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RA06-013

March 9, 2006

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 D. J. Enright (Exelon Generation Company, LLC) to U. S. NRC,  
"Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated  
March 9, 2005

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," Exelon Generation Company, LLC, (EGC) submits the enclosed attachments to fulfill the 30-day and annual reporting requirements for LaSalle County Station (LSCS), Units 1 and 2.

In the referenced letter, EGC reported the fuel peak cladding temperatures (PCTs) calculated based on an acceptable model to be 1400°F for General Electric (GE) fuel. There is no change in PCT for the GE Fuel for this reporting period.

The referenced letter also provided the PCT of 1832°F for the Framatome Advanced Nuclear Power (FANP) fuel based on an acceptable model. Since the last evaluation, FANP ATRIUM-10 fuel has been re-introduced into Unit 1 and a new analysis was performed. Based on the new analysis, the PCT for FANP ATRIUM-10 fuel decreased to a value of 1729°F. This is a change of over 50°F from the last evaluation using a NRC approved acceptable model. For Unit 2, there were no changes for the FANP ATRIUM-9B fuel and the PCT remains at 1832°F.

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

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Attachments 1, 2, and 3 provide PCT information for the limiting LOCA evaluations for LSCS, Units 1 and 2, including all assessments as of February 1, 2005. The assessment notes are contained in Attachment 4 and provide a detailed description for each change or error reported.

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

Respectfully,

A handwritten signature in black ink, appearing to read "Daniel J. Enright". The signature is fluid and cursive, with the first name "Daniel" being the most prominent.

Daniel J. Enright  
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: February 1, 2006  
 CURRENT OPERATING CYCLES: L1C12\* and L2C11

### ANALYSIS OF RECORD

Evaluation Model Methodology: NEDE-23785-1-PA, Rev. 1, "GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident (Volume III), SAFER/GESTR Application Methodology", October 1984.

Calculation: "Project Task Report, Exelon LaSalle Unit 1 and 2 SAFER/GESTR Loss-of-Coolant Accident Analysis for GE 14 Fuel," GE report number GE-NE-0000-0022-8684-R1, dated December 2004.

Fuel: GE14

Limiting Single Failure: HPCS Diesel Generator

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

Reference PCT: 1400°F

### MARGIN ALLOCATION

#### A. PRIOR LOCA MODEL ASSESSMENTS

10CFR50.46 report dated March 9, 2005 (Note 9)	$\Delta PCT = 0$ °F
Net PCT	1400 °F

#### B. CURRENT LOCA MODEL ASSESSMENTS

None	N/A
Net PCT	1400 °F

\* Currently Unit 1 is in refueling. Expected Cycle 12 Startup – March 16, 2006

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

PLANT NAME:	LaSalle Unit 1
ECCS EVALUATION MODEL:	EXEM BWR-2000 Evaluation Model
REPORT REVISION DATE:	February 1, 2006
CURRENT OPERATING CYCLES:	L1C12*

**ANALYSIS OF RECORD**

Evaluation Model Methodology:	EMF-2361 (P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP, May 2001.
Calculation:	EMF-3230 (P) Revision 0, LaSalle Units 1 and 2 EXEM BWR-2000 LOCA Break Spectrum Analysis for ATRIUM – 10 Fuel, November 2005.  EMF-3231 (P) Revision 0, LaSalle Units 1 and 2 EXEM BWR-2000 LOCA-ECCS Analysis MAPLHGR Limit for ATRIUM – 10 Fuel, November 2005.
Fuel:	ATRIUM – 10
Limiting Single Failure:	Low-pressure coolant injection Diesel Generator
Limiting Break Size and Location:	Double Ended Guillotine/0.8 discharge coefficient of Recirculation Pump Suction Piping
Reference PCT:	1729 °F

**MARGIN ALLOCATION**

**A. PRIOR LOCA MODEL ASSESSMENTS**

A FANP LOCA analysis was performed in November 2005 to support the re-introduction of ATRIUM-10 for L1C12. This analysis addresses all errors and issues. In Cycle 12 there will be no ATRIUM-9B fuel in the Unit 1 Core	$\Delta$ PCT = 0 °F
Net PCT	1729 °F

**B. CURRENT LOCA MODEL ASSESSMENTS**

None	N/A
Net PCT	1729 °F

\* Currently Unit 1 is in refueling. Expected Cycle 12 startup – March 16, 2006.

**Attachment 3**  
**LaSalle Unit 2 10 CFR 50.46 Report (FANP Fuel)**

PLANT NAME:	LaSalle Unit 2
ECCS EVALUATION MODEL:	EXEM BWR Evaluation Model
REPORT REVISION DATE:	February 1, 2006
CURRENT OPERATING CYCLE:	L2C11

**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.
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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:  
Limiting Fuel  
Limiting Single Failure:  
Limiting Break Size and  
Location:

ATRIUM™-9B and ATRIUM™-10  
ATRIUM™-9B  
HPCS Diesel Generator

1.1 ft<sup>2</sup> Recirculation Pump Discharge Side Line Break

Reference PCT:	1807 °F
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**MARGIN ALLOCATION**

**A. PRIOR LOCA MODEL ASSESSMENTS**

10 CFR 50.46 report dated May 7, 1999 (See Note 2)	$\Delta PCT = 0^\circ F$
10 CFR 50.46 report dated February 9, 2000 (See Note 3)	$\Delta PCT = 18^\circ F$
10 CFR 50.46 report dated June 12, 2000 (See Note 4)	$\Delta PCT = 0^\circ F$
10 CFR 50.46 report dated June 8, 2001 (See Note 5)	$\Delta PCT = 0^\circ F$
10 CFR 50.46 report dated June 8, 2002 (See Note 6)	$\Delta PCT = 2^\circ F$
10 CFR 50.46 report dated June 9, 2003 (See Note 7)	$\Delta PCT = 5^\circ F$
10 CFR 50.46 report dated March 9, 2004 (See Note 1)	$\Delta PCT = 0^\circ F$
10 CFR 50.46 report dated March 9, 2005 (See Note 8)	$\Delta PCT = 0^\circ F$
Net PCT	1832 °F

**B. CURRENT LOCA MODEL ASSESSMENTS**

No errors/issues for this reporting period	$\Delta PCT = 0^\circ F$
Net PCT	1832 °F

**Attachment 4**  
**LaSalle Units 1 and 2 10 CFR 50.46 Report (Assessment Notes)**

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

During the startup of LaSalle Unit 1 Cycle 11 several evaluations were performed for FANP LOCA analysis as reported in the Reference. The net results of these evaluations were that there was a zero degree PCT impact. Additionally a problem was also identified by FANP pertaining with the transfer of RELAX coolant temperature data from PREHUXY to HUXY at the time of core spray. FANP determined that the impact of this problem on the limiting break spectrums results was zero degree. This was also reported in the Reference.

[Reference: Letter from Susan R Landahl (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 9, 2004.]

**2. 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.]

**3. 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.]

**4. 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.]

**5. 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 4**  
**LaSalle Units 1 and 2 10 CFR 50.46 Report (Assessment Notes)**

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

The referenced 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.]

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

The June 2003 50.46 report assessed the impact of errors in the LOCA evaluation, Unit 2 jet pump leakage, Unit 2 Cycle 10 reload Fuel and the Unit 1 mid-cycle reload.

[Reference: Letter from Susan R Landahl (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated June 9, 2003.]

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

The March 2005 10 CFR 50.46 report does not have any PCT assessment.

[Reference: Letter from Daniel J. Enright (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 9, 2005.]

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

A GE LOCA analysis was performed in December 2004 to support the introduction of GE 14 for L2C11. This analysis bounds both LaSalle Units and addressed all errors and issues. This was reported in the Reference.

[Reference: Letter from Daniel J. Enright (Exelon) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 9, 2005.]