Duke Power Company
P.O. Box 1006
Charlotte, NC 28201-1006

M. S. Tuckman
Senior Vice President
Nuclear Generation
(704)382-2200 Office
(704)382-4360 Fax

DUKE POWER

April 10, 1996

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Catawba Nuclear Station
Docket Numbers 50-413 and -414
Proposed Change to MSSV Technical Specification
Setpoint Tolerances; Supplemental Information

By letter dated November 15, 1995, Duke Power Company submitted proposed changes to main steam safety valve setpoint tolerance values. The NRC staff responded with a request for additional information (RAI) dated March 19, 1996. Attached are responses to the RAI.

If there are any questions, or more information is needed, please call Scott Gewehr at (704) 382-7581.

Very truly yours,

M. S. Tuckman

M. S. Tuckman

xc: Mr. R. E. Martin, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 14H25, OWFN
Washington, D. C. 20555

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

R. J. Freudenberger
Senior Resident Inspector
Catawba Nuclear Station

Attachment 1

Question 1

Provide the details of your reanalyses for the transients and accidents that are affected by the proposed change of MSSV setpoint tolerance including the following:

a) Major transient curves for each of the events reanalyzed including primary and secondary pressure, DNBR, steam generator water level, subcooling margin, etc.

b) Major assumptions used in these analyses (especially the ones different from the analyses in record).

Response

With the exception of the steam generator tube rupture event, all of the transients which could potentially challenge the main steam safety valves were previously analyzed with the increased setpoint tolerance in anticipation of a planned Technical Specification amendment. Therefore, the details of these analyses, including the major assumptions and transient curves, are already in place in Chapter 15 of the Catawba FSAR. The affected transients are listed below, along with the applicable acceptance criteria. The tube rupture transient is discussed separately in the response to Question 4.

15.2.3 - Turbine trip - peak primary and peak secondary pressure
15.2.6 - Loss of non-emergency AC power - long-term core cooling capability
15.2.8 - Feedwater system pipe break - short and long-term core cooling capability
15.4.2 - Uncontrolled bank withdrawal at power - short-term core cooling capability (DNBR)
15.6.5 - Small-break LOCA - peak clad temperature

Question 2

Provide the peak clad temperature following a SBLOCA from your reanalysis and compare it with your analysis of record.

Response

As discussed in the response to Question 1, the SBLOCA analysis of record already incorporates the increased main steam safety valve setpoint tolerance of ±3%. The peak clad temperature results are summarized in FSAR Table 15-39.

Question 3

Provide the amount of dose release following a SGTR from your reanalysis and compare them with your analysis of record.

Response

The NRC-approved transient analysis methodology for the steam generator tube rupture event (Section 7.2.2 of DPC-NE-3002) specifies that the main steam code safety valves are modeled with lift, accumulation, and blowdown assumptions which maximize secondary pressure. These assumptions conservatively delay the operator identification and closure of the failed-open steam line PORV. As can be seen from Figure 3-1 at the end of this attachment, a large fraction (~90%) of the total steam release from the ruptured generator is through this failed PORV. This phenomenon dominates the small decrease in primary-to-secondary leakage resulting from the higher secondary system pressure.

An evaluation of the offsite dose release was performed to determine the impact of the higher MSSV setpoint tolerance. This evaluation also utilized a more explicit modeling of the tube bundle uncovery in the ruptured steam generator. The revised model predicts that the tube bundle will remain covered for the duration of the transient.

The net effect of these two modifications is a increase in the whole body dose and a significant decrease in the thyroid dose. This result illustrates the impact of tube bundle uncovery, which affects only the partitioning of the iodine release and not the noble gasses.

	FSAR 15.6.3 Results	Evaluation Results	10CFR100 Limit
Whole body dose:	0.198	0.273	2.5
Thyroid dose:			
(pre-existing iodine spike)	82.6	61.1	300

Question 4

Confirm that the methodology used for reanalyses of each event are consistent with that used in the original licensing analyses. Identify any differences in methodology and provide justification.

Response

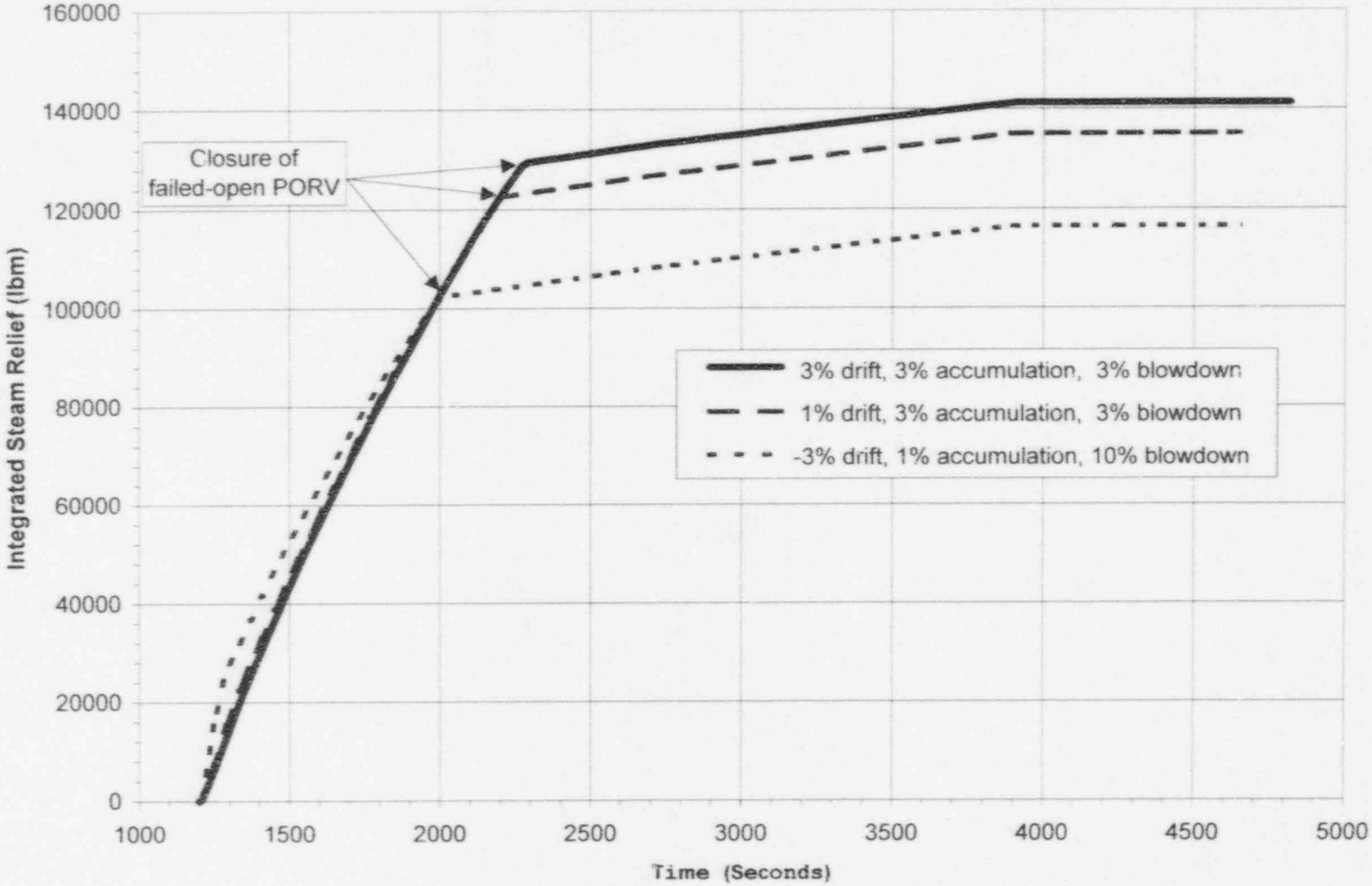
The methodology used in the reanalysis of the above non-LOCA events is consistent with the NRC approved methodology described in topical reports DPC-NE-3000 and DPC-NE-3002. Any identified differences from the original approved methodology have been submitted to and approved by the NRC by SERs dated December 27th and 28th of 1995, respectively.

Question 5

Provide clarification for the changes made to TS Table 3.7-1.

Response

The change to Table 3.7-1 as submitted included a typographical error. The intent of the change was to remove both the footnote and the final line of the table which allowed operation in Mode 3 with 4 or 5 inoperable MSSVs. A replacement page for that Technical Specification change is included as Attachment 2.



Closure of failed-open PORV
Integrated Steam Relief (lbm)
Time (Seconds)
160000
140000
120000
100000
80000
60000
40000
20000
0
1000
1500
2000
2500
3000
3500
4000
4500
5000
3% drift, 3% accumulation, 3% blowdown
1% drift, 3% accumulation, 3% blowdown
-3% drift, 1% accumulation, 10% blowdown

Figure 3-1

Attachment 2

Revised Technical Specification Table 3.7-1