



Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

Mike Bellamy
Site Vice President

November 12, 2002

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

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No.: 50-293 License No.: DPR-35

Licensee Event Report 2002-002-00

LETTER NUMBER: 2.02.103

Dear Sir or Madam:

The enclosed Licensee Event Report (LER) 2002-002-00, "Control Room High Efficiency Air Filtration System Inoperable Due to Inadequate Post Modification Testing," is submitted in accordance with 10 CFR 50.73.

This letter contains no commitments. Corrective actions will be implemented consistent with the Pilgrim Station corrective action program.

Please do not hesitate to contact Bryan Ford at 508-830-8403 if there are any questions regarding this report.

Sincerely,

A handwritten signature in cursive script that reads "Mike Bellamy".

Mike Bellamy

BSF/dd
Enclosure: LER 2002-002-00

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

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
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TITLE (4)
Control Room High Efficiency Air Filtration System Inoperable Due to Inadequate Post Modification Testing

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
09	12	2002	2002	002	00	11	12	02	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	<input type="checkbox"/> 20.2201 (b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 22.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A						
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)(D)								

LICENSEE CONTACT FOR THIS LER (12)	
NAME Bryan Ford – Licensing Manager	TELEPHONE NUMBER (Include Area Code) (508) 830-8403

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)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO						

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

On September 12, 2002, both trains of the control room high efficiency air filtration system (CRHEAFS) were inoperable for approximately 4.25 hours.

The root cause of this event was a human performance error by a utility licensed operator with respect to the inappropriate decision to declare the "B" CRHEAFS train operable without all procedural requirements satisfied following the humidity switch replacement. Contributing to this unintentional human performance error were procedural weaknesses that made it more difficult to determine the correct operability testing requirements. In addition, the design change, under which the humidity switch was replaced, incorrectly wired the switch such that the switch would not energize the heater when relative humidity exceeded 70%.

Procedural controls are being strengthened and training is being developed for the operations staff to ensure necessary Technical Specification testing is performed prior to declaring a system operable.

This condition posed no threat to public health and safety.

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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. CRHEAFS consists of two 1,000 cubic feet per minute 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. To support the removal of radioactive iodine from the incoming air, the start of either filtration fan also energizes a heating coil in the appropriate filtration train, if required by the incoming air relative humidity, to reduce the relative humidity of the incoming air to approximately 70%.

Each train has a relative humidity switch that normally functions to sense relative humidity and energize the respective heating coil if the incoming air relative humidity is greater than 70%. The purpose of the relative humidity switches is to assure the charcoal filter effectiveness is not adversely affected during system operation when high incoming air humidity conditions exist. This heater ensures the relative humidity of air entering the charcoal is less than 70% so that the charcoal efficiency is maintained. These humidity switches, due to past operational problems, had been bypassed to energize the heaters whenever the associated train was operating. Operability problems for these humidity switches were reported via Licensee Event Report 98-028-00, "Control Room High Efficiency Air Filtration System Relative Humidity Switches Inoperable."

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. 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. Additionally, CRHEAFS auto initiates when Halon is released in the cable spreading room.

On September 11, 2002 at 05:30 the "B" CRHEAFS train was removed from service to replace the charcoal filter and replace the humidity switch with a new design that would resolve the previous operational problems thereby allowing the humidity switch to be placed back in service. After completing the work, the train was declared operable and returned to standby service on September 12, 2002 at 05:11.

EVENT DESCRIPTION

On September 12, 2002 at 05:33 the "A" CRHEAFS train was removed from service to replace its charcoal filter and humidity switch. Subsequently, on September 12, 2002 at 08:30 it was determined that a Technical Specifications required logic test of the "B" CRHEAFS train had not been performed prior to returning the "B" CRHEAFS train to service earlier in the day. Actions were immediately undertaken to restore the "A" CRHEAFS train to operable status. The "A" CRHEAFS train was declared operable and returned to standby service on September 12, 2002 at 09:45.

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The Technical Specification logic testing was performed on the "B" CRHEAFS train and upon reviewing the results it was identified, on September 12, 2002 at 18:41, that the newly installed humidity switch would not perform its function of energizing the associated heater when relative humidity exceeded 70%. Therefore, during the time frame from 05:33 to 09:45 on September 12, 2002 both trains of CRHEAFS were inoperable and the function of the system was not assured.

The NRC Operations Center was notified of the condition in accordance with 10 CFR 50.72(b)(3)(v)(D), at 20:18 on September 12, 2002.

This condition occurred at 100 percent reactor power with the reactor mode selector switch in the RUN position.

CAUSE

The root cause of this event was a human performance error by a utility licensed operator with respect to the inappropriate decision to declare the "B" CRHEAFS train operable without all procedural requirements satisfied following the humidity switch replacement. Contributing to this unintentional human performance error were procedural weaknesses that made it more difficult to determine the correct operability testing requirements. In addition, the design change, under which the humidity switch was replaced, incorrectly wired the switch such that the switch would not energize the heater when relative humidity exceeded 70%.

CORRECTIVE ACTION

Corrective actions taken include the following:

- a) "A" CRHEAFS train was restored to operable status on September 12, 2002 at 09:45.
- b) The "B" CRHEAFS train humidity switch was bypassed and "B" CRHEAFS train was declared operable on September 13, 2002 at 23:00.
- c) An Operations night order describing the event was issued. As an interim measure, the night order also required the applicable procedure to be place kept during Limiting Condition for Operation (LCO) processing and to obtain Operations management concurrence prior to clearing LCOs that involve physical plant work. Subsequently, an Operations standing order was issued on October 8, 2002 specifying the same requirements as the night order.
- d) All current tracking LCOs were reviewed for potential operability testing that may have been overlooked. No examples were identified.
- e) All operations shift crews were briefed on the event and the management expectations for declaring safety related equipment operable was discussed.

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f) A site stand-down was conducted and the event was discussed with employees.

ACTION TO PRECLUDE RECURRENCE

Procedural controls are being strengthened and training is being developed for the operations staff to ensure necessary Technical Specification testing is performed prior to declaring a system operable.

Corrective actions for this event have been entered into the Pilgrim Corrective Action Program.

SAFETY CONSEQUENCES

The condition posed no threat to public health and safety.

Both CRHEAFS trains were inoperable from 05:33 to 09:45 (approximately 4.25 hours). The function of "B" CRHEAFS train that was potentially degraded was the ability to remove radioactive iodine from the outside air during times of high humidity following an accident involving core damage (handling of fuel was not in progress during this time frame). Because of the very short time frame of concern (4.25 hours) the probability of an accident involving core damage is very low, on the order of 1E-8.

If it were necessary to initiate the "B" CRHEAFS train during this time frame, the CRHEAFS filter would still have been very effective at removing post core damage iodine from the outside air being supplied to the control room. First, the effectiveness of the train to remove the particulate iodine would not have been adversely affected by the subject condition. Second, it has been demonstrated that the removal efficiency of iodized charcoal for elemental iodine exceeds 99% even for water logged charcoal with in flowing air at 100% relative humidity; therefore, the effectiveness of the train to remove the elemental iodine would not have been adversely affected. Third, although the methyl iodine removal efficiency is a function of relative humidity, a large part of the removal ability for methyl iodine would not have been affected. This remaining ability to remove methyl iodine would continue to exist since the removal of methyl iodine is not significantly affected unless relative humidity remains above 98% for a significant period of time. With swings in humidity above and below 98% humidity over the course of an event and the humidity control heater energizing whenever humidity dropped below 70% the charcoal filter would still be expected to retain a large portion of the methyl iodine. As a result, although it cannot be assured that the design basis 95% efficiency for iodine removal would be maintained, the system would have provided an effective means of iodine removal for the outside air being supplied to the control room.

REPORTABILITY

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

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SIMILARITY TO PREVIOUS EVENTS

A review identified the following similar reports involving CRHEAFs:

LER 98-028-00, "Control Room High Efficiency Air Filtration System Relative Humidity Switches Inoperable" and LER 98-024-00, "Control Room High Efficiency Air Filtration System Outside Design Basis."

The causes of these events were not similar to the event being reported.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTS	CODES
Humidity Switch	MS
SYSTEMS	CODES
Control Complex Environmental Control System	VI