

UNITED STATES OF AMERICA
 NUCLEAR REGULATORY COMMISSION

In the matter of)	Docket No. 50-293
)	
BOSTON EDISON COMPANY)	
)	
(PILGRIM NUCLEAR POWER STATION))	

EXEMPTION

I.

The Boston Edison Company (BECo), the licensee, is the holder of Operating License No. DPR-35 which authorizes operation of Pilgrim Nuclear Power Station. The license provides, among other things, that the Pilgrim Nuclear Power Station is subject to all rules, regulations, and Orders of the Commission now or hereafter in effect.

The plant is a boiling water reactor at the licensee's site located in Plymouth County, Massachusetts.

II.

On November 19, 1980, the Commission published a revised Section 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants (45FR76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains 15 subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these subsections, III.G.1.(a), is the subject of the licensee's exemption request.

- 2 -

Section III.G.1.(a) of Appendix R to 10 CFR Part 50, requires that fire protection features be provided for structures, systems, and components important to safe shutdown. The features are required by regulation to be capable of limiting fire damage such that at least one train of each system necessary to achieve and maintain hot shutdown from either the Control Room or emergency control station(s) is free of fire damage without the need for operator actions classified as repairs.

III.

By letter dated October 2, 1987, BECo, requested exemptions from 10 CFR Part 50, Appendix R, Item III.G.1.(a) requirement, for performing repairs for maintaining plant hot shutdown following a fire in any one of certain plant areas. Specifically, the licensee proposes replacing fuses in the control circuits for RHR valves in the torus cooling mode of RHR operation which may get blown due to a fire in Fire Area (FA) 3.1 (Control Room), 3.2 (Cable Spreading Room) or 1.9 (Reactor Building, Elevation 23', East side). Additionally, the licensee proposes installing a jumper wire in the control circuit for a required cooling fan that may get disabled due to a fire in FA 1.9.

The licensee indicated that for a fire in FA 3.1 or 3.2, the Reactor Core Isolation Cooling (RCIC) and Residual Heat Removal (RHR) in the torus cooling mode will be used to achieve and maintain safe shutdown. The licensee also indicated that for a fire in FA 1.9, the RHR in the torus cooling mode can be used with other applicable systems to achieve and maintain safe shutdown. The licensee, however, identified an electrical isolation deficiency associated with the torus cooling mode of RHR operation which could compromise the capability to maintain

- 3 -

hot shutdown following certain fire events. Specifically, the licensee's analysis of postulated fires in plant areas indicated that a fire in any one of 3 fire areas (FA 3.1, 3.2 or 1.9) can cause damage to the remote control circuits for the 5 valves required for torus cooling. This damage could result in blowing the associated control power fuses that are common to both the remote and local control circuits for these valves and consequently compromise the local control capability for these valves. Since this event could blow fuses in both divisions, this would not conform to Appendix R, III.G.1.

The transferring of the control of the needed valves from the control room to a local control station (i.e., alternate shutdown panel) will not be sufficient to ensure local control of these valves. Control would be lost if their common fuses are blown prior to such transfer. To ensure local control of the 5 valves, the licensee proposes to replace the blown control power fuses for the affected valves in a timely manner after effecting the transfer of the 5 valves to local control. Specifically, for a fire in any one of the above 3 areas, the licensee proposes to transfer control of the needed valves from the control room to an alternate shutdown panel (ASP) located in a fire area different from the affected fire area using the respective transfer switches for the valves on the panel and replace the blown fuses at the MCC located adjacent to the ASP. One of two sets (i.e., each set containing one ASP and one adjacent MCC) associated with the valves of the corresponding train of two RHR trains will be utilized depending upon the fire location. One of these sets is located in FA 1.9 and the other is located in FA 1.10 (Reactor Building Elevation 23', West side). For a fire in FA 3.1 or 3.2, the licensee will use either of these sets; for a fire in FA 1.9, the set located in FA 1.10

- 4 -

will be used. At any one time, no more than 5 fuses will need to be replaced and the need for replacement will be identified by the absence of indicating lights above the respective control switches for the valves.

The licensee has indicated that sufficient time will be available for replacing the blown fuses since they have confirmed that a single operator can replace 5 fuses within 20 minutes. General Electric Company (GE) has determined that at least 2 hours are available to perform these replacements before torus cooling will be required. The fuses are correctly sized and clearly marked for use and all necessary tools and additional spare fuses will be maintained nearby. Adequate lighting has been provided for the MCC cubicles containing the fuses to facilitate fuse replacement. In this context, the staff notes that the fuse replacement will not result in undue operator hazard since it involves only control power fuses.

The licensee indicated that a fire in FA 1.9 can additionally disable control of a fan which, in turn, will disrupt the cooling of the area in the Reactor Building housing various needed hot shutdown components. The licensee has calculated that 8 hours after loss of area cooling, the area temperature can rise to 209°F, the value established for environmental qualification for the equipment in the area. The licensee proposes to install a jumper wire (hot shutdown repair) in the fan control circuit at the applicable MCC (located in FA 1.10) which is outside the affected fire area. Sufficient time will be available for the jumper wire installation since the task can be completed in less than one hour. The licensee further indicated that the properly sized jumper will be kept in one of the alternate shutdown tool boxes (located in switch gear rooms).

- 5 -

The licensee has committed to implement the above procedures prior to plant startup from the current refueling outage (RFO) No. 7. The procedures for plant shutdown outside the control room (at the ASP) include all actions to be taken for fuse replacement, when they are to be taken, and identify the MCC and the breaker number for each component whose fuse may require replacement. Supplemental procedures on post-fire shutdown in specific areas including the Reactor Building are being developed (to be completed and implemented prior to plant startup from RFO No. 7). These will give instructions to the operators as to when and how to install the jumper wire. The licensee committed to train the operators in the above procedures prior to startup.

The manual actions including the hot shutdown fuse replacement, meet the intent and purpose of IE Information Notice No. 85-09, "Isolation Transfer Switches and Post-Fire Shutdown Capability," dated January 21, 1985. The staff has further determined that the other proposed hot shutdown repair requiring jumper wire installation to facilitate performance of a support function (cooling an area to maintain hot shutdown) can be completed in a timely manner so as not to compromise maintaining hot shutdown.

Based on the above evaluation, the staff concludes that application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of Appendix R to 10 CFR Part 50. The licensee's existing fire protection configuration, including the proposed manual actions, provides an equivalent level of protection to that achieved by compliance with Section III.G.1(?) of Appendix R.

Therefore, the licensee's request for an exemption to the requirements of Section III.G.1.(a) of Appendix R in relation to the need of manual actions including the above hot shutdown repairs should be granted.

- 6 -

IV.

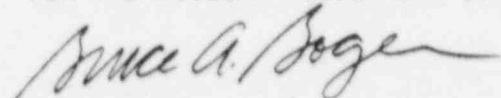
Accordingly, the Commission has determined, pursuant to 10 CFR 50.12(a), that (1) the exemption as described in Section III is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security and (2) in this case, special circumstances are present in that application of the regulation is not necessary to achieve the underlying purpose of Appendix R to 10 CFR Part 50. Therefore, the Commission hereby grants the exemption from the requirements of Section III.G.1.(a) of Appendix R to 10 CFR Part 50 regarding the ability to achieve and maintain hot shutdown from either the Control Room or emergency control station(s) without the need of operator actions classified as repairs.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not result in any significant environmental impact (53 FR12484). A copy of the licensee's request for exemption dated October 2, 1987 is available for public inspection at the Commission's Public Document Room, 1717 H Street, NW, Washington, D.C. and at the Plymouth Public Library, 11 North Street, Plymouth, Massachusetts 02360. Copies may be obtained upon written request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Projects I/II.

This Exemption is effective upon issuance.

Dated at Rockville, Maryland, this 14th day of April 1988

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce A. Boger, Acting Director
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

EXEMPTION - PILGRIM NUCLEAR POWER STATION

DISTRIBUTION

Docket File ←
NRC & Local PDRs
PDI-3 Reading
TMurley/MSniezek
FMiraglia
CRossi
SAVarga
RABoer
MRushbrook
DGMcDonald
OGC-WF
EJordan
JPartlow
TBarnhart (4)
ACRS (10)
GPA/PA
ARM/LFMR
Gray File