

AmerGen Energy Company, LLC  
Clinton Power Station  
R.R. 3 Box 228  
Clinton, IL 61727-9351

An Exelon/British Energy Company

RS-03-211

November 5, 2003

10 CFR 50.46

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

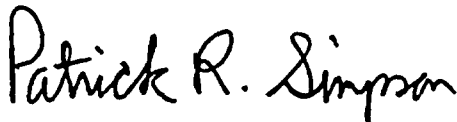
Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

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 (AmerGen), LLC 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, 2002 through November 5, 2003.

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

Respectfully,



Patrick R. Simpson  
Manager – Licensing

Attachment: Clinton Power Station, Unit 1, 10 CFR 50.46 Report

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

A001

**Attachment 1**  
**Clinton Nuclear Power Station Unit 1**  
**10CFR50.46 Report**  
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PLANT NAME: Clinton Power Station Unit 1  
ECCS EVALUATION MODEL: SAFER/GESTR - LOCA  
REPORT REVISION DATE: 11/05/03  
CURRENT OPERATING CYCLE: 9

**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 10 and 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)	$\Delta PCT = 0^{\circ}F$
10 CFR 50.46 report dated November 08, 2001 (See Note 2)	$\Delta PCT = 5^{\circ}F$
10 CFR 50.46 report dated November 05, 2002 (See Note 3)	$\Delta PCT = 35^{\circ}F$
Net PCT	1590 °F

**B. CURRENT LOCA MODEL ASSESSMENTS**

SAFER Level/Volume Table Error (See Note 4)	$\Delta PCT = 5^{\circ}F$
Net PCT	1595 °F

**Attachment 2**  
**Clinton Nuclear Power Station Units 1**  
**10 CFR 50.46 Report Assessment Notes**  
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**1. Prior LOCA Model Assessments**

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

[Reference: Letter from M.A.Reandeu (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," 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 P. 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," November 5, 2002.]

**4. Current LOCA Assessment**

GE reported that an error was found in the initial level/volume table for SAFER. The level/volume tables were generated with incorrect initial water levels. This resulted in an incorrect volume split in the nodes above and below the water surface, and incorrect initial liquid mass. GE determined that the PCT impact of this error on all fuel types (GE10, GE 14) to be 5 °F.

[Reference: 10 CFR 50.46 Notification Letter, 2003-01, May 6, 2003.]