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MILLER,C.L. Project Directorate I-2

SUBJECT: Forwards response to NRC 920309 telcon question re conductance methodology contained in PL-NF-89-005, "Qualification of Transient Analysis Methods for BWR Design & Analysis."

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MAR 16 1992

Director of Nuclear Reactor Regulation
Attention: Mr. C. L. Miller, Project Director
Project Directorate I-2
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO QUESTION ON
GAP CONDUCTANCE METHODOLOGY
PLA-3748 FILES A7-8/R41-2

Docket Nos. 50-387
and 50-388

References: *1) PL-NF-89-005, "Qualification of Transient Analysis Methods for BWR Design and Analysis", December 1989.*

2) PP&L Letter PLA-3729, "Response to RAI on Transient Analysis Methods", February 2, 1992.

Dear Mr. Miller:

On March 9, 1992, a telephone call was held between the NRC (Larry Phillips, Larry Kopp, Ed Kendrick), their consultant Carl Beyer, and PP&L regarding PP&L's licensing methods described in Reference 1. The subject of the call was PP&L's proposed hot bundle gap conductance methods described in Reference 2. As a result of the discussions during the call, the NRC requested that PP&L provide guidelines which specify when the MCPR operating limits need to be reevaluated based on the hot bundle's actual power history. These guidelines are provided in Attachment 1 to this letter.

Any questions on this transmittal should be directed to Mr. R. Sgarro at (215) 774-7914.

Very truly yours,

H. W. Keiser

Attachment

A001
1/1

cc: NRC Document Control Desk (original)
NRC Region I
Mr. G. S. Barber, NRC Sr. Resident Inspector
Mr. J. J. Raleigh, NRC Project Manager

PP&L GUIDELINES ON POWER HISTORY :

REQUIREMENTS FOR MCPR OPERATING LIMIT REEVALUATION

I. BACKGROUND

The PP&L transient analysis hot bundle gap conductance methods utilize a best estimate power history. If the actual hot bundle power exceeds the maximum bundle power assumed in the gap conductance analysis, additional permanent pellet relocation would probably occur, thus causing a higher hot bundle gap conductance.

A hot bundle power 10% higher than the maximum power assumed in the gap conductance calculations would produce a gap conductance that is also approximately 10% higher. Less than a 10% increase in hot bundle gap conductance would not be expected to have a significant effect on calculated ΔCPR for limiting events (e.g., GLRWOB). It should be noted that if the core average gap conductance also increases by 10%, then the net effect is expected to be even smaller because a high core average gap conductance decreases calculated ΔCPR. Thus, changes in hot bundle power which do not have peak powers greater than 110% of the maximum value used in the gap conductance calculation will not have a significant impact on MCPR operating limits and will not require an evaluation.

II. GUIDELINES

The following occurrences will require an evaluation of the MCPR operating limits due to the potential impact of increases in hot bundle power above those assumed in the licensing analyses of hot bundle gap conductance. The events requiring an evaluation are divided into three categories: core wide events, local power events, and changes in planned operation.

1. Core Wide Events

   Any plant event which increases reactor power to a value greater than 110% of rated power will require an evaluation of the MCPR operating limits. Examples of potential events which could cause this type of core wide power change are : generator load rejection, feedwater controller failure, and loss of feedwater heating.

2. Local Power Events

   Any plant transient which produces a bundle power greater than 110% of the maximum bundle power assumed in the hot bundle gap conductance licensing analyses will require an evaluation of the MCPR operating limits. Examples of potential events which could cause this type of local power change are : rod withdrawal error, rod drop, and rod drift.

3. Operational Differences

   Any change to the planned operation of the cycle which would result in bundle powers greater than 110% of the maximum bundle power assumed in the hot bundle gap conductance licensing analyses will require an evaluation of MCPR operating limits.