

June 2, 1987

Docket No.: 50-352

Mr. Edward G. Bauer, Jr.
Vice President and General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

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Dear Mr. Bauer:

SUBJECT: TECHNICAL SPECIFICATION CHANGES TO ALLOW INCREASED CONTROL ROOM
AIR FLOW RATE (TAC NO. 64630)

RE: LIMERICK GENERATING STATION, UNIT 1

The Commission has issued the enclosed Amendment No. 5 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 30, 1987 as supplemented on March 27, May 13 and May 20, 1987.

This amendment changes Technical Specification 4.7.2.e.3 to allow an increase in the amount of outside air which is taken in by the control room heating, ventilating and air conditioning systems in order to maintain a control room internal positive pressure during the radiation isolation mode of operation of the control room habitability systems.

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/

Robert E. Martin, Project Manager
Project Directorate I-2
Division of Reactor Projects

Enclosures:

- 1. Amendment No. 5 to License No. NPF-39
- 2. Safety Evaluation

cc w/enclosures:
See next page

Previously concurred*:

MO'Brien 6/2/87
PDI-2/PM*
RMartin 05/22/87
SPLB*
RAnand 05/22/87
OGC*
BVogler 06/01/87
PDI-2/D
WButler 6/2/87



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

June 2, 1987

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Robert E. Martin
Robert E. Martin, Project Manager
Project Directorate I-2
Division of Reactor Projects

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2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Edward G. Bauer, Jr
Philadelphia Electric Company

Limerick Generating Station
Units 1 & 2

cc:

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Philadelphia Electric Company

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Limerick Generating Station 1/2

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Federal Emergency Management Agency
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Washington, D. C. 20472

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 2, 1987

[Handwritten signature]
M. Brien
6/12/87

[Handwritten signature]
PDI-2/PA
RMartin
5/22/87

[Handwritten signature]
OGC
B. VOGLER
6/11/87

[Handwritten signature]
PDI-2/D
WButler
6/12/87

[Handwritten initials] WB



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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 5
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 30, 1987, as supplemented on March 27 and May 13 and 20, 1987, 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. 5, are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

8706110089 870602
PDR ADOCK 05000352
P PDR

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: **June 2, 1987**

ATTACHMENT TO LICENSE AMENDMENT NO. 5

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf page provided to maintain document completeness.*

Remove

3/4 7-7
3/4 7-8*

Insert

3/4 7-7
3/4 7-8*

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
3. Verifying a subsystem flow rate of 3000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1980.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- e. At least once per 18 months by:
 1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm \pm 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds:
 - a) Outside air intake high chlorine, and
 - b) Manual initiation from the control room.
 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation and the control room is maintained at a positive pressure of at least 1/8 inch water gauge relative to the turbine enclosure and auxiliary equipment room and outside atmosphere during subsystem operation with an outdoor air flow rate less than or equal to 525* cfm:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.

*An allowable outdoor airflow rate of less than or equal to 2100 cfm is permissible until the issuance of the Unit 2 full power operating license.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 5 TO FACILITY OPERATING LICENSE NO. NPF-39

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION, UNIT 1

DOCKET NO. 50-352

1.0 INTRODUCTION

By letter dated January 30, 1987, as supplemented on March 27, May 13 and May 20, 1987, Philadelphia Electric Company (the licensee) requested an amendment to Facility Operating License No. NPF-39 for the Limerick Generating Station, Unit 1. The proposed amendment would change Technical Specification (TS) surveillance requirement 4.7.2.e.3 to allow an increase from 525 cubic feet per minute (cfm) to 2100 cfm in the amount of outside air which must be taken in by the control room (CR) heating, ventilating and air conditioning (HVAC) systems in order to maintain a control room internal positive pressure of at least one-eighth inch water guage (in.) during a radiation isolation mode of operation of the control room habitability systems. The change was requested to facilitate cable pulling associated with the construction of Unit 2.

The systems affected by the proposed increase in the control room air leakage rate are the normal Control Room Heating Ventilation Air Conditioning (HVAC) system and the Control Room Emergency Fresh Air Supply (CREFAS) system which are common to both Units 1 and 2. During normal operation, fresh outside air is taken in at the control room ventilation system intake which maintains positive pressure in the control room relative to the surrounding spaces. When high radiation is detected at the outside air intake, the control room outside air is automatically diverted through the CREFAS system. All isolation valves in the control room HVAC system close, except those on the emergency fresh air intake. When chlorine or a monitored toxic gas is detected at the outside air intake, the high-chlorine or toxic chemical alarm is annunciated in the control room. All isolation valves in the control room HVAC system close automatically on detection of chlorine or are closed remote manually by operating personnel on detection of other toxic chemicals. After control room isolation is completed, the CREFAS system is started and operated to recirculate and clean up the air in the control room. The outside air intake valves remain closed during this mode of operation.

The CREFAS system consists of two 100% capacity air filtration trains consisting of high-efficiency particulate air (HEPA) filters and charcoal filters and process 3000 cfm of outside air.

2.0 EVALUATION

The proposed TS change will not result in a change to the physical design of the system. In addition, it will not result in any significant change to the normal operational mode of the HVAC system and CREFAS system, since they normally supply about 2100 cfm of air to the control room. The ability to pressurize the control room to a specific value with a given flow rate is a measure of the control room's leaktightness. A control room admitting 2100 cfm, instead of 525 cfm, in the radiation isolation mode would require the CREFAS system to process the increased flow before supplying it to the control room. The value of 2100 cfm is within the 3000-cfm capability of the CREFAS system as discussed above. The system's controls will compensate for the increased opening by increasing the volume of outside air to the control room in order to keep the control room pressurized relative to all surrounding spaces. Thus, we conclude that 2100 cfm is within the 3000-cfm capability of the CREFAS system and this system will be able to maintain the control room at a positive pressure of at least 1/8-inch water gauge relative to all surrounding spaces during a radiation isolation mode of operation of the control room habitability systems.

The licensee has evaluated the change in the radiological doses to the control room operators resulting from the increased leakage in the control room during a radiation isolation mode. The results of the analysis are provided in Table 1. The analysis of the proposed increased air leakage rate is based on the existing design-basis radiological accidents described in FSAR Sections 15.6 and 15.10.2. Table 1 shows that although there will be an increase in the computed doses to the control room operators as a result of a high-radiation accident, the dose remains within the limits established in the Standard Review Plan (SRP) Section 6.4 (NUREG-0800) and General Design Criterion (GDC) 19 of 10 CFR 50, Appendix A.

The licensee has also evaluated the effect of increased flow on the consequences resulting from chlorine or other toxic chemical release accidents. The analysis is based on the existing design-basis accidents described in FSAR Section 2.2.3 for releases of toxic chemicals. No new or different types of accidents have resulted by increasing the allowable leakage rate into the control room.

Since the allowable inleakage to the control room would be increased by the proposed amendment, the time available to the operators to don protective breathing apparatus before there is an unacceptable increase in the concentration of chlorine or other toxic chemicals in the control room atmosphere is reduced. Under previous analysis, the limiting chemical was ethylene oxide at 2.6 minutes. The new analysis indicates that the limiting chemical remains ethylene oxide with an incapacitation time of 2.1 minutes based on the assumption of an unisolated control room. The 2.1-minute period is within the protective action limit of 2 minutes for donning breathing apparatus following both offsite and onsite toxic chemical releases. Thus, the guidelines of Regulatory Guide 1.78, "Assump-

tions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," Positions C.3, C.7, and C.14, are satisfied.

The staff notes that the ability to pressurize the control room to a specific value with a given flow rate is a measure of the control room's leaktightness. Therefore, after the construction of Unit 2 is complete, the staff believes that the allowable control room air intake rate during the radiation isolation mode should revert to 525 cfm. The licensee agreed with a change which would result in reverting to the 525 cfm value upon completion of Unit 2 construction and issuance of the Unit 2 full power license. The licensee reflected this change in its letter of May 20, 1987.

On the basis of the above considerations, the staff concludes that the proposed change to the surveillance requirement in TS 4.7.2.e.3, that is, an increase in allowable control room outside air intake during operation of the control room emergency fresh air supply system in the radiation isolation mode, complies with the General Design Criterion 19 of 10 CFR 50, Appendix A, and the guidelines of Regulatory Guide 1.78 with respect to control room operator doses and the release of toxic chemicals, and is, therefore, acceptable during the construction of Unit 2.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes the surveillance requirement. 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 finding. 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 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 the security nor to the health and safety of the public.

Principal Contributor: R. Anand

Dated: June 2, 1987

Table 1

Control Room Doses For Proposed Technical Specification
Change to Increase Leakage Rate TO 2100 CFM

Dose (rem)	10 CFR 50 GDC 19	Current Tech Specs ¹ (525 cfm)	New Tech Specs (2100 cfm)
Thyroid ²	30	0.0043	0.018
Beta skin ²	30	7.6	8.9
Whole body	5	0.38	0.47

- Note: 1. Current Technical Specification values were obtained from FSAR Table 15.6-22.
2. Although GDC 19 of 10 CFR 50, Appendix A, does not explicitly give requirements pertaining to thyroid and beta skin doses, SRP Section 6.4.II.6 gives the listed values.