

Exelon Generation Company, LLC
Dresden Nuclear Power Station
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10 CFR 50.46(a)(3)(ii)

November 24, 2004

SVPLTR: #04-0075

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

Dresden Nuclear Power Station, Units 2 and 3
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

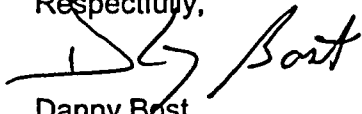
Reference: Letter from R. J. Hovey (Exelon Generation Company, LLC) to U. S. NRC, "Plant Specific ECCS Evaluation Changes – 10 CFR 50.46 Report," dated November 25, 2003

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 Units 2 and 3 is maintaining the same emergency core cooling (ECCS) model as reported in the referenced letter. One minor error was discovered by the fuel vendor (General Electric (GE)). The error involved a new heat source applicable to the loss-of-coolant accident that was not previously accounted for. This heat source is due to recombination of hydrogen and excess oxygen drawn into the vessel from containment during core heatup. GE has evaluated the effect of this additional heat source for jet pump plants like Dresden and determined that the impact is insignificant since the oxygen from containment enters the vessel after the core is reflooded. GE determined the peak clad temperature (PCT) impact of this error on all fuel types in Dresden Units 2 and 3 to be negligible. The PCTs of record are provided as an attachment to this letter.

If there are any questions concerning this letter, please contact Mr. Pedro Salas 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

ADD

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

PLANT NAME: Dresden Nuclear Power Station, Unit 2
 ECCS EVALUATION MODEL: SAFER/GESTR-LOCA
 REPORT REVISION DATE: 11/01/2004
 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 December 6, 2001 (See Note 1) | $\Delta PCT = 0^\circ F$ |
| 10 CFR 50.46 report dated November 25, 2002 (See Note 2) | $\Delta PCT = 0^\circ F$ |
| 10 CFR 50.46 report dated November 25, 2003 (See Note 3) | $\Delta PCT = 0^\circ F$ |
| Net PCT | 2110 °F |

B. CURRENT LOCA MODEL ASSESSMENTS

| | |
|--|---------------------------------|
| GE14 Fuel Reload (See Note 4) | $\Delta PCT = 0^\circ F$ |
| GE LOCA Model Change due to New Heat Source (See Note 5) | $\Delta PCT = 0^\circ F$ |
| Total PCT change from current assessments | $\sum \Delta PCT = 0^\circ F$ |
| Cumulative PCT change from current assessments | $\sum \Delta PCT = 0^\circ F$ |
| Net PCT | 2110 °F |

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

PLANT NAME: Dresden Nuclear Power Station, Unit 3
 ECCS EVALUATION MODEL: SAFER/GESTR-LOCA
 REPORT REVISION DATE: 11/01/2004
 CURRENT OPERATING CYCLE: 18

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) | $\Delta PCT = 0^\circ F$ |
| 10 CFR 50.46 report dated November 25, 2003 (See Note 3) | $\Delta PCT = 0^\circ F$ |
| Net PCT | 2110 °F |

B. CURRENT LOCA MODEL ASSESSMENTS

| | |
|--|---------------------------------|
| GE LOCA Model Change due to New Heat Source (See Note 5) | $\Delta PCT = 0^\circ F$ |
| Total PCT change from current assessments | $\sum \Delta PCT = 0^\circ F$ |
| Cumulative PCT change from current assessments | $\sum \Delta PCT = 0^\circ F$ |
| Net PCT | 2110 °F |

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

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 the 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 a SAFER Level/Volume table error and a 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. Current LOCA Model Assessment

Dresden Unit 2 Cycle 19 started on 11/9/03 with a new reload of GE14 fuel. The impact of this reload was evaluated by GE and reported to be negligible. GE determined that there is no PCT impact because of the change due to the new reload of GE14 fuel.

[Reference: GE Report (0000-0016-1235-SRLR, Revision 0), "Supplemental Reload Licensing Report for Dresden Unit 2 Reload 18 Cycle 19," September 2003.]

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

5. Current LOCA Model Assessment

GE has postulated a new heat source applicable to the LOCA event. This heat source is due to recombination of hydrogen and excess oxygen drawn into the vessel from containment during core heatup. The oxygen enters the vessel either as a dissolved gas in the ECCS water or through the break when the vessel fully depressurizes and draws the containment non-condensable gases back into the vessel. The current LOCA evaluation model does not account for the effect of this heat source, which has the potential to raise the steam temperature leading to an increase in PCT and local oxidation. GE has evaluated the effect of this additional heat source for the jet pump plants like Dresden and determined that the impact is insignificant. This is because the oxygen from containment enters the vessel after the core is reflooded for the jet pump plants. Therefore, the PCT impact for all fuel types is zero and the effect on local oxidation is negligible.

[Reference: 10 CR 50.46 Notification Letter, 2003-05, May 13, 2004.]