



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

10 CFR 50.73

J. F. Alexander
Director
Nuclear Assessment

August 15, 2000
ENGCLtr. 2.00.048

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

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

The enclosed supplemental Licensee Event Report (LER) 98-024-01, "Control Room High Efficiency Air Filtration System (CRHEAFS) Not Outside Design Basis," is submitted in accordance with 10 CFR Part 50.73.

This supplemental report is voluntarily submitted to withdraw the original LER. Additional test information, obtained after the original report was submitted, demonstrates the plant was not outside the design basis. The absence of mechanical shaft seals on the CRHEAFS fans had been previously reported as a condition potentially outside the design basis of the plant.

This letter contains no commitments.

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

Sincerely,

J. F. Alexander

JRH/
Enclosure

cc: Mr. Hubert J. Miller
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
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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

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TITLE (4)

Control Room High Efficiency Air Filtration System Not Outside Design Basis

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
10	15	98	1998	024	01	08	15	00	N/A	05000
									N/A	05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (Check one or more) (11)			
POWER LEVEL (10)	100	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)	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)	x 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: James R. Haley - Regulatory & Industry Affairs 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)

YES (If yes, complete EXPECTED SUBMISSION DATE)

NO

X

EXPECTED SUBMISSION DATE(15)

MONTH DAY YEAR

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

On October 15, 1998, during a routine maintenance activity, it was observed that duct tape was installed on trains "A" and "B" control room high efficiency air filtration system (CRHEAFS) supply fans instead of mechanical shaft seals. It was initially assumed that operation of CRHEAFS without mechanical shaft seals could potentially permit up to 100 cfm of unfiltered air inleakage into the control room. An engineering evaluation was performed at that time and concluded that CRHEAFS was operable.

Subsequent testing in March and April 1999 demonstrated the absence of mechanical shaft seals would not have resulted in unfiltered air in-leakage into the control room as previously reported. Instead, the testing confirmed that filtered air was being expelled from the fan sealing area. Tests performed in April and July 2000 demonstrated more than adequate air flow for both supply fans. Therefore, this supplemental report is voluntarily submitted to correct the information since found to be inaccurate, and to withdraw the conclusion that the absence of the mechanical seals represented a condition outside the design basis of the plant. The original corrective action to install mechanical seals on both CRHEAFS supply fans is still planned for implementation.

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 1034 psig with the reactor water temperature at the saturation temperature. The potential condition did not pose a threat to public health and safety.

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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 voluntarily submitted to correct information found to be inaccurate based on actual system testing after the original report was submitted, and to withdraw the conclusion in the original report that absence of mechanical shaft seals in the fans of the control room high efficiency air filtration system (CRHEAFS) represented a potential condition outside the design basis.

BACKGROUND

The main control room environmental control system is designed to provide filtered ventilation to the control room. The control room is maintained at a positive pressure with respect to other station ventilation zones. The control room high efficiency air filtration system (CRHEAFS) is manually activated and provides filtered outside air to the control room in the event of an accident. The outside air is drawn through the CRHEAF system train "A"/"B" filter bank (VCRF-101 A/B) by the system's supply fans (VSF-103 A/B) and discharged into the control room. The CRHEAFS is designed to provide sufficient filtered air to the control room to maintain a positive pressure and thereby prevent the infiltration of toxic or contaminated air into the control room. Surveillance testing of CRHEAFS is performed in accordance with procedure 8.7.2.7, "Measure Flow and Pressure Drop Across Control Room High Efficiency Air Filtration System."

The Updated Final Safety Analysis Report (UFSAR) section 10.17 "Main Control Room Environmental Control System," states the safety design basis of the CRHEAFS is to provide a filtered supply of air to the control room and to pressurize the control room to prevent air infiltration during design basis events. When the system is activated, the normal control room ventilation flow path is changed to limit the recirculation flow rate. The CRHEAF system was designed to meet seismic class 1 requirements.

The design basis analysis uses the design basis source term dose (TID-14844) for control room habitability. The current analysis does not consider the inleakage of unfiltered air into the control room. Therefore, if unfiltered air inleakage were to occur, 10 CFR 50 Appendix A General Design Criteria (GDC) 19 for control room habitability might not be met due to the potential impact of the inleakage on the CRHEAFS' design basis capability.

It was originally assumed that the absence of mechanical shaft seals could result in a potential supply fan shaft bypass inleakage of approximately 100 cfm unfiltered air from the process building into the control room.

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EVENT DESCRIPTION

On October 15, 1998, during a routine preventive maintenance activity, it was observed that duct tape had been installed between the fan shaft and the fan housing on the CRHEAF supply fans (VSF-103 A/B). A problem report, PR 98.9528, was written to document the presence of duct tape and duct sealant in place of shaft seals.

Initial review of this condition determined the absence of the shaft seals (even with duct tape) had the potential to permit up to 100 cfm of unfiltered air inleakage from the process building into the control room. A second problem report, PR 98.9540, was written on October 22, 1998, to document this potential concern. The NRC Operations Center was notified of a potential condition outside the design basis of the plant in accordance with 10 CFR 50.72(b)(1)(ii)(B), at 1901 hours on October 22, 1998.

Testing conducted during March and April 1999, verified fan outleakage rather than the previously assumed inleakage. Both trains of CRHEAFS supplied only filtered air to the control room. Therefore the absence of mechanical seals in the fans did not represent a condition reportable as outside the design basis or in noncompliance with GDC 19.

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.

CAUSE

The root cause for the duct tape installation (PR 98.9528) on the fan housing could not be determined due to the age of the tape installation. The condition of the tape suggests that it may have been installed for a number of years, possibly from initial plant startup (c.1972). The original purchase order for the fans did not specify shaft seals nor does it appear that any were ever installed. No documentation could be located for the installation of the duct tape and no documentation could be located involving an indication of seal leakage in the past.

Although the duct tape and sealant were most likely installed to minimize the amount of potential unfiltered air inleakage past the fan shaft opening in the fan housing, the modification had not been documented. The installation of duct tape without proper documentation appears to have been an isolated event.

Current procedures and controls for maintenance and the modification process (plant design changes) preclude undocumented modifications from occurring. Today, use of duct tape would not be allowed when using current procedures such as procedure NOP83E1, "Control of Modifications at Pilgrim Station," procedure 1.5.9, "Temporary Modifications," and procedure 1.5.20, "Work Control Process."

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CORRECTIVE ACTION

Corrective Action Taken:

- An engineering evaluation (EE 98-086) was conducted in accordance with NESG procedure 16.04. The evaluation verified that the CRHEAFS supply fans are and were operable with the as-found condition. The evaluation also stated that no compensatory measures are needed.
- A root cause analysis was performed for PR 98.9540. The analysis included a related problem report, 98.9528. The analysis was inconclusive concerning the reason for the presence of the duct tape and duct sealant due to the age of the modification.
- CRHEAFS system surveillances were performed on April 10, and July 12, 2000 in accordance with Procedure 8.7.2.7. These tests verified that greater than technical specification required flow were measured for both supply fans.

Corrective Action Planned:

- The installation of mechanical shaft seals on VSF-103A/B has been delayed due to identification of shaft interferences. This action continues to be tracked under the corrective action program (RC98.2145).

SAFETY CONSEQUENCES

The potential condition posed no threat to public health and safety. No component or system failure occurred as a result of this condition.

The identification of missing seals representing a possible condition outside the design basis of the plant was a conservative decision made based on the information available at the time of discovery. CRHEAF system testing during March and April 1999 demonstrated there was outleakage rather than the reported inleakage. Surveillance tests conducted on April 10 and July 12, 2000, verified that greater than technical specification required flows were obtained from both supply fans even with the sealing materials removed. The supply fans have consistently provided greater than the required flow rates. These tests verified that CRHEAFS met the design basis flow requirements. Therefore, the condition previously reported did not represent a public health or safety concern or reportable condition.

REPORTABILITY

This voluntary report is submitted to withdraw the original LER since the absence of mechanical shaft seals did not prevent the blowers from achieving their design basis flow rate and therefore it has been determined not to be reportable.

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SIMILARITY TO PREVIOUS EVENTS

A review of LERs submitted since 1994 was conducted. The review focused on LERs submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) involving the control room ventilation system. The review identified 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 98-028-00, "Control Room High Efficiency Air Filtration System Relative Humidity Switches Inoperable."

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS

Fan
Seal

CODES

FAN
SEAL

SYSTEMS

Control Room High Efficiency Air Filtration System
Control Complex Environmental Control System

AHU
VI