

November 30, 1987

Docket No.: 50-293

Boston Edison Company  
ATTN: Mr. Ralph E. Bird  
Senior Vice President - Nuclear  
800 Boylston Street  
Boston, Massachusetts 02199

SUBJECT: ISSUANCE OF AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE NO. DPR-35  
PILGRIM NUCLEAR POWER STATION (TAC# 65787)

Dear Mr. Bird:

The Commission has issued the enclosed Amendment No. 111 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment consists of changes to the Technical Specifications in response to your application dated July 8, 1987 as supplemented by letter dated August 5, 1987.

This amendment revises Technical Specification 4.5.A.3.d to explicitly specify Low Pressure Coolant Injection (LPCI) pump performance necessary to comply with the current loss-of-coolant accident (LOCA) analysis for the Pilgrim Station.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

*RS*  
Richard H. Wessman, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects I/II

Enclosures:

1. Amendment No. 111 to License No. DPR-35.
2. Safety Evaluation

cc w/enclosures:  
See next page

\*Previous Concurrence

OFC	:PDI-3	:PDI-3	:OGC- <del>ESDA</del> HESDA:RDI-3*	:ACTDIR/PDI-3:
NAME	:MRushbrook	:RWessman:mw	: <del>OGormley</del> MYoung	: <del>RSears</del> MBF N. FARTILE
DATE	:11/18/87	:11/20/87	:11/24/87	:11/30/87

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PDR ADDCK 05000293  
PDR

AMENDMENT NO. 111 TO FACILITY OPERATING LICENSE DPR-35 -  
PILGRIM NUCLEAR POWER STATION

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Docket No. 50-293 <

NRC PDR

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Tech. Review Branch - Michele Eyans, Region I

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NAME	:MRushbrook	:RWessman:mw	:	:OGormley	CStahle
DATE	:11/13/87	:11/13/87	:11/ /87	:11/ /87	:11/ /87

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NAME	:MRushbrook	:RWessman:mw	:	:OGormley	:CStahle	: <i>by phone / 10/9</i>
DATE	:11/ /87	:11/ /87	:11/ /87	:11/12/87	:11/ /87	: <i>11/12/87</i>

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

November 30, 1987

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Sincerely,

A handwritten signature in dark ink, appearing to read "Richard H. Wessman".

Richard H. Wessman, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects I/II

Enclosures:

1. Amendment No. 111 to License No. DPR-35.
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. Ralph G. Bird  
Boston Edison Company

Pilgrim Nuclear Power Station

cc:

Mr. K. P. Roberts, Nuclear Operations  
Pilgrim Nuclear Power Station  
Boston Edison Company  
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Boston Edison Company  
ATTN: Mr. Ralph G. Bird  
Senior Vice President - Nuclear  
800 Boylston Street  
Boston, Massachusetts 02199

Resident Inspector's Office  
U. S. Nuclear Regulatory Commission  
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Mr. James D. Keyes  
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Leader  
Boston Edison Company  
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Braintree, Massachusetts 02184



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

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 111  
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Boston Edison Company (the licensee) dated July 8, 1987, as supplemented on August 5, 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 3.B of Facility Operating License No. DPR-35 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 111, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective 30 days after the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Morton B. Fairtile*

Morton B. Fairtile, Acting Director  
Project Directorate I-3  
Division of Reactor Projects I/II

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 30, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 111

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

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

Remove Pages

104

Insert Pages

104

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

3.5.A Core Spray and LPCI Subsystems  
(cont'd)

4.5.A Core Spray and LPCI Subsystems  
(cont'd)

Check	Once/day
Calibrate	Once/3 months
Test	Once/3 months

2. From and after the date that one of the core spray subsystems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding seven days, provided that during such seven days all active components of the other core spray subsystem and active components of the LPCI subsystem and the diesel generators are operable.
3. The LPCI Subsystems shall be operable whenever irradiated fuel is in the reactor vessel, and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.4, 3.5.A.5 and 3.5.F.5.

2. When it is determined that one core spray subsystem is inoperable, the operable core spray subsystem, the LPCI subsystem and the diesel generators shall be demonstrated to be operable immediately. The operable core spray subsystem shall be demonstrated to be operable daily thereafter.
3. LPCI Subsystem Testing shall be as follows:
  - a. Simulated Automatic Actuation Test                      Once/Operating Cycle
  - b. Pump Operability                      Once/month
  - c. Motor Operated valve operability                      Once/Month and Once/cycle from the Alternate Shutdown Panel
  - d. Pump Flow                      Once/3 months

Each LPCI pump shall pump 4800 gpm at a head across the pump of at least 380 ft.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 111

TO FACILITY OPERATING LICENSE NO. DPR-35

BOSTON EDISON COMPANY

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated July 8, 1987, supplemented by letter dated August 5, 1987, Boston Edison Company (the licensee) submitted Change Request No. 87-12 to Facility Operating License No. DPR-35, requesting that Technical Specification (TS) section 4.5.A.3.d, Low Pressure Core Injection comply with the current Loss of Coolant Accident (LOCA) analysis for the Pilgrim Station.

The proposed change consists of modifying TS surveillance requirement 4.5.A.3.d to specify single LPCI pump performance. The current TS specifies pump performance based on three LPCI pumps.

2.0 EVALUATION

The proposal changes the TS surveillance requirement 4.5.A.3.d from "Three LCPI pumps shall deliver 14,400 gpm against a system head corresponding to a vessel pressure of 20 psig" to "Each LPCI pump shall pump 4800 gpm at a head across the pump of at least 380 ft."

The licensee states that the current TS requirement is based on Pilgrim's original core LOCA analysis in which flow from three LPCI pumps was a limiting case. The current LOCA analysis, (reviewed in connection with Amendment No. 105 to the Facility Operating License, pertaining to Core Reload 7) does not address the configuration of three pumps injecting into the vessel. Instead, two and four pump configurations are addressed. Therefore, the present wording of the TS is not consistent with the current LOCA analysis.

The LOCA analysis update provided in NEDO-30767 to support core reload 7 for operating cycle 8 confirmed that the limiting break which is the design basis accident is the complete severance of the recirculation suction line assuming a failure of the LPCI injection valve. The required analysis is in accordance with the requirements of NEDE-24011-P-A-8, General Electric Standard Application for Reactor Fuel

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(GESTAR-11), dated May 1986. NEDO-30767 was reviewed in connection with Amendment No. 105 to Facility Operating License No. DPR-35 - Pilgrim Nuclear Power Station, dated August 31, 1987, related to Cycle 8 operation. The associated methodology includes an evaluation of other single failures for which two pump and four pump LPCI configurations are used.

In addition, the licensee states that the multiple pump configuration is not directly tested. Instead, each pump is tested individually with the results translated by intermediate calculations to verify that multiple configuration requirements are satisfied.

The staff review of the proposed change and calculations of LPCI pump performance submitted August 5, 1987, confirmed that the existing technical specification is not consistent with the current LOCA analysis.

The staff review confirmed that the proposed change does not reduce the LPCI pump capacity requirements. The proposed specification is based on the licensee's calculations of the pressure drop with three pumps injecting into the reactor pressure vessel at 20 psig. To assure conservatism, the licensee used the three pump configuration with the greatest pressure drop for the calculations, and a friction loss of 20% above that for a clean pipe was assumed. The pump head-flow relationship of the pump design curve was used to determine that the required flow of 14,400 GPM could be obtained with an 11% degradation of pump performance. The proposed specification limits the degradation in head-flow performance to 9.5% for conservatism.

Therefore, the proposed change restates LPCI pump capacity, but does not change the capacity from that used in Pilgrim's current LOCA analysis. Consequently compliance with the LOCA analysis is assured. The proposed change also assures a more timely determination of acceptable pump performance without the necessity of intermediate calculations to verify that the multiple configuration performance requirements are met. Additionally, the change is consistent with current guidance for specifying pump performance provided in NUREG-0123, "Standard Technical Specification for General Electric Boiling Water Reactors." The staff therefore concludes that the proposed change to TS 4.5.A.3.d is acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves a change in the Technical Specifications of facility components located within the restricted area as defined in 10 CFR Part 20 and changes a 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 published a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. 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.

#### 4.0 CONCLUSION

We have 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 or to the health and safety of the public.

#### 5.0 REFERENCES

- (1) NUREG-0123, Standard Technical Specifications for General Electric Boiling Water Reactors, Revision 3.
- (2) Pilgrim Nuclear Power Station, Updated Final Safety Analysis Report, Chapters 6 and 14.
- (3) NEDO-30767, "Pilgrim Nuclear Power Station Loss of Coolant Accident (LOCA) Analysis Update". September 1984.
- (4) 23A 4800 Rev 0, Class I, December 1986, "General Electric Boiling Water Reactor Supplemental Reload Licensing Submittal for Pilgrim Nuclear Power Station Reload 7".

Principal Contributor: Michele G. Evans, Region I

Dated: November 30, 1987