

April 2, 1993

Docket No. 50-293

Mr. Roy A. Anderson  
Senior Vice President - Nuclear  
Boston Edison Company  
Pilgrim Nuclear Power Station  
11104 RFD #1 Rock Hill Road  
Plymouth, Massachusetts 02360

DISTRIBUTION:

Docket File 50-293  
NRC & Local PDRs  
PDI-3 Reading  
SVarga  
JCalvo  
REaton  
OGC - 15B18  
DHagan - MNBB 3206  
BMarcus, 8H3

GHill (2) - P1-22  
WJones - P- 370  
CGrimes - 11F23  
ACRS (10) - P315  
OPA - 2G5  
OC/LFDCB - MNBB  
JLinville, RI  
FPaulitz, 8H3

SUBJECT: ISSUANCE OF AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE  
NO. DPR-35, PILGRIM NUCLEAR POWER STATION (TAC NO. M84342)

The Commission has issued the enclosed Amendment No. 148 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated August 17, 1992, as supplemented January 22, 1993, and February 1, 1993.

This amendment changes the low pressure isolation signal from the high pressure coolant injection steam inlet piping to the reactor vessel as sensed by the Analog Trip System.

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/

Ronald B. Eaton, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 148 to License No. DPR-35
2. Safety Evaluation

cc w/enclosures:

See next page

\*See previous concurrence

OFFICE	PDI-3: A	PDI-3: PM	*OGC	PDI-3: D	
NAME	TC Clark	REaton	RBachmann	WButler	
DATE	4/12/93	4/12/93	03/24/93	4/12/93	

OFFICIAL RECORD COPY

Document Name: PIM84342.AMD

9304080280 930402  
PDR ADDCK 05000293  
P PDR

REG FILE CENTER COPY

CP-1  
JFOI  
11



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

April 2, 1993

Docket No. 50-293

Mr. E. Thomas Boulette  
Senior Vice President - Nuclear  
Boston Edison Company  
Pilgrim Nuclear Power Station  
RFD #1 Rocky Hill Road  
Plymouth, Massachusetts 02360

Dear Mr. Boulette:

SUBJECT: ISSUANCE OF AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE  
NO. DPR-35, PILGRIM NUCLEAR POWER STATION (TAC NO. M84342)

The Commission has issued the enclosed Amendment No. 148 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated August 17, 1992, as supplemented January 22, 1993, and February 1, 1993.

This amendment changes the low pressure isolation signal from the high pressure coolant injection steam inlet piping to the reactor vessel as sensed by the Analog Trip System.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald B. Eaton", with a long horizontal flourish extending to the right.

Ronald B. Eaton, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 148 to  
License No. DPR-35
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. E. Thomas Boulette

Pilgrim Nuclear Power Station

cc:

Mr. Edward F. Kraft,  
Vice President of Nuclear  
Operations & Station Director  
Pilgrim Nuclear Power Station  
RFD #1 Rocky Hill Road  
Plymouth, Massachusetts 02360

Resident Inspector  
U. S. Nuclear Regulatory Commission  
Pilgrim Nuclear Power Station  
Post Office Box 867  
Plymouth, Massachusetts 02360

Chairman, Board of Selectmen  
11 Lincoln Street  
Plymouth, Massachusetts 02360

Office of the Commissioner  
Massachusetts Department of  
Environmental Protection  
One Winter Street  
Boston, Massachusetts 02108

Office of the Attorney General  
One Ashburton Place  
20th Floor  
Boston, Massachusetts 02108

Mr. Robert M. Hallisey, Director  
Radiation Control Program  
Massachusetts Department of  
Public Health  
305 South Street  
Boston, Massachusetts 02130

Regional Administrator, Region I  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Mr. Paul J. Hamilton  
Licensing Division Manager  
Boston Edison Company  
25 Braintree Hill Park  
Braintree, Massachusetts 02184

Mr. H. Vernon Oheim  
Manager, Reg. Affairs Dept.  
Pilgrim Nuclear Power Station  
RFD #1 Rocky Hill Road  
Plymouth, Massachusetts 02360

Mr. David F. Tarantino  
Nuclear Information Manager  
Pilgrim Nuclear Power Station  
RFD #1, Rocky Hill Road  
Plymouth, Massachusetts 02360

Mr. Thomas Rapone  
Secretary of Public Safety  
Executive Office of Public Safety  
One Ashburton Place  
Boston, Massachusetts 02108

Mr. David Rodham, Director  
Massachusetts Emergency Management  
Agency  
400 Worcester Road  
P.O. Box 1496  
Framingham, Massachusetts 01701-0317  
Attn: James Muckerheide

Chairmen, Citizens Urging  
Responsible Energy  
P. O. Box 2621  
Duxbury, Massachusetts 02331

Citizens at Risk  
P. O. Box 3803  
Plymouth, Massachusetts 02361

W. S. Stowe, Esquire  
Boston Edison Company  
800 Boylston St., 36th Floor  
Boston, Massachusetts 02199



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

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 148  
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
  - A. The application for amendment filed by the Boston Edison Company (the licensee) dated August 17, 1992, as supplemented January 22, 1993, and February 1, 1993, 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:

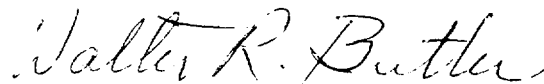
9304080282 930402  
PDR ADDCK 05000293  
P PDR

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.148 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 2, 1993

ATTACHMENT TO LICENSE AMENDMENT NO.148

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

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 pages have been provided.\*

Remove

Insert

48

48

52

52

53

53

61

61

PNPS  
TABLE 3.2-B (Cont'd)  
INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

<u>Minimum # of Operable Instrument Channels Per Trip System (1)</u>	<u>Trip Function</u>	<u>Trip Level Setting</u>	<u>Remarks</u>
2	High Drywell Pressure	$\leq 2.5$ psig	<ol style="list-style-type: none"> <li>1. Initiates Core Spray; LPCI; HPCI.</li> <li>2. In conjunction with Low-Low Reactor Water Level, 120 second time delay and LPCI or Core Spray pump running, initiates Auto Blowdown (ADS).</li> <li>3. Initiates starting of Diesel Generators</li> <li>4. In conjunction with Reactor Low Pressure initiates closure of HPCI vacuum breaker containment isolation valves.</li> </ol>
1	Reactor Low Pressure	$400 \text{ psig} \pm 25$	Permissive for Opening Core Spray and LPCI Admission valves.
1	Reactor Low Pressure	$\leq 110$ psig	In conjunction with PCIS signal permits closure of RHR (LPCI) injection valves.
1	Reactor Low Pressure	$400 \text{ psig} \pm 25$	In conjunction with Low-Low Reactor Water Level initiates Core Spray and LPCI.
2	Reactor Low Pressure	$900 \text{ psig} \pm 25$	Prevents actuation of LPCI break detection circuit.
2	Reactor Low Pressure	$100 > P > 50$ psig	Isolates HPCI and in conjunction with High Drywell Pressure initiates closure of HPCI vacuum breaker containment isolation valves.

PNPS  
TABLE 3.2-B (Cont'd)  
INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

<u>Minimum # of Operable Instrument Channels Per Trip System (1)</u>	<u>Trip Function</u>	<u>Trip Level Setting</u>	<u>Remarks</u>
2	Condensate Storage Tank Low Level	≥18" above tank zero	Provides interlock to HPCI pump suction valves
2	Suppression Chamber High Level	≤1'11" below torus zero	
1	RCIC Turbine Steam Line High Flow	≤300% of rated steam flow	(2)
2	RCIC Turbine Compartment Wall	≤170°F	(2)
2	Torus Cavity Exhaust Duct	≤150°F	(2)
2	RCIC Valve Station Area Wall	≤200°F	(2)
4 (5)	RCIC Steam Line Lo-Press	100>P>50 psig	(2)
1	HPCI Turbine Steam Line High Flow	≤300% of rated flow	(3)
2	HPCI Turbine Compartment Exhaust Ducts	≤170°F	(3)
2	Torus Cavity Exhaust Duct	190 - 200°F	(3)
2	HPCI/RHR Valve Station Area Exhaust Duct	≤170°F	(3)



#### NOTES FOR TABLE 3.2.B

1. Whenever any CSCS subsystem is required by Section 3.5 to be operable, there shall be two (Note 5) operable trip systems. If the first column cannot be met for one of the trip systems, that system shall be repaired or the reactor shall be placed in the Cold Shutdown Condition within 24 hours after this trip system is made or found to be inoperable.
2. Close isolation valves in RCIC subsystem.
3. Close isolation valves in HPCI subsystem.
4. Instrument set point corresponds to 77.26 inches of active fuel.
5. RCIC has only one trip system for these sensors.

PNPS  
TABLE 4.2.B  
MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

<u>Instrument Channel</u>	<u>Instrument Functional Test</u>	<u>Calibration Frequency</u>	<u>Instrument Check</u>
1) Reactor Water Level	(1) (7)	(7)	Once/day
2) Drywell Pressure	(1) (7)	(7)	Once/day
3) Reactor Pressure	(1) (7)	(7)	Once/day
4) Auto Sequencing Timers	NA	Once/operating cycle	None
5) ADS-LPCI or CS Pump Disch. Pressure Interlock	(1)	Once/3 months	None
6) Start-up Transf. (4160V)			
a. Loss of Voltage Relays	Monthly	Once/operating cycle	None
b. Degraded Voltage Relays	Monthly	Once/operating cycle	None
7) Trip System Bus Power Monitors	Once/Operating cycle	N/A	Once/day
8) Recirculation System d/p	(1)	Once/3 months	Once/day
9) Core Spray Sparger d/p	NA	Once/operating cycle	Once/day
10) Steam Line High Flow (HPCI&RCIC)	(1)	Once/3 months	None
11) Steam Line High Temp. (HPCI&RCIC)	(1)	Once/3 months	None
12) Safeguards Area High Temp.	(1)	Once/3 months	None
13) RCIC Steam Line Low Pressure	(1)	Once/3 months	None
14) HPCI Suction Tank Levels	(1)	Once/3 months	None
15) Emergency 4160V Buses A5 & A6 Loss of Voltage Relays	Monthly	Once/operating cycle	None



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. \_\_\_\_\_ TO FACILITY OPERATING LICENSE NO. DPR-35  
BOSTON EDISON COMPANY  
PILGRIM NUCLEAR POWER STATION  
DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated August 17, 1992, as supplemented by information provided on January 22, 1993, and February 1, 1993, the Boston Edison Company (BECO/the licensee) submitted a request for changes to the Pilgrim Nuclear Power Station, Technical Specifications (TS). The requested changes would change the control circuits for several valves in the high pressure coolant injection (HPCI) system. Primarily, the proposed amendment would replace the HPCI steam line low pressure (100>P>50 psig) signal for HPCI system isolation and HPCI turbine trip with the reactor low pressure (100>P>50 psig) signal. The proposed amendment would also provide position indication of the associated HPCI valves in the control room in compliance with the recommendations of Regulatory Guide 1.97. This change request covers incorporation of these changes in the Pilgrim Technical Specification (TS) Tables 3.2.B and 4.2.B. The supplemental information, provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

In a related modification, the licensee is replacing two turbine exhaust drain isolation valves, CV-9068A and CV-9068B to meet the recommendations of Regulatory Guide 1.97 for position indication in the control room. During this changeout, the licensee proposes to provide similar control room indication for the following HPCI valves:

M02301-4	HPCI steam to turbine
M02301-5	HPCI steam to turbine
M02301-35	HPCI pump suction from Torus
M02301-36	HPCI pump suction from Torus
M02301-14	HPCI miniflow bypass to Torus

Most of the HPCI equipment is located in the reactor building. The steam supply for the HPCI turbine is piped from a main steam header in the primary containment. At present, four low pressure switches (PS 2387A, B, C and D) located on the HPCI steam line inside the containment are used to isolate the HPCI isolation valves and trip the HPCI turbine on low steam pressure. This isolation is provided to ensure that radioactive steam and gases will not

escape from the HPCI turbine shaft seals into the reactor building when steam pressure is too low. The isolation setpoint is chosen at a pressure below which the HPCI turbine cannot operate effectively.

Currently, low reactor pressure is sensed by four pressure transmitters which are mounted on instrument racks outside the drywell. The transmitters provide electrical signals to analog trip units located in the cable spreading room. The tripping of either the "A" or "B" division of these trip units initiates isolation of the HPCI turbine exhaust vacuum breaker line. The isolation setpoint of this system is set at the same setpoint as the HPCI steam line low pressure isolation signal. The proposed amendment would replace the HPCI steam line low pressure signal with the reactor low pressure signal.

### 3.0 EVALUATION

The current logic associated with the HPCI steam line low pressure signal is one-out-of-two taken twice for a single channel. The logic associated with the reactor low pressure signal is a two-out-of-two taken once for two channels. Thus, the proposed isolation logic is single failure proof while the existing logic is vulnerable to single failure because it is using only one train.

The existing HPCI steam line low pressure switches are located inside the primary containment close to the reactor vessel steam dome. There is a large steam pipe between the steam dome and the HPCI steam line low pressure switches. As indicated in the Final Safety Analysis Report (FSAR), the pressure drop from the reactor vessel steam dome to the HPCI turbine inlet would not exceed 10 psig. Moreover, the HPCI steam line low pressure switches and the reactor vessel low pressure switches are located in close proximity and, therefore, the differential pressure between them will be much less.

Furthermore, the HPCI steam line low pressure switches are located in a high radiation area where plant personnel are vulnerable to radiation exposure during maintenance, surveillance, and calibration tests. On the other hand, most of the maintenance, surveillance, and calibration tests on the reactor low pressure switches and the associated analog trip units can be performed in a low radiation area. The licensee proposes to remove the four HPCI steam line low pressure switches permanently. This will save on man-hours required for maintenance of these pressure switches and will reduce radiation exposure.

### 4.0 STATE CONSULTATION

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

## 5.0 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. 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 (57 FR 61107). 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.

## 6.0 CONCLUSION

Based on the above evaluation, the staff concludes that the proposed changes will improve the HPCI system isolation reliability in accordance with the single failure criterion and the guideline of Regulatory Guide 1.97, and are therefore, acceptable.

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: F. Paulitz/B. Marcus

Date: April 2, 1993