

April 17 1998

Mr. Garrett D. Edwards  
Director-Licensing, MC 62A-1  
PECO Energy Company  
Nuclear Group Headquarters  
Correspondence Control Desk  
P.O. Box No. 195  
Wayne, PA 19087-0195

SUBJECT: LIMERICK GENERATING STATION, UNIT 1 (TAC NO. MA0521)

Dear Mr. Edwards:

The Commission has issued the enclosed Amendment No.126 to Facility Operating License No. NPF-39 for the Limerick Generating Station, Unit 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 12, 1998.

This amendment revises TS Table 4.4.6.1.3-1 to change the withdrawal schedule for the first capsule to be withdrawn from 10 Effective Full Power Years (EFPY) to 15 EFPY. In addition, TS Surveillance Requirement 4.4.6.1.4 will be revised to remove the references to flux wire removal and analysis that was originally required following the first cycle of operation and replaced with a new surveillance requirement. The new requirement refers to the flux wires that are located within the surveillance capsules, which will be removed and analyzed in accordance with the surveillance capsule removal schedule located in Table 4.4.6.1.3-1.

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

This completes our effort on this issue and we are, therefore, closing out TAC No. MA0521.

Sincerely,  
*Bartholomew C. Buckley*  
Bartholomew C. Buckley, Senior Project Manager  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-352

- Enclosures: 1. Amendment No. 126 to License No. NPF-39  
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 15, 1998

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Docket No. 50-352

Enclosures: 1. Amendment No. 126 to  
License No. NPF-39  
2. Safety Evaluation

cc w/encls: See next page

**Mr. Garrett D. Edwards  
PECO Energy Company**

**Limerick Generating Station, Units 1 & 2**

**cc:**

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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 126  
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Philadelphia Electric Company (the licensee) dated January 12, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 rules and 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;
  - 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 Facility Operating License No. NPF-39 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 126 , are hereby incorporated in the license. Philadelphia Electric Company 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, 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: April 15, 1998

**ATTACHMENT TO LICENSE AMENDMENT NO. 126**

**FACILITY OPERATING LICENSE NO. NPF-39**

**DOCKET NO. 50-352**

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

**Remove**

**3/4 4-19**

**3/4 4-21**

**Insert**

**3/4 4-19**

**3/4 4-21**

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

4.4.6.1.2 The reactor coolant system temperature and pressure shall be determined to be to the right of the criticality limit line of Figure 3.4.6.1-1 curve C within 15 minutes prior to the withdrawal of control rods to bring the reactor to criticality and at least once per 30 minutes during system heatup.

4.4.6.1.3 The reactor vessel material surveillance specimens shall be removed and examined, to determine changes in reactor pressure vessel material properties, as required by 10 CFR Part 50, Appendix H in accordance with the schedule in Table 4.4.6.1.3-1. The results of these examinations shall be used to update the curves of Figure 3.4.6.1-1.

4.4.6.1.4 The reactor flux wire specimens located within the surveillance capsules shall be removed and examined to determine reactor pressure vessel fluence as a function of time and power level and used to modify Figure B 3/4 4.6-1 in accordance with the schedule in Table 4.4.6.1.3-1. The results of these fluence determinations shall be used to adjust the curves of Figure 3.4.6.1-1, as required.

4.4.6.1.5 The reactor vessel flange and head flange temperature shall be verified to be greater than or equal to 80°F:

- a. In OPERATIONAL CONDITION 4 when reactor coolant system temperature is:
  1.  $\leq 100^{\circ}\text{F}$ , at least once per 12 hours.
  2.  $\leq 90^{\circ}\text{F}$ , at least once per 30 minutes.
- b. Within 30 minutes prior to and at least once per 30 minutes during tensioning of the reactor vessel head bolting studs.

TABLE 4.4.6.1.3-1

REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM-WITHDRAWAL SCHEDULE

<u>CAPSULE NUMBER</u>	<u>VESSEL LOCATION</u>	<u>LEAD FACTOR*</u>	<u>WITHDRAWAL TIME (EFPY)</u>
117C 4944 G004	30°	1.20	15
117C 4944 G001	120°	1.20	30
117C 4944 G001	300°	1.20	Spare

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\*At 1/4 T.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.126 TO FACILITY OPERATING LICENSE NO. NPF-57

PHILADELPHIA ELECTRIC COMPANY  
LIMERICK GENERATING STATION, UNIT 1

DOCKET NO. 50-352

1.0 INTRODUCTION

In a letter dated January 12, 1998, the Philadelphia Electric Company (PECO, the licensee) submitted, for NRC approval, Technical Specification Change Request No. 97-02-1, in accordance with 10 CFR 50.90, requesting changes to the Limerick Generating Station (LGS), Unit 1 Technical Specifications (TSs). The proposed changes will revise TS Table 4.4.6.1.3-1 to change the withdrawal schedule for the first capsule to be withdrawn from 10 Effective Full Power Years (EFPY) to 15 EFPY.

In addition, PECO requested, for NRC approval, a revision to TS Surveillance Requirement 4.4.6.1.4. This revision will remove the references to flux wire removal and analysis that was originally required following the first cycle of operation. The referenced flux wires were never located following the first cycle of operation. The proposed TS Surveillance requirement will be changed to refer to the flux wires that are located within the surveillance capsules, which will be removed and analyzed in accordance with the surveillance capsule removal schedule located in TS Table 4.4.6.1.3-1.

2.0 BACKGROUND

The surveillance program for LGS Unit 1 was implemented to monitor the radiation-induced changes in the mechanical and impact properties of the pressure vessel materials. The original surveillance program was established in accordance with 10 CFR Part 50, Appendix H, and ASTM E185-73. Case A of ASTM E 185-73 applies to LGS Unit 1, since the vessel has a predicted shift in the reference nil-ductility temperature of less than 100 °F and will be exposed to a neutron fluence of less than  $5 \times 10^{18}$  n/cm<sup>2</sup> over the design lifetime of the plant. The original withdrawal schedule specifies the removal of the first and second surveillance capsules at 10 and 30 EFPY, respectively. The surveillance program for LGS Unit 1 also includes a third capsule, which is a spare without a specific withdrawal schedule.

3.0 EVALUATION

Appendix H to 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements," includes criteria to monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region of light water nuclear power reactors which result from exposure of these materials to neutron irradiation and the thermal environment. Appendix H to 10 CFR Part 50 endorses ASTM E185, "Surveillance Tests for Nuclear Reactor Vessels."

Appendix H states that "the design of the surveillance program and the withdrawal schedule must meet the requirements of the edition of ASTM E185 that is current on the issue date of the ASME Code to which the reactor vessel was purchased." In addition, 10 CFR Part 50, Appendix H, states that a proposed withdrawal schedule must be submitted with a technical justification as specified in 10 CFR 50.4, and, that the proposed schedule must be approved prior to implementation.

By ASTM E185-73, it is recommended that the capsules be withdrawn according to application by either one of these cases: Case A - where both the predicted increase in transition temperature of the reactor vessel steel is 100 °F or less and the calculated peak neutron fluence ( $E > 1$  MeV) of the reactor vessel is  $5 \times 10^{18}$  n/cm<sup>2</sup> or less, or Case B - where the predicted increase in transition temperature of the reactor vessel steel is greater than 100 °F or where the calculated peak neutron fluence ( $E > 1$  MeV) of the reactor vessel is greater than  $5 \times 10^{18}$  n/cm<sup>2</sup>. Case A applies to the Limerick Unit 1 surveillance program. Case A of ASTM E185-73 requires the first and second capsules to be withdrawn at a capsule fluence corresponding to the calculated exposure of the reactor wall at approximately 100 to 125 percent of the reactor design life. The third capsule is to be a standby capsule.

In the submittal of January 12, 1998, the licensee submitted a proposed withdrawal schedule with a technical justification as specified in 10 CFR 50.4. The licensee's justification for revising the withdrawal schedule for the first capsule from 10 EFPY to 15 EFPY is that, at 10 EFPY, the data may not be useful because the expected shift in  $RT_{NDT}$  is small and may be indistinguishable from the data scatter that would typically be experienced from the testing of an unirradiated specimen. The second and third capsules meet the withdrawal requirements of Case A of ASTM E185-73, but the first capsule does not. However, withdrawal of the first capsule at 15 EFPYs of operation will provide enough neutron fluence to monitor the amount of radiation embrittlement.

In addition, the licensee requested, for NRC approval, a revision to TS Surveillance Requirement 4.4.6.1.4. This revision will remove the references to flux wire removal and analysis that was originally required following the first cycle of operation. The referenced flux wires were never located following the first cycle of operation. The proposed TS surveillance requirement will be changed to refer to the flux wires that are located within the surveillance capsules, which will be removed and analyzed in accordance with the surveillance capsule removal schedule located in TS Table 4.4.6.1.3-1. The NRC has determined that the deletion of removal and analysis of flux wires is acceptable because the analysis can be performed using the flux wires in the surveillance capsules.

#### 4.0 SUMMARY CONCLUSION

Based on our review of the licensee's submittal, we conclude that the licensee has provided an acceptable justification, as specified in 10 CFR 50.4, for the revised withdrawal schedule of the first capsule in the Limerick Unit 1 surveillance program. Section III.B.3 of Appendix H indicates that a proposed withdrawal schedule must be approved prior to implementation. Although the first capsule does not satisfy the schedule recommendations of ASTM E185-73, its removal at 15 EFPY is acceptable because it will receive a sufficient amount of neutron fluence to monitor

the amount of radiation embrittlement. The second and third capsules meet the recommended withdrawal schedule of ASTM E185-73. Therefore, the staff approves the revised withdrawal schedule, as indicated in the TS Change Request No. 97-02-1, for LGS Unit 1. In addition, we find the proposed revision to TS Surveillance Requirement 4.4.6.1.4 acceptable.

#### 5.0 STATE CONSULTATION

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

#### 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes 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 changes the surveillance requirements. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (63 FR 6988). Accordingly, the 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

#### 7.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Khanna

Date: April 15, 1998