



**Boston Edison**

Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, Massachusetts 02360-5599

September 30, 1998  
BECo Ltr. 2.98.130

U.S. Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D.C. 20555

Docket No. 50-293  
License No. DPR-35

The enclosed Licensee Event Report (LER) supplement 98-013-01, "Inconclusive Fire Barrier Enclosure Test Data" is submitted in accordance with 10 CFR part 50.73.

There are no new commitments.

Please do not hesitate to contact me if there are any questions regarding this report.

J.F. Alexander  
Regulatory Relations  
Group Manager

KRD/JVW/dcg  
ler/9801301  
Enclosure: LER 98-013-01

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Boston Edison Company

cc: Mr. Hubert J. Miller  
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Standard BECo LER Distribution

**LICENSEE EVENT REPORT (LER)**

(See reverse for number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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**TITLE (4)**  
Inconclusive Fire Barrier Test Data

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	06	98	1998	013	01	09	30	98	N/A	05000
									N/A	05000

**OPERATING MODE (9)** N

**POWER LEVEL (10)** 100

**THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (Check one or more) (11)**

20.2201 (b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
22.2203(a)(1)	20.2203(a)(3)(i)	X 50.73(a)(2)(ii) (B)	50.73(a)(2)(x)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER
20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

**LICENSEE CONTACT FOR THIS LER (12)**

NAME Kristin R. DiCrocce - Senior Regulatory Affairs Engineer	TELEPHONE NUMBER (Include Area Code) 508-830-7667
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

**SUPPLEMENTAL REPORT EXPECTED (14)**

X YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	<b>EXPECTED SUBMISSION DATE(15)</b>	MONTH	DAY	YEAR
			2	26	99

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

While reviewing information related to fire barrier design, concerns were raised about the adequacy of the test information used to support the calculated 3-hour fire rating for three enclosures. These enclosures are located in the Cable Spreading Room and in the "B" Switchgear Room.

Corrective actions taken included conservatively declaring the enclosures inoperable and posting a 1-hour fire watch. A safety significance review was performed that concluded the potentially nonconforming enclosures would not prevent the safe shutdown of the plant in the event of a fire. On June 6, 1998, additional test data was received that cast doubt on the original test conclusion that the enclosures were adequate for a 3-hour fire rating.

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) to describe a potentially nonconforming condition that is outside the design basis of the plant.

This condition was identified while at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was approximately 1034 psig with the reactor water temperature at the saturation temperature for the reactor pressure. This condition posed no threat to public health and safety.

**LICENSEE EVENT REPORT (LER)**

**TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**REASON FOR THE SUPPLEMENT**

This report is submitted in accordance with our commitment to supplement the initial report following determination of actions to demonstrate compliance with Appendix R for the affected fire barriers. This supplement also updates corrective actions that had not been identified or completed when the initial report was prepared.

**BACKGROUND**

Two fire barriers were constructed in the Pilgrim Nuclear Power Station (PNPS) "B" Switchgear Room and one barrier in the Cable Spreading Room (CSR) to meet Appendix A fire protection separation requirements for safe shutdown systems. The barriers are steel frame enclosures covered with fire proofing material and were installed by PDC 79-03C2 in 1980. Originally based upon a structural steel fire proofing design, the design was later qualified for use as a 3-hour rated fire barrier by tests and calculations.

Boston Edison Company (BECO) originally relied upon vendor testing information to determine temperature transmission characteristics through the material. In 1986, BECO staff used the test data to perform calculations to support the conclusion that the enclosures met the fire protection program requirements.

Subsequently, a fire protection audit in 1996 questioned the adequacy of the test and analysis used as the basis for concluding the acceptability of the fire rating for the three enclosures. The audit indicated vendor testing used to establish the fire ratings did not provide enclosure specific information. A review of the calculations in 1996, in response to the audit (PR 96.9324), judged the application of the available test data provided reasonable assurance of the 3-hour rating.

**EVENT DESCRIPTION**

A 1998 QA audit questioned the previous closeout of PR 96-9324. On May 28, 1998, while reviewing fire barrier design information for the three enclosures in response to the QA finding, concerns were again raised about the ability of the enclosures to meet Appendix R requirements based upon guidance given in Generic Letter 86-10 and its Supplement. A 1-hour fire watch was conservatively posted for the intact enclosure in the "B" Switchgear Room, and existing fire watches on the other two enclosures (for other deficiencies) were kept in place until the qualification adequacy of the enclosures could be verified. Problem report (PR) 98.9269 was written to document the design concerns.

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The initial assessment of the adequacy of the design calculations reached the same conclusion as the previous problem report (PR) 96.9324. Application of available information was judged to provide reasonable assurance of the 3-hour fire rating. However, additional test information received on June 6, 1998, raised further questions and prompted this LER.

The fire protection concern was identified while at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was approximately 1034 psig with the reactor water temperature at the saturation temperature for the reactor pressure. This is being reported in accordance with 10 CFR 50.73(a)(2)(ii)(B) to describe a condition that represents potential operation outside the design basis of the plant.

**CAUSE**

In 1986, BECo used available vendor test data, engineering judgments, and calculations to conclude that the enclosures would meet Appendix R requirements. Additional test data received on June 6, 1998, raised concerns about the adequacy of the original basis for the 3-hour rating.

**CORRECTIVE ACTION**

The enclosures were declared inoperable, and a fire watch was posted within one hour consistent with the technical requirements of FSAR section 10.8.

The two fire barrier enclosures in the Pilgrim Nuclear Power Station (PNPS) "B" Switchgear Room have been removed and replaced with a design (Mecatiss fire barrier) which is fully qualified for the three hour rating, with traceable testing data. At the present time compensatory measures remain in effect pending closure of Plant Design Change (PDC) number 98-22.

The Mecatiss fire system consists of gang wrapping the protected cables, conduits and cable trays with several layers of fire resistant material. The principal ingredient is an alumino-silicate mineral wool fiber refractory material. These layers of fire resistant material are bonded together with a fire resistant adhesive. The supplier, BRAND Fire Protection Services, Inc., has provided a bounding analyses for the Mecatiss fire barrier system on enclosures 1 and 2 (documents BE BA-01 & BE BA-02, dated 8/19/98) to justify Mecatiss compliance with 10CFR50, Appendix R and Generic Letter 86-10 and supplement 1.

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The third fire barrier enclosure, located in the cable spreading room (CSR), has been re-evaluated. At this time, a decision has not been made on what the best corrective actions are to be taken. A supplement to this LER (98-013-02) will update the corrective actions to ensure compliance with Appendix R requirements for the third barrier.

**SAFETY CONSEQUENCES**

This condition did not result in any component or system failure and posed no threat to the public health and safety.

The significance review concluded the barriers were capable of assuring one train of equipment needed to shut the plant down would remain free of fire damage.

The enclosure in the Cable Spreading Room was reviewed against the potential for a fire in this room. It is very unlikely a fire could spread in the CSR due to the limited ignition sources and the coatings on the cables. In addition, there is full detection and suppression capability with the Halon system. Therefore, the cables will perform their design basis function in the event of a fire in the CSR.

The cables in the enclosures in the "B" switchgear room will be able to perform their design basis function due to control of combustibles in the room and the presence of a detection system. The cables in the room also have a flame retardant coating or meet IEEE 383 flame spread requirements and would not contribute to a postulated fire.

**SIMILARITY TO PREVIOUS EVENTS**

A review of Pilgrim Station LERs submitted since 1994 was conducted based on design basis Appendix R issues and two were noted; LER 97-029-00, "Shutdown Cooling (SDC) Suction Valves Vulnerable to Damage From Potential Failure Mode Involving Hot Shorts" and LER 98-012-00, "Incomplete Installation Of Fire Barrier In The Cable Spreading Room."

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ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS)	CODES
COMPONENTS	CODES
Fire Protection Insulation	ISL
SYSTEMS	CODES
Cable Raceway System	FA