JUN 15 1976

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ACRS (16)
DEisenhut

Docket No. 50-293

Boston Edison Company
M/C NUCLEAR
ATTN: Mr. J. E. Larson
Nuclear Licensing
Administrator - Operations
800 Boylston Street
Boston, Massachusetts 02199

Gentlemen:

In response to your request dated May 13, 1976, and a supplement thereto dated May 20, 1976, the Commission has issued the enclosed Amendment No. 16 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station Unit No. 1.

This amendment consists of changes in the Technical Specifications that modify the use of existing isolation valves which serve as part of the new nitrogen recirculation system.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:
1. Amendment No. 16 to License No. DPR-35
2. Safety Evaluation
3. Notice

OFFICE ➤	OR:ORB #2	OR:ORB #2	OELD	OR:AD/OPC	OR:ORB #2	OR:AD/OR
SURNAME ➤	RMDiggs	PO'Connor	BHS	DEisenhut	DLZiemann	KRGoller
DATE ➤	6/4/76	6/3/76	6/11/76	6/14/76	6/15/76	6/ /76

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

cc w/enclosures:
Mr. J. A. Smith
Pilgrim Station Manager
Boston Edison Company
RFD #1, Rocky Hill Road
Plymouth, Massachusetts 02360

Anthony Z. Roisman, Esquire
Roisman, Kessler and Cashdan
1712 N Street, N. W.
Washington, D. C. 20036

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

Plymouth Public Library
North Street
Plymouth, Massachusetts 02360

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

cc w/enclosures and cy of BECo
filings of 5/13 & 20/76:
Henry Kolbe, M. D.
Acting Commissioner of Public Health
Massachusetts Department of
Public Health
600 Washington Street
Boston, Massachusetts 02202

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 16
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 May 13, 1976, and a supplement thereto dated May 20, 1976, comply 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. After weighing the environmental aspects involved, 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.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical Specifications

Date of Issuance: JUN 15 1976

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Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

ATTACHMENT TO LICENSE AMENDMENT NO. 16

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Replace the existing pages 161 and 175 of the Technical Specifications with the attached revised pages. Changes on these pages are shown by a marginal line.

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TABLE 3.7.1

PRIMARY CONTAINMENT ISOLATION VALVES

Group	Valve Identification	Number of Power Operated Valves Inboard	Outboard	Maximum Operating Time (sec.)	Normal Position	Action on Initiating Signal
1	Main Steam Line isolation valves	4	4	$3 \leq T \leq 5$	O	GC
1	Main steam line drain isolation valves	1	1	30	C	SC
1	Reactor Water sample line isolation valves	1	1	2 | 10	C	SC
2	Drywell purge supply isolation valves		2	15	C(1)	SC
					O(1)	GC
2	Suppression chamber purge supply isolation valves		2	15	O	GC
2	Nitrogen purge isolation valve		1	10	O	GC
2	Nitrogen makeup isolation valve		1	10	C	SC
2	Suppression chamber nitrogen makeup isolation valve		1	10	C	SC
2	Drywell purge exhaust isolation valves		2	15	C	SC
2	Drywell exhaust isolation valves		2	10	C	SC
2	Suppression chamber purge exhaust isolation valves		2	15	C	SC
2	Suppression chamber exhaust isolation valves		2	10	C	SC

3.7.D & 4.7.D Primary Containment Isolation Valves

Double isolation valves are provided on lines penetrating the primary containment and open to the free space of the containment. Closure of one of the valves in each line would be sufficient to maintain the integrity of the pressure suppression system. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a loss of coolant accident.

Group 1 - process lines are isolated by reactor vessel low-low water level in order to allow for removal of decay heat subsequent to a scram, yet isolate in time for proper operation of the core standby cooling systems. The valves in group 1 are also closed when process instrumentation detects excessive main steam line flow, high radiation, low pressure, main steam space high temperature, or reactor vessel high water level.

Group 2 - isolation valves are closed by reactor vessel low water level or high drywell pressure. The group 2 isolation signal also "isolates" the reactor building and starts the standby gas treatment system. It is not desirable to actuate the group 2 isolation signal by a transient or spurious signal.

Group 3 - isolation valves can only be opened when the reactor is at low pressure and the core standby cooling systems are not required. Also, since the reactor vessel could potentially be drained through these process lines, these valves are closed by low water level.

Group 4 and 5 - process lines are designed to remain operable and mitigate the consequences of an accident which results in the isolation of other process lines. The signals which initiate isolation of group 4 and 5 process lines are therefore indicative of a condition which would render them inoperable.

Group 6 - process lines are normally in use and it is therefore not desirable to cause spurious isolation due to high drywell pressure resulting from non-safety related causes. To protect the reactor from a possible pipe break in the system, isolation is provided by high temperature in the cleanup system area or high flow through the inlet to the cleanup system. Also, since the vessel could potentially be drained through the cleanup system, a low level isolation is provided.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 16 TO FACILITY OPERATING LICENSE NO. DPR-35

BOSTON EDISON COMPANY

PILGRIM UNIT NO. 1

DOCKET NO. 50-293

INTRODUCTION

By letter dated May 13, 1976, and a supplement thereto dated May 20, 1976, the Boston Edison Company (BECo) requested an amendment to Operating License No. DPR-35 for the Pilgrim Nuclear Power Station Unit No. 1. The request involves revisions to the Technical Specifications with regard to the modification of usage of existing automatic isolation valves associated with the installation of a nitrogen recirculation system.

BACKGROUND

As a result of recent structural analyses performed in conjunction with a generic review of pressure-suppression pool dynamic loads for the General Electric BWR Mark I containments, it was determined that if pool dynamic loads resulting from a postulated loss-of-coolant accident (LOCA) are considered, the margin of safety in the containment design for Unit No. 1 of the Pilgrim Nuclear Power Station is lower than originally intended. Subsequently, the Boston Edison Company (the licensee) agreed to institute a "differential pressure control system" to mitigate the pool dynamic loads and thereby restore the margin of safety in the containment design. The differential pressure control system would establish a positive differential pressure between the drywell and torus regions of the containment. This would reduce the height of the water leg in the downcomers and subsequently would reduce the LOCA hydrodynamic loads.

To control combustible gases following a postulated loss-of-coolant accident, the drywell atmosphere is inerted with nitrogen during normal operation. The inclusion of a positive differential pressure between the drywell and torus results in a loss of nitrogen from the drywell to the torus airspace from leakage through the vacuum breakers on the vent headers. To minimize the loss of nitrogen from the system, the licensee has proposed a recirculation system which would collect the nitrogen in the torus and return it to the drywell.

DISCUSSION AND EVALUATION

The recirculation system provides a connection between the existing drywell purge supply line and the suppression chamber purge supply line. The recirculation line takes suction from the suppression chamber purge supply line and contains a check valve to prevent back flow. After the check valve, the recirculation line branches into two parallel paths, one path consists of two shut off valves, a blower, and a check valve and the other path consists of 2 check valves, three shut off valves, a compressor, a nitrogen receiver tank, and a pressure control valve. The parallel lines rejoin and discharge into the nitrogen purge supply line. The existing automatic isolation valves on the suppression chamber purge supply line (AO-5036-A and-B), the nitrogen purge line (AO-5033-B), and the drywell purge supply line (AO-5035-A) would be changed from a normally closed position to a normally open position to provide the flow path from the torus airspace to the drywell.

We have reviewed the proposed recirculation system for Pilgrim Unit No. 1 with regard to both containment isolation capability and potential adverse effects on a postulated loss-of-coolant accident. The outboard isolation valves, AO-5036-A and-B, AO-5033-B and AO-5035-A are automatic valves which are normally open and will close upon the receipt of a Group 2 isolation signal or the loss of the instrument bus associated with the outboard isolation valves. These valves also close on loss of instrument air.

A recirculation system could have an effect on the consequences of a postulated loss-of-coolant accident by allowing steam bypass of the pressure-suppression pool by direct communication of the drywell and the suppression chamber airspace. However, one section of the recirculation line is a four inch diameter pipe. The low mass flow rate associated with this size line in conjunction with the redundant capability to isolate both the suppression chamber purge line and the nitrogen make-up line will result in a negligible amount of steam bypass. In addition, there will be redundant check valves, located in each of the flow paths which will prevent reverse flow from the drywell and further lessen the chance of steam bypass. Therefore, the proposed design assures that the installation would have a negligible effect on a loss-of-coolant accident.

The purpose of the recirculation system is to conserve nitrogen that would otherwise be lost because of leakage from the drywell. The leakage and loss of nitrogen is not a safety issue since sufficient nitrogen makeup to maintain containment inerting requirements could be provided by the installed nitrogen makeup system and technical specifications on containment leak rate provide assurance that the licensee will maintain any leakage to acceptable levels.

ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize 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 §51.5(d)(4) that an environmental statement, negative declaration, or environmental appraisal need not be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above that: (1) because the changes do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the changes do 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: JUN 15 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-293

BOSTON EDISON COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO
FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 16 to Facility Operating License No. DPR-35, issued to Boston Edison Company (the licensee), which revised Technical Specifications for operation of Unit 1 of the Pilgrim Nuclear Power Station (the facility) located near Plymouth, Massachusetts. The amendment is effective as of its date of issuance.

The amendment modified the use of existing isolation valves which serve as part of the new nitrogen recirculation system.

The application, as modified, for the 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 the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of the amendment will not result in any sighificant environmental impact and that pursuant to

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10 CFR §51.5(d)(4), and environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for the amendment dated May 13, 1976, and a supplement thereto dated May 20, 1976, (2) Amendment No. 16 to License No. DPR-35, and (3) the Commission's concurrently issued 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 Operating Reactors.

Dated at Bethesda, Maryland, this 15th day of June, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

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