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

April 15, 1986

Docket No. 50-387

Mr. Harold W. Keiser
Vice President
Nuclear Operations
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Keiser:

Subject: Amendment No. 58 to Facility Operating License No. NPF-14, Susquehanna Steam Electric Station, Unit 1

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 58 to Facility Operating License No. NPF-14 for the Susquehanna Steam Electric Station, Unit 1. The amendment is in response to your letter dated July 22, 1983, as supplemented on July 26, August 2, November 22, 1983, June 21 and November 13, 1984.

This amendment revises the Unit 1 Technical Specifications by raising the Main Steam Line Radiation Monitor Technical Specification setpoint from three times background to seven times background.

A copy of the related safety evaluation supporting Amendment No. 58 to Facility Operating License NPF-14 is enclosed.

Sincerely,

Elinor G. Adensam

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosures:
1. Amendment No. 58 to NPF-14
2. Safety Evaluation

cc w/enclosures:
See next page

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Certified By

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Mr. Harold W. Keiser
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station
Units 1 & 2

cc:
Jay Silberg, Esq.
Shaw, Pittman, Potts, & Trowbridge
1800 M Street, N. W.
Washington, D.C. 20036

Bryan A. Snapp, Esq.
Assistant Corporate Counsel
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Mr. William E. Barberich
Manager-Nuclear Licensing
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Mr. R. Jacobs
Resident Inspector
P.O. Box 52
Shickshinny, Pennsylvania 18655

Mr. R. J. Benich
Services Project Manager
General Electric Company
1000 First Avenue
King of Prussia, Pennsylvania 19406

Mr. Thomas M. Gerusky, Director
Bureau of Radiation Protection
Resources
Commonwealth of Pennsylvania
P. O. Box 2063
Harrisburg, Pennsylvania 17120

Robert W. Alder, Esquire
Office of Attorney General
P.O. Box 2357
Harrisburg, Pennsylvania 17120

Mr. William Matson
Allegheny Elec. Coorperative, Inc.
212 Locust Street
P. O. Box 1266
Harrisburg, Pennsylvania 17108-1266

Mr. Anthony J. Pietrofitta,
General Manager
Power Production Engineering
and Construction
Atlantic Electric
1199 Black Horse Pike
Pleasantville, New Jersey 08232

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

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

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. 58
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 (the licensee), dated July 22, 1983, as supplemented on July 26, August 2, November 22, 1983, June 21 and November 13, 1984, 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. 58, 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.

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3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: April 15, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 58

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following pages of the Appendix "A" Technical Specifications with enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
2-3	2-3 (overleaf)
2-4	2-4
3/4 3-17	3/4 3-17
3/4 3-18	3/4 3-18 (overleaf)

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The reactor protection system instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2.1-1.

APPLICABILITY: As shown in Table 3.3.1-1.

ACTION:

With a reactor protection system instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2.1-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2.2.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Intermediate Range Monitor, Neutron Flux-High	≤ 120/125 divisions of full scale	≤ 122/125 divisions of full scale
2. Average Power Range Monitor:		
a. Neutron Flux-Upscale, Setdown	≤ 15% of RATED THERMAL POWER	≤ 20% of RATED THERMAL POWER
b. Flow Biased Simulated Thermal Power-Upscale		
1) Flow Biased	≤ 0.58 W+59%,# with a maximum of ≤ 113.5% of RATED THERMAL POWER	≤ 0.58 W+62%, with a maximum of ≤ 115.5% of RATED THERMAL POWER
2) High Flow Clamped		
c. Neutron Flux-Upscale	≤ 118% of RATED THERMAL POWER	≤ 120% of RATED THERMAL POWER
d. Inoperative	NA	NA
3. Reactor Vessel Steam Dome Pressure - High	≤ 1037 psig	≤ 1057 psig
4. Reactor Vessel Water Level - Low, Level 3	≥ 13.0 inches above instrument zero*	≥ 11.5 inches above instrument zero
5. Main Steam Line Isolation Valve - Closure	≤ 10% closed	≤ 11% closed
6. Main Steam Line Radiation - High	≤ 7.0 x full power background	≤ 8.4 x full power background
7. Drywell Pressure - High	≤ 1.72 psig	≤ 1.88 psig
8. Scram Discharge Volume Water Level - High		
a. Level Transmitter	≤ 88 gallons	≤ 88 gallons
b. Float Switch	≤ 88 gallons	≤ 88 gallons
9. Turbine Stop Valve - Closure	≤ 5.5% closed	≤ 7% closed
10. Turbine Control Valve Fast Closure, Trip Oil Pressure - Low	≥ 500 psig	≥ 460 psig
11. Reactor Mode Switch Shutdown Position	NA	NA
12. Manual Scram	NA	NA

*See Bases Figure B 3/4 3-1.

#See Specification 3.4.1.1.2.a for single loop operation requirement.

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
1. PRIMARY CONTAINMENT ISOLATION		
a. Reactor Vessel Water Level		
1) Low, Level 3	≥ 13.0 inches*	≥ 11.5 inches
2) Low Low, Level 2	≥ -38.0 inches*	≥ -45.0 inches
3) Low Low Low, Level 1	≥ -129 inches*	≥ -136 inches
b. Drywell Pressure - High	≤ 1.72 psig	≤ 1.88 psig
c. Manual Initiation	NA	NA
d. SGTS Exhaust Radiation - High	<23.0 mR/hr	<31.0 mR/Hr
e. Main Steam Line Radiation - High	≤ 3 x full power background	≤3.6 x full power background
2. SECONDARY CONTAINMENT ISOLATION		
a. Reactor Vessel Water Level - Low Low, Level 2	≥ -38.0 inches*	≥ -45.0 inches
b. Drywell Pressure - High	≤ 1.72 psig	≤ 1.88 psig
c. Refuel Floor High Exhaust Duct Radiation - High	≤ 2.5 mR/hr.**	≤ 4.0 mR/hr.**
d. Railroad Access Shaft Exhaust Duct Radiation - High	≤ 2.5 mR/hr.**	≤ 4.0 mR/hr.**
e. Refuel Floor Wall Exhaust Duct Radiation - High	≤ 2.5 R/hr.**	≤ 4.0 mR/hr.**
f. Manual Initiation	NA	NA
3. MAIN STEAM LINE ISOLATION		
a. Reactor Vessel Water Level - Low Low, Level 2	≥ -129 inches*	≥ -136 inches
b. Main Steam Line Radiation - High	≤ 7.0 X full power background	≤ 8.4 X full power background
c. Main Steam Line Pressure - Low	≥ 861 psig	≥ 841 psig
d. Main Steam Line Flow - High	≤ 107 psid	≤ 110 psid

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
MAIN STEAM LINE ISOLATION (Continued)		
e. Condenser Vacuum - Low	≥ 9.0 inches Hg vacuum	≥ 8.8 inches Hg vacuum
f. Reactor Building Main Steam Line Tunnel Temperature - High	≤ 177°F	≤ 184°F |
g. Reactor Building Main Steam Line Tunnel Δ Temperature - High	≤ 99°F	≤ 108°F |
h. Manual Initiation	NA	NA
i. Turbine Building Main Steam Line Tunnel Temperature-High	≤177°F	≤184°F |
4. REACTOR WATER CLEANUP SYSTEM ISOLATION		
a. RWCU Δ Flow - High	≤ 60 gpm	≤ 80 gpm
b. RWCU Area Temperature - High	≤ 147°F or 118.3°F#	≤ 154°F or 125.3°F# | 29
c. RWCU/Area Ventilation Δ Temperature - High	≤ 69°F or 35.3°F#	≤ 78°F or 44.3°F#
d. SLCS Initiation	NA	NA
e. Reactor Vessel Water Level - Low Low, Level 2	≥ -38 inches*	≥ -45 inches
f. RWCU Flow - High	≤ 426 gpm	≤ 436 gpm | 29
g. Manual Initiation	NA	NA
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION		
a. RCIC Steam Line Δ Pressure - High	≤ 177" H_2O**	≤ 189" H_2O**
b. RCIC Steam Supply Pressure - Low	≥ 60 psig	≥ 53 psig
c. RCIC Turbine Exhaust Diaphragm Pressure - High	≤ 10.0 psig	≤ 20.0 psig

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 58 TO FACILITY OPERATING LICENSE NO. NPF-14

PENNSYLVANIA POWER AND LIGHT COMPANY

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

DOCKET NO. 50-387

1.0 INTRODUCTION

In a letter from N. W. Curtis to A. Schwencer, NRC, dated July 22, 1983, as supplemented on July 26, August 2, November 22, 1983, June 21, and November 13, 1984, Pennsylvania Power and Light Company requested a change in the Technical Specification high setpoint for the main steam line radiation monitors from three times background to seven times background. The change was requested because of a number of spurious reactor trips.

The amendment, as proposed by the licensee, changes the Unit 1 Technical Specifications to revise the Main Steam Line Radiation-High Setpoint from three times normal background (three times setting) to seven times normal background (seven times setting). The purpose of the proposed Technical Specification change increasing the setpoint for Main Steam Line Radiation-High was to prevent unwarranted reactor scrams caused by N-16 spikes in the main steam line. The change was initiated by PP&L to correct operating problems experienced at Susquehanna Unit 1 with the condensate polishing system, which sometimes resulted in the releases of resin fines (impurities) to the reactor vessel. These impurities produced a transient increase in N-16 activity in the steam, which caused radiation levels to exceed the setpoint. As a result the Pennsylvania Power and Light Company requested a setpoint change to provide additional margin against unnecessary main steam line isolations. Subsequent to this request, the problem with the condensate polishing system was corrected by a design modification.

Since the licensee's original request the problem which resulted in these spurious trips has been corrected. The licensee, however, has since requested that the setpoint be changed permanently in the Technical Specifications. The licensee has provided a safety analysis to support this change. The staff's evaluation of this analysis follows.

2.0 EVALUATION

The licensee has stated that the main steam line radiation monitors are not relied upon for any design basis accident analyses. The staff agrees with this statement. Furthermore, the staff finds that the purpose of these monitors is to provide a quick means of detecting gross degradation of the fuel. The current setpoint for the radiation monitors (three times background) corresponds to the cladding failure of approximately 15 fuel rods. The requested setpoint of seven times background would increase this value to an equivalent cladding failure of approximately 44 fuel rods. When

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compared with the total number of fuel rods in the core (47,368), the failures associated with either the three times setting or the seven times setting corresponds to a very small percentage of failed rods. The consequences of the failure of 44 fuel rods can be conservatively determined by comparison with the control rod drop design basis accident which is assumed to produce cladding failure of 770 fuel rods. The projected thyroid and whole body doses for this design basis control rod drop accident at the Exculsion Area and Low Population Zone Boundaries are 1.47 Rem and less than 0.1 Rem, and 0.32 Rem and less than 0.1 Rem, respectively. Because the projected failed fuel value for the seven times setting is better than a factor of ten less than that projected for the rod drop accident, the projected doses would be more than a factor of ten less. Consequently, the doses for the new setpoint would be much less than a Rem for both the thyroid and whole body at both the Exclusion Area and Low Population Zone boundaries for design basis accidents.

An additional consideration is that fuel design and fuel management employed at current boiling water reactors (BWR's) has resulted in significantly less failed fuel during operation than existed at the time the monitoring requirement was promulgated.

The staff concludes that on the basis that 1) the monitors perform no functions for mitigating the consequences of design basis accidents; 2) the setpoint change would result in only a small incremental increase in the projected doses; 3) the current vintage BWR fuel is performing in a manner superior to the fuel in place prior to the requirement for monitor installation, the requested change is acceptable. The staff believes that such accident monitors should be set high enough to avoid spurious reactor trips, but low enough to detect significant fuel degradation. The staff believes that the licensee meets this criterion with a setpoint of seven times background and therefore, finds the licensee's request acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such findings. Accordingly, this 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 nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (48 FR 39540) on August 31, 1983, and consulted with the state of Pennsylvania. No public comments were received, and the state of Pennsylvania did not have any comments.

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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributors: Mari-Josette Campagnone, Project Directorate No. 3, DBL
Theodore Quay, Plant Systems Branch, LPWR-A

Dated: April 15, 1986

AMENDMENT NO. 58TO FACILITY OPERATING LICENSE NO. NPF-14
SUSQUEHANNA STEAM ELECTRIC, UNIT 1

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