



**Boston Edison**

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

10 CFR 50.73

February 1, 1999  
BECo Ltr. 2.99.010

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) 98-029-00, "Intake Structure Indoor Air Temperature Less Than Design," is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments.

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

J. F. Alexander  
Nuclear Assessment  
Group Manager

DWE/clb  
ler/9802900  
Enclosure: LER 98-029-00

9902090039 990201  
PDR ADOCK 05000:193  
S FJR

1/  
JE22

Boston Edison Company

cc: Mr. Hubert J. Miller  
Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Sr. NRC Resident Inspector - Pilgrim Station

INPO Records  
700 Galleria Parkway  
Atlanta, GA 30339-5957

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 mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)

PILGRIM NUCLEAR POWER STATION

DOCKET NUMBER (2)

05000-293

PAGE(3)

1 of 5

Title (4)

## Intake Structure Indoor Air Temperature Less Than Design

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
12	31	98	1998	029	00	02	01	99	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
OPERATING MODE (9)		N	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)
POWER LEVEL (10)		100	22.2203(a)(1)			20.2203(a)(3)(i)			X 50.73(a)(2)(ii)	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
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	or in NRC Form 366A

## LICENSEE CONTACT FOR THIS LER (12)

NAME

Douglas W. Ellis - Regulatory Affairs Principal Engineer

TELEPHONE NUMBER (Include Area Code)

(508) 830-8160

## COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
D	MK	DMP	XXXX	N					

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE(15)	MONTH	DAY	YEAR
--	---	----	------------------------------	-------	-----	------

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

On December 31, 1998, the air temperature within the Intake Structure including the rooms containing the Salt Service Water (SSW) System pumps was found to be less than 60 degrees F, the winter design temperature listed in the updated final safety analysis report for the Intake Structure.

The root cause was lack of information and administrative controls in the cold weather surveillance procedure and applicable ventilation procedure. Contributing factors included two area heaters in the Intake Structure that were not operating because the heaters were tagged for maintenance. Immediate action taken included stopping the operating air supply fans in the Intake Structure and installing temporary electric heaters in the Intake Structure. This action restored temperature to greater than 60 degrees F. The two ventilation system area heaters were subsequently repaired and returned to service. Corrective action planned includes revising the procedures.

The 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 1031 psig with the reactor water at the saturation temperature for that pressure. The condition posed no threat to public health and safety.



**LICENSEE EVENT REPORT (LER)**

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
PILGRIM NUCLEAR POWER STATION	05000-293	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 5
		98	029	00	

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

**BACKGROUND**

The Updated Final Safety Analysis Report (UFSAR) section 10.9 describes the Pilgrim Station heating, ventilation and air conditioning (HVAC) systems. Section 10.9 Table 10.9-1 (Winter) lists indoor design temperatures for various buildings, areas, and tanks. For the Intake Structure, the table lists an indoor temperature of 60 degrees F with an outdoor temperature of 10 degrees F.

UFSAR section 10.7 describes the Pilgrim Station safety-related ultimate heat sink, the Salt Service Water (SSW) System. The system consists of two trains ('A' and 'B') with pumps, valves, piping and instrumentation.

On December 31, 1998, realignment of Intake Structure ventilation system dampers VD-112A/B was initiated. The realignment was being conducted in accordance with procedure 2.2.45, "Screenhouse Heating and Ventilation System." This action was initiated to maintain air temperatures in the rooms containing the SSW System pumps and related components. Ventilation dampers (VD-112A/B) were not able to be adjusted (throttled). A corrective action program document (PR 98.9645) was written to document the problem. Maintenance program documents (MR 19803046 and MR 19803047) were written to repair/adjust the dampers. On-shift licensed operator review of UFSAR Table 10.9-1 identified that the design temperature of the Intake Structure is 60 degrees F and, therefore, the maintenance requests were prioritized to repair/adjust the dampers and maintain temperatures at 60 degrees F or greater.

**EVENT DESCRIPTION**

On December 31, 1998, at approximately 1515 hours, it was identified that the air temperature in the Intake Structure including the rooms containing the SSW pumps and related equipment was less than 60 degrees Fahrenheit. Specifically, the air temperature in the room containing the train 'A' SSW pumps was approximately 57 degrees F, the room containing the train 'B' SSW pumps was approximately 56 degrees F, and the room containing the SSW train 'A'/B' swing pump 'C' was approximately 52 degrees F.

The on-shift senior licensed operator (NWE) was notified and actions were initiated to increase air temperatures to greater than 60 degrees F. These actions included stopping the operating supply fans in the Intake Structure (Circulating Water System pumps' room) and installing temporary electric heaters to increase the indoor air temperature to greater than 60 degrees F. The NWE notified the system engineer for the SSW System of the condition. A preliminary engineering evaluation of the condition concluded the safety-related equipment in the rooms was operable.

Problem Report 98.9644 was written to document the problem. The NRC Operations Center was notified of the problem (operation outside design basis) at approximately 1602 hours on December 31, 1998.

The outside air temperature was approximately 21 degrees F when the noted temperatures in the SSW pumps' rooms were identified. The outside air temperature on December 31, 1998, ranged from a low of approximately seven (7) degrees F to a high of approximately 26 degrees F.

**LICENSEE EVENT REPORT (LER)**

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
PILGRIM NUCLEAR POWER STATION	05000-293	98	029	00	3 of 5

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

The condition was identified while at 100 percent reactor with the reactor mode selector switch in the RUN position. The reactor vessel pressure was approximately 1031 psig with the reactor water at the saturation temperature for that pressure.

**CAUSE**

The root cause was a deficient amount of information and administrative controls in procedures 8.C.40 and procedure 2.2.45. Contributing factors included two heaters that were not in operation, no low temperature alarm in the control room for low indoor air temperature in the Intake Structure, and UFSAR Table 10.9-1. The two heaters (VUH-103F/G) were not in operation because the heaters were tagged for maintenance. The Intake Structure is monitored for high indoor air temperature on the plant computer (KAYE); however, there is no Intake Structure low indoor temperature alarm on the computer or to the control room annunciation system. The Intake Structure low temperature (60 degrees F) listed in UFSAR Table 10.9-1 is a nominal design value for the Intake Structure indoor temperature as a whole -- it is not specific to areas within the structure, or to systems or equipment/components in the Intake Structure.

**CORRECTIVE ACTION**

The preliminary engineering evaluation was followed-up with a formal engineering evaluation, dated January 5, 1999. The evaluation (E 99-001) included a technical review of equipment manuals and data sheets of safety-related equipment in the rooms. The evaluation concluded the equipment was operable because the components are designed to operate at temperatures as low as 35 degrees F. The evaluation also concluded that no compensatory measures were required, but recommended that temporary electric heaters be installed to increase air temperatures to greater than 60 degrees F.

Immediate action taken consisted of stopping the operating supply fans in the Intake Structure (circulating water pumps' rooms) and installing temporary electric heaters. These actions resulted in air temperatures greater than 60 degrees F. The area heaters (VUH-103F/G) were subsequently repaired and returned to service on January 25, 1999 (MR 19701302).

Corrective action planned includes the following (PR 98.9644):

- Procedure 8.C.40 (currently rev. 6) and 2.2.45 (currently rev. 12) will be revised, and other systems' procedures will be reviewed for possible improvement. The focus of the revision is to provide additional information and administrative controls for actions to be taken by operations to maintain air temperatures in buildings (including the Intake Structure), areas, and tanks in accordance with the temperatures listed in UFSAR Tables 10.9-1 (Winter temperatures) and 10.9-2 (Summer temperatures).
- The Intake Structure ventilation system including ventilation dampers VD-112A/B will be repaired. The repairs will be prioritized in accordance with the maintenance program procedure 1.5.20, "Maintenance Requests."



**LICENSEE EVENT REPORT (LER)**

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
PILGRIM NUCLEAR POWER STATION	05000-293	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 of 5
		98	029	00	

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

Action planned to preclude recurrence includes the following (PR 98.9644):

- The addition of a control room alarm for air temperature in the Intake Structure will be evaluated. The focus of the evaluation is to provide an alarm if Intake Structure indoor air temperatures decrease to a predetermined temperature.
- The preventive maintenance program, which includes Intake Structure heating and ventilation system components, will be evaluated. The focus of the evaluation is to consider possible changes in frequency and/or the addition of components not currently in the program.

Other action taken or planned includes the following. UFSAR Table 10.9-1 (Winter temperatures) was reviewed as part of a previously identified corrective action document (PR 97.9732.02). UFSAR Table 10.9-2 (Summer temperatures) is included in an evaluation being conducted as a result of a previously identified corrective action document (PR 98.9243).

**SAFETY CONSEQUENCES**

The condition posed no threat to public health and safety.

The condition of air temperature less than 60 degrees F did not cause or result in a failure of the SSW system components or other systems' components that are located in the Intake Structure.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) because the air temperatures in the SSW pumps' rooms and hence, the Intake Structure, were less than the temperature (60 degrees F) listed in UFSAR Table 10.9-1.

**SIMILARITY TO PREVIOUS EVENTS**

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B), submitted since 1995, involving a similar cause or problem. The review identified similar conditions reported in the following LERs:

LER 97-021-00 reported that the Pilgrim Station site area Summer air temperatures and hence, the temperature in the rooms containing Emergency Diesel Generator (EDG) 'A' and 'B' were greater than 60 degrees F (UFSAR Table 10.9-2) during periods of past operation.

LER 97-027-00 reported the Winter air temperatures in the rooms containing EDG 'A' and 'B' were less than 60 degrees F (UFSAR Table 10.9-1) during periods of past operation.

LER 97-028-00 reported the Intake Structure in a configuration inconsistent with tornado analysis assumptions (UFSAR Appendix H.5).

**LICENSEE EVENT REPORT (LER)**

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
PILGRIM NUCLEAR POWER STATION	05000-293	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 of 5
		98	029	00	

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

LER 98-002-00 reported the air temperature in the room containing EDG 'A' was less than 60 degrees F (UFSAR Table 10.9-1) on February 5, 1998.

LER 98-004-01 reported the air temperature in the room containing EDG 'A' was less than 60 degrees F (UFSAR Table 10.9-1) on March 21, 1998.

LER 98-018-01 reported that the Pilgrim Station site area air temperature and hence, the temperature in the rooms containing EDG 'A' and 'B', exceeded 88 degrees F (UFSAR Table 10.9-2) on July 22, 1998.

**ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES**

The EIIS codes for this report are as follows:

**COMPONENTS**

**CODES**

Damper  
Pump

DMP  
P

**SYSTEMS**

Service Building Environmental Control System  
(Intake Structure Heating and Ventilation System

MK

Ultimate heat sink system (SSW)

BS