February 13, 1995

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. M90731 & M90732)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 142 to Facility Operating License No. NPF-14 and Amendment No. 112 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 October 21, 1994.

These amendments add a test exception to allow reactor coolant temperatures up to 212 degrees F during hydrostatic or inservice leak testing while in OPERATIONAL CONDITION 4 without entering OPERATIONAL CONDITION 3.

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. 50-387/50-388
Enclosures:
1. Amendment No. 142 to License No. NPF-14
2. Amendment No. 112 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

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Docket Nos. 50-387/50-388

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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. 142
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 October 21, 1994, 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.

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 13, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 142

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.

REMOVE	INSERT
x	x
xvi	xvi
1-10	1-10
3/4 10-6	3/4 10-6
B 3/4 5-2	B 3/4 5-2
B 3/4 10-1	B 3/4 10-1

SECTION PAGE

SECTION PAGE

TABLE 1.2

OPERATIONAL CONDITIONS

CONDITION	MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE
1. Power Operation	Run	Any temperature
2. Startup	Startup/Hot Standby	Any temperature
3. Hot Shutdown	Shutdown#***	> 200°F
4. Cold Shutdown	Shutdown# ##***	≤ 200°F+
5. Refueling*	Shutdown* **# or Refuel** #	≤ 140°F

\# The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that the control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

\## The reactor mode switch may be placed in the Refuel position while a single control rod drive is being removed from the reactor pressure vessel per Specification 3.9.10.1.

* Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

** See Special Test Exceptions 3.10.1 and 3.10.3.

*** The reactor mode switch may be placed in the Refuel position while a single control rod is being recoupled provided that the one-rod-out interlock is OPERABLE.

\+ See Special Test Exception 3.10.6.

SPECIAL TEST EXCEPTION

3/4.10.6 INSERVICE LEAK AND HYDROSTATIC TESTING

LIMITING CONDITION FOR OPERATION

3.10.6 When conducting inservice leak or hydrostatic testing, the average reactor coolant temperature specified in Table 1.2 for OPERATIONAL CONDITION 4 may be increased to 212°F, and operation considered not to be in OPERATIONAL CONDITION 3, to allow performance of the inservice leak or hydrostatic test provided the following OPERATIONAL CONDITION 3 Specifications are met:

a. 3.3.2, "ISOLATION ACTUATION INSTRUMENTATION," Functions 2.a, 2.b, 2.c, 2.d, 2.e, and 2.f of Table 3.3.2-1;

b. 3.6.5. 1, "SECONDARY CONTAINMENT INTEGRITY";

c. 3.6.5.2, "SECONDARY CONTAINMENT AUTOMATIC ISOLATION DAMPERS";

d. 3.6.5.3, "STANDBY GAS TREATMENT SYSTEM"

APPLICABILITY: OPERATIONAL CONDITION 4, with average reactor coolant temperature $>200°F$ and $\leq 212°F$.

ACTION:

With the requirements of the above specifications not satisfied, immediately enter the applicable action of the affected specification or immediately suspend activities that could increase the average reactor coolant temperature or pressure and reduce the average reactor coolant to $\leq 200°F$ within 24 hours.

SURVEILLANCE REQUIREMENTS

4.10.6 Verify applicable OPERATIONAL CONDITION 3 surveillances for specification listed in 3.10.6 are met.

ECCS-OPERATING and SHUTDOWN (Continued)

With the HPCI system inoperable, adequate core cooling is assured by the OPERABILITY of the redundant and diversified automatic depressurization system and both the CS and LPCI systems. In addition, the reactor core isolation cooling (RCIC) system, a system for which no credit is taken in the safety analysis, will automatically provide makeup at reactor operating pressures on a reactor low water level condition. The HPCI out-of-service period of 14 days is based on the demonstrated OPERABILITY of redundant and diversified low pressure core cooling systems and the RCIC system.

The surveillance requirements provide adequate assurance that the HPCI system will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test with reactor vessel injection requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to provide cooling at the earliest moment.

Upon failure of the HPCI system to function properly after a small break loss-of-coolant accident, the automatic depressurization system (ADS) automatically causes selected safety-relief valves to open, depressurizing the reactor so that flow from the low pressure core cooling systems can enter the core in time to limit fuel cladding temperature to less than 2200°F. ADS is conservatively required to be OPERABLE whenever reactor vessel pressure exceeds 100 psig. This pressure is substantially below that for which the low pressure core cooling systems can provide adequate core cooling for events requiring ADS.

ADS automatically controls six selected safety-relief valves although the safety analysis only takes credit for five valves. It is therefore appropriate to permit one valve to be out-of-service for up to 14 days without materially reducing system reliability.

3/4.5.3 SUPPRESSION CHAMBER

The suppression chamber is required to be OPERABLE as part of the ECCS to ensure that a sufficient supply of water is available to the HPCI, CSS and LPCI systems in the event of a LOCA. This limit on suppression chamber minimum water volume ensures that sufficient water is available to permit recirculation cooling flow to the core. The OPERABILITY of the suppression chamber in OPERATIONAL CONDITIONS 1, 2 or 3 is also required by Specification 3.6.2.1.

Repair work might require making the suppression chamber inoperable. This specification will permit those repairs to be made and at the same time give assurance that the irradiated fuel has an adequate cooling water supply when the suppression chamber must be made inoperable, including draining, in OPERATIONAL CONDITION 4 or 5.

In OPERATIONAL CONDITION 4 and 5 the suppression chamber minimum required water volume is reduced because the reactor coolant is maintained at or below 200°F[+]. Since pressure suppression is not required below 212°F, the minimum water volume is based on NPSH, recirculation volume, vortex prevention plus a safety margin for conservatism.

[+] See Special Test Exception 3.10.6.

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 PRIMARY CONTAINMENT INTEGRITY

The requirement for PRIMARY CONTAINMENT INTEGRITY is not applicable during the period when open vessel tests are being performed during the low power PHYSICS TESTS.

3/4.10.2 ROD SEQUENCE CONTROL SYSTEM

In order to perform the tests required in the technical specifications it is necessary to bypass the sequence restraints on control rod movement. The additional surveillance requirements ensure that the specifications on heat generation rates and shutdown margin requirements are not exceeded during the period when these tests are being performed and that individual rod worths do not exceed the values assumed in the safety analysis.

3/4.10.3 SHUTDOWN MARGIN DEMONSTRATIONS

Performance of shutdown margin demonstrations with the vessel head removed requires additional restrictions in order to ensure that criticality does not occur. These additional restrictions are specified in this LCO.

3/4.10.4 RECIRCULATION LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.5 TRAINING STARTUPS

This special test exception permits training startups to be performed with the reactor vessel depressurized at low THERMAL POWER and temperature while controlling RCS temperature with one RHR subsystem aligned in the shutdown cooling mode in order to minimize contaminated water discharge to the radioactive waste disposal system.

3/4.10.6 INSERVICE LEAK AND HYDROSTATIC TESTING

This special test exception allows reactor vessel inservice leak and hydrostatic testing to be performed in OPERATIONAL CONDITION 4 with reactor coolant temperatures ≤212°F. The additionally imposed OPERATIONAL CONDITION 3 requirement for SECONDARY CONTAINMENT INTEGRITY provides conservatism in the response of the unit to an operational event. This allows flexibility since temperatures approach 200°F during the testing and can drift higher because of decay and mechanical heat. The reactor coolant temperature is controlled to insure that it does not exceed 212°F.

Since the reactor coolant temperature is at or below 212°F, minimum water level in the suppression chamber in OPERATIONAL CONDITION 4 is sufficient to provide pressure suppression and adequate NPSH for ECCS pump operation. This condition is bounded by the analysis provided in support of EO-100-103 for pressure suppression.

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. 112
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 October 21, 1994, 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. 112 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 13, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 112

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

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REMOVE	INSERT
x	x
xvi	xvi
1-10	1-10
-	3/4 10-6
B 3/4 5-2	B 3/4 5-2
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SECTION PAGE

REFUELING OPERATIONS (Continued)

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

SECTION **PAGE**

TABLE 1.2

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5. Refueling*	Shutdown* ** # or Refuel** #	≤ 140°F

The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that the control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

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* Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

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d. 3.6.5.3, "STANDBY GAS TREATMENT SYSTEM"

APPLICABILITY: OPERATIONAL CONDITION 4, with average reactor coolant temperature $>200°F$ and $\leq 212°F$.

ACTION:

With the requirements of the above specifications not satisfied, immediately enter the applicable action of the affected specification or immediately suspend activities that could increase the average reactor coolant temperature or pressure and reduce the average reactor coolant to $\leq 200°F$ within 24 hours.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. NPF-14

AMENDMENT NO. 112 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 October 21, 1994 the Pennsylvania Power and Light Company (the licensee) submitted a request for changes to the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Technical Specifications (TS). The requested changes would add Special Test Exception 3/4.10.6, "Inservice Leak and Hydrostatic Testing," that allows the performance of pressure testing at reactor coolant temperature up to 212°F while remaining in OPERATIONAL CONDITION 4. This special test exception would also require that certain OPERATIONAL CONDITION 3 Specifications for Secondary Containment Isolation, Secondary Containment Integrity and Standby Gas Treatment System operability be met. This change would also revise the Index, Table 1.2, "OPERATIONAL CONDITIONS," and the Bases to incorporate the reference to the proposed special test exception.

2.0 EVALUATION

The SSES TS define five OPERATIONAL CONDITIONS. OPERATIONAL CONDITION 4, COLD SHUTDOWN requires that the average reactor coolant temperature be less than or equal to 200°F, and if the average coolant temperature exceeds 200°F then OPERATIONAL CONDITION 3 must be entered. In this mode, primary containment integrity must be maintained and the emergency core cooling system must be totally operable. Hydrostatic and leak testing required by Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code are normally executed every 10 years and prior to the reactor going critical after each refueling outage, respectively. It is necessary that these tests be conducted at temperatures approaching 212°F with the vessel water solid or near water solid.

The licensee has proposed this special test exception be added to the SSES TS to permit relaxation of some of the requirements of OPERATIONAL CONDITION 3 only for the period during which these hydrostatic and leak tests are being conducted. Specifically, the primary containment would be allowed to be opened for frequent unobstructed access to perform the inspections. In

addition, outage activities on various systems would be allowed to continue while remaining consistent with OPERATIONAL CONDITION 4 requirements which are in effect prior to and immediately following completion of the inservice leak and hydrostatic testing. The OPERATIONAL CONDITION 3 requirements of maintaining secondary containment integrity as well as standby gas treatment system (SGTS) operability would also be imposed during the conduct of the testing.

The licensee stated the following in its submittal.

> The stored energy in the reactor core will be very low and the potential for failed fuel and a subsequent increase in coolant activity above Specification 3/4.4.5, "Reactor Coolant System Specific Activity," limits are minimal. In addition, the secondary containment, which includes automatic isolation dampers and the Standby Gas Treatment System (SGTS), will be operable and capable of handling airborne radioactivity from leaks that could occur during the performance of hydrostatic or inservice leakage testing. Airborne activity would not be significant in the event of a leak since reactor coolant temperature is limited to 212°F; and therefore, little or no flashing of reactor coolant would occur. Requiring the secondary containment to be operable will assure that potential airborne radiation from leaks will be filtered through SGTS that will limit radiation releases to the environment.
>
> In the event of a large primary system leak, the reactor vessel would rapidly depressurize. The capability of the Low Pressure Coolant Injection (LPCI) and Core Spray subsystems, as required in OPERATIONAL CONDITION 4 by Specification 3/4.5.2, "ECCS - Shutdown," would be adequate to keep the core flooded under this condition. Inspections that would detect small leaks before significant inventory loss occurred are included as part of the hydrostatic and inservice leakage test programs.

The staff agrees that permitting the average reactor coolant temperature to be increased above 200°F and limiting the maximum reactor coolant temperature to 212°F while performing leak or hydrostatic tests will not substantially affect the results of potential accidents which might occur with the increased average reactor coolant temperature since the leak and hydrostatic tests are performed with the reactor coolant system near water solid and with all control rods fully inserted. Therefore, the stored energy in the reactor core would be very low and the potential for causing fuel failures with a subsequent increase in coolant activity is minimal. The restrictions provided in the new proposed TS to require secondary containment integrity and operable SGTS provide the assurance that any potential releases from primary containment would be restricted from direct release to the environment and would be adequately filtered if released. In addition, since the reactor coolant temperature would be limited to 212°F, there would be no flashing of coolant to steam and therefore, any releases of radioactive materials from the coolant would be minimized.

In the event of a large loss-of-coolant accident occurring during the conduct of a leak or hydrostatic test, the staff agrees with the licensee's position that the reactor coolant system would rapidly depressurize and would permit the low pressure ECCS equipment to actuate and keep the core adequately flooded. This action would then prevent the reactor fuel from overheating and releasing radioactive materials. Further, the staff agrees that the inspections would detect small leaks in the reactor coolant system before significant coolant inventory was lost.

Based on the foregoing analyses, the staff concludes that the proposed TS changes will ensure acceptable consequences of any postulated accidents, are enveloped by the previously accepted analyses, and are, therefore, 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 (59 FR 66057). 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.

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