Clinton Power Station
8401 Power Road
Clinton, IL 61727

U-604173
April 25, 2014

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

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

Subject: Completion of Power Ascension Testing following Extended Power Uprate (EPU)

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 U.S. NRC to O. D. Kingsley (Exelon Generation Company, LLC), "Clinton Power Station, Unit 1 – Issuance of Amendment (TAC NO. MB2210)," dated April 5, 2002
(3) Letter from T. W. Simpkin (AmerGen Energy Company, LLC) to U.S. NRC, "Power Uprate Ascension Test Report for Clinton Power Station, Unit 1," dated August 1, 2002

In Reference 1, a request for changes to the Operating License and Technical Specifications for Clinton Power Station (CPS), Unit 1, was submitted to allow operation at uprated power levels. As stated in this request, the power uprate at CPS was to be implemented over two refueling outages. The first phase of implementation was completed as part of the Spring 2002 refueling outage and the second phase of implementation was to be completed as part of the refueling outage in 2004. The NRC approved the request for these changes in Reference 2. Also in Reference 1, a commitment was made to provide a summary of the power ascension testing conducted during implementation of the power uprate. Reference 3 provided a summary of the power ascension testing completed in 2002 and noted that a supplemental test summary would be provided following completion of the second phase of power ascension testing.

Until the most recent refueling outage (C1R14) completed in October 2013, Exelon Generation Company (Exelon), LLC, had restricted power ascension to no greater than 97 percent power since (as noted in Reference 3) all testing to full extended power uprate (EPU) conditions had not been completed. During plant startup testing following C1R14 (Fall 2013), the final phase of power ascension testing was completed to allow operation at full EPU power of 3473 MWt in accordance with the CPS Operating License. All required EPU testing has now been successfully completed and the attached supplemental testing summary is provided as committed to in Reference 3. This completes the EPU testing program for CPS.

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NRR

There are no regulatory commitments contained in this letter.

If you have any questions regarding this matter, please contact Mr. Jeffrey Cunningham, Acting Regulatory Assurance Manager, at (217) 937-3160.

Respectfully,
B. Keith Taber
Site Vice President
Clinton Power Station

JLP/blf

Attachment: Clinton Power Station, Unit 1, Extended Power Uprate Supplemental Power Ascension Test Report

Clinton Power Station, Unit 1
Extended Power Uprate
Supplemental Power Ascension Test Report

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1.0 EXECUTIVE SUMMARY

The Clinton Power Station (CPS) Unit 1 Extended Power Uprate (EPU) supplemental startup test report is prepared in accordance with a commitment contained in Reference 1. This supplemental report summarizes the startup testing performed at CPS Unit 1 following removal of the site imposed power restrictions prior to implementation of the final phase of EPU.

The final portion of the CPS EPU testing program was comprised of 1) Feedwater Level Control System testing and 2) Pressure Control System testing. As noted in Table 3 from the Reference 1 letter, these two tests were the only tests remaining to be completed from 2002. As documented in Table 2 from the Reference 1 letter, Test Condition 7 is testing completed at a power level of 95% Rated Thermal Power (RTP). During the 2002 timeframe, all of the testing (with the exception of these two tests) was successfully completed at the 95% power level. Due to site considerations and schedules at the time, these two remaining tests were not performed at 95% however; they were successfully performed at 92% RTP. As a result, CPS was limited in power output to 97% power which is 5% above that tested.

The results of the testing and data gathering demonstrated successful operation at 95% power. All systems performed in a stable manner during both power ascension and dynamic testing. With the completion of this testing, this removes the restriction of 97% power and allows power operation up to the 100% licensed power level of 3473 MWt.

2.0 Test No. 22 – Pressure Regulator Testing

Purpose: To determine the response of the reactor and the turbine pressure regulator system during induced step changes to the pressure regulators and acceptable performance of the back-up pressure regulator during simulated failure of the in-service pressure regulator.

Description: The pressure regulator testing was performed in accordance with an approved site procedure. The pressure control system settings were verified to be within the acceptable limits per the guidance of Service Information Letter (SIL) 589, "Pressure Regulator Tuning," during the previous refuel outage.

During power ascension, ± 3, and ± 6 psi step changes in reactor pressure were induced, and the resulting transients were recorded. The data for each step change was reviewed for acceptable performance and scram margins prior to performing the next larger pressure step change. Step changes were first performed for pressure regulator "A" in control and then with pressure regulator "B" in control. This pressure regulator testing was performed at 95% power.

Results: All Level 1 acceptance criteria were satisfied. The system response to step changes at the 95% power level was satisfactory. No signs of divergence or oscillations occurred. Pressure response time and margins to scram setpoints were adequate in all cases. No limit cycles were observed. Regulator output linearity remained within the acceptance limits.

3.0 Test No. 23A – Feedwater System Testing

Purpose: To adjust the feedwater level control system for acceptable reactor level control and to demonstrate stable reactor response to induced level and flow changes.

Description: The feedwater level control system testing was performed using an approved site procedure.

To confirm acceptable performance of the feedwater level control system, step changes in feedwater flow were inserted. Reactor level step changes of ±1"and ±2" were inserted and the resulting dynamic changes were recorded. The step changes were performed for varying combinations of single element and 3-element control with one pump in automatic and the other in manual.

Results: All Level 1 acceptance criteria were satisfied. The feedwater control system response to level and flow changes was stable and satisfactory. There were no signs of divergence during the induced transients and no adjustments to the control system were required. The Level 2 acceptance criteria requirements were found acceptable.

4.0 REFERENCE

1. Letter from T. W. Simpkin (AmerGen Energy Company, LLC) to U.S. NRC, "Power Uprate Ascension Test Report for Clinton Power Station, Unit 1," dated August 1, 2002