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Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**10 CFR Part 21 Notification of an Error in BWR MCPR Calculation**

This letter provides notification of a reportable defect in accordance with 10 CFR Part 21. This situation was reported to the NRC Operations Center by facsimile on October 8, 2007.

The defect is in the calculation of steady-state core Minimum Critical Power Ratio (MCPR) by the core monitoring system when the SPCB critical power correlation is used for ATRIUM-10 fuel. Specifically, the defect is in the additive constants, a parameter used by the SPCB critical power calculation and based on test data.

The affected utilities have been informed and the planned actions and actions already taken to address the issue are provided in the attachment to this letter.

Sincerely,

A handwritten signature in cursive script that reads "Ronnie L. Gardner".

Ronnie L. Gardner, Manager  
Site Operations and Corporate Regulatory Affairs  
AREVA NP Inc.

Enclosure

cc: H. D. Cruz  
Project 728

TE19

**AREVA NP INC.**

An AREVA and Siemens company

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## Attachment 1

### Reportable Defect

- (i) *Name and address of the individual informing the Commission*

Jerald S. Holm, 2101 Horn Rapids Road, Richland, WA 99352

- (ii) *Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.*

The defect is in the calculation of steady-state core Minimum Critical Power Ratio (MCPR) by the core monitoring system when the SPCB critical power correlation is used for ATRIUM-10 fuel. Specifically, the defect is in the additive constants, a parameter used by the SPCB critical power calculation and based on test data.

- (iii) *Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.*

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- (iv) *Nature of the defect or failure to comply and the safety hazard which is created or could be created by such a defect or failure to comply.*

The MCPR calculated by the core monitoring system is used to confirm that the core is operated within the required Operating Limit MCPR (OLMCPR). The OLMCPR is established to ensure that the Technical Specification safety limit MCPR (SLMCPR) is not violated during anticipated operational occurrences (AOOs). The defect in the SPCB additive constants results in a non-conservative (high) prediction of MCPR. Therefore, the reactor could have been operated in violation of the OLMCPR and the SLMCPR could have been violated if the limiting AOO occurred at that time.

While the MCPR error is relatively small (<0.8%), if the reactors were operated on the operating limit, and the limiting transient were to occur, the technical specification MCPR safety limit would be violated. Therefore, the issue is considered a defect.

- (v) *The date on which the information of such a defect or failure to comply was obtained.*

This issue was determined to be a deviation on August 13, 2007.

- (vi) *In the case of a basic component which fails to comply, the number and the location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part.*

The defect exists in the calculation of steady-state core Minimum Critical Power Ratio (MCPR) by the core monitoring system for the following reactors:

Browns Ferry Unit 2 and Unit 3  
Columbia

Grand Gulf  
LaSalle Unit 1 and Unit 2  
River Bend  
Susquehanna Unit 1 and Unit 2

- (vii) *The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for this action; and the length of time that has been or will be taken to complete the action.*

AREVA provided recommended compensatory actions to all affected plants. The compensatory actions involve restricting allowed MCPR to compensate for the non-conservative prediction of steady-state MCPR by the core monitoring system.

The compensatory actions will be required until revised additive constants are developed and the input decks to the core monitoring system are updated.

- (viii) *Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.*

See (vii) above.