August 23, 1999

Mr. Robert G. Byram
Senior Vice President-Generation
and Chief Nuclear Officer
PP&L, Inc.
2 North Ninth Street
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT RE: EMERGENCY DIESEL GENERATOR DAY TANK VOLUME (TAC NOS. MA4293 AND MA4294)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 185 to Facility Operating License No. NPF-14 and Amendment No. 159 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station (SSES), Units 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated November 20, 1998, as supplemented by letter dated June 25, 1999.

These amendments modify the SSES, Units 1 and 2, TS surveillance requirement, 3.8.1.4, to allow increases in the minimum fuel oil required to be stored in the day tanks for emergency diesel generator.

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

Sincerely,

Original signed by:

Victor Nerses, Sr. Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures: 1. Amendment No. 185 to License No. NPF-14
2. Amendment No. 159 to License No. NPF-22
3. Safety Evaluation

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

August 23, 1999

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Senior Vice President-Generation
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SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT RE: EMERGENCY DIESEL GENERATOR DAY TANK VOLUME (TAC NOS. MA4293 AND MA4294)

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Victor Nerses

Victor Nerses, Sr. Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
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Units 1 &2

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

PP&L, INC.

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 185
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 PP&L, Inc., dated November 20, 1998, as supplemented by letter dated June 25, 1999, 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. 185 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 shall be implemented within 30 days after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

S. Singh Bajwa, Chief, Section I
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 23, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 185

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.8-6	3.8-6

SURVEILLENCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.4	Verify each engine mounted day tank fuel oil level is ≥ 420 gallons for DG A-D and ≥ 425 gallons for DG E.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each engine mounted day tank.	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tanks to each engine mounted tank.	31 days
SR 3.8.1.7	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. A single test at the specified Frequency will satisfy this Surveillance for both units. ---------- Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage ≥ 3793 V and frequency ≥ 58.8, and after steady state conditions are reached, maintains voltage ≥ 3793 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days
SR 3.8.1.8	----------NOTE---------- The automatic transfer of the unit power supply shall not be performed in MODE 1 or 2. ---------- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	24 months

(continued)

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

PP&L, INC.

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 159
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 PP&L, Inc., dated November 20, 1998, as supplemented by letter dated June 25, 1999, 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. 159 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 shall be implemented within 30 days after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

S. Singh Bajwa, Chief, Section I
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 23, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 159

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following pages of the Appendix A Technical Specifications with attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.8-8	3.8-8

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.4	Verify each engine mounted day tank fuel oil level is ≥ 420 gallons for DG A-D and ≥ 425 gallons for DG E.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each engine mounted day tank.	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tanks to each engine mounted tank.	31 days
SR 3.8.1.7	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. A single test at the specified Frequency will satisfy this Surveillance for both units. ---------- Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage ≥ 3793 V and frequency ≥ 58.8, and after steady state conditions are reached, maintains voltage ≥ 3793 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days
SR 3.8.1.8	----------NOTE---------- The automatic transfer of unit power supply shall not be performed in MODE 1 or 2. ---------- Verify automatic and manual transfer of unit power supply from the normal offsite circuit to the alternate offsite circuit.	24 months

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NO. NPF-14

AMENDMENT NO. 159 TO FACILITY OPERATING LICENSE NO. NPF-22

PP&L, INC.

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 388

1.0 INTRODUCTION

By letter dated November 20, 1998, as supplemented by letter dated June 25, 1999, PP&L, Inc. (the licensee) submitted a request for changes to the Susquehanna Steam Electric Station (SSES), Units 1 and 2, Technical Specifications. The June 25, 1999, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination. The proposed changes would allow increases in the minimum fuel oil (FO) required to be stored in the day tanks for emergency diesel generators (EDGs). Specifically, the amendment would allow increases from 325 gallons to 420 gallons for EDGs A, B, C and D, and from 325 gallons to 425 gallons for EDG E.

2.0 BACKGROUND

Each EDG at SSES is equipped with an FO storage and transfer system which consists of a day tank, a storage tank, a fuel transfer pump and its associated instrumentation and controls. Each day tank for EDGs A, B, C and D has a capacity of 550 gallons. The day tank for EDG E has a capacity of 650 gallons. The current TS requires a minimum of 325 gallons of FO to be maintained in the day tank of each EDG.

Regulatory Guide (RG) 1.137, Revision 1, endorses American National Standard Institute (ANSI) N195-1976 which requires each EDG day tank to contain sufficient FO for 60 minutes of operation at 100% of the EDG continuous rated load plus a minimum margin of 10%. This translates to sufficient FO to support the EDG operation at its continuous rated load for 66 minutes.

Originally, each EDG was designed so that the excess[1] FO would be returned to the day tank during operation. In 1990, the licensee performed a modification to the FO supply systems for

[1] FO that is not consumed by the EDG but pumped from the day tank (bypass from the mechanical fuel injection pump).

EDGs A, B, C and D[2] to send the excess FO to the storage tanks. As a result, 325 gallons of FO maintained in the day tank as specified in the current TS would no longer be sufficient to support the 66-minute EDG operation at its continuous rated load. In 1990, the minimum FO required to support the 66-minute EDG operation was 424 gallons.

In April 1991, the licensee performed an engineering study in response to the staff's concerns raised during an Emergency Diesel Safety Function Inspection (EDSFI) regarding minimum day tank FO inventory requirement calculations. In the calculations[3], the EDG FO consumption rate and the excess FO flow to the storage tank were determined theoretically and were not adjusted for temperature and specific gravity changes. Results of the calculations indicated that in order to satisfy the day tank FO inventory requirements described in ANSI N195-1976, a minimum of 461 gallons were required to be maintained in each of the day tanks for EDGs A, B, C and D, and 528[4] gallons for EDG E.

The licensee further revised the day tank FO inventory requirement calculations using parameters (FO consumption rate and FO rate to the storage tank) based on test data and adjusted for temperature and specific gravity changes. In the response, dated June 25, 1999, to the staff's Request for Additional Information (RAI), the licensee provided the revised (current) day tank FO inventory requirement calculation results which indicate that a minimum of 499 gallons are required to be maintained in each of the day tanks for EDGs A, B, C and D, and 446.5[5] gallons for EDG E. However, the day tank design at SSES is only capable of maintaining 420 gallons of FO for EDGs A, B, C and D, and 425 gallons for EDG E without automatic refill. Therefore, the licensee proposed changes to the TS to allow a minimum of 420 gallons of FO to be stored in each of the day tanks for EDGs A, B, C and D, and 425 gallons for EDG E. These proposed minimum volumes of FO to be maintained in the day tanks will be able to support 55 minutes of operation for EDGs A, B, C and D, and 62 minutes of operation for EDG E at continuous rated loads without automatic refill in lieu of the 66-minute EDG operation as required by ANSI N195-1976.

3.0 EVALUATION

The licensee stated that the EDG FO storage and transfer system is designed to automatically refill the day tank once its level drops to a level that will support 55 minutes of operation at the continuous rated loads for EDGs A, B, C and D, and 62 minutes for EDG E. If the FO transfer pump for an EDG is operable and successful, its associated day tank will be replenished and the EDG operation will not be interrupted. If the FO transfer pump fails, the affected EDG will trip once the FO in the day tank is consumed. Therefore, the difference which corresponds to

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[2] No modification was performed to the FO supply system for EDG E.

[3] The day tank FO drawdown rate is equal to the EDG FO consumption rate plus the excess flow rate to FO storage tank.

[4] As indicated in Footnote 2, no modification was performed to the FO supply system for EDG E. However, excess flow rate from EDGs A, B, C and D instead of EDG E was used to calculate this minimum FO requirement.

[5] Correct EDG E excess flow rate was used to calculate this minimum FO requirement.

less than 11 minutes of EDG operation between what FO is required by ANSI N195-1976 to be maintained in the day tank and the actual volume to be maintained in the day tank is only an issue if the automatic refill feature of the design is faulted.

The EDG FO storage and transfer system at SSES is designed in accordance with Seismic Category I requirement. The operability of the FO transfer pumps is controlled via a TS which ensures a high level of reliability and availability of the FO transfer pumps. Each component of the FO storage and transfer system is verified to be operable every 31 days per plant TS. If a failure is detected in any of the components it must be restored within 72 hours or both units must be in cold shutdown within the following 12 hours. In addition, when a failure occurs, the other EDGs and their associated auxiliaries must be verified that they are not inoperable due to the same cause. Thus, degradation in the FO transfer system performance will be detected and corrected before plant safety can be compromised. Therefore, the licensee concluded that the 11-minute difference in day tank capacity is not relevant and that the increase in risk resulting from the proposed change to the plant TS is insignificant.

In addition, the licensee performed an analysis to evaluate the impact of the proposed TS on the Core Damage Frequency (CDF) and the Large Early Release Frequency (LERF). The licensee concluded that the increase in risk resulting from the proposed changes to the licensing basis is insignificant. The staff did not believe it was necessary to conduct a detailed review of the licensee's analysis, however, the staff agrees with the licensee's conclusion that the impact of the proposed TS on the CDF and the LERF is low. The staff believes the impact of the proposed TS to be low since the change solely impacts risk when the fuel oil transfer pump fails during Loss of Offsite Power conditions. When the fuel oil transfer pump fails, the TS change will reduce the operator response time to recover day tank level to prevent the loss of a diesel generator from 66 minutes to 55 minutes for EDGs A, B, C, and D, and from 66 minutes to 62 minutes for EDG E. The staff believes that, given the relatively large recovery times, this reduction in response time will not significantly affect the calculated human error probabilities of operator response time. In addition, the change in the probability of recovery of AC power in the time frame between 55 minutes and 66 minutes for EDGs A, B, C, and D, and the time frame between 62 minutes and 66 minutes for EDG E is very small. Therefore, the staff agrees that the risk impact of the proposed TS change is small.

Based on its review of the licensee's rationale for the proposed TS, the staff concludes that the EDG FO storage and transfer system at SSES meets the intent of the guidance described in ANSI N195-1976 and that the licensee will have adequate and reliable FO inventory in the day tank for uninterrupted EDG operation following a LOCA at SSES. Therefore, the staff finds the above proposed TS 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 the 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 (64 FR 4159). 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: D. Shum

Date: August 23, 1999

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT NOS. 185 AND 159 RE: EMERGENCY DIESEL GENERATOR DAY TANK VOLUME (TAC NOS. MA429 3 AND MA4294)

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