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10 CFR 50.46

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

Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors for Clinton Power Station

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," paragraph (a)(3)(ii), AmerGen Energy Company, LLC (AmerGen) is submitting the annual report of the Emergency Core Cooling System (ECCS) Evaluation Model changes and errors for Clinton Power Station (CPS), Unit 1. This report covers the period from November 6, 2004 through November 4, 2005.

Should you have any questions concerning this letter, please contact Mr. Timothy A. Byam at (630) 657-2804.

Respectfully,

Patrick R. Simpson

Patrick R. Simpson
Manager – Licensing

Attachments:
1. 10 CFR 50.46 Report
2. 10 CFR 50.46 Report Assessment Notes

PLANT NAME:	Clinton Power Station, Unit 1
ECCS EVALUATION MODEL:	SAFER/GESTR - LOCA
REPORT REVISION DATE:	11/04/05
CURRENT OPERATING CYCLE:	10

ANALYSIS OF RECORD

Evaluation Model Methodology:	The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident; Volume III, SAFER/GESTR Application Methodology, NEDC-23785-1-PA, Revision 1, General Electric Company, October 1984.
Calculation:	Clinton Power Station, SAFER/GESTR-LOCA Analysis Basis Documentation, NEDC-32974P, GE Nuclear Energy, October 2000.
Fuel:	GE 14
Limiting Fuel:	GE 14
Limiting Single Failure:	High Pressure Core Spray (HPCS) Diesel Generator
Limiting Break Size and Location:	1.0 Double Ended Guillotine of Recirculation Pump Suction Piping
Reference Peak Cladding Temperature (PCT):	**1550°F**

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated November 13, 2000 (See Note 1)	ΔPCT = 0°F
10 CFR 50.46 report dated November 08, 2001 (See Note 2)	ΔPCT = 5°F
10 CFR 50.46 report dated November 05, 2002 (See Note 3)	ΔPCT = 35°F
10 CFR 50.46 report dated November 05, 2003 (See Note 4)	ΔPCT = 5°F
10 CFR 50.46 report dated November 05, 2004 (See Note 5)	ΔPCT = 0°F
Net PCT	**1595°F**

B. CURRENT LOCA MODEL ASSESSMENTS

Compliance with 10 CFR 50.46 acceptance criteria for 24-month cycle operation (See Note 6)	ΔPCT = 0°F
Net PCT	**1595°F**

NOTES:

1. Prior LOCA Model Assessments

The referenced letter reported a new analysis of record for Clinton Power Station.

[Reference: Letter from M. A. Reandeau (AmerGen Energy Company) to U.S. NRC, "Report of a Change to the ECCS Evaluation Model Used for Clinton Power Station (CPS)," dated November 13, 2000.]

2. Prior LOCA Model Assessments

An inconsistent core exit steam flow was used in the pressure calculation in the SAFER code when there is a change in the two-phase level. The incorrect calculated pressure may result in premature termination of ECCS condensation and will impact the second PCT. GE evaluated the impact of this error and determined that the impact is an increase of 5°F in the PCT. This error was reported to the NRC in the referenced letter.

[Reference: Letter from K. A. Ainger (Exelon Generation Company) to U.S. NRC, "Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors for Clinton Power Station," dated November 8, 2001.]

3. Prior LOCA Model Assessments

In the referenced letter to the NRC, the impact of the Low Pressure Coolant Injection (LPCI) and Low Pressure Core Spray (LPCS) minimum flow valve flow diversion was reported and was found to have a 0°F impact. Also in the referenced letter GE LOCA errors were reported all of which had a 0°F PCT increase except for the SAFER Core Spray sparger injection elevation error that resulted in a 15°F increase in the PCT. The Extended Power Uprate (EPU) has resulted in an increase of 20°F in the PCT. The EPU was implemented in Cycle 9 Reload.

[Reference: Letter from Patrick R. Simpson (Exelon Generation Company) to U.S. NRC, "Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors for Clinton Power Station," dated November 5, 2002.]

4. Prior LOCA Model Assessments

In the referenced letter to the NRC, the impact of an error found in the initial level/volume table for SAFER was reported. This resulted in an incorrect volume split in the nodes above and below the water surface, and incorrect initial liquid mass. This error resulted in a 5°F increase in the PCT for all fuel types (i.e., GE 10 & GE14).

[Reference: Letter from Patrick R. Simpson (Exelon Generation Company) to U.S. NRC, "Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors for Clinton Power Station," dated November 5, 2003.]

5. Prior LOCA Model Assessments

In the referenced letter to the NRC, the impact of a GE postulated new heat source applicable to the LOCA event was reported. This heat source is due to recombination of hydrogen and excess oxygen drawn into the vessel from containment during core heatup. The PCT impact for all fuel types was 0°F and the effect on local oxidation was negligible.

[Reference: Letter from Patrick R. Simpson (Exelon Generation Company) to U.S. NRC, "Annual Report of Emergency Core Cooling System Evaluation Model Changes and Errors for Clinton Power Station," dated November 5, 2004.]

6. Current LOCA Model Assessments

GE performed an evaluation to confirm the applicability of the decay heat used in the LOCA analysis of record to support the 24-month cycle operation. This evaluation is documented in the Reference. The evaluation determined that the LOCA analysis of record was performed with bounding assumptions and hence is not impacted with the 24-month cycle. A 0°F PCT impact is assigned.

[Reference: GE-NE-0000-0038-9812-R0, Clinton Power Station 24-Month Cycle Evaluation, Task T0407 ECCS-LOCA SAFER/GESTR, dated June 2005.]