

1997  
September 3, 1997

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

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 (TAC NOS. M96709  
AND M96710)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 168 to Facility Operating License No. NPF-14 and Amendment No.142 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 25, 1996.

These amendments: (1) revise the required number of operable gaseous radioactivity monitoring system channels and particulate radioactivity monitoring system channels from one in each of the monitoring systems to one in either of the monitoring systems, (2) allow both the gaseous radioactivity monitoring system and the particulate monitoring system to be inoperable for up to 30 days provided that grab samples are obtained and analyzed at least once per 12 hours, and (3) add an action for the loss of all reactor coolant system leakage detection systems (drywell floor sump level monitoring system, gaseous radioactivity monitoring system, and particulate radioactivity monitoring system).

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

Sincerely,

/s/  
Chester Poslusny, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

- Enclosures: 1. Amendment No.168 to License No. NPF-14  
2. Amendment No.142 to License No. NPF-22  
3. Safety Evaluation

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PDI-2 Reading CPoslusny WBeckner THarris (EMail SE)  
SVarga OGC ACRS

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NAME	CPoslusny:rb	MO'Brien	LMarsh	CMiller	WBeckner	WBeckner	JStolz
DATE	7/7/97	7/11/97	7/15/97	7/16/97	7/21/97	8/11/97	9/02/97

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

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Senior Vice President-Generation and  
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SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 (TAC NOS. M96709  
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These amendments: (1) revise the required number of operable gaseous radioactivity monitoring system channels and particulate radioactivity monitoring system channels from one in each of the monitoring systems to one in either of the monitoring systems, (2) allow both the gaseous radioactivity monitoring system and the particulate monitoring system to be inoperable for up to 30 days provided that grab samples are obtained and analyzed at least once per 12 hours, and (3) add an action for the loss of all reactor coolant system leakage detection systems (drywell floor sump level monitoring system, gaseous radioactivity monitoring system, and particulate radioactivity monitoring system).

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 "Chester Poslusny".

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

Docket Nos. 50-387 and 50-388

Enclosures: 1. Amendment No. 168 to  
License No. NPF-14  
2. Amendment No. 142 to  
License No. NPF-22  
3. Safety Evaluation

cc w/encls: See next page

Mr. Robert G. Byram  
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station,  
Units 1 & 2

cc:

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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. 168  
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 September 25, 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.

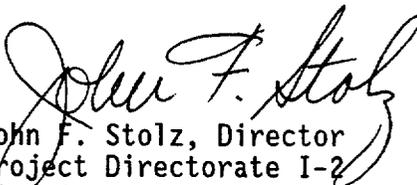
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-14 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 168 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 after its date of issuance.

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: September 3, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 168

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

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

REMOVE

3/4 4-6

INSERT

3/4 4-6

## **REACTOR COOLANT SYSTEM**

### **3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE**

#### **LEAKAGE DETECTION SYSTEMS**

#### **LIMITING CONDITION FOR OPERATION**

---

3.4.3.1 At least the following reactor coolant system leakage detection systems shall be OPERABLE:

- a. Two drywell floor drain sump level channels, and
- b. One primary containment atmosphere gaseous radioactivity monitoring system channel or one containment atmosphere particulate radioactivity monitoring system channel aligned to the drywell.

**APPLICABILITY:** OPERATIONAL CONDITIONS 1, 2 and 3.

#### **ACTION:**

- a. With one or both channels of the drywell floor drain sump level monitoring system inoperable, operation may continue for up to 30 days provided the drywell floor drain sump flow rate is monitored and determined by alternate means at least once per 12 hours. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With both channels of the gaseous radioactivity monitoring system inoperable and with both channels of the particulate radioactivity monitoring system inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 12 hours. If at least one channel of the affected monitoring system cannot be returned to OPERABLE status and aligned to the drywell within 30 days, or the grab samples are not obtained and analyzed as required, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With all channels (both channels of the drywell floor drain sump level monitoring system, both channels of the gaseous radioactivity monitoring system and both channels of the particulate radioactivity monitoring system) of the reactor coolant system leakage detection systems inoperable be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

#### **SURVEILLANCE REQUIREMENTS**

---

4.4.3.1 The reactor coolant system leakage detection systems shall be demonstrated OPERABLE by:

- a. Primary containment atmosphere particulate and gaseous monitoring systems-performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.
- b. Drywell floor drain sump level monitoring system-performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.



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.142  
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 September 25, 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. 142 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 after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 3, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 142

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

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

REMOVE

3/4 4-6

INSERT

3/4 4-6

## **REACTOR COOLANT SYSTEM**

### **3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE**

#### **LEAKAGE DETECTION SYSTEMS**

##### **LIMITING CONDITION FOR OPERATION**

---

3.4.3.1 At least the following reactor coolant system leakage detection systems shall be OPERABLE:

- a. Two drywell floor drain sump level channels, and
- b. One primary containment atmosphere gaseous radioactivity monitoring system channel or one containment atmosphere particulate radioactivity monitoring system channel aligned to the drywell.

**APPLICABILITY:** OPERATIONAL CONDITIONS 1, 2 and 3.

##### **ACTION:**

- a. With one or both channels of the drywell floor drain sump level monitoring system inoperable, operation may continue for up to 30 days provided the drywell floor drain sump flow rate is monitored and determined by alternate means at least once per 12 hours. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With both channels of the gaseous radioactivity monitoring system inoperable and with both channels of the particulate radioactivity monitoring system inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 12 hours. If at least one channel of the affected monitoring system cannot be returned to OPERABLE status and aligned to the drywell within 30 days, or the grab samples are not obtained and analyzed as required, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With all channels (both channels of the drywell floor drain sump level monitoring system, both channels of the gaseous radioactivity monitoring system and both channels of the particulate radioactivity monitoring system) of the reactor coolant system leakage detection systems inoperable be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

##### **SURVEILLANCE REQUIREMENTS**

---

4.4.3.1 The reactor coolant system leakage detection systems shall be demonstrated OPERABLE by:

- a. Primary containment atmosphere particulate and gaseous monitoring systems-performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.
- b. Drywell floor drain sump level monitoring system-performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 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. 168 TO FACILITY OPERATING LICENSE NO. NPF-14  
AMENDMENT NO. 142 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 September 25, 1996, the Pennsylvania Power & Light Company (the licensee), submitted a request for changes to the Susquehanna Steam Electric Station, Units 1 and 2, Technical Specifications (TSs). The requested change would revise the operability requirements for the reactor coolant system leakage detection instrumentation. Specifically, the changes would (1) revise the required number of operable gaseous radioactivity monitoring system channels and particulate radioactivity monitoring system channels from one in each of the monitoring systems to one in either of the monitoring systems, (2) allow both the gaseous radioactivity monitoring system and the particulate monitoring system to be inoperable for up to 30 days provided that grab samples are obtained and analyzed at least once per 12 hours, and (3) add an action for the loss of all reactor coolant system leakage detection systems (drywell floor sump level monitoring system, gaseous radioactivity monitoring system, and particulate radioactivity monitoring system).

2.0 BACKGROUND

The reactor coolant system (RCS) leakage detection systems at Susquehanna Steam Electric Station (SSES), Units 1 and 2, consist of the drywell floor sump level monitoring system, the gaseous radioactivity monitoring system and the particulate radioactivity monitoring system. The primary means of quantifying RCS leakage in the drywell is the drywell floor drain sump level monitoring system, which consists of two drywell floor drain sump level channels. The containment atmosphere gaseous and particulate radioactivity monitoring systems are not capable of quantifying leakage rates. These gaseous and particulate radioactivity monitors provide a backup and diverse indication of the RCS leakage and provide early alarms of a leak in the RCS to the operators. The gaseous and particulate radioactivity monitoring systems were originally designed to share containment penetrations with the post-accident sample system. Recently, the licensee made a design change, which provided separate containment penetrations for the individual channels of the gaseous and particulate radioactivity monitoring systems.

Because of the containment isolation requirements for the gaseous and particulate radioactivity system penetrations, all channels of these systems will be isolated when a division of the reactor protection system (RPS) is actuated or when power is lost to an RPS bus. The current TSs do not require corrective action for the inoperability (i.e., due to isolation, etc.) of all channels of gaseous and particulate radioactivity monitoring systems at the same time. Also, the current TSs do not address the loss of all the reactor coolant system leakage detection systems. The licensee's September 25, 1996, amendment request revises the TSs for both units to address these issues. The NRC staff has reviewed the licensee's submittal and has prepared the following evaluation.

### 3.0 EVALUATION

#### 3.1 Proposed Change to Limiting Condition for Operation of TS Section 3.4.3.1.b

When the plant is in Operational Condition Mode 1, 2, or 3, the current TS requires one channel of the gaseous radioactivity monitoring system and one channel of the particulate radioactivity monitoring system to be operable. The licensee proposed to revise the required number of operable gaseous radioactivity monitoring system channels and particulate radioactivity monitoring system channels to one in either of the monitoring systems.

The licensee stated that RCS leakage inside the drywell is detected by at least one of three variables; sump levels, gaseous radioactivity levels, and particulate radioactivity levels. As previously described, the primary means of quantifying RCS leakage in the drywell is the drywell floor drain sump level monitoring system, which consists of two drywell floor drain sump level channels. The containment atmosphere gaseous and particulate radioactivity monitoring systems are not capable of quantifying leakage rates. These monitors provide a backup and diverse indication of changes in the RCS leakage and provide early alarms to the operators.

Based on our review, we find that allowing only one channel of either the gaseous radioactivity monitoring system or the particulate radioactivity monitoring system to be operable will have insignificant effect on the RCS leakage detection systems since the purpose of these gaseous and particulate radioactivity monitoring systems is to provide a backup and diverse means of leak detection to that supplied by the two monitoring channels of the drywell floor sump level monitoring system. In addition, this proposed TS is consistent with the guidance of NUREG-1433, "General Electric Standard Technical Specifications for BWR/4 Plants," Revision 1. Therefore, we find it acceptable.

#### 3.2 Proposed Change to Action of TS Section 3.4.3.1.b

When the plant is in Operational Condition Mode 1, 2, or 3, the current TS allows either the gaseous radioactivity monitoring system or the particulate radioactivity monitoring system to be inoperable for up to 30 days provided

that grab samples are obtained and analyzed at least once per 12 hours. The licensee's proposed change to the TS allows both the gaseous radioactivity monitoring system and the particulate radioactivity monitoring system to be inoperable at the same time for up to 30 days provided that grab samples are obtained and analyzed at least once per 12 hours.

The licensee stated that the gaseous and particulate radioactivity monitoring systems are redundant to the drywell floor sump level monitoring system, which remains operable with two sump level channels. Also, the 12-hour interval will provide periodic information that is adequate to detect an RCS leak. The 30-day completion time for restoration recognizes that at least one other form of leakage monitor (the drywell floor sump level monitoring system) is available. The proposed change is consistent with the guidance of NUREG-1433, Revision 1.

Based on our review, we conclude that allowing both the gaseous radioactivity monitoring system and the particulate radioactivity monitoring system to be inoperable for up to 30 days as long as grab samples are obtained and analyzed at least once per 12 hours will have an insignificant effect on the leakage detection systems, and therefore, is acceptable.

### 3.3 Proposed Change to Add Action to TS Section 3.4.3.1

The current TSs do not address the loss of all RCS leakage detection systems (the drywell floor sump level monitoring system, the gaseous radioactivity monitoring system, and the particulate radioactivity monitoring system) when the plant is in Operational Condition Mode 1, 2, or 3. The licensee proposed to add a corrective action for the loss of all RCS leakage detection systems. The proposed action will require the plant to be immediately shut down in an orderly fashion.

With all channels of the RCS leakage detection systems inoperable, monitoring for RCS leakage is significantly degraded since no automatic means of monitoring leakage is available. RCS leakage could occur, which threatens the RCS integrity, without the knowledge of the operator. Requiring an orderly shutdown of the plant upon the loss of all channels of RCS leakage detection systems will provide an adequate response before a significant break in the RCS can occur. Based on our review, we find that this proposed additional restriction regarding the loss of all RCS leakage detection systems is consistent with the guidance of NUREG-1433, Revision 1, and therefore, is acceptable.

Based on our review and evaluation, as previously described, we conclude that the proposed changes to the RCS leakage detection system TS will provide an adequate and reliable method of RCS leakage detection and are consistent with the guidance of NUREG-1433, Revision 1. Therefore, the proposed TS changes are acceptable.

### 3.0 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.

### 4.0 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. 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 (61 FR 58904). Accordingly, the amendments meet 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.

### 5.0 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: D. Shum

Date: September 3, 1997