



**John S. Keenan**  
Vice President  
Brunswick Nuclear Plant  
Progress Energy Carolinas, Inc.

**JUL 02 2003**

**SERIAL: BSEP 03-0106**  
**TSC-2002-09**

**U. S. Nuclear Regulatory Commission**  
**ATTN: Document Control Desk**  
**Washington, DC 20555-0001**

**Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2**  
**Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62**  
**Response to Request for Additional Information**  
**Core Flow Operating Range Expansion**  
**(NRC TAC No. MB6692 and MB6693)**

**Reference: Letter from Mr. John S. Keenan to the U. S. Nuclear Regulatory**  
**Commission (Serial: BSEP 02-0169), "Request for License Amendments -**  
**Core Flow Operating Range Expansion," dated November 12, 2002**

**Ladies and Gentlemen:**

On November 12, 2002, Progress Energy Carolinas, Inc. requested a revision to the Technical Specifications (TSs) for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The proposed license amendments revise TSs, as necessary, to support an expansion of the core flow operating range (i.e., Maximum Extended Load Line Limit Analysis Plus (MELLLA+)).

On June 3, 2003, the NRC provided a verbal request for additional information (RAI) concerning the single recirculation loop operation setpoint for the Average Power Range Monitor Simulated Thermal Power - High scram function. The response to this RAI is enclosed.

Please refer any questions regarding this submittal to Mr. Edward T. O'Neil,  
Manager - Support Services, at (910) 457-3512.

Sincerely,

A handwritten signature in cursive script that reads 'John S. Keenan'.  
John S. Keenan

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A 001

MAT/mat

Enclosure:

**Response to Request for Additional Information (RAI) 3**

John S. Keenan, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, and agents of Carolina Power & Light Company.

Dean S. Mann  
Notary (Seal)

My commission expires: August 29, 2004

cc:

U. S. Nuclear Regulatory Commission, Region II  
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U. S. Nuclear Regulatory Commission (Electronic Copy Only)  
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North Carolina Department of Environment and Natural Resources  
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Response to Request for Additional Information (RAI) 3

Background

On November 12, 2002, Progress Energy Carolinas, Inc. requested a revision to the Technical Specifications (TSs) for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. The proposed license amendments revise TSs, as necessary, to support an expansion of the core flow operating range (i.e., Maximum Extended Load Line Limit Analysis Plus (MELLLA+)).

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NRC Question 3-1

In support of the licensee's MELLLA+ upgrade, the licensee referenced GE Nuclear Energy Report NEDC-33063P, "Safety Analysis Report for Brunswick Steam Electric Plant Units 1 and 2 Maximum Extended Load Line Limit Analysis Plus," dated November 2002 (M+SAR). Section 5.3.1, "APRM Flow-biased Scram," stated, "MELLLA+ does not apply to single loop operation (SLO). Therefore, no SLO flow-biased expressions are provided." The licensee's proposed allowable value (AV) for TS Table 3.3.1.1-1, Function 2.b, Average Power Range Monitor Simulated Thermal Power - High (STP-Hi), is given by the equation

$$\leq 0.61W + 65.2\% \text{ RTP and } \leq 117.1\% \text{ RTP}$$

Note (b) states,

$$\leq [0.61 (W - \Delta W) + 65.2\% \text{ RTP}] \text{ when reset for single loop operation per LCO 3.4.1, "Recirculation Loops Operating." The Value of } \Delta W \text{ is defined in plant procedures.}$$

Provide the basis for incorporating a MELLLA+ SLO flow-biased function in the TS that is not supported by the MELLLA+ licensing topical report (M+LTR) referenced in the licensee's submittal.

Response to NRC Question 3-1

As stated in Sections 1.2.4 and 5.3.1, Single Loop Operation (SLO) is prohibited when operating in the MELLLA+ region. This is reflected in the proposed change to Limiting Condition for Operation 3.4.1, "Recirculation Loops Operating," which states, in part:

One recirculation loop may be in operation provided the plant is not operating in the MELLLA+ region defined in the COLR...

The proposed change to the Allowable Value (AV) for Function 2.b of Table 3.3.1.1-1 does not alter the proposed change to LCO 3.4.1, rather it is a result of the existing design associated with the BSEP flow-biased scram function. Specifically, the BSEP flow-biased scram function has a fixed flow-biased slope. The proposed change to MELLLA flow-biased scram for SLO allows use of the same flow-biased slope as for the two loop operation scram for MELLLA+. The affect of the proposed change is to apply a more conservative setpoint for SLO than the previous MELLLA setpoint.