

December 1, 2003

Mr. Bryce L. Shriver
Senior Vice President
and Chief Nuclear Officer
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Berwick, PA 18603-0467

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) - SUSQUEHANNA STEAM
ELECTRIC STATION, UNIT 1 (SSES 1) - MINIMUM CRITICAL POWER RATIO
(MCPR) SAFETY LIMITS AND REFERENCE CHANGES (TAC NO. MB9902)

Dear Mr. Shriver:

In reviewing your application for changes to the SSES 1 Cycle 14 MCPR safety limits and reference changes dated July 1, 2003, we have determined that we will need the additional information contained in the enclosure to this letter in order to complete our review. These questions were discussed with your staff during a teleconference on November 24, 2003, and as agreed to by your staff, we request you respond by January 9, 2004.

If you have any questions, please contact me at 301-415-1030.

Sincerely,

/RA/

Richard V. Guzman, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-387

Enclosure: RAI

cc w/encl: See next page

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DATE	12/1/03	12/1/03	12/1/03	12/1/03

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REQUEST FOR ADDITIONAL INFORMATION
RELATING TO MINIMUM CRITICAL POWER RATIO (MCPR)
SAFETY LIMITS AND REFERENCE CHANGES
SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1
DOCKET NO. 50-387

The Nuclear Regulatory Commission (NRC) staff is reviewing the proposed license amendment request to Facility Operating License No. NPF-14, relating to MCPR Safety Limits and reference changes dated July 1, 2003, and has found further clarification is needed as follows:

1. Use of Depleted Uranium:
 - a. Define "depleted uranium," and explain how the use of depleted uranium differs from slightly or low enriched fuel.
 - b. The amendment request states that the use of depleted uranium is modeled in the NRC-approved design and licensing methodology. State the NRC-approved design and licensing method being used.
2. There are restrictions delineated in the SER approving EMF-1997 (P) and its supplements. For Susquehanna Unit 1 Cycle 14, provide confirmation that the fuel would not be operated outside the operating range that the correlation is validated. Also, provide confirmation that the fuel performance analyses would meet the ANFB-10 critical power correlation restrictions specified in the staff's July 17, 1998 safety evaluation.
3. Power Distribution Uncertainties:

The Susquehanna Unit 1, Cycle 14 amendment request states the power distribution uncertainties based on the CASMO-4/MICROBURN-B2 code system are smaller than the corresponding uncertainties based on CASMO-3/MICORBURN-B code system.

 - a. Please, explain the difference in the power uncertainty distribution between the two versions of the code. Refer to the sections and the applicable tables of the CASMO-4/MICROBURN-B2 submittal that specifies the reduced power distribution uncertainties.
 - b. Table 9.9 of EMF-2158(P) provides the power distribution uncertainty for the MICROBURN-B2. Explain if the acceptance criteria cross-tabulated against the MICROBURN-B2 is referring to the power distribution uncertainty associated with the earlier MICROBURN-B code system.
4. For Unit 1, Cycle 14, the two loop MCPR safety limit changes from 1.12 in Cycle 13 to 1.08. For single loop operation that SLMCPR changes from 1.13 in Cycle 13 to 1.10.

These are significant reductions in the MCPR safety limit. The current amendment request attributes the lower MCPR safety limit to, (1) the reduction in the power distribution uncertainty and (2) the elimination of the factor of 2 factor applied to the ANFB-10 correlation. Please, discuss qualitative and quantitative effect of each contributor to the lower SLMCPR values.

5. The November 17, 2003, supplement to the amendment request stated that the design changes implemented in order to address control cell friction issues resulted in a reduction in the unit's full power capability. Therefore, the fresh reload batch fraction is going to increase from 276 to 280 assemblies and the twice-burned assemblies would decrease from 172 to 168 assemblies. Discuss the bases for your assessment that replacing the three fresh bundles with three twice-burned fuel did not have any impact on the SLMCPR.

Susquehanna Steam Electric Station,
Unit 1

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