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Exelon Nuclear

RS-12-038

10 CFR 50.46

March 7, 2012

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

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 J. L. Hansen (Exelon Generation Company, LLC) to U.S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 8, 2011

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) is submitting the attached information to fulfill the annual reporting requirements for LaSalle County Station (LSCS), Units 1 and 2.

In the referenced letter, EGC reported a fuel peak cladding temperature (PCT) of 1470°F for LSCS, Unit 2 for the General Electric (GE) GE14 fuel, calculated based on an acceptable model. All GE14 fuel has been discharged from the LSCS, Unit 2 core; therefore GE14 fuel is not discussed in the current report.

The referenced letter also provided a fuel PCT of 1729°F for LSCS, Units 1 and 2, for the AREVA NP (formerly Framatome Advanced Nuclear Power (FANP)) fuel, calculated based on an acceptable model. For the current reporting period, there is no change in the PCT for the AREVA NP fuel.

For the current reporting period LSCS, Unit 1 is employing a mixed core with AREVA NP fuel and Global Nuclear Fuel (GNF) GNF2 fuel. The calculated PCT for GNF2 based on an acceptable model, was calculated to be 1540°F for LSCS, Unit 1. Unit 2 continues to employ a core design containing only AREVA NP fuel. The loss-of-coolant accident (LOCA) analyses of record for GNF and AREVA NP fuel are within the acceptance criteria set forth in 10 CFR 50.46.

Attachments 1 and 2 provide the PCT information for the limiting LOCA evaluations for LSCS, Units 1 and 2, including all assessments, as of February 16, 2012. The assessment notes are contained in Attachment 3 and provide a detailed description for each change reported.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Mitchel A. Mathews at (630) 657-2819.

Respectfully,

David M. Gullott
Manager – Licensing

Attachments:
1. LaSalle County Station, Unit 1, 10 CFR 50.46 Report (GNF Fuel)
2. LaSalle County Station, Units 1 and 2, 10 CFR 50.46 Report (AREVA NP Fuel)
3. LaSalle County Station, Units 1 and 2, 10 CFR 50.46 Report (Assessment Notes)

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

ATTACHMENT 1
LaSalle County Station, Unit 1, 10 CFR 50.46 Report (GNF Fuel)

PLANT NAME:	LaSalle County Station (LSCS), Unit 1
ECCS EVALUATION MODEL:	SAFER/PRIME LOCA
REPORT REVISION DATE:	February 16, 2012
CURRENT OPERATING CYCLE:	L1C15*

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. "The PRIME Model for Analysis of Fuel Rod Thermal-Mechanical Performance", Technical Bases - NEDC-33256P-A, Qualification - NEDC-33257P-A, and Application Methodology - NEDC-33258P-A, September 2010. NEDO-33173 Supplement 4-A, "Implementation of PRIME Models and Data in Downstream Methods," September 2011.
Calculation:	0000-0121-8990-R0, "LaSalle County Station GNF2 ECCS-LOCA Evaluation," January 2012.
Fuel:	GNF2
Limiting Single Failure:	High Pressure Core Spray Diesel Generator
Limiting Break Size and Location:	0.08 ft^2 Recirculation Pump Suction Line Break
Reference Peak Cladding Temperature (PCT):	**1540°F**

*LSCS, Unit 1 is currently in a refueling outage, LSCS, Unit 1 Reload 14 (L1R14). Expected startup date for LSCS, Unit 1 Cycle 15 (L1C15) is March 6th, 2012.

MARGIN ALLOCATION

A. PRIOR LOSS-OF-COOLANT ACCIDENT (LOCA) MODEL ASSESSMENTS

None	$\Delta PCT = 0°F$
Net PCT	**1540°F**

B. CURRENT LOCA MODEL ASSESSMENTS

None (Note 8)	$\Delta PCT = 0°F$
Total PCT change from current assessments	$\Sigma\Delta PCT = 0°F$
Cumulative PCT change from current assessments	$\Sigma \lvert \Delta PCT \rvert = 0°F$
Net PCT	**1540°F**

ATTACHMENT 2
LaSalle County Station, Units 1 and 2, 10 CFR 50.46 Report (AREVA NP Fuel)

PLANT NAME:	LaSalle County Station (LSCS), Units 1 and 2
ECCS EVALUATION MODEL:	EXEM BWR-2000 Evaluation Model
REPORT REVISION DATE:	February 16, 2012
CURRENT OPERATING CYCLES:	L1C15* and L2C14

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 Peak Cladding Temperature (PCT):	**1729°F**

*LSCS, Unit 1 is currently in refueling outage, LSCS, Unit 1 Reload 14 (L1R14). Expected startup date for LSCS, Unit 1 Cycle 15 (L1C15) is March 6th, 2012.

MARGIN ALLOCATION

A. PRIOR LOSS-OF-COOLANT ACCIDENT (LOCA) MODEL ASSESSMENTS

10 CFR 50.46 report dated August 28, 2006 (Note 1)	ΔPCT = 0°F
10 CFR 50.46 report dated March 30, 2007 (Note 2)	ΔPCT = 0°F
10 CFR 50.46 report dated March 28, 2008 (Note 3)	ΔPCT = 0°F
10 CFR 50.46 report dated March 27, 2009 (Note 4)	ΔPCT = 0°F
10 CFR 50.46 report dated March 9, 2010 (Note 5)	ΔPCT = 0°F
10 CFR 50.46 report dated March 8, 2011 (Note 6)	ΔPCT = 0°F
Net PCT	**1729°F**

B. CURRENT LOCA MODEL ASSESSMENTS

MUR Power Uprate (Note 7)	ΔPCT = 0°F
Total PCT change from current assessments	$\sum$ΔPCT = 0°F
Cumulative PCT change from current assessments	$\sum \lvert$ΔPCT$\rvert$ = 0°F
Net PCT	**1729°F**

ATTACHMENT 3
LaSalle County Station, Units 1 and 2, 10 CFR 50.46 Report (Assessment Notes)

1. Prior LOCA Model Assessment for AREVA NP Fuel

   An AREVA NP (formerly Framatome Advanced Nuclear Power (FANP)) LOCA evaluation was performed in November 2005 due to the discharge of ATRIUM-9 fuel and the reanalysis of the ATRIUM-10 fuel for LaSalle County Station (LSCS), Unit 1 Cycle 12 (L1C12). This analysis was reported to the NRC in the referenced letter. The AREVA NP analysis for cycle L2C12 demonstrated that the LOCA analysis performed for cycle L1C12 in November 2005 was applicable to cycle L2C12. The referenced letter also provided the Unit 2 peak cladding temperature (PCT) of 1832°F (i.e., including all assessments) for the AREVA NP fuel based on an acceptable model for a mixed core of ATRIUM-9 and ATRIUM-10, with ATRIUM-9 being the limiting fuel type. The ATRIUM-9 fuel has been discharged from the Unit 2 core, making ATRIUM-10 fuel the limiting fuel type with a PCT of 1729°F. For Unit 1, there were no changes for ATRIUM-10 fuel and the PCT remained at 1729°F.

   [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 August 28, 2006.]

2. Prior LOCA Model Assessment for AREVA NP Fuel

   The 10 CFR 50.46 report submitted to the NRC in the referenced letter did not report any LOCA model assessments AREVA NP fuel.

   [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 30, 2007.]

3. Prior LOCA Model Assessment for AREVA NP Fuel

   During the performance of the LSCS, Unit 2 Reload 11 outage inspection of the Core Spray sparger, a bent flow deflector in one of the High Pressure Core Spray sparger nozzles was noted. AREVA NP performed an evaluation and determined that the impact of this bent flow deflector on the LOCA analyses was insignificant. A zero degree PCT impact was assigned. This evaluation was reported to the NRC in the referenced letter. This PCT impact was only applicable to LSCS, Unit 2.

   [Reference: Letter from D. P. Rhoades (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 28, 2008.]

4. Prior LOCA Model Assessment for AREVA NP Fuel

   The referenced letter provided the annual 10CFR 50.46 report for LSCS, Units 1 and 2 for the 2009 reporting period. During the LSCS, Unit 2 Reload 12 outage eight ATRIUM-10XM lead test assemblies (LTA) were loaded into the core. The PCT of the ATRIUM-10XM LTAs was less than the PCT for ATRIUM-10 fuel. The L1C14 core does not have any ATRIUM-10XM fuel.

   [Reference: Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 27, 2009.]

5. Prior LOCA Model Assessment for AREVA NP Fuel

   The 10 CFR 50.46 report submitted to the NRC in the referenced letter did not report any LOCA model assessments for AREVA NP fuel.

   [Reference: Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 9, 2010.]

6. Prior LOCA Model Assessment for AREVA NP Fuel

   The referenced letter provided the annual 10CFR 50.46 report for LSCS, Units 1 and 2 for the 2011 reporting period. The letter reported a RELAX code error. The RELAX code is part of the EXEM BWR-2000 LOCA methodology. Based on an assessment of LSCS Break Spectrum calculations, the impact on the analysis of record PCT was reported to be 0°F.

   The referenced letter also reported the impact of the configuration change Allowable Air Void in ECCS – LPCI Piping. The configuration change revised the design basis to clarify that a small amount of air can exist in the LSCS, Division 1, Residual Heat Removal (RHR) – Low Pressure Core Injection (LPCI) piping. As reported in the referenced letter, this change had a 0°F impact on the analysis of record PCT for AREVA fuel types.

   The referenced letter also reported the measurement uncertainty recapture (MUR) power uprate implemented at LSCS, Unit 1 during Cycle 14. The MUR power uprate had a 0°F impact on the analysis of record PCT for the AREVA fuel in LSCS, Unit 1.

   [Reference: Letter from Jeffery L. Hansen (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated March 8, 2011.]

7. Current LOCA Model Assessment for AREVA NP Fuel

   Since the last 10 CFR 50.46 report (i.e., as discussed in Note 6 above), no vendor notifications of Emergency Core Cooling System (ECCS) model errors/changes applicable to the ATRIUM-10 fuel in LSCS, Units 1 and 2 have been issued. No ECCS related changes or modifications have occurred at LaSalle that affect the assumptions in the LOCA analysis of record.

   The referenced Reload report addresses the measurement uncertainty recapture (MUR) power uprate implemented on LSCS, Unit 2 during Cycle 14. As stated in the reference, the current licensing PCT remains bounding under the MUR conditions. Thus, the MUR power uprate has a 0°F impact on the analysis of record PCT for the AREVA fuel in LSCS, Unit 2.

   [Reference: ANP-2977 Revision 1, "LaSalle Unit 2 Cycle 14 Reload Analysis," AREVA NP, dated January 2011.]

8. Current LOCA Model Assessment for GNF Fuel

   Since the last annual report, the GNF2 fuel design has been introduced into the LSCS, Unit 1 core. The assessment notes above (i.e., Notes 1-7) are not applicable to GNF2 fuel. No ECCS related changes or modifications have occurred at LaSalle that affect the assumptions in the LOCA analysis of record. All GE14 fuel has been discharged from the LSCS cores.