



August 27, 2009  
NRC:09:092

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

**10 CFR Part 21 Notification of an Error in LaSalle Units 1 & 2 Power Dependent MCPR and LHGR Operating Limits Calculation Due to High Measured Liftoff**

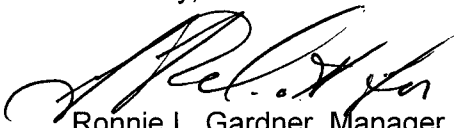
This letter provides notification of a reportable defect in accordance with 10 CFR Part 21. This situation was reported to the NRC Operations Center by facsimile on July 29, 2009.

The defect is in the calculation of power dependent core Minimum Critical Power Ratio (MCPR) and Linear Heat Generation Rate (LHGR) operating limits used for ATRIUM-10 fuel. Specifically, the defect is in the assumption that total liftoff (crud + oxide) on the LaSalle Fuel would be consistent with prior AREVA experience. The LaSalle fuel has been subject to operation with zinc levels that exceeded EPRI Guidelines for reactor water chemistry and resulted in higher than expected measured liftoff.

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

If you have any questions related to this submittal, please contact Mr. Alan B. Meginnis, Product Licensing Manager. He may be reached by telephone at 509-554-4584 or by e-mail at [Alan.Meginnis@areva.com](mailto:Alan.Meginnis@areva.com).

Sincerely,

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

Enclosure

cc: H.D. Cruz  
Project 728

## Attachment 1

### Reportable Defect

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

Alan B. Meginnis, AREVA NP Inc., 2101 Horn Rapids Road, Richland, WA 99354

- (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 power dependent MCPR and LHGR operating limits used to monitor LaSalle Units 1 and 2.

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

AREVA NP Inc.

- (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.*

Measurements obtained during poolside exams at the two LaSalle units show high total liftoff on fuel rod surfaces. Liftoff is the sum of the thicknesses of the zirconium oxide corrosion film and coolant system deposits (crud), and is typically measured using eddy current and/or profilometry techniques. Typical past and recent BWR measurements of oxide at other plants have been low – with maximum values of less than 60  $\mu\text{m}$  and with low amounts of crud. Based on the use of profilometry, measurements on ATRIUM-10 fuel at the LaSalle units are as high as 93  $\mu\text{m}$ . AREVA's fuel rod thermal-mechanical methodology requires an explicit account for the maximum amount of oxidation along with an additional consideration for the effect of crud. The fuel rod analyses for the LaSalle fuel do not sufficiently account for the high liftoff measurements since it was assumed that the oxidation and crud would be consistent with prior AREVA experience. In addition, the AREVA thermal-hydraulics analyses for the LaSalle units did not account for the higher liftoff. The greater than expected liftoff present on LaSalle fuel has been attributed to operation with zinc levels that exceeded EPRI guidelines for reactor water chemistry.

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

The issue was determined to be a deviation on February 16, 2009.

- (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.*

LaSalle Units 1 and 2.

Data from other plants currently operating with fuel licensed using AREVA methods indicate that the liftoff is low and within historical levels. Recent higher than expected liftoff measurements at Columbia Generating Station were evaluated by AREVA in a separate Condition Report (CR) and concluded that the condition was not a defect.

- (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.*

Following the discovery of the deviation, AREVA supplied an operability assessment to Exelon that identified limitations on the operating limit MCPR and rod average exposure. These limitations also were provided to the NRC as part of an Interim Report (Letter, R. L. Garner (AREVA NP Inc.) to Document Control Desk (NRC), "Interim Report of an Evaluation of a Deviation Pursuant to 10 CFR 21.21(a)(2)," April 16, 2009).

Revised operating limits were provided to Exelon based on liftoff values that are lower than used in the original operability assessments.

Responsible organization: AREVA NP Inc.

- (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.*

Actions have been identified in the AREVA corrective action program to assure that AREVA obtains information from the licensees on the anticipated water chemistry environment to be implemented for the next operating cycle, in advance of AREVA core design efforts supporting that cycle. This will assure that AREVA can adequately project the impact of this chemistry environment on liftoff, and to account for it during the design activities.