

March 21, 2000

Template # NRR-058  
(To Be SCANNED)

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SUBJECT: ISSUANCE OF AMENDMENT - CLINTON POWER STATION, UNIT 1  
(TAC NO. MA7001)

Dear Mr. Reandeau:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 126 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit 1. The amendment is in response to the application dated October 25, 1999 (U-603282), filed by Illinois Power Company (IP), the licensee at that time. Subsequent to that filing, AmerGen Energy Company, LLC, the current licensee, adopted the license amendment requests submitted by IP.

The amendment revises the Technical Specification allowable values for the reactor protection system electric power monitoring assembly overvoltage and undervoltage trip setpoints.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/RA/

Jon B. Hopkins, Senior Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-461

- Enclosures: 1. Amendment No. 126 to NPF-62  
2. Safety Evaluation

cc w/encls: See next page

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Mike Reandeau

Clinton Power Station, Unit 1  
AmerGen Energy Company, LLC

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 126  
License No. NPF-62

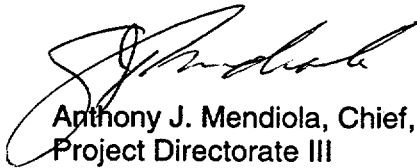
1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by AmerGen Energy Company, LLC (the licensee), dated October 25, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-62 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 126, are hereby incorporated into this license. AmerGen Energy Company, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Anthony J. Mendiola, Chief, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 21, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 126

FACILITY OPERATING LICENSE NO. NPF-62

DOCKET NO. 50-461

Replace the following page of the Appendix "A" Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

3.3-82

Insert Page

3.3-82

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.3.8.2.1 -----NOTE----- Only required to be performed prior to entering MODE 2 or 3 from MODE 4, when in MODE 4 for <math>\geq 24</math> hours. ----- Perform CHANNEL FUNCTIONAL TEST.</p>	184 days
<p>SR 3.3.8.2.2 Perform CHANNEL CALIBRATION. The Allowable Values shall be:</p> <p>a. Overvoltage Bus A <math>\leq 127.3</math> V Bus B <math>\leq 126.7</math> V</p> <p>b. Undervoltage Bus A <math>\geq 115.0</math> V Bus B <math>\geq 114.7</math> V</p> <p>c. Underfrequency (with time delay <math>\leq 4.0</math> seconds) Bus A <math>\geq 57</math> Hz Bus B <math>\geq 57</math> Hz</p>	18 months
<p>SR 3.3.8.2.3 Perform a system functional test.</p>	18 months



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 126 TO FACILITY OPERATING LICENSE NO. NPF-62

AMERGEN ENERGY COMPANY, LLC

CLINTON POWER STATION, UNIT 1

DOCKET NO. 50-461

1.0 INTRODUCTION

The previous licensee, Illinois Power Company (IP), for the Clinton Power Station (CPS) proposed a license amendment to revise the Technical Specification (TS) allowable values for the reactor protection system electric power monitoring assembly overvoltage and undervoltage trip setpoints, by letter dated October 25, 1999 (U-603282). By letter dated February 1, 2000, AmerGen Energy Company, LLC, the current licensee, adopted the license amendment requests submitted by IP.

The Reactor Protection System (RPS) Electric Power Monitoring system protects the loads connected to the RPS bus from unacceptable voltage conditions. The system isolates the RPS bus from the RPS/UPS inverter or alternate power supply in case of overvoltage (OV), undervoltage (UV), or underfrequency (UF). The RPS buses power the RPS logic, scram solenoids, and valve isolation logic. Technical Specification (TS) Surveillance Requirement 3.3.8.2.2 lists OV, UV, and UF Allowable Values for the protective instrumentation for the RPS electric monitoring channels. Nominal trip setpoints are specified in setpoint calculations. The nominal values are selected to ensure that the setpoints do not exceed the Allowable Values between Channel Calibrations. The Allowable Values are derived from analytical limits corrected for calibration, process, and instrument errors. The methodology for determining the RPS Electric Power Monitoring Assembly Allowable Values is based upon General Electric Design Specification 22A3153, Revision 5. In accordance with TS Bases of the Design Specification, the Electric Power Monitoring Assembly voltage setpoints at the inverter are based on providing required voltage to the RPS scram solenoids and the main steam isolation valve (MSIV) solenoids when taking into account associated line losses. Originally, the line losses were not considered during the calculation of the Electric Power Monitoring Assembly voltage setpoints.

2.0 BACKGROUND

The RPS solenoid bus power supplies are a part of the Nuclear System Protection System (NSPS). The NSPS power supply system has both divisional and nondivisional equipment. The divisional portion of the system supplies safety-related instrumentation and logic and consists of four independent Class 1E 120 Vac uninterruptible power supplies (UPS) and their respective buses. Each UPS is powered by a Class 1E power supply consisting of a battery charger, a station battery, a dc-to-ac inverter, and a solid state transfer switch. Alternate power

is available to each NSPS bus from a Class 1E power supply through a step-down transformer and an isolation transformer. The solid-state transfer is designed to automatically transfer from the preferred (inverter) source of power to alternate (transformer) source of power in case of inverter failure or fault on the NSPS system.

The nondivisional portion provides power to the two RPS solenoid buses. The RPS solenoid bus power supplies also have a normal and alternate lineup. The normal lineup is via the UPS and consists of a Class 1E, dc-to-ac power inverter fed from a non-Class 1E battery and associated 480/120 Vac charger, or a non-Class 1E source. The alternate supply is from a Class 1E regulating transformer fed from the same non-Class 1E bus as the battery charger. The inverter output includes a Class 1E power monitoring system that, independently of the inverter, trips the RPS bus supply output breaker upon sensing overvoltage, undervoltage, overfrequency, or an underfrequency condition during either normal operation from the inverter or bypass operation from the alternate source.

### 3.0 EVALUATION

During analysis of required replacement of the RPS Electric Power Monitoring Assembly circuits, the licensee discovered a potential discrepancy regarding the Electric Power Monitoring Assembly voltage setpoints. Earlier, the licensee did not consider the line losses in the calculation of the Electric Power Monitoring Assembly voltage setpoints. A review of the overvoltage and the undervoltage setpoints revealed that the setpoints, as specified in the TSs, were not conservative. After discovery of this condition, the licensee prepared a new calculation to determine the new Electric Power Monitoring Assembly voltage setpoints. This calculation utilized the same data and methodology defined in GE Design Specifications 22A3153 and added sufficient margin to account for repeatability, instrument drift and inaccuracies, and the associated line losses. From this calculation, new setpoints including the associated Allowable Values were established for the undervoltage and overvoltage trip functions.

The proposed change revises the Allowable Values for RPS Electric Power Monitoring Assembly undervoltage and overvoltage trip functions. Surveillance Requirement (SR) 3.3.8.2.2 of the TSs would be revised to reflect the new values as follows:

#### Current SR 3.3.8.2.2 Allowable Values

- a. Overvoltage
  - Bus A  $\leq$  134.2 V
  - Bus B  $\leq$  133.6 V
  
- b. Undervoltage
  - Bus A  $\geq$  114.2 V
  - Bus B  $\geq$  113.2 V



Proposed SR 3.3.8.2.2 Allowable Values

- a. Overvoltage
  - Bus A  $\leq$  127.3 V
  - Bus B  $\leq$  126.7 V
  
- b. Undervoltage
  - Bus A  $\geq$  115.0 V
  - Bus B  $\geq$  114.7 V

The new calculation includes consideration of the worst-case voltage drop associated with each solenoid and load. After establishing the most limiting voltage drop, the calculation uses the voltage limitations (minimum voltage and maximum voltage) of the solenoids as a basis to establish the acceptable Allowable Values. This process established a voltage operating range, and consequently, the overvoltage and undervoltage Electric Power Monitoring Assembly trip setpoints. Due to differences in the field configuration of the "A" and "B" solenoid buses, voltage drop calculations yield different results for determination of the "A" Electric Power Monitoring Assembly setpoints in comparison to the "B" Electric Power Monitoring Assembly setpoints.

The staff has evaluated the licensee submittal and determined that the revised overvoltage setpoints will ensure that the solenoids are protected from experiencing a voltage higher than the design voltage that could damage the insulation of the solenoids. The revised undervoltage setpoints will ensure that the solenoids are protected from potentially losing their control capability that could result in a loss of scram function.

Based on the above, the staff finds the following:

- a. The proposed TS change provides more conservative Allowable Values for overvoltage and undervoltage; and
  
- b. The proposed change brings TSs into agreement with GE Design Specification, and will assure that adequate protection continues to be provided for the RPS components.

Therefore, the change is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative

occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (65 FR 1919). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: N. Trehan

Date: March 21, 2000