

# AmerGen

An Exelon/British Energy Company

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**Clinton Power Station**

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RS-02-057

March 15, 2002

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: Feedwater Nozzle Safe End Fatigue Evaluation Supporting the License  
Amendment Request to Permit Up-rated Power Operation at Clinton Power  
Station

- References:
- (1) Letter from J. M. Heffley (AmerGen Energy Company, LLC) to U.S. NRC, "Request for License Amendment for Extended Power Up-rate Operation," dated June 18, 2001
  - (2) Letter from J. B. Hopkins (U.S. NRC) to O. D. Kingsley (Exelon Generation Company, LLC), "Clinton Power Station, Unit 1 – Request For Additional Information (TAC No. MB2210)," dated November 14, 2001
  - (3) Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Additional Mechanical Systems Information Supporting the License Amendment Request to Permit Up-rated Power Operation at Clinton Power Station," dated December 7, 2001
  - (4) Letter from K. R. Jury (Exelon Generation Company, LLC) to U.S. NRC, "Additional Mechanical Systems Information Supporting the License Amendment Request to Permit Up-rated Power Operation at Clinton Power Station," dated January 16, 2002

In Reference 1, AmerGen Energy Company (AmerGen), LLC submitted a request for changes to the Facility Operating License No. NPF-62 and Appendix A to the Facility Operating License, Technical Specifications (TS), for Clinton Power Station (CPS) to allow operation at an up-rated power level. The proposed changes in Reference 1 would allow CPS to operate at a power level of 3473 megawatts thermal (MWt). This represents an increase of approximately 20 percent rated core thermal power over the current 100 percent power level of 2894 MWt. In Reference 2, the NRC requested additional information regarding the proposed changes in Reference 1. Reference 3 provided the requested information.

In Reference 3, AmerGen indicated that the initial analysis of the feedwater nozzle safe end resulted in a cumulative usage factor (CUF) in excess of the allowable limit of 1.0

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for uprated conditions. As a result, a more detailed analysis was initiated to confirm a CUF of less than 1.0 for the feedwater nozzle safe end. This analysis utilized more realistic methods of analysis and more accurate estimates of plant operational cycles. As described in Reference 4, the methods used to reduce conservatism in the CUF evaluation included the following.

- Reduction in the flow scaling factor and apply the flow scaling factor only to rapid cycling stresses
- Separation of thermal stresses from mechanical and pressure stresses and apply thermal scaling factors to the thermal stresses only
- Separation of pre-EPU usage and post-EPU usage
- Reduction in the design basis number of hot standby cycles

At the time References 3 and 4 were issued, this analysis was in progress and scheduled to be completed prior to the end of the next refueling outage.

This letter documents the completion of this analysis. The detailed analysis was performed and AmerGen has confirmed that the feedwater nozzle safe end CUF does not exceed the limit of 1.0. The newly calculated CUF for the feedwater nozzle safe end is 0.8729 which is based 40 years of operation consisting of 14 years of operation at pre-EPU conditions and 26 years of operation at post-EPU conditions.

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

Respectfully,

*J.W. Simpkin*  
*for* Keith R. Jury  
Director – Licensing  
Mid-West Regional Operating Group

Attachment:

Affidavit

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Clinton Power Station  
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

STATE OF ILLINOIS )  
COUNTY OF DUPAGE )  
IN THE MATTER OF )  
AMERGEN ENERGY COMPANY, LLC ) Docket Number  
CLINTON POWER STATION, UNIT 1 ) 50-461

**SUBJECT: Feedwater Nozzle Safe End Fatigue Evaluation Supporting  
the License Amendment Request to Permit Uprated Power  
Operation at Clinton Power Station**

**AFFIDAVIT**

I affirm that the content of this transmittal is true and correct to the best of my  
knowledge, information and belief.

*T. W. Simpkin*

T. W. Simpkin  
Manager – Licensing

Subscribed and sworn to before me, a Notary Public in and

for the State above named, this 15<sup>th</sup> day of

March, 2002.

*Timothy A. Byam*  
Notary Public

