

OCT 2 1981

Docket No. 50-293



Mr. A. Victor Morisi  
Boston Edison Company  
M/C Nuclear  
800 Boylston Street  
Boston, MA 02199

Dear Mr. Morisi:

The Commission has issued the enclosed Amendment No. 49 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station Unit 1. This amendment consists of changes to the Technical Specifications in response to your letter BECo #81-223 dated September 22, 1981.

The amendment changes the Technical Specifications relating to the spiral fuel unloading pattern to allow the center cell to be the first removed during the 1981 refueling outage.

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

ORIGINAL SIGNED BY

Mark H. Williams  
Operating Reactors Branch #2  
Division of Licensing

Enclosures:

- 1. Amendment No. 49 to DPR-35
- 2. Safety Evaluation
- 3. Notice

cc: w/enclosures  
See next page

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*[Handwritten signature]* 10/2/81

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SURNAME	SNorris	MWilliams:pbe	Tippolito	Tovak			
DATE	9/30/81	10/2/81	10/2/81	10/2/81	9/1/81		

Mr. A. Victor Morisi  
Boston Edison Company

cc:

Mr. Richard D. Machon  
Pilgrim Station Manager  
Boston Edison Company  
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Plymouth, Massachusetts 02360

Resident Inspector  
c/o U.S. NRC  
P.O. Box 867  
Plymouth, Massachusetts 02360

Henry Herrmann, Esquire  
Massachusetts Wildlife Federation  
151 Tremont Street  
Boston, Massachusetts 02111

Plymouth Public Library  
North Street  
Plymouth, Massachusetts 02360

Massachusetts Department of Public Health  
ATTN: Commissioner of Public Health  
600 Washington Street  
Boston, Massachusetts 02111

Water Quality & Environmental Commissioner  
Department of Environmental Quality  
Engineering  
100 Cambridge Street  
Boston, Massachusetts 02202

Mr. David F. Tarantino  
Chairman, Board of Selectmen  
11 Lincoln Street  
Plymouth, Massachusetts 02360

U. S. Environmental Protection  
Agency  
Region I Office  
ATTN: EIS COORDINATOR  
JFK Federal Building  
Boston, Massachusetts 02203



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

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 49  
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Boston Edison Company (the licensee) dated September 22, 1981 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:

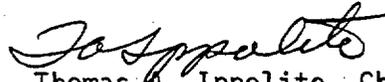
3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 49, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

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3. This license Amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: October 2, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 49

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Revise Appendix A as follows:

Remove page 204A and insert identically numbered page.

### 3.10 BASES

#### B. Core Monitoring

The SRM's are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Requiring two operable SRM's in or adjacent to any core quadrant where fuel or control rods are being moved assures adequate monitoring of that quadrant during such alterations. The requirement of 3 counts per second provides assurance that neutron flux is being monitored and insures that startup is conducted only if the source range flux level is above the minimum assumed in the control rod drop accident.

The limiting conditions for operation of the SRM subsystem of the Neutron Monitoring System are derived from the Station Nuclear Safety Operational Analysis (Appendix G) and a functional analysis of the neutron monitoring system. The specification is based on the Operational Nuclear Safety Requirements in subsection 7.5.10 of the Safety Analysis Report.

A spiral unloading pattern is one by which the fuel is in the outermost cells (four fuel bundles surrounding a control blade) is removed first. Unloading continues by removing the remaining outermost fuel cell by cell. The center cell will be the last removed.<sup>(1)</sup> Spiral loading is the reverse of unloading. Spiral unloading and reloading will preclude the creation of flux traps (moderator filled cavities surrounded on all sides by fuel).

During spiral unloading, the SRM's shall have an initial count rate of  $\geq 3$  cps with all rods fully inserted. The count rate will diminish during fuel removal. Under the special condition of complete spiral core unloading, it is expected that the count rate of the SRM's will drop below 3 cps before all of the fuel is unloaded.

Since there will be no reactivity additions, a lower number of counts will not present a hazard. When all of the fuel has been removed to the spent fuel storage pool, the SRM's will no longer be required. Requiring the SRM's to be operational prior to fuel removal assures that the SRM's are operable and can be relied on even when the count rate may go below 3 cps.

During spiral reload, SRM operability will be verified by using a portable external source every 12 hours until the required amount of fuel is loaded to maintain 3 cps. As an alternative to the above, up to two fuel assemblies will be loaded in different cells containing control blades around each SRM to obtain the required 3 cps. Until these assemblies have been loaded, the 3 cps requirement is not necessary.

#### C. Spent Fuel Pool Water Level

To assure that there is adequate water to shield and cool the irradiated fuel assemblies stored in the pool, a minimum pool water level is established. The minimum water level of 33 feet is established because it would be a significant change from the normal level (-1 foot) and is well above the level to assure adequate cooling.

(1) During the 1981 refueling outage, prior to initiating spiral unloading, the central controlled cell will be removed to facilitate inspection of the Core Spray Spargers.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 49 TO LICENSE NO. DPR-35

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION UNIT 1

1.0 INTRODUCTION

By letter dated September 22, 1981 the Boston Edison Company has proposed a change in the Technical Specifications of the Pilgrim Nuclear Power Station, Unit 1, to permit removal of the central control cell (central control rod plus the 4 bundles surrounding it) prior to the start of spiral unloading\*. This will permit mounting of equipment necessary for an inspection of the Core Spray Sparger which Boston Edison has committed to perform at this refueling outage. The considerations of this change involve both those of ALARA criteria (10 CFR 20.1.(c)) and degradation of shutdown margin.

2.0 EVALUATION

The licensee has proposed to do the inspection with the core installed. Since the only reason for performing the inspection prior to core removal is a schedular concern, ALARA considerations were raised by NRC staff. The licensee has prepared the equipment and procedures for the inspection such that it will be performed from the refueling bridge with the reactor vessel and refueling cavity flooded. This method minimizes the exposure of workers. In fact, there is a negligible difference in the total exposure obtained by doing the inspection with the core installed and doing the inspection with the core removed.\*\* We, therefore, find that the licensee has adequately considered the ALARA criteria of 10 CFR 20.1(c).

The NRC staff has reviewed the proposed change regarding adequacy of shutdown margin. The safety concern involved in this change is that the shutdown margin may be reduced. Boston Edison has referenced a previously submitted document entitled "Pilgrim 1 Multiple Controlled Cell Removal" dated November 1979. This document reports a study which was conducted by Boston Edison to evaluate the effect of removing

\*A complete unloading of the core is planned for the upcoming reload.

\*\*Reference BECo letter No. 81-228, (Oct.1,1981)

various controlled cells from the Pilgrim Reactor. From 1 to 16 cells were removed including the central cell and cells at various distances from core center. In all cases the reactivity of the core decreased with the amount of decrease per cell removed being maximum at core center and minimum near the core edge. With respect to the central cell, a staff study dated July 18, 1979 also showed that removal of the central cell results in a decrease in core reactivity.

The Boston Edison study was performed with the CASMO-PDQ7 code package which is a widely used calculation technique. It was qualified for the calculations by comparison with critical experiment data and with critical states of the Pilgrim reactor.

We, therefore, conclude that the shutdown margin of the Pilgrim reactor will not be reduced by the removal of the central controlled cell and that the proposed Technical Specification change is acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATIONS

We have determined that the amendment does not involve a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR Section 51.5(d)(4) that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of the amendment.

### 4.0 CONCLUSIONS

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: October 2, 1981

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-293

BOSTON EDISON COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 49 to Facility Operating License No. DPR-35 issued to Boston Edison Company (the licensee), which revised the Technical Specifications for operation of the Pilgrim Nuclear Power Station Unit No. 1 (the facility) located near Plymouth, Massachusetts. The amendment is effective as of its date of issuance.

The amendment changes the Technical Specifications relating to the spiral fuel unloading pattern to allow the center cell to be the first removed during the 1981 refueling outage.

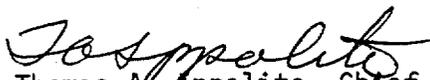
The application for amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since it does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4), an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of the amendment.

For further details with respect to this action, see (1) the application for amendment dated September 22, 1981, (2) Amendment No. 49 to License No. DPR-35, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Plymouth Public Library on North Street in Plymouth, Massachusetts 02360. A single copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 2nd day of October 1981.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing