



Entergy Nuclear Generation Company  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360

J. F. Alexander  
Director  
Nuclear Assessment

March 30, 2001  
ENG C Ltr. 2.01.0045

10 CFR 50.73

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

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

Dear Sir:

The enclosed Licensee Event Report (LER) 2001-002-00, "*CRHEAFS Unable to Maintain Control Room Positive Pressure at One Location*" is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments. Any additional corrective actions associated with completion of the root cause analysis will be implemented consistent with the Pilgrim Station corrective action program.

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

Sincerely,

A handwritten signature in black ink, appearing to be "J. F. Alexander", written over the printed name.

J. F. Alexander

JRH/

Enclosure: LER 2001-002-00

cc: Mr. Hubert J. Miller  
Regional Administrator, Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Sr. NRC Resident Inspector  
Pilgrim Nuclear Power Station

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700 Galleria Parkway  
Atlanta, GA 30339-5957

IE22

**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)**

CRHEAFS Unable to Maintain Control Room Positive Pressure at One Location

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
01	30	2001	2001	002	00	03	30	2001	N/A	05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (Check one or more) (11)							
N			20.2201 (b)		20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(viii)	
POWER LEVEL (10)			22.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)(B)		50.73(a)(2)(x)	
100			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)		X 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A	
			20.2203(a)(2)(iv)		50.36(c)(2)		X 50.73(a)(2)(vii)(D)			

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

James R. Haley - Senior Engineer

**TELEPHONE NUMBER (Include Area Code)**

(508) 830-8143

**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

**SUPPLEMENTAL REPORT EXPECTED (14)**X YES  
(If yes, complete EXPECTED SUBMISSION DATE)

NO

**EXPECTED SUBMISSION DATE(15)**MONTH DAY YEAR  
9 30 2001**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On January 30, 2001, the Pilgrim Station Control Room high efficiency air filtration system (CRHEAFS) failed to adequately pressurize one door of the Control Room during a test to support plant design change PDC 99-18. Troubleshooting determined the ventilation pressure in the access control area outside the Control Room was higher than expected.

A root cause analysis is in progress. When the cause has been determined, any additional corrective actions to prevent recurrence, if identified, will be implemented. Interim corrective action has been taken to revise procedures to have operators secure the ventilation to the access control area outside the Control Room when CRHEAFS is required to operate. Testing, using the revised procedures, verified that CRHEAFS performed in accordance with its design.

This condition occurred at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was about 1035 psig with the water temperature at the saturation temperature for that pressure. This condition posed no threat to public health and safety.

# LICENSEE EVENT REPORT (LER)

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

### BACKGROUND

The Pilgrim Station Control Room high efficiency air filtration system (CRHEAFS) is designed to provide filtered air to the Control Room during conditions when normal intake air may be contaminated. B CRHEAFS consists of two 1,000 cubic feet per minute (CFM) filter trains. Each train includes dampers, a prefilter, a heating coil, a high efficiency particulate air (HEPA) filter, charcoal absorber tray filters, and a final HEPA filter. During emergency situations, CRHEAFS is manually initiated and has the capability to provide sufficient filtered air to maintain the Control Room at a positive pressure to prevent infiltration of contaminated air. This system is located in Fan Room 2 of the Radwaste Building.

CRHEAFS is safety-related and was designed to meet single failure and seismic Class I requirements. CRHEAFS interfaces with the normal Control Room ventilation system, which was constructed to seismic Class II criteria. CRHEAFS auto initiates when Halon is released in the cable spreading room. CRHEAFS is manually initiated in response to a fuel handling accident. Upon receipt of a Control Room radiation high alarm or a Control Room air inlet radiation high alarm, CRHEAFS is manually initiated and the normal Control Room ventilation is manually secured within 30 minutes. The normal Control Room ventilation is secured to limit the recirculation flow requirements and isolate CRHEAFS from the normal ventilation system.

LER 98-016-00, "Control Room Ventilation Exhaust Damper And Ductwork Not Seismically Qualified," was submitted in 1998 to report that the Control Room normal ventilation ductwork was not seismically qualified and may impact the seismic capability of CRHEAFS. Corrective actions included development of a permanent modification to fully restore seismic capability to CRHEAFS. This modification entailed design and installation of seismic isolation dampers in the locations where CRHEAFS ductwork interfaced with non-seismic ductwork. These modifications are being implemented under plant design change (PDC) 99-18.

Temporary Procedures (TP) were developed to support the activities associated with the damper installation. These procedures include TP00-007, "TEMPORARY PROCEDURE FOR POSTWORK TESTING OF ISOLATION DAMPERS INSTALLED VIA PDC 99-18," and TP00-008, "TEMPORARY PROCEDURE FOR OPERATION OF THE CONTROL ROOM, CABLE SPREADING ROOM, AND COMPUTER ROOM HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM DURING THE INSTALLATION OF PDC 99-18." These TPs were issued to ensure adequate controls existed at the ventilation interfaces to maintain CRHEAFS integrity.

### EVENT DESCRIPTION

Structural modifications to the Control Room ventilation system were being made as part of the corrective actions from LER 98-016-00 to ensure an adequate seismic boundary for CRHEAFS. On January 30, 2001, Pilgrim Station entered a limiting condition for operation to perform TP00-008 on CRHEAFS to demonstrate its ability to maintain a positive pressure in the Control Room. The positive pressure is verified by smoke stick testing at Control Room doors 145, 147, 150 and door 159. It was observed that air flowed out of doors 145, 147, and 159 as expected. However, the smoke stick test indicated airflow into the Control Room through door 150. An attempt was made to pressurize the Control Room in the area of door 150 by running the alternate train of CRHEAFS. This effort was unsuccessful and the test of CRHEAFS was terminated.

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When neither CRHEAFS train could establish positive flow through door 150 in the access control area outside the Control Room, CHREAFS was declared inoperable. The NRC Operations Center was notified in accordance with 10 CFR 50.72(b)(3)(v)(D), at 1940 hours on January 30, 2001 due to the discovery that CRHEAFS could not maintain the Control Room at a positive pressure.

A priority 1 maintenance request was initiated to troubleshoot and restore CRHEAFS to an operable condition. CHREAFS was flow tested and determined to be performing correctly. It was discovered that there was increased pressure in the access control area outside Control Room door 150. Pilgrim Station procedures affecting CRHEAFS operation were revised to require securing the ventilation in the Control Room access control areas when CRHEAFS is required to operate. The Control Room access control area supply and recirculation fans were secured in accordance with the revised procedures and CRHEAFS provided positive air flow out through each Control Room door, including door 150. The access control area ventilation system is not required to operate under accident conditions. Operability evaluation OP 01-008 concluded that CRHEAFS was operable after the procedure revisions securing the access control area ventilation system.

This condition occurred at 100 percent reactor power with the reactor mode selector switch in the RUN position. The reactor vessel pressure was about 1035 psig with the water temperature at the saturation temperature for that pressure.

**CAUSE**

A root cause analysis is being performed. When the cause has been determined, any additional corrective actions will be implemented consistent with the Pilgrim Station Corrective Action Program.

**CORRECTIVE ACTION**

Interim corrective actions taken include the following:

PNPS Procedures 2.2.46 (Rev. 30), 8.7.2.7 (Rev. 22) and TP00-008 (Rev. 3) reflect revisions to secure the ventilation in the access control area outside the Control Room when CRHEAFS is required to operate. Testing of CRHEAFS was performed after the access control area ventilation was secured. Positive air flow was observed from all Control Room access doors.

An engineering evaluation EE# 01-008 was performed in support of Operability Evaluation OP 01-008 and concluded that CRHEAFS was operable after procedures TP00-008, 2.2.46, and 8.7.2.7 were revised to secure Control Room access control area ventilation.

**ACTION TO PREVENT RECURRENCE**

When the root cause has been determined, corrective actions necessary to prevent recurrence will be implemented consistent with the Pilgrim Station Corrective Action Program. These actions will ensure that CRHEAFS is able to maintain a positive pressure in the Control Room.

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**SAFETY CONSEQUENCES**

The condition posed no threat to public health and safety.

Previous CRHEAFS surveillance tests demonstrated its ability to pressurize the Control Room. The test conducted on January 30, 2001 provided positive air flow through three of the four Control Room doors. The fourth door, which is located away from the operator area, had some air infiltration as indicated by the smoke stick test. LER 98-024-00 reported that even with up to 100 CFM infiltration (which is greater than the observed inleakage) operators would not experience exposure above 10CFR50 Appendix A GDC 19 dose limits. Procedures, equipment and training are provided to Control Room personnel for airborne radiation.

Should CRHEAFS have been required to operate when the higher pressure existed in the access control area to the Control Room, a continued radiation alarm would have alerted the operators to a degraded condition. After the procedure revisions, CRHEAFS pressurized the Control Room. Operator action is required to manually initiate CRHEAFS and to secure normal ventilation within 30 minutes of receipt of a Control Room radiation high alarm or a Control Room air inlet radiation high alarm. The interim corrective action taken has minimum impact on the operator since the controls for both normal Control Room ventilation and the access control area ventilation are on adjacent panels. These interim corrective actions prevent adverse impact on the Control Room environment.

**REPORTABILITY**

This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(D) and 10 CFR 50.73(a)(2)(vii)(D).

**SIMILARITY TO PREVIOUS EVENTS**

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) issued since 1995. The review identified the following reports involving CRHEAFS: LER 98-008-00, "A Section Of CRHEAFS Seismic Class I Ductwork Was Found To Be Supported By Class II Ductwork," LER 98-016-00, "Control Room Ventilation Exhaust Damper And Ductwork Not Seismically Qualified," and LER 98-024-00, "Control Room High Efficiency Air Filtration System Outside Design Basis."

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

The EIIS codes for this report are as follows:

**COMPONENTS**

**CODES**

Control Room High Efficiency Air Filtration

AHU

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System (CRHEAFS)

CRHEAFS Supports

SPT

SYSTEMS

CODES

Control Complex Environmental Control System

VI