Exelon Generation Company, LLC
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450-9765

www.exeloncorp.com

Exelon Nuclear

10 CFR 50.46(a)(3)(ii)

November 9, 2006

SVPLTR: #06-0054

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

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

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

Reference: Letter from D. Bost (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated November 16, 2005

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," paragraph (a)(3)(ii), Exelon Generation Company LLC, is submitting this letter and its attachment to meet the annual reporting requirements.

Dresden Nuclear Power Station (DNPS) has maintained the same emergency core cooling (ECCS) model as reported in the referenced letter. One vendor 10 CFR 50.46 LOCA model change/error notification was received since the last annual report. The vendor has implemented a change in performing analysis of small break LOCA cases, which requires considering both mid-peaked as well as top-peaked power shapes. The effect of this change was evaluated for DNPS LOCA analyses and it was determined that the impact on the licensing basis Peak Cladding Temperature (PCT) is zero. The attachment provides the PCT value for each unit and the "rack-up" sheets for the LOCA analyses, along with assessment note summaries.

If there are any questions concerning this letter, please contact Mr. James Ellis at (815) 416-2800.

Respectfully,

Danny Bost
Site Vice President
Dresden Nuclear Power Station

Attachment: Dresden Nuclear Power Station Units 2 and 3 - 10 CFR 50.46 Report

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station

A001

Attachment
Dresden Nuclear Power Station Units 2 and 3
10CFR50.46 Report

PLANT NAME:	Dresden Nuclear Power Station, Unit 2
ECCS EVALUATION MODEL:	SAFER/GESTR-LOCA
REPORT REVISION DATE:	10/20/2006
CURRENT OPERATING CYCLE:	20

ANALYSIS OF RECORD

Evaluation Model: The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident, Volume III, SAFER/GESTR Application Methodology, NEDE-23785-1-PA, General Electric Company, Revision 1, October 1984.

Calculations:

"SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Dresden Nuclear Station 2 and 3 and Quad Cities Nuclear Station Units 1 and 2," NEDC-32990P, Revision 2, GE Nuclear Energy, September 2003.

Fuel: 9x9-2, ATRIUM-9B and GE14
Limiting Fuel Type: GE14
Limiting Single Failure: Diesel Generator
Limiting Break Size and Location: 1.0 Double-Ended Guillotine in a Recirculation Suction Pipe

Reference Peak Cladding Temperature (PCT) PCT = 2110°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated December 6, 2001 (See Note 1)	ΔPCT = 0°F
10 CFR 50.46 report dated November 25, 2002 (See Note 2)	ΔPCT = 0°F
10 CFR 50.46 report dated November 25, 2003 (See Note 3)	ΔPCT = 0°F
10 CFR 50.46 report dated November 24, 2004 (See Note 4)	ΔPCT = 0°F
10 CFR 50.46 report dated November 16, 2005 (See Note 5)	ΔPCT = 0°F
Net PCT	**2110 °F**

B. CURRENT LOCA MODEL ASSESSMENTS

GE Reload (Note 6)	ΔPCT = 0°F
Additional Core Spray Line Leakage (Note 7)	ΔPCT = 0°F
Axial Power Shape Impact on Small Break LOCA (Note 8)	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	**2110 °F**

Attachment
Dresden Nuclear Power Station Units 2 and 3
10CFR50.46 Report

PLANT NAME:	Dresden Nuclear Power Station, Unit 3
ECCS EVALUATION MODEL:	SAFER/GESTR-LOCA
REPORT REVISION DATE:	10/20/2006
CURRENT OPERATING CYCLE:	19

ANALYSIS OF RECORD

Evaluation Model: The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident, Volume III, SAFER/GESTR Application Methodology, NEDE-23785-1-PA, General Electric Company, Revision 1, October 1984.

Calculations:

"SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Dresden Nuclear Station 2 and 3 and Quad Cities Nuclear Station Units 1 and 2," NEDC-32990P, Revision 2, GE Nuclear Energy, September 2003.

Fuel: 9x9-2, ATRIUM-9B and GE14
Limiting Fuel Type: GE14
Limiting Single Failure: Diesel Generator
Limiting Break Size and Location: 1.0 Double-Ended Guillotine in a Recirculation Suction Pipe

Reference Peak Cladding Temperature (PCT) PCT = 2110°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated November 25, 2002 (See Note 2)	ΔPCT = 0°F
10 CFR 50.46 report dated November 25, 2003 (See Note 3)	ΔPCT = 0°F
10 CFR 50.46 report dated November 24, 2004 (See Note 4)	ΔPCT = 0°F
10 CFR 50.46 report dated November 16, 2005 (See Note 5)	ΔPCT = 0°F
Net PCT	**2110 °F**

B. CURRENT LOCA MODEL ASSESSMENTS

Axial Power Shape Impact on Small Break LOCA (Note 8)	ΔPCT = 0°F
Total PCT change from current assessments	$\sum\Delta PCT = 0°F$
Cumulative PCT change from current assessments	$\sum \lvert \Delta PCT \rvert = 0°F$
Net PCT	**2110 °F**

Attachment
Dresden Nuclear Power Station Units 2 and 3
10CFR50.46 Report

Notes:

1. Prior LOCA Model Assessment

   The 50.46 letter dated December 6, 2001 reported a new LOCA analysis to support extended power uprate (EPU) and transition to GE14 fuel for Dresden Unit 2 Cycle 18. The same report assessed impact of errors in Framatome ANP LOCA analysis model for Dresden Unit 3 Cycle 17 at pre-EPU power level.

   [Reference: Letter from Preston Swafford (PSLTR: #01-0122) (Exelon) to USNRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," December 6, 2001.]

2. Prior LOCA Model Assessment

   Unit 3 implemented GE LOCA analysis and GE14 fuel with Dresden Unit 3 Cycle 18 startup on October 25, 2002. Therefore, both Dresden Units 2 and 3 are being maintained under the same LOCA analysis. In the referenced letter, the impact of GE LOCA error in the WEVOL code was reported for Dresden Units 2 and 3 and determined to be negligible.

   [Reference: Letter from Robert J. Hovey (RHLTR: #02-0083) (Exelon) to USNRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," November 25, 2002.]

3. Prior LOCA Model Assessment

   The annual 50.46 report provided information on the LOCA model assessments for SAFER Level/Volume table error and Steam Separator pressure drop error. In the referenced letter, the impact of these two GE LOCA errors were reported to be negligible.

   [Reference: Letter from Robert J. Hovey (RHLTR: #03-0077) (Exelon) to USNRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," November 25, 2003.]

4. Prior LOCA Model Assessment

   The referenced annual 50.46 report provided information on reload of GE14 fuel for Dresden Unit 2 Cycle 19 and impact of postulated hydrogen-oxygen recombination on PCT. GE determined that there is no PCT impact because of the change due to the new reload of GE14 fuel and the postulated hydrogen –oxygen recombination.

   [Reference: Letter from Danny Bost (SVPLTR: #04-0075) (Exelon) to USNRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," November 24, 2004.]

5. Previous LOCA Model Assessment

   The referenced letter provided the annual 50.46 report for Units 2 and 3. The letter reported the PCT impact of reload of GE14 fuel for D3C19 starting on December 8,

2004. Also, the letter reported the GE LOCA evaluation for Unit 3, which implemented the lower sectional replacement and T-box clamp repairs. GE determined that there is no PCT impact because of the change due to the new reload of GE14 fuel and the lower sectional replacement and T-box clamp repairs.

[Reference: Letter from Danny Bost (SVPLTR: #05-0044) (Exelon) to USNRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," November 16, 2005.]

6. Current LOCA Model Assessment

   Dresden Unit 2 Cycle 20 started on November 20, 2005 with a reload of GE14 fuel. The impact of this reload was evaluated by GE and reported to be negligible. With this reload, Unit 2 core consists of all GE14 fuel type. GE determined that there is no PCT impact because of the change due to the new reload of GE14 fuel.

   [Reference: "Supplemental Reload Licensing Report for Dresden 2 Reload 19 Cycle 20," 0000-0035-6363-SRLR, Revision 1, October 2005.]

7. Current LOCA Model Assessment

   During D2R19 outage, an increased leakage of less than 5 gpm at runout condition in core spray line flow due to crack growth was evaluated by GE for impact on the LOCA analysis. The analytical limit for the Core Spray flow increased by 50 gpm that offsets the increase in the leakage. The Dresden Unit 2 LOCA analysis continues to meet the 10 CFR 50.46 acceptance criteria.

   [Reference: "Effect on Increased Leakage and CS Flow on Dresden 2 LOCA, GE-NE-0000-0047-9777-R0, 11/17/05 (transmitted via letter GE-EB2JXFGG-002, dated 11/18/05).]

8. Current LOCA Model Assessment

   Past GE small break analysis assumed a mid-peaked power shape consistent with the GE methodology. Recently, GE has determined that for small break cases, a top-peaked power shape can result in higher calculated PCT than a mid-peaked shape. GE has implemented a change in performing analysis of small break LOCA cases, which requires considering both mid-peaked as well as top-peaked power shapes. GE has evaluated effect of this change for Dresden LOCA analysis and determined the impact on the licensing basis PCT is zero. This is because the limiting PCT is based on the DBA large break and the revised small break PCT remains below the limiting large break. Therefore, the impact on the limiting large break PCT and as a result licensing basis PCT is reported as zero.

   [Reference: Exelon Dresden Station (Unit 2 & 3), "10 CFR50.46 Notification Letter 2006-1, July 28, 2006.]