Duke Power Company
Catawba Nuclear Generation Department
4800 Concord Road
York, SC 29745

M.S. Tuckman
Vice President
(803)831-3205 Office
(803)831-3426 Fax

DUKE POWER

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Additional Information Supporting Catawba Unit 1 Operation for the Remainder of Cycle 7

On April 1, 1993, Catawba Nuclear Station met with the NRC staff to discuss technical information which Catawba submitted to support the Interim Plugging Criteria (IPC) which was granted by the NRC on September 25, 1992 for Catawba Unit 1 Cycle 7. In this meeting, Catawba presented information which demonstrated that Catawba Unit 1 is capable of safe operation to the end of cycle (EOC) 7 without a mid-cycle inspection. At the conclusion of this meeting, the NRC staff requested and Catawba committed to submit further information to quantify main steam line break steam generator leak rate and the associated dose consequences. Enclosed is the information requested with summaries of the assumptions and methodology used.

Enclosed is a report from Westinghouse which provides Steam Line Break (SLB) analyses based on the assumption of a constant average leak rate at the +2 sigma uncertainty level for the measured data independent of bobbin probe voltage. This report assesses SLB leak rate sensitivity to the probability of leakage and the constant leak rate value used in the analyses. A total of four cases are evaluated. Combining the probability of leakage greater than 0 with a 10 liter/hr average leak rate leads to a bounding estimate of potential SLB primary-to-secondary leakage at EOC 7 of 0.11 gpm.

This report also shows that by statistical assessments the significance level of a correlation between SLB leakage and bobbin voltage is greater than 99.9%. Thus, a leak rate correlation rather than an average leak rate should be applied in determining postulated SLB leakage. As noted within WCAP-13494, Rev. 1, both deterministic and Monte Carlo analyses show that SLB leak rates at EOC 7 are negligible, with less than 0.1 gpm compared to the 1.0 gpm SLB leak rate accident analysis assumption in the Catawba SAR.

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This report contains information which is proprietary to Westinghouse. Please refer to the attached Westinghouse letter, ET-NRC-93-3861, which requests that this information be withheld from public disclosure. As stated in this letter, Westinghouse expects to fully comply with the requirements for the proprietary and non-proprietary versions of the information and an accompanying affidavit within four weeks.

In addition, enclosed is Duke Power SLB dose analysis methodology and results, performed in accordance with Standard Review Plan criteria. This enclosure shows that the results are within the relevant 10 CFR 100 limits.

I declare under penalty of perjury that these statements are true and correct to the best of my knowledge.

Very truly yours,

M. S. Tuckman

RKS/

Enclosures

xc: Mr. S. D. Ebneter
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

Mr. Heyward Shealy, Chief
Bureau of Radiological Health
South Carolina Department of Health &
Environmental Control
2600 Bull Street
Columbia, SC 29201

Mr. W. T. Orders
NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert E. Martin, Project Manager
ONRR

Mr. William T. Russell, Associate Director
Inspection & Technical Assessment
ONRR

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
The Exchange, Suite 245
270 Farmington Avenue
Farmington, CT 06032

M & M Nuclear Consultants
1166 Avenue of the Americas
New York, NY 10036-2774

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

Duke Power Company
Catawba Nuclear Station
Dose Analysis Results for MSLB Related to Interim Plugging Criteria

A main steam line break dose analysis was performed for Catawba Nuclear Station using the Standard Review Plan methodology (Section 15.1.5). Two cases were analyzed, including: 1) pre-existent iodine spike (assuming 60 µCi/gm I-131 dose equivalent as allowed in the Catawba Technical Specifications), and 2) accident-initiated iodine spike, with reactor coolant system iodine concentration based on a release rate from the fuel pins of 500 times greater than the release rate corresponding to the iodine concentration at the equilibrium value stated in the Technical Specifications. A breathing rate in accordance with Regulatory Guide 1.4 was used, as well as an atmospheric dispersion factor calculated for Catawba based on ground level releases.

For the intact steam generators (i.e., the steam generators not affected by the steam pipe break), a partition coefficient of 100 was used. Steam releases from the intact steam generators were calculated from core decay heat values (calculated with ANSI/ANS-5.1 methodology) and a reactor coolant system cooldown rate, assuming that all heat is dissipated by steaming the intact steam generators. For both the faulted and intact steam generators, it has been assumed that pre-existing primary to secondary leakage occurs at the maximum value allowed by Catawba Technical Specifications per steam generator, and that an increase in primary to secondary leakage occurs in the faulted steam generator upon initiation of the accident. Dose results for two increased leakage values are presented below. The first table presents dose results with an increased leakage value equal to 0.11 gpm, and the second table represents a value of 0.82 gpm. Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) results are presented for each case, as well as whole body and thyroid dose results.

Table 1 (0.11 gpm Increased Primary to Secondary Leakage)

Calculation Type	Whole Body (Rem)	Pre-existent Iodine Spike (Rem)	Accident-Initiated Iodine Spike (Rem)
EAB (2 Hour)	5.87E-1	9.94E-1	6.14E-1
LPZ (8 Hour)	3.2E-1	5.73E-1	1.38

Table 2 (0.82 gpm Increased Primary to Secondary Leakage)

Calculation Type	Whole Body (Rem)	Pre-existent Iodine Spike (Rem)	Accident-Initiated Iodine Spike (Rem)
EAB (2 Hour)	2.13	5.87	3.64
LPZ (8 Hour)	1.16	3.28	8.02

Catawba Technical Specification reactor coolant system iodine activity is 1 µCi/gm I-131 dose equivalent, as opposed to the value of 60 µCi/gm used for the pre-existent iodine

spike cases above. To obtain the dose results for Technical Specification coolant activity, the pre-existent iodine spike case results may be reduced by a factor of 60.