reactor Coolant System (RCS) primary loop from the structural design basis of the Catawba Nuclear Station. As a result of efforts by Westinghouse, the NRC, and Duke Power, we have concluded that it is technically feasible to eliminate these postulated pipe breaks. In addition, Westinghouse has assured Duke Power Company that the generic information previously submitted to the NRC to justify the elimination of RCS primary loop pipe breaks is applicable to the Catawba Nuclear Station.

As a result of the above developments, and in accordance with the statement in Reference 2) that applications related to the leak-before-break pipe failure concept will be permitted prior to the NRC completing all of the changes in regulatory requirements, this letter is submitted. Duke Power hereby requests NRC approval for application of the "leak-before-break" concept to the Catawba Nuclear Station to eliminate postulated pipe breaks in the RCS primary loop from the plant structural design basis. A specific plant applicability report is included as Enclosure A to this letter. Because of the proprietary nature of this report, Enclosure A has been provided only to the addressee and Mr. James P. O'Reilly of the NRC. A non-proprietary version of the specific plant applicability report is included as Enclosure B and has been provided to others on the attached distribution list.

As Enclosure A contains information proprietary to Westinghouse Electric Corporation, it is supported by the attached letter (Attachment 1) and 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

8312300220 831220  
PDR ADOCK 05000413  
A PDR

the considerations listed in paragraph (b)(4) of 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-83-106, and should be addressed to R. A. Wieseemann, Manager, Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230.

Implementation of the leak-before-break concept will have the following effects on the structural design for Catawba Nuclear Station:

- 1) Eliminate the need to postulate circumferential and longitudinal pipe breaks in the RCS primary loop (hot leg, cold leg, and cross-over leg piping).
- 2) Eliminate the need for associated pipe whip restraints in the RCS primary loop and eliminate the requirement to design for the structural effects associated with RCS primary loop pipe breaks including jet impingement.
- 3) Eliminate the need to consider dynamic effects and loading conditions associated with previously postulated primary loop pipe breaks. These effects include blowdown loads, jet impingement loads, and reactor cavity and subcompartment pressurization.

Employment of the leak-before-break concept would not eliminate pipe breaks in the RCS primary loop as a design basis for the following:

- 1) Containment design
- 2) Sizing of Emergency Core Cooling System
- 3) Environmental qualification of equipment
- 4) Supports for heavy components

The crack sizes and resultant flows from the leak-before-break analysis will be used when reactor cavity and subcompartment pressurization data are revised.

The impact on important design aspects of implementing leak-before-break on Catawba Nuclear Station has been evaluated by Duke Power and is summarized in Attachment 2. A detailed list of affected pipe whip restraints is provided in Attachment 3. Duke Power has also evaluated the potential cost savings and operational benefits that result from the elimination of postulated pipe breaks in the RCS primary loop. A summary of the potential benefits which can be realized specifically from the elimination of these pipe breaks for Catawba Unit 2 is provided in Attachment 4. Note that these benefits total at least \$2 million and involve an estimated 600 man-rem dose reduction over the life of Unit 2. Implementation of the leak-before-break concept will therefore be cost-effective as well as technically justifiable while resulting in improved overall plant safety.

Mr. Harold R. Denton, Director  
December 20, 1983  
Page 3

Enclosure C consists of the revised Catawba FSAR pages associated with the elimination of RCS primary loop breaks, and it will be included in Revision 9 to the FSAR. This current request is for implementation on Unit 2 only; Duke Power will submit additional information prior to implementation on Unit 1.

Construction completion of the RCS primary loop pipe whip restraints at Catawba Nuclear Station Unit 2 is on hold pending an NRC ruling on this proposal. In order to realize the maximum advantage from the elimination of RCS primary loop ruptures, we request a decision by February 15, 1984.

If I can be of further assistance, or if a meeting with the Staff is deemed beneficial for a final resolution of this matter, please contact me.

Very truly yours,

*H. B. Tucker / HBT*

Hal B. Tucker

ROS/php

Attachment

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

NRC Resident Inspector  
Catawba Nuclear Station

Mr. Robert Guild, Esq.  
Attorney-at-Law  
P. O. Box 12097  
Charleston, South Carolina 29412

Palmetto Alliance  
2135 1/2 Devine Street  
Columbia, South Carolina 29205

Mr. Jesse L. Riley  
Carolina Environmental Study Group  
854 Henley Place  
Charlotte, North Carolina 28207