



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

INTEGRATED SCHEDULING PROGRAM

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 75 TO FACILITY LICENSE NO. DPR-35

BOSTON EDISON COMPANY

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 Introduction

By letter dated April 14, 1983, Boston Edison Company (BECo, licensee) submitted its Long Term Program (the Program) for modifications of the Pilgrim Nuclear Power Station (PNPS) for NRC review and approval. Subsequently, the licensee requested in a July 5, 1983 license amendment application that a condition be added to the PNPS operating license requiring BECo to follow the "Plan for the Long Term Program for Pilgrim Nuclear Power Station." Following discussions with the NRC staff, BECo revised its application by letter dated May 7, 1984.

The Program was developed by Boston Edison to coordinate and schedule major necessary work at PNPS, whether mandated by NRC or identified by BECo. The Program integrates all presently planned work at PNPS over a nominal three year period to enable effective scheduling and coordination of individual tasks.

The "Plan for the Long Term Program - Pilgrim Nuclear Power Station" (Attachment 1) is the implementation vehicle for the licensee's Long Term Program. The Plan describes how the Program functions, the mechanisms for changing and updating it, and the interaction of the NRC and BECo under the provisions of the Program and its associated schedules.

The staff issued a notice of the proposed license amendment in the Federal Register of September 21, 1983. In that notice, the staff proposed a determination of no significant hazards consideration. The licensee's subsequent submittal of May 7, 1984 revised the Plan to update the schedules semiannually instead of quarterly. The submittal also incorporated editorial changes which recognize that a licensee-proposed change in Schedule B would be extended if NRC requests discussion of the proposed change. Schedules A and B were also updated to reflect the expected accomplishment of additional modifications during the extended refueling outage #6 rather than during a mid-cycle #7 outage. These are administrative changes considered by the staff to be within the scope of the initial notice.

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## 2.0 Program Description

The program developed by Boston Edison is based on a computer generated listing of over 500 items of prioritized work. Certain of these items, were organized into Schedules A and B, using critical path methodology and considering site manpower and engineering support requirements for a three year period.

BECo's program integrates the engineering, procurement and installation of planned NRC-required modifications with Boston Edison's own requirements for plant modifications, maintenance, refueling, and operations. In developing its Program, the licensee prioritized work items, considered the impact of work-area manpower densities during modifications and refueling activities, and identified the desirability of a mid-Cycle modification outage to complete certain work items. Boston Edison stated that implementation of its program would be facilitated by working towards completion schedules which are cycle (or outage) dependent versus fixed calendar dates.

Although not specifically accounting for future new requirements (other than those currently envisaged in its proposed program), BECo's Program is structured so that additional required plant modifications can be integrated into the overall program to identify the impact of such new requirements on the overall schedule.

The Plan submitted by the licensee identifies two categories of modifications. Schedule A identifies schedules for modifications established by existing Rule or Order. Schedule B identifies schedules for completion of:

- 1) Regulatory items (of either a generic or plant specific nature) identified by NRC which would result in a) plant modifications, b) procedure revisions, or c) changes to facility staffing requirements and which have an implementation date committed to by Boston Edison;
- 2) Items perceived by BECo as prospective NRC requirements; and,
- 3) All major Pilgrim tasks resulting from mandates of agencies other than NRC and BECo initiated system upgrades for availability improvement.

## 3.0 Evaluation

### 3.1 Implementation

The licensee's July 5, 1983 submittal (as revised) incorporates an application for amendment to incorporate a license condition requiring that Boston Edison follow the Plan and permitting the licensee to make

changes to the Plan and its schedules for certain categories of items in accordance with the provisions of the Plan. We have reviewed the licensee's Plan and have determined that:

- 1) Changes to schedules for completion of modifications imposed by Rule or Order (Schedule 'A' completion dates) will continue to be sought through the exemption or Order-date extension process (For example, Boston Edison's existing request for exemption from certain schedular requirements of 10 CFR 50.48 regarding fire protection.).
- 2) Schedules for completion of other modifications (Schedule 'B' completion dates) are identified and provisions are made in the Plan to require BECo to provide the NRC with prior written notification of changes to Schedule B completion dates to enable further explanation or discussion of such changes.
- 3) Provisions are made in the Plan for incorporating new or anticipated regulatory items into Schedules A and B as these requirements are identified by NRC and/or formalized by Rule or Order.

The licensee identified each planned NRC-required modification as an individual line item in its Schedules. Semi-annual reports of utility progress towards implementation of NRC-identified modifications are proposed by the licensee.

The licensee's proposal to incorporate a condition into the PNPS operating license which requires BECo to follow the Plan provides an appropriate mechanism to assure that NRC is informed as to whether required safety modifications are performed in a timely manner. At the same time, the Plan provides a suitable mechanism for changes to completion dates (due to unforeseen circumstances) for modifications not imposed by Rule or Order and for keeping the NRC informed of such changes for its consideration. Thus, the degree of flexibility needed to assure effective program implementation is provided while at the same time assuring that NRC's responsibilities are not compromised.

The Plan and the proposed license condition submitted by the licensee are functionally identical to those approved by the staff in Amendment No. 91 to the Duane Arnold Energy Center (DAEC) operating license. A copy of this amendment was transmitted to all power reactor licensees by Generic Letter 83-20 on May 9, 1983. This letter identified the approach addressed by Amendment No. 91 as one which is acceptable to the NRC. Thus, we find that 1) the Plan proposed by Boston Edison is equivalent to a previously approved Plan for implementation of an integrated scheduling Program, and 2) the license condition proposed by BECo is equivalent to the previously approved license condition for the DAEC on this subject.

### 3.2 Proposed Schedules

Attachments 2 and 3 provide Boston Edison's proposed schedules for completion of all presently known BECo-planned and NRC-required modifications over a three year period.

For requirements imposed by Rule or Order (other than the schedule for completion of hydrostatic testing of Class II and III piping) the utility proposes completion by required dates. The utility has requested an extension of time to perform hydrostatic testing of certain Class 2 and Class 3 piping systems. After staff action on this matter, the schedule for completion of these tests will be revised as necessary.

With respect to NUREG-0737 Supplement 1 items, the utility revised its initially proposed schedules. In negotiating the dates for completion of Supplement 1 items, the licensee committed to providing the necessary reports, plans and analyses and to provide its final schedule for full implementation on a schedule which meets our guidelines. Consequently, we find it acceptable.

Certain schedules for completion of modifications to the Pilgrim facility are keyed to completion of required NRC staff reviews that would result in subsequent approvals. For example, the schedule for certain modifications required by 10 CFR 50.48 is determined by the date of completion of the staff review. The licensee has proposed completion of this issue during refueling outage No. 7, which is consistent with the provisions of the rule for determining required completion schedules.

Boston Edison has proposed completion of other NRC modifications not required by Rule or Order on a schedule consistent with its previous commitments. Significant regulatory items in this category scheduled for completion during the December 1983 refueling outage include purge and vent valve modifications and RPS power supply modifications. As agreed to by the licensee, the implementation schedule for the "Scram Discharge Volume" has been moved from Schedule B to Schedule A since this item was the subject of a Commission Order dated June 24, 1983. With this change, we find the licensee's schedule acceptable.

Based upon our review of the information contained in BECo's submittal, we find the dates proposed by the licensee for completion of modifications acceptable.

### 4.0 Summary

Based on the considerations addressed herein, we find that:

- 1) The proposal by Boston Edison that its Plan be implemented by a license condition requiring the utility to follow the Plan is acceptable.
- 2) The licensee's proposal that changes to implementation dates imposed by existing Rule or Order will continue to be sought through the exemption or order date extension process is acceptable.
- 3) Schedules for new requirements should be established for the PNPS on a plant specific basis.
- 4) Based upon our review, the completion dates proposed by the licensee in its submittal appear reasonable.
- 5) The license condition and the Plan submitted by Boston Edison are equivalent to that already approved by Amendment No. 91 to the Duane Arnold Energy Center.

#### 5.0 Environmental Consideration

This amendment involves changes in the installation or use of facility components located within the restricted area. The staff has determined that the amendment involves no significant increase in the amounts of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupation 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 Sec 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 this amendment.

#### 6.0 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.

Principal Contributor: Kenneth T. Eccleston and Paul H. Leech

Attachments:

1. Long Term Program
2. Schedule A
3. Schedule B

Dated: July 13, 1984

Plan for the Long Term Program      Pilgrim Nuclear Power Station

I. Introduction

Boston Edison Company (BECO) has developed a comprehensive program which will enable the Company to effectively manage implementation of certain modifications which have been required, or proposed by, the NRC, as well as other measures to enhance plant safety and reliability which have been identified by the Company. A description of the program, identified as "Long Term Program - Pilgrim Nuclear Power Station (PNPS)," was submitted to the NRC on April 14, 1983 by BECO Letter No. 83-91.

This program was developed to coordinate and schedule major necessary work at PNPS, whether mandated by NRC or identified by BECO and others. The program objectives are to (1) conform to regulatory requirements; (2) provide sufficient lead times for modifications; (3) minimize changes for operators; (4) assure training requirements are fulfilled; (5) effectively manage financial and human resources; and (6) specify the framework for changes to developed schedules.

This Long Term Program (the Program) reflects that fiscal and manpower resources are finite and that a limit on the onsite manpower is necessary. The Program integrates all presently planned work at PNPS over a nominal three year period to ensure that individual tasks are effectively scheduled and coordinated. It provides a means for new requirements to be accommodated taking into account schedule and resource constraints.

The purpose of this document is to describe the plan used to implement the Program. It describes how the Program functions, mechanisms for changing and updating it, and the interactions of NRC and licensee staffs under the Program, and its associated schedules.

II. Summary of Long Term Program Development

The Program is based on a computer generated listing of over 500 items of prioritized work. The listing takes into account projections for budgets and site manpower and engineering support requirements for three years, on an item-by-item basis covering major plant modification activities. It represents the PNPS work list and commitment list which is regularly modified and updated to meet changing conditions, including new NRC regulatory requirements. The final product of this Program is the development of schedules as discussed below.

III. Scheduling

Upon completion of the complete work listing, Boston Edison determined that detailed and integrated schedules were required for the major work items. Upon completing the comprehensive listing of major work items, the tasks were organized into Schedules A and B using critical path methodology (CPM) for selected work items. CPM schedules identify critical paths in the work

effort for each task, which, in turn, enables prompt adaptation of schedules to meet contingencies such as strikes, delays in procurement or installation or modification of fuel cycle schedules. Both schedules are briefly described below:

Schedule A - All items which have implementation dates mandated by NRC rules, orders, or license conditions.

Schedule B - Regulatory items (of either a generic or plant specific nature) identified by NRC which have implementation dates committed to by Boston Edison and which would result in either a) plant modifications, b) procedure revisions, or c) changes in facility staffing requirements; or items perceived by Boston Edison as prospective NRC requirements; or major PNPS tasks resulting from mandates of agencies other than NRC and BECo-initiated system upgrades for availability improvement.

Schedule A dates may be modified only with the prior approval of NRC, in accordance with existing NRC procedures. Changes in Schedule B dates require written notification to NRC as described in Section V. Schedules A and B, taken together, provide a basis for assessing the overall effects of changes to schedules and a departure point for discussion between NRC and the licensee regarding such changes, as discussed below.

#### IV. Schedule Modifications

An important aspect of Boston Edison's planning effort is the recognition that the attached schedules will need to be modified at times to reflect changes in regulatory requirements, to accommodate those activities that Boston Edison finds necessary to improve plant efficiency and reliability, and to take into account delays resulting from events beyond BECo's control. It is important that the procedure used by Boston Edison for changing the schedules be documented.\*/ In addition, the NRC must play a role in the oversight of the scheduling process (and must, in fact, judge the acceptability of proposed date changes in Schedule A). Accordingly, it is important that the NRC's role, and the interaction between the NRC and BECo be clearly defined, as discussed below.

#### V. Boston Edison Company Responsibilities

The integrated schedule requires that BECo monitor the progress of the work undertaken, manage its activities to maintain the schedule, and act promptly to take necessary actions when a schedule change is needed.

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\*/ Schedules A and B will contain sufficient detail to identify those items with completion dates keyed to fuel cycle outages. In such cases, a change in outage period shall not be considered a schedule change.



A. Periodic Updating

BECo will update Schedules A and B semiannually and submit the revised schedules to NRC, beginning six months following NRC concurrence in the Plan. In addition to updating the schedules, BECo will:

- Summarize progress in implementing NRC requirements concerning plant modifications.
- Identify changes since the last report.
- Summarize the reasons for schedule changes associated with regulatory requirements.

B. Changes to Schedules

Changes to the schedules may arise from a variety of reasons, such as new work activities; modifications in the scope of scheduled work; problems in delivery, procurement, etc.; changes in NRC rules and regulations; or other NRC or BECo actions.

Where it is necessary to add a new work item or to change the schedule for an item, the following general guidance will be utilized to the extent appropriate:

- Assess the priority of the work item and its safety significance.
- Schedule the new or changed item to avoid rescheduling other items, if it can be reasonably achieved.
- Alter Schedule B items before Schedule A items.
- Select a schedule for the new or changed item which will help in maintaining an optimum integrated program of work.

As noted above, no changes will be made in Schedule A without prior NRC approval. Should a change become necessary, it will only be proposed after Boston Edison has determined that rescheduling of non-NRC required work items either will not significantly assist in maintaining Schedule A without change; or that the safety, cost or schedule penalties from rescheduling non-NRC required work significantly outweigh the change in a Schedule A completion date.

Boston Edison will inform the NRC Project Manager when serious consideration is given to requesting a change in Schedule A. When BECo determines that a change in Schedule A is necessary, it will submit a written request for NRC approval in accordance with applicable procedures.

Boston Edison will notify NRC in writing at least 30 days before adopting a planned delay for an item in Schedule B. Such notification will also include the reasons for the delay and describe any compensatory actions indicated.

The revised date proposed by BECo will go into effect unless NRC, in writing, requests further explanation or discussion concerning such change. If NRC makes such a request, it will be made within 15 days of receipt of BECo's written notification. In this event, discussions will be initiated to promptly develop a schedule date which is mutually acceptable to Boston Edison and the NRC Project Manager while considering overall program impact. The written notification by NRC will serve to extend the schedule date for the period of time required for such discussions. If a new date is established in these discussions such date will supersede the date set forth in Schedule B. The new date will be incorporated in a revised Schedule B in the next schedule update submitted to NRC. If a new date cannot be established in these discussions, BECo changes in scheduled dates will be effective unless subsequently modified by NRC Order.

In the event of unplanned delays or circumstances beyond BECo control, BECo shall promptly notify the NRC Project Manager of the new date and incorporate it in a revised Schedule B in the next schedule update submitted to NRC.

#### VI. NRC Review

As pointed out in Section V.B above, changes to the schedules are inevitable. Action required by NRC is discussed below:

##### A. Boston Edison Originated Changes

1. Upon receipt from BECo of a request for modification of Schedule A, NRC will act promptly (consistent with resource availability and priority of other work) to consider and decide on the request in accordance with applicable procedures.
2. If the request for a modification of Schedule A is denied, NRC shall promptly inform Boston Edison and provide the reasons for denial.
3. NRC consideration of BECo changes in non-Schedule A items is covered by V.B.

B. NRC Originated Changes (Schedule A)

It is recognized that formal NRC regulatory actions may: (1) impose a new regulatory requirement with a fixed date or (2) establish a firm date for a previously identified regulatory requirement. In taking any such action the NRC, to the extent consistent with its overall regulatory responsibilities and, unless public health, safety, or interest require otherwise, will take into account the impact of such action on BECo's ability to complete effectively the items on Schedules A and B, and, in consultation with BECo, will try to minimize such impact. Although any formal regulatory action taken by the NRC will be effective in accordance with its terms without inclusion in Schedule A, the NRC and BECo recognize the desirability of incorporating such action into Schedule A, particularly in order to incorporate at the same time any other appropriate changes in the total integrated schedule program. Accordingly, once such formal regulatory action is taken (or earlier, if practicable), the NRC will provide BECo a reasonable opportunity to propose overall changes in the total integrated schedule program which would most effectively accommodate such requirements. Any resulting changes in items in Schedule A will be approved by NRC in accordance with established procedures, and will thereupon be reflected in a revised schedule A submitted by BECo. BECo will inform the NRC of any resulting changes in Schedule B in accordance with Section V. above.

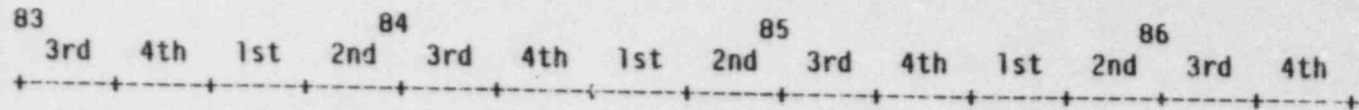
C. New NRC Issues (Schedule B)

The NRC may, from time to time, identify new regulatory issues which may result in a) plant modifications, b) procedure revision or development, or c) changes in facility staffing requirements. For issues as to which NRC requests scheduling information, these issues may be included in Schedule B in accordance with the date commitment developed in discussions between BECo and the NRC staff. As for the case of NRC-originated changes to Schedule A items, the NRC will provide BECo a reasonable opportunity to propose overall changes in the total integrated schedule program which would most effectively accommodate such issues. Any resulting changes in integrated program schedules will thereupon be reflected in a revised Schedule B submitted by BECo.

VII. Modifications to the Plan

The licensee and the NRC recognize that the Plan itself may require future modifications. Accordingly, BECo will draft proposed modifications and submit a license amendment application for approval of the proposed changes. The changes will be made effective upon amendment issuance by the NRC.

SCHEDULE "A"



OUTAGES

RFO #6 EXTENDED ----- FUEL CYCLE #7 ----- RFO #7  
 X-----X X-----X

MARK I

- \* TORUS EXTERNALS(1) -----\*
- \* TORUS TEMP. MONITORING(1) -----\*
- \* TORUS INTERNALS(1) -----\*

APPENDIX R(2)(3)

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- \* PASS H<sub>2</sub>O<sub>2</sub> (1) -----\*

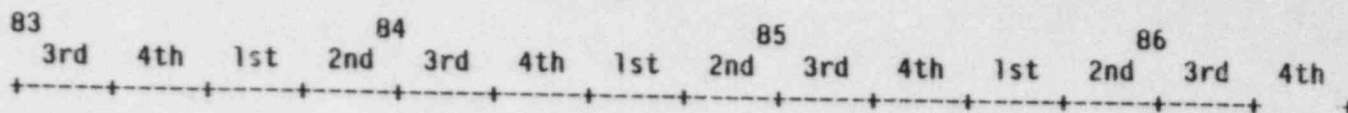
ENVIRONMENTAL QUALIFICATION(5) -----\* (MAR 85)

SCRAM DISCHARGE VOLUME(6) -----\* (FEB 85)

NOTES:

- (1) Completion Date Coincident with end of R.O. #6
- (2) Completion Date Coincident with end of R.O. #7
- (3) Schedule based upon BECo submittal. Final schedule based upon NRC review and approval of submittal.
- (4) Schedule reflects present Betterment Program scope. Expanded scope will be reflected in subsequent updates.
- (5) Schedule reflects 10 CFR 50.49 deadline. Ongoing BECo assessment may identify the need for schedular extensions within the provisions of 10 CFR 50.49(g).
- (6) Completion by February 23, 1985 is required by NRC Confirmatory Order dated June 24, 1983. BECo expects to complete the SDV modification during RFO #6.

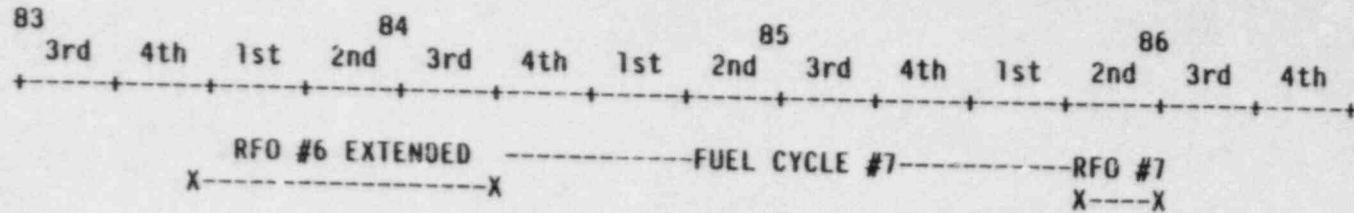
SCHEDULE "B"



RFO #6 EXTENDED ----- FUEL CYCLE #7 ----- RFO #7  
 X-----X X-----X

- NITROGEN MAKEUP (LONG-TERM)(1) -----\*
- HALON SYSTEM (1) -----\*
- FEEDWATER HEATER(1) -----\*
- NTA BLOCKOUT(1) -----\*
- NITROGEN MAKEUP (SHORT-TERM)(1) -----\*
- RECIRC. PIPE REPLACEMENT/REPAIR (1) -----\*
- BLOCKWALL 64.4(1) -----\*
- PURGE & VENT VALVE (1) -----\*
- RPS POWER SUPPLY(1) -----\*
- VALVE BETTERMENT PROGRAM(4)(1) -----\*
- \* HPCI/RCIC/RWCU/MS/AIR -----\*
- RADWASTE BETTERMENT(4)(1) -----\*
- CRD BETTERMENT-NUREG 0619(4)(1) -----\*
- CRD REPLACE/REFURBISH(1) -----\*
- RCIC SUCTION AUTO (2) SWITCHOVER -----\*

SCHEDULE "B" CONTINUED



EMERGENCY OPERATING PROCEDURES(3) -----\* (28 NOV 84)  
 CONTROL ROOM DESIGN(3) -----\* (23 SEP 84)  
 REG. GUIDE 1.97(3) -----\* ( 1 NOV 84)  
 SPDS(3) -----\* (15 NOV 84)

HYDROSTATIC TESTS - CLASS II & III (1)(2)(3)

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INSULATION REPLACEMENT/UPGRADE(1)

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NOTES:

- (1) Completion Date Coincident with end of R.O. #6
- (2) Completion Date Coincident with end of R.O. #7
- (3) Schedule based upon BECo submittal. Final schedule based upon NRC review and approval of submittal.
- (4) Schedule reflects present Betterment Program scope. Expanded scope will be reflected in subsequent updates.
- (5) Schedule reflects 10 CFR 50.49 deadline. Ongoing BECo assessment may identify the need for schedular extensions within the provisions of 10 CFR 50.49(g).