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RS-02-062

March 22, 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: Revised Risk Analysis Sensitivity Case Supporting the License Amendment Request to Permit Extended Power Uprate 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 Uprate Operation," dated June 18, 2001.

(2) Letter from K. A. Ainger (Exelon Generation Company, LLC) to U.S. NRC, "Supplemental Information Supporting the License Amendment Request to Permit Extended Power Uprate Operation at Clinton Power Station," dated September 28, 2001

In Reference 1, AmerGen Energy Company, LLC (i.e., AmerGen) 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 uprated power levels. 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 support of Reference 1, a probabilistic risk assessment (PRA) impact assessment was performed. The purpose of this assessment was to identify any significant change in risk associated with the extended power uprate (EPU) as measured by the CPS PRA models and to provide the basis for the impacts on the risk model associated with the EPU. The results of this assessment were provided in Reference 2. As a part of this assessment a number of sensitivity calculations were performed to evaluate the impact of different assumed conditions related to the analysis.

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The assessment documented in Reference 2 assumed that a motor-driven reactor feedwater pump auto-start feature would be included in the post-EPU design. The auto-start feature was also assumed in all but one of the sensitivity studies as well. AmerGen subsequently decided not to install this feature. As a result of this decision, the NRC, in a conference call, requested that sensitivity case 4 (i.e., the combined sensitivity case) be re-performed without the assumed auto-start feature. This letter documents the results of the re-performance of this sensitivity case.

Sensitivity case 4 was performed assuming the following changes to the base model.

- The base "Transient Without Isolation" initiating event frequency was increased by 10%.
- The available times for selected operator actions were reduced by 20% to evaluate the sensitivity of short time frame operator actions. The affected human error probabilities (HEPs) were recalculated using the same methodology as the base model.
- Selected repair and recovery terms (e.g., repair or recovery of pumps or valves) were set to guaranteed failure.

The original sensitivity cases were performed exclusively through changes to the input data used. The only change made to the sensitivity case 4 in response to the NRC request was to modify the basic events that reflect the motor-driven feedwater pump auto-start to reduce the operator response time for EPU. These changes were made by increasing the operator failure rates using the original human reliability analysis (HRA) methodology for these events but with the reduced amount of time available under EPU conditions. Once these changes were made the sensitivity case was rerun. The following results were obtained.

	Base PRA	New Sensitivity Case
Core Damage Frequency	1.38E-5 /year	1.78E-5 /year
Large Early Release Frequency	1.45E-7 /year	1.56E-7 /year

The change in core damage frequency (CDF) from this sensitivity case was calculated to be 4.0E-6 /year and the change in large early release frequency (LERF) was calculated to be 1.1E-8 /year. Using the NRC guidelines established in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," the change in risk as represented by the change in CDF and LERF was evaluated to determine if the change was acceptably small. The risk increase for CDF associated with power uprate has been determined to fall within Region II (i.e., changes that represent small risk changes) of Regulatory Guide 1.174 Figure 3. The LERF increase was shown to fall within Region III (i.e., changes that represent very small risk changes) of Regulatory Guide 1.174 Figure 4.

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: **Revised Risk Analysis Sensitivity Case Supporting the License Amendment Request to Permit Extended Power Uprate 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
Manager – Licensing

Subscribed and sworn to before me, a Notary Public in and for the State above named, this 22nd day of March, 2002.

Notary Public

"OFFICIAL SEAL"
TIMOTHY A. BYAM
NOTARY PUBLIC STATE OF ILLINOIS
COMMISSION EXPIRES 12/04/05