

February 19, 1998

Mr. Robert G. Byram  
Senior Vice President-Nuclear  
Pennsylvania Power and Light Company  
2 North Ninth Street  
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
(TAC NOS. M96124 AND M96125)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 172 to Facility Operating License No. NPF-14 and Amendment No. 145 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. These amendments are in response to your letter dated May 31, 1996.

These amendments delete, from the Technical Specifications, Section 4.7.2.d.2, the surveillance requirement for chlorine detection for the control room emergency outside air supply system as a result of the removal of bulk quantities of gaseous chlorine from the Susquehanna Steam Electric Station.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

<sup>/s/</sup>  
Victor Nerses, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

- Enclosures: 1. Amendment No. 172 to License No. NPF-14
- 2. Amendment No. 145 to License No. NPF-22
- 3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 19, 1998

Mr. Robert G. Byram  
Senior Vice President-Nuclear  
Pennsylvania Power and Light Company  
2 North Ninth Street  
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
(TAC NOS. M96124 AND M96125)

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The Commission has issued the enclosed Amendment No. 172 to Facility Operating License No. NPF-14 and Amendment No. 145 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. These amendments are in response to your letter dated May 31, 1996.

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A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

A handwritten signature in cursive script that reads "Victor Nerses".

Victor Nerses, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

Enclosures: 1. Amendment No. 172 to  
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2. Amendment No. 145 to  
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3. Safety Evaluation

cc w/encls: See next page

Mr. Robert G. Byram  
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station,  
Units 1 & 2

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

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 172  
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
  - A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated May 31, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;
  - 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.

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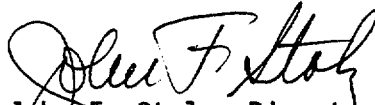
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-14 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 172 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L 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 is to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: February 19, 1998

ATTACHMENT TO LICENSE AMENDMENT NO.172

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following page of the Appendix A Technical Specifications with attached page. The revised page is identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE

3/4 7-6

INSERT

3/4 7-6

## **PLANT SYSTEMS**

### **SURVEILLANCE REQUIREMENTS (Continued)**

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1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 5810 cfm  $\pm$  10%.
  2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%; and
  3. Verifying a subsystem flow rate of 5810 cfm  $\pm$  10% during subsystem operation when tested in accordance with ANSI N510-1975.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters and charcoal adsorber banks is less than 9.1 inches Water Gauge while operating the subsystem at a flow rate of 5810 cfm  $\pm$  10%.
  2. Verifying that on each of the below pressurization mode actuation test signals, the subsystem automatically switches to the pressurization mode of operation and the control structure is maintained at a positive pressure of 1/8 inch W.G. relative to the outside atmosphere during subsystem operation at a flow rate less than or equal to 5810 cfm:
    - a. Reactor Building isolation, and
    - b. Outside air intake radiation - high.
  3. Verifying that the heaters dissipate 30  $\pm$  3.0 Kw when tested in accordance with ANSI N510-1975.

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\* Except that the test is performed at 30°C and 95% Relative Humidity and in accordance with ASTM D3803-79 Method A.



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

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 145  
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
  - A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated May 31, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;
  - 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.



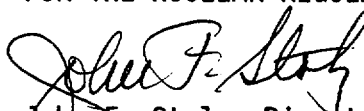
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 145 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L 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 is to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: February 19, 1998

ATTACHMENT TO LICENSE AMENDMENT NO.145

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following page of the Appendix A Technical Specifications with attached page. The revised page is identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE

3/4 7-6

INSERT

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## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 5810 cfm  $\pm$  10%.
  2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%; and
  3. Verifying a subsystem flow rate of 5810 cfm  $\pm$  10% during subsystem operation when tested in accordance with ANSI N510-1975.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters and charcoal adsorber banks is less than 9.1 inches Water Gauge while operating the subsystem at a flow rate of 5810 cfm  $\pm$  10%.
  2. Verifying that on each of the below pressurization mode actuation test signals, the subsystem automatically switches to the pressurization mode of operation and the control structure is maintained at a positive pressure of 1/8 inch W.G. relative to the outside atmosphere during subsystem operation at a flow rate less than or equal to 5810 cfm:
    - a. Reactor Building isolation, and
    - b. Outside air intake radiation - high.
  3. Verifying that the heaters dissipate 30  $\pm$  3.0 Kw when tested in accordance with ANSI N510-1975.

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\* Except that the test is performed at 30°C and 95% Relative Humidity and in accordance with ASTM D3803-79 Method A.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.172 TO FACILITY OPERATING LICENSE NO. NPF-14  
AMENDMENT NO. 145 TO FACILITY OPERATING LICENSE NO. NPF-22  
PENNSYLVANIA POWER & LIGHT COMPANY  
ALLEGHENY ELECTRIC COOPERATIVE, INC.  
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
DOCKET NOS. 50-387 AND 388

1.0 INTRODUCTION

By letter dated May 31, 1996, the Pennsylvania Power and Light Company (PP&L, the licensee) submitted a request for changes to the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Technical Specifications (TSs). The requested changes would delete, from the TSs, Section 4.7.2.d.2, the surveillance requirement for chlorine detection for the control room emergency outside air supply system as a result of the removal of bulk quantities of gaseous chlorine from the Susquehanna Steam Electric Station.

2.0 BACKGROUND

In accordance with Regulatory Guide (RG) 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," (January 1977) PP&L has installed in the fresh air intake of the control structure HVAC (heating, ventilation, and air conditioning) systems, a chlorine detection system which upon detection of chlorine gas in the incoming air stream will initiate automatically the isolation of the control room air flow, close dampers, and shut off fans. This RG was intended to protect reactor operators from the hazards of an on-site chlorine release. In the past, bulk quantities of gaseous chlorine were used and stored at SSES to control the growth of micro-organisms in the open cooling water systems, circulating water and service water to prevent bio-fouling of heat exchangers and the cooling tower. Recently, PP&L has replaced the chlorine with a non-oxidizing biocide and has removed the bulk quantities of the chlorine gas from the site. In a submittal dated October 28, 1994, PP&L had requested the deletion of a number of other surveillance sections from the TSs related to chlorine detection which was evaluated by the staff and approved in a safety evaluation with Amendments 147 and 117, dated June 19, 1995. This particular TSs section was inadvertently omitted from the 1994 request.

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### 3.0 EVALUATION

The licensee indicated in its submittal that the removal of chlorine from the site eliminates the potential for an on-site toxic gas release and thus relieves the licensee from following the guidelines in RG 1.95 and specifically the need to have the chlorine detection system in the control room HVAC system. PP&L indicated in discussions with the staff that it has replaced the chlorine with the product Betz Clam-Trol CT-1 as its biocide. This product is a combination of organic compounds which control the growth of micro-organisms in water systems. It is non-oxidizing and is relatively nontoxic to humans. The biocide is added to the water systems in liquid form with the following two active ingredients suspended in an alcohol mixture: alkyl dimethyl benzyl ammonium chloride, and dodecyl guanidine hydrochloride. Since there is chlorine in compound form in the biocide, the staff concludes that any potential spills of the biocide will not result in the release of chlorine gas to the environment and especially to the control room.

The licensee indicated that it has used a methodology based on the analysis included in the SSES Final Safety Analysis Report in Section 2.2. Further, a bounding calculation was used as well as the frequency guidelines included in RG 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release."

In its submittal, PP&L discussed the hazards of an off-site chlorine release.

In a study to investigate the risk of a hazardous off-site chlorine release, the risk frequency of such a release is shown to be less than the Standard Review Plan lower radioactivity release frequency limit of  $1E-7$ /year. Our study concluded that the current chlorine shipping frequency is less than the minimum considered significant in Reg. Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release", June, 1974. Thus, off-site chlorine release is judged to be insignificant for radiological impact on the safety and health of the public. Further, because of the amount of chlorine released, any "puff" is expected to pass the station in minutes. Self-contained breathing apparatus and manual control room isolation are available to mitigate the on-site consequences of off-site chlorine release.

Specifically, the bounding calculation resulted in a calculated release risk of less than  $4.7E-9$  core damage/yr from chlorine release off-site. The staff finds that the methodology was acceptable and the result of the calculation to indicate that the effect of removal of the chlorine detection system would be acceptable. In addition, the staff agrees with the licensee's conclusion based on RG 1.78 that the infrequent shipping of chlorine past the SSES site need not be considered in the evaluations of control room habitability.

Based on the above discussion, the staff finds that deleting the surveillance and action statements from the TSs relative to the operability of the chlorine detection system does not affect the integrity, function, or performance of

any safety related system, function, or equipment in the SSES units. Even in the event of an off-site release of chlorine, adequate measures are available for the operators to mitigate any potential hazards to those in the control room through manual HVAC system isolation and the use of a self-contained breathing apparatus. Thus, this TS change does not affect the level of protection provided to the reactor operators and margin of safety at the units will remain unchanged. Therefore, the staff concludes that the removal of the bulk quantities of chlorine from the site and the use of the alternate biocide makes RG 1.95 inapplicable to SSES, and finds the TS change to be acceptable.

#### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (62 FR 38137). Accordingly, the amendments meet 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 amendments.

#### 6.0 CONCLUSION

The Commission 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. Poslusny

Date: February 19, 1998