November 3, 2000

Mr. James F. Mallay, Director
Regulatory Affairs
Siemens Power Corporation
2101 Horn Rapids Road
Richland, WA 99352

SUBJECT: SIEMENS POWER CORPORATION RE: REQUEST FOR CONCURRENCE ON SAFETY EVALUATION REPORT CLARIFICATIONS (MA6160)

Dear Mr. Mallay:

References:
1. Letter from J. Mallay (SPC) to USNRC, "Generic Mechanical Fuel Design Criteria for PWR Fuel Designs," July 9, 1999.
2. Letter from J. Mallay (SPC) to USNRC, "Clarification of SPC PWR Mechanical Analysis Methodology," March 17, 1998.
3. Letter from J. Mallay (SPC) to USNRC, "Clarification of SPC PWR Mechanical Analysis Methodology," May 5, 1999.
4. Letter from J. Mallay (SPC) to USNRC, "Clarification of Methodology for Analyzing Gadolinia-bearing Fuel," August 31, 1998.
5. Letter from J. Mallay (SPC) to USNRC, "SPC Non-LOCA Methodology," April 1, 1999.
6. Letter from J. Mallay (SPC) to USNRC, "SPC Non-LOCA Methodology," April 30, 1999.

The NRC has considered your July 28, 1999, request for clarification on safety evaluation (SE) and Technical Evaluation Report (TER) related issues. We will address each report referenced in the letter separately.

Eight clarifications were identified for EMF-92-116(P) in a July 9, 1999, letter to the staff (Reference 1). The staff agrees with item one in which you state Siemens Power Corporation's (SPC) belief that the requirement to document the design evaluation process applies only to new fuel designs. The staff agrees with item two which states that the criteria approved in EMF-92-116(P) can apply to both minor changes and new fuel designs. Item three clarifies the

uses of the RODEX2 and RAMPEX codes and the staff concludes that the clarifications have no impact on the conclusions of the SE. The staff agrees with item four which states that SPC's testing methodology has been acceptable for the fuel currently in use. Item five states that the SPC methodology for determining overall assembly growth is conservative and the staff agrees with this assessment. Item six discusses the method used by SPC to assess the accident lift-off loads; the staff considers the method acceptable. Item seven corrects the TER description of the applications for RODEX2 and RAMPEX and the staff considers that these corrections do not impact the conclusions of the SE. Item eight stipulates that the ANFP correlation is no longer used; the staff concludes that this does not impact the conclusions of the SE. Additionally, the change identified as a typo which modifies the phrase "rod burnup" to "pellet burnup" in the context of clad strain is acceptable.

SPC requested a clarification regarding its NRC approved Pressurized Water Reactor Mechanical Analysis Methodology in a March 17, 1998, letter (Reference 2). It is SPC's position that the approval allows the use of any NRC approved neutronics code to provide input to the Mechanical Analysis Methodology. The staff agrees with this conclusion.

SPC further clarified its position in a March 5, 1999, letter by stating the term "NRC approved neutronics code" referred to any NRC approved code, not just SPC codes (Reference 3). The staff also agrees with this clarification so long as the code has an NRC SE approving its use for the reactor being considered in the analysis.

SPC requested concurrence with its application of the RODEX2 Gadolinia conductivity equation in an August 31, 1998, letter (Reference 4). SPC presents three conclusions in the letter: (1) the temperatures determined with RODEX2 for Gadolinia bearing rods are conservative, (2) extrapolation of the correlation tends to lead to over-predicted temperatures, and (3) the gadolina bearing fuel conductivity equation has been approved by the staff. The staff has considered this request and has concluded that, due to the conservative nature of the temperature predictions, your conclusions regarding the application of RODEX2 to gadolinia bearing fuel are acceptable.

The April 1, 1999, and April 30, 1999, letters from SPC identified a deviation in one of the requirements specified in ANF-89-151(P) (References 5 and 6). The multiplier for the doppler coefficient for cooldown events should be 0.8 instead of 1.2. SPC stated that this change has been evaluated and was found to have no impact in the results of the analysis. SPC also stated that the 1.2 multiplier is applied to the moderator temperature coefficient (MTC), but plant-specific technical specification values are used as the maximum or minimum values for MTC. The staff concurs with the SPC position regarding doppler reactivity because during cooldown events, reactor power (and, therefore, fuel temperature) is increasing and multiplying the doppler reactivity by 0.8 would provide a 20 percent conservative margin. The proposed changes to the MTC guidelines are acceptable to the staff because they will remain conservative, but still consistent with actual plant conditions.

If you have any questions, please call Mr. N. Kalyanam ar (301) 415-1480.

Sincerely,

/RA by Stephen Dembek for/

Stuart A. Richards, Director
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Project No. 702

If you have any questions, please call Mr. N. Kalyanam ar (301) 415-1480.

Sincerely,

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