

June 9, 2003

10 CFR 50.46

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

LaSalle County Station, Units 1 and 2  
Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

Subject: Plant Specific ECCS Evaluation Changes – 10 CFR 50.46  
Report

Reference: Letter from M. A. Schiavoni (Exelon) to U.S. NRC, "Plant  
Specific ECCS Evaluation Changes – 10 CFR 50.46 Report,"  
dated June 8, 2002.

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," Exelon Generation Company (EGC), LLC, submits the enclosed attachments to fulfill the annual reporting requirement for LaSalle County Station, Units 1 and 2. The previously calculated Peak Cladding Temperature (PCT) of 1301 degrees Fahrenheit (°F) for General Electric (GE) fuel and 1827°F for Framatome-ANP (FANP) fuel were reported in Reference 1. The PCT for GE fuel increased by 35°F to a value of 1336°F, while the PCT for FANP fuel increased by 5°F to a value of 1832°F.

Unit 1 employs a mixed core design containing co-resident GE and SPC fuel. Unit 2 employs a core design containing only SPC fuel. The Loss of Coolant Accident (LOCA) analyses of record for both GE and SPC fuel are within all of the acceptance criteria set forth in 10 CFR 50.46.

Attachments 1 and 2 provide PCT information for the limiting LOCA evaluations for LaSalle County Station, Units 1 and 2, including all assessments as of May 1, 2003. The assessment notes are contained in Attachment 3 and provide a detailed description for each change or error reported.

A001

June 9 , 2003  
U.S. Nuclear Regulatory Commission  
Page 2

Should you have any questions concerning this letter, please contact  
Mr. Glen Kaegi, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

A handwritten signature in black ink that reads "Susan R. Landahl". The signature is written in a cursive style with a large, stylized 'S' and 'L'.

Susan R. Landahl  
Plant Manager  
LaSalle County Station

Attachments

cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - LaSalle County Station

**Attachment 1**  
**LaSalle Units 1 and 2 10 CFR 50.46 Report (GE Fuel)**

PLANT NAME: LaSalle Units 1 and 2  
 ECCS EVALUATION MODEL: SAFER/GESTR LOCA  
 REPORT REVISION DATE: May 9, 2003  
 CURRENT OPERATING CYCLES: L1C10A and L2C10

**ANALYSIS OF RECORD**

Evaluation Model Methodology: "GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident," Volumes I, II and III, NEDE-23785-1-P-A, dated February 1985.

Calculation: "Project Task Report, LaSalle County Station, Power Uprate Evaluation, Task 407: ECCS Performance," GE report number GE-NE-A1300384-39-01, Revision 1, dated September 1999.

Fuel: GE8x8NB (GE9)

Limiting Single Failure: HPCS Diesel Generator

Limiting Break Size and Location: 1.0 Double Ended Guillotine of Recirculation Pump Suction Piping

Reference PCT: 1301°F

**MARGIN ALLOCATION**

**A. PRIOR LOCA MODEL ASSESSMENTS**

10 CFR 50.46 Report dated June 12, 2000 (see Note 1)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 Report dated June 8, 2001 (see Note 2)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 Report dated June 8, 2002 (see Note 7)	$\Delta PCT = 0^{\circ}F$
Net PCT	1301 °F

**B. CURRENT LOCA MODEL ASSESSMENTS**

SAFER Core Spray Injection Elevation Error (9)	$\Delta PCT = 25^{\circ}F$
SAFER Bulk Water Level Error (10)	$\Delta PCT = 10^{\circ}F$
GESTR Input File Interpolation Error (11)	$\Delta PCT = 0^{\circ}F$
SAFER04 Computer Platform Change (12)	$\Delta PCT = 0^{\circ}F$
WEVOL S1 Volume Error (13)	$\Delta PCT = 0^{\circ}F$
Unit 2 Jet Pump Riser Leakage (14)	$\Delta PCT = 0^{\circ}F$
Unit 1 Mid-Cycle Reload (17)	$\Delta PCT = 0^{\circ}F$
Total PCT Change from Current Assessments	$\Sigma \Delta PCT = 35^{\circ}F$
Cumulative PCT Change from Current Assessments	$\Sigma  \Delta PCT  = 35^{\circ}F$
Net PCT	1336 °F

**Attachment 2**  
**LaSalle Units 1 and 2 10 CFR 50.46 Report (FANP Fuel)**

PLANT NAME: LaSalle Units 1 and 2  
 ECCS EVALUATION MODEL: EXEM BWR Evaluation Model  
 REPORT REVISION DATE: May 9, 2003  
 CURRENT OPERATING CYCLE: L1C10A and L2C10

**ANALYSIS OF RECORD**

Evaluation Model Methodology: Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model, ANF-91-048(P)(A), January 1993.

BWR Jet Pump Model Revision for RELAX, ANF-91-048(P)(A), Supplement 1 and Supplement 2, Siemens Power Corporation, October 1997.

Calculation:

1. LaSalle LOCA-ECCS Analysis MAPLHGR Limits for ATRIUM™-9B Fuel, EMF-2175(P), March 1999.
2. LOCA Break Spectrum Analysis for LaSalle Units 1 and 2, EMF-2174(P), March 1999.
3. LaSalle Units 1 and 2 LOCA-ECCS Analysis MAPLHGR Limit for ATRIUM™-10 Fuel, EMF-2641(P), November 2001.
4. LaSalle Units 1 and 2 LOCA Break Spectrum Analysis for ATRIUM™-10 Fuel, EMF-2639(P), November 2001.

Fuel: ATRIUM™-9B and ATRIUM™-10  
 Limiting Fuel: ATRIUM™-9B  
 Limiting Single Failure: HPCS Diesel Generator  
 Limiting Break Size and Location:

1.1 ft<sup>2</sup> Recirculation Pump Discharge Side Line Break  
 Reference PCT: 1807 °F

**MARGIN ALLOCATION**

**5. PRIOR LOCA MODEL ASSESSMENTS**

10 CFR 50.46 report dated May 7, 1999 (See Note 3)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
10 CFR 50.46 report dated February 20, 2000 (See Note 4)	$\Delta PCT = 18\text{ }^{\circ}\text{F}$
10 CFR 50.46 report dated June 12, 2000 (See Note 5)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
10 CFR 50.46 report dated June 8, 2001 (See Note 6)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
10 CFR 50.46 report dated June 8, 2002 (See Note 8)	$\Delta PCT = 2\text{ }^{\circ}\text{F}$
Net PCT	1827 °F

**6. CURRENT LOCA MODEL ASSESSMENTS**

Unit 2 Jet Pump Riser Leakage (14)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
Unit 2 Cycle 10 Reload Fuel (15)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
Incorrect Calculation of Junction Inertia (16)	$\Delta PCT = 5\text{ }^{\circ}\text{F}$
Unit 1 Mid-Cycle Reload (17)	$\Delta PCT = 0\text{ }^{\circ}\text{F}$
Total PCT Change from Current Assessments	$\Sigma \Delta PCT = 5\text{ }^{\circ}\text{F}$
Cumulative PCT Change from Current Assessments	$\Sigma  \Delta PCT  = 5\text{ }^{\circ}\text{F}$
Net PCT	1832 °F

### **Attachment 3**

#### **LaSalle Units 1 and 2 10 CFR 50.46 Report Assessment Notes**

**1. Prior LOCA model assessment for GE fuel**

The reference letter reported a new analysis of record for GE fuel as a result of the mid-cycle power uprate to 3489 MWt during Unit 1 Cycle 9 and Unit 2 Cycle 8.

[Reference: Letter from C. G. Pardee (ComEd) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 12, 2000.]

**2. Prior LOCA model assessment for GE fuel**

The reference letter assessed impact of Unit 2 LPCS riser leakage and errors in GE LOCA analysis model.

[Reference: Letter from M. A. Schiavoni (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 8, 2001.]

**3. Prior LOCA Model Assessment for FANP fuel**

The May 1999 LOCA model assessment was a new analysis of record for Framatome (Formerly Siemens) due to the introduction of ATRIUM-9B fuel into the Unit 2 Cycle 8 core. Therefore, there is no PCT change. Analysis was performed for a core power of 3722 MWt that bounds the current uprated power of 3489 MWt.

[Reference: Letter from J. A. Benjamin (ComEd) to U.S. NRC, "Report of Significant Change in Calculated Peak Cladding Temperature (PCT) – 10CFR 50.46 Report," dated May 7, 1999.]

**4. Prior LOCA Model Assessment for FANP fuel**

The February 2000 50.46 report assessed the impact of errors in the LOCA evaluation model.

[Reference: Letter from J. A. Benjamin (ComEd) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10CFR 50.46 Report," dated February 9, 2000.]

**5. Prior LOCA Model Assessment for FANP fuel**

The June 2000 10 CFR 50.46 report does not have any PCT assessment for ATRIUM-9B fuel.

[Reference: Letter from C. G. Pardee (ComEd) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 12, 2000.]

**6. Prior LOCA model assessment for FANP fuel**

The reference letter assessed impact of Unit 2 LPCS riser leakage, errors in FANP LOCA analysis model and Unit 2 Cycle 9 reload fuel.

[Reference: Letter from M. A. Schiavoni (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 8, 2001.]

### **Attachment 3**

#### **LaSalle Units 1 and 2 10 CFR 50.46 Report Assessment Notes**

**7. Prior LOCA model assessment for GE fuel**

The reference letter reported no new model error for the GE LOCA analysis, thus no change to PCT.

[Reference: Letter from M. A Schiavoni (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 8, 2002.]

**8. Prior LOCA model assessment for FANP fuel**

The reference letter assessed impact of errors in FANP LOCA analysis model, Unit 1 Cycle 10 reload fuel and ATRIUM-9B exposure extension.

[Reference: Letter from M. A Schiavoni (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 8, 2002.]

**9. SAFER Core Spray Injection Elevation Error**

GE reported an error in the automation code that prepares the input basedeck for the SAFER analysis. This error resulted in too low a value calculated for the injection elevation for the lower Core Spray sparger. GE determined the PCT impact for this error to be an increase of 25°F.

[Reference: 10 CFR 50.46 Notification Letter, 2002-01, Issued by Glen A. Watford, no date shown.]

**10. SAFER Bulk Water Level Error**

GE reported that the initial vessel water level used in the SAFER LOCA analysis did not properly account for the effect of the steam dryer pressure drop on the initial inventory of water in the vessel. The SAFER code used the indicated water level as the initial level, which resulted in too high an initial liquid inventory. GE determined the PCT impact for this error to be an increase of 10°F.

[Reference: 10 CFR 50.46 Notification Letter, 2002-02, Issued by Glen A. Watford, no date shown.]

**11. GESTR Input File Interpolation Error**

GE reported that an error in the initial gap conductance for cases at or beyond the knee in the LHGR curve. Due to this error, the initial gap conductance used in the SAFER calculations was slightly lower than it should have been. GE determined that the PCT impact of this error to be negligible.

[Reference: 10 CFR 50.46 Notification Letter, 2002-03, Issued by Glen A. Watford, August 26, 2002.]

### **Attachment 3**

#### **LaSalle Units 1 and 2 10 CFR 50.46 Report Assessment Notes**

##### **12. SAFER04 Computer Platform Change**

GE reported that the LOCA evaluation code SAFER04 has been migrated from the VAX computer platform (SAFER04V) to the Alpha computer platform (SAFER04A). The change in computer platform may result in a change in the calculated peak cladding temperature (PCT) due to changes in the processor word size and FORTRAN compiler characteristics. GE determined that the PCT impact of this error to be negligible.

[Reference: 10 CFR 50.46 Notification Letter, 2002-04, Issued by Glen A. Watford, August 26, 2002.]

##### **13. WEVOL S1 Volume Error**

GE reported that an error was found in the WEVOL code, which affects the calculated vessel volume in the downcomer region. The free volume in the region of the shroud head is calculated incorrectly. The code did not properly account for the volume of the standpipes inside the shroud head thickness. This resulted in the value for the free volume in the downcomer being too small by 4-10 ft<sup>3</sup>. GE determined that the PCT impact of this error to be negligible.

[Reference: 10 CFR 50.46 Notification Letter, 2002-05, Issued by Glen A. Watford, August 26, 2002.]

##### **14. Unit 2 Jet Pump Riser Leakage**

The referenced letter assessed impact of the leakage due to jet pump riser flaw identified through the latest inspection at LaSalle Unit 2. There is no impact on PCT due to the jet pump riser leakage.

[Reference: "Impact of Unit 2 Jet Pump Riser Leakage on LaSalle LOCA analysis," NF:MW:03-055, February 7, 2003.]

##### **15. Unit 2 Cycle 10 reload fuel**

LOCA analysis for the new fuel type (ATRIUM-10) shows its PCT to be less than the PCT of the limiting fuel type (ATRIUM-9B). Therefore, the PCT change is reported as 0°F.

[Reference: "LaSalle Unit 2 Cycle 10 Reload Analysis," EMF-2830, Revision 0, Framatome ANP, January 2003.]

##### **16. Incorrect Calculation of Inertia Terms for Recirculation Pump Discharge Break Junctions**

Framatome reported that an error was found in the junction inertia value calculated for recirculation pump discharge break. Framatome determined the impact of this error on the limiting PCT for ATRIUM-9B fuel is an increase of 5°F.

[Reference: Letter from A. W. Will (Framatome ANP) to F. W. Trikur (Exelon), "Transmittal of 10CFR50.46 Reporting for LaSalle Units," AWW:03:034, March 28, 2003.]

### **Attachment 3**

#### **LaSalle Units 1 and 2 10 CFR 50.46 Report Assessment Notes**

##### **17. Unit 1 Mid-Cycle Reload (C10A)**

LaSalle Unit 1 was shutdown on May 18, 2002 to perform in core fuel sipping to identify the location of failed fuel. Three failed assemblies were replaced. LOCA analysis was assessed for the change and there was no PCT impact.

[References: "LaSalle 1 Cycle 10A Reload Package," NFM-MW:02-0176, May 23, 2002.

Letter from D. E. Garber (Framatome ANP) to F. W. Trikur (Exelon), "Licensing Letter Report for Impact of Revised Core Loading on LaSalle 1 Cycle 10 Licensing," DEG:02:094, May 23, 2002.]