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OCT 6 1975

Docket No. 50-293

Boston Edison Company
ATTN: Mr. J. E. Howard
Vice President - Nuclear
800 Boylston Street
Boston, Massachusetts, 02199

Gentlemen:

The Commission has issued the enclosed Amendment No. 12 to Facility License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment includes Change No. 14 to the Technical Specifications and is in response to your request dated March 31, 1975, which was submitted in reply to our letter dated February 14, 1975.

This amendment incorporates new temperature limits in the technical specifications for the suppression pool water to provide additional assurance of maintaining primary containment integrity.

A copy of the Federal Register Notice is also enclosed.

Sincerely,

Original signed by
Dennis L. Ziemann

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

Enclosures:
1. Amendment No. 12 to License DPR-35
2. Federal Register Notice

cc: see next page

OFFICE	RL:ORB #2	RL:ORB #2	OELD	RL:ORB #2	RL:ORS	RL:DIR
SURNAME	RMDiggs:ro	PWOconnor	S H Lewis	DLZiemann	KRGoller	RSBoyd
DATE	9/23/75	9/24/75	10/2/75	10/06/75	10/6/75	10/6/75

Form AEC-318 (Rev. 9-53) AECM 0240

cc
Mr. J. E. Larson
Nuclear Licensing Administrator - Operations
Boston Edison Company
RFD #1, Rocky Hill Road
Plymouth, Massachusetts 02360

Mr. W. F. Roche
Manager, Nuclear Operations
Boston Edison Company
800 Boylston Street
Boston, Massachusetts 02199

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

Mr. E. F. Kearney
Operations Engineering Group Manager
Boston Edison Company
RFD #1, Rocky Hill Road
Plymouth, Massachusetts 02360

Mr. W. M. Sides
Quality Assurance Manager
Boston Edison Company
RFD #1, Rocky Hill Road
Plymouth, Massachusetts 02360

Mr. D. G. Stoodley, Counsel
Boston Edison Company
800 Boylston Street
Boston, Massachusetts 02199

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

Plymouth Public Library
North Street
Plymouth, Massachusetts 02360

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

Henry Kolbe, M. D.
Acting Commissioner of Public Health
600 Washington Street
Boston, Massachusetts 02111

Mr. Wallace Stickney
Environmental Protection Agency
JFK Federal Building
Boston, Massachusetts 02203

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

OCT 6 1975

BOSTON EDISON COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 12
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission) has found that:

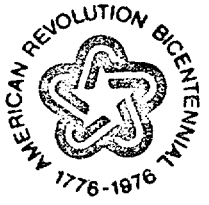
   A. The application for amendment by Boston Edison Company (the licensee) dated March 31, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   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; and

   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.

2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-35 is hereby amended to read as follows:



"B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 14."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:
Karl R. Goller for

Roger S. Boyd, Acting Director
Division of Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Change No. 14 to the
Technical Specifications

Date of Issuance: OCT 4 1975

ATTACHMENT TO AMENDMENT NO. 12

CHANGE NO. 14 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Delete pages 152, 166 and 167 from the Appendix A Technical Specifications and insert the attached replacement pages 152, 152A, 166 and 167. The changed areas on the revised pages are shown by marginal lines.

3.7 CONTAINMENT SYSTEMS

Applicability:

Applies to the operating status of the primary and secondary containment systems.

Objective:

To assure the integrity of the primary and secondary containment systems.

Specification:

A. Primary Containment

1. At any time that the nuclear system is pressurized above atmospheric pressure or work is being done which has the potential to drain the vessel, the pressure suppression pool water volume and temperature shall be maintained within the following limits except as specified in 3.7.A.2.

   a. Minimum water volume - 84,000 ft^3

   b. Maximum water volume - 94,000 ft^3

   c. Maximum suppression pool temperature during normal continuous power operation shall be $\leq$ 80°F, except as specified in 3.7.A.1.e. 14

   d. Maximum suppression pool temperature during RCIC, HPCI or ADS operation shall be $\leq$ 90°F, except as specified in 3.7.A.1.e. 14

   e. In order to continue reactor power operation, the suppression chamber pool temperature must be reduced to $\leq$ 80°F within 24 hours. 14

   f. If the suppression pool temperature exceeds the limits of Specification 3.7.A.1.d, RCIC, HPCI or ADS testing shall be terminated and suppression pool cooling shall be initiated. 14

   g. If the suppression pool temperature during reactor power operation exceeds 110°F, the reactor shall be scrammed. 14

4.7 CONTAINMENT SYSTEMS

Applicability:

Applies to the primary and secondary containment integrity.

Objective:

To verify the integrity of the primary and secondary containment.

Specification:

A. Primary Containment

1. a. The suppression chamber water level and temperature shall be checked once per day.

   b. Whenever there is indication of relief valve operation or testing which adds heat to the suppression pool, the pool temperature shall be continually monitored and also observed and logged every 5 minutes until the heat addition is terminated. 14

   c. Whenever there is indication of relief valve operation with the temperature of the suppression pool reaching 160°F or more and the primary coolant system pressure greater than 200 psig, an external visual examination of the suppression chamber shall be conducted before resuming power operation.

   d. A visual inspection of the suppression chamber interior, including water line regions, shall be made at each major refueling outage.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7 CONTAINMENT SYSTEMS (Cont'd)	4.7 CONTAINMENT SYSTEMS (Cont'd)
h. During reactor isolation conditions, the reactor pressure vessel shall be depressurized to less than 200 psig at normal cool down rates if the pool temperature reaches 120°F.	
2. Primary containment integrity shall be maintained at all times when the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel except while performing "open vessel" physics tests at power levels not to exceed 5 Mw(t).	2. Integrated Leak Rate Testing a. The primary containment integrity shall be demonstrated by performing an Integrated Primary Containment Leak Test (IPCLT) in accordance with either Method A or Method B, as follows: Method A Perform leak rate test prior to initial unit operation at the test pressure of 45 psig, P_t (45), to obtain measured leak rate L_m (45), or Method B Perform leak rate test prior to initial unit operation at the test pressure of 45 psig, P_t (45), and 23 psig, P_t (23), to obtain the measured leak rates, L_m (45) and L_m (23), respectively.

BASES:

3.7.A & 4.7.A Primary Containment

The integrity of the primary containment and operation of the core standby cooling system in combination limit the off-site doses to values less than those suggested in 10 CFR 100 in the event of a break in the primary system piping. Thus, containment integrity is specified whenever the potential for violation of the primary reactor system integrity exists. Concern about such a violation exists whenever the reactor is critical and above atmospheric pressure. An exception is made to this requirement during initial core loading and while the low power test program is being conducted and ready access to the reactor vessel is required. There will be no pressure on the system at this time, thus greatly reducing the chances of a pipe break. The reactor may be taken critical during this period; however, restrictive operating procedures will be in effect again to minimize the probability of an accident occurring. Procedures and the Rod Worth Minimizer would limit control worth such that a rod drop would not result in any fuel damage. In addition, in the unlikely event that an excursion did occur, the reactor building and standby gas treatment system, which shall be operational during this time, offer a sufficient barrier to keep off-site doses well below 10 CFR 100 limits.

The pressure suppression pool water provides the heat sink for the reactor primary system energy release following a postulated rupture of the system. The pressure suppression chamber water volume must absorb the associated decay and structural sensible heat released during primary system blowdown from 1035 psig. Since all of the gases in the drywell are purged into the pressure supression chamber air space during a loss-of-coolant accident, the pressure resulting from isothermal compression plus the vapor pressure of the liquid must not exceed 62 psig, the suppression chamber maximum pressure. The design volume of the suppression chamber (water and air) was obtained by considering that the total volume of reactor coolant to be condensed is discharged to the suppression chamber and that the drywell volume is purged to the suppression chamber.

Using the minimum or maximum water volumes given in the specification, containment pressure during the design basis accident is approximately 45 psig which is below the maximum of 62 psig. Maximum water volume of 94,000 ft^3 results in a downcomer submergency of 4'9" and the minimum volume of 84,000 ft^3 results in a submergence approximately 12-inches less. The majority of the Bodega tests were run with a submerged length of 4 feet and with complete condensation. Thus, with respect to downcomer submergence, this specification is adequate.

Should it be necessary to drain the suppression chamber, this should only be done when there is no requirement for core standby cooling systems operability as explained in basis 3.5.F.

Experimental data indicates that excessive steam condensing loads can be avoided if the peak temperature of the pressure suppression pool is maintained below 160°F during any period of relief-valve operation with sonic conditions at the discharge exit. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high pressure suppression chamber loadings. 14

BASES:

3.7.A & 4.7.A Primary Containment

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define the action to be taken in the event a relief valve inadvertently opens or sticks open. This action would include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling heat exchangers, (3) initiate reactor shutdown, and (4) if other relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open relief valve to assure mixing and uniformity of energy insertion to the pool. 14

Because of the large volume and thermal capacity of the suppression pool, the volume and temperature normally changes very slowly and monitoring these parameters daily is sufficient to establish any temperature trends. By requiring the suppression pool temperature to be continually monitored and frequently logged during periods of significant heat addition, the temperature trends will be closely followed so that appropriate action can be taken. The requirement for an external visual examination following any event where potentially high loadings could occur provides assurance that no significant damage was encountered. Particular attention should be focused on structural discontinuities in the vicinty of the relief valve discharge since these are expected to be the points of highest stress.

If a loss-of-coolant accident were to occur when the reactor water temperature is below approximately 330°F, the containment pressure will not exceed the 62 psig code permissible pressure, even if no condensation were to occur. The maximum allowable pool temperature, whenever the reactor is above 212°F, shall be governed by this specification. Thus, specifying water volume-temperature requirements applicable for reactor-water temperature above 212°F provides additional margin above that available at 330°F.

Inerting

The relatively small containment volume inherent in the GE-BWR pressure suppression containment and the large amount of zirconium in the core are such that the occurrence of a very limited (a percent or so) reaction of the zirconium and steam during a loss-of-coolant accident could lead to the liberation of hydrogen combined with an air atmosphere to result in a flammable concentration in the containment. If a sufficient amount of hydrogen is generated and oxygen is available in stoichiometric quantities, the subsequent ignition of the hydrogen in rapid recombination rate could lead to failure of the containment to maintain a low leakage integrity. The 5% oxygen concentration minimizes the possibility of hydrogen combustion following a loss-of-coolant.

UNITED STATES NUCLEAR REGULATORY COMMISSION

BOSTON EDISON COMPANY

DOCKET NO. 50-293

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. 12 to Facility Operating License No. DPR-35, issued to Boston Edison Company (the licensee), which revised technical specifications for operation of the Pilgrim Nuclear Power Station (the facility) located near Plymouth, Massachusetts. The amendment is effective as of its date of issuance.

The amendment incorporates additional suppression pool water temperature limits: (1) during any testing which adds heat to the pool, (2) at which reactor scram is to be initiated and (3) requiring reactor pressure vessel depressurization. It also adds surveillance requirements for visual examination of the suppression chamber during each refueling and following operations in which the pool temperatures exceed 160^{o}F and adds monitoring requirements of water temperatures during operations which add heat to the pool.

The application 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. Notice of Proposed Issuance of Amendment to Facility Operating License in connection with this action was published in the FEDERAL REGISTER on July 23, 1975 (40 F. R. 30880). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

For further details with respect to this action, see (1) the application for amendment dated March 31, 1975, (2) Amendment No. 12 to License No. DPR-35, with Change No. 14 and (3) the Commission's related Safety Evaluation issued July 15, 1975. 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 Library, North Street, Plymouth, Massachusetts 02360.

A single copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regualtory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 6th day of October, 1975

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Dennis L. Ziemann
Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

UNITED STATED NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-293

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Dated at Bethesda, Maryland, this 6th day of October, 1975

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Dennis L. Ziemann

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

~~17-6~~

~~Enclosure 9~~

CHECKLIST FOR ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

APPLICANT Boston Ed. Co. DOCKET NO. 50-293

FACILITY Pilgrim Unit 1 Amend 12/Ch. 14

PROJECT MANAGER Paul O'Connor

LICENSING ASSISTANT Rebecca D.

	DATE
Notice of Proposed Issuance Published In FEDERAL REGISTER. Action Date	7/23/75 (40 FR 30880) 8/26/75
Issuance Package: ELD Concurrence	10/2/75
1. License Amendment	10/2/75
2. FEDERAL REGISTER Notice	Issued 7/15/75 w/Prop. Iss.)
3. Staff Evaluation	10/2/75
4. Letter to applicant	
NEPA Determination: Required/Not Required	Not Reqd.
For Amendments Affecting Power Level:	
IE Notification and/or Concurrence	N/A
OAI Notification and/or Concurrence 1/	N/A
ADM Ofc. Notification and/or Concurrence	N/A
PA Notification	Not interested

1/ or name change, transfer of facility ownership

FEB 7 1975