



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

July 17, 2017

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

SUBJECT: Licensee Event Report 2017-009-00, Potential Primary Containment System
Inoperability Due to Relay Concerns

Pilgrim Nuclear Power Station
Docket No. 50-293
Renewed License No. DPR-35

LETTER NUMBER: 2.17.050

Dear Sir or Madam:

The enclosed Licensee Event Report 2017-009-00, Potential Primary Containment System
Inoperability Due to Relay Concerns, is submitted in accordance with Title 10 Code of Federal
Regulations 50.73.

If you have any questions or require additional information, please contact me at (508) 830-8323.

There are no regulatory commitments contained in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Everett P. Perkins, Jr." with a stylized flourish at the end.

Everett P. Perkins, Jr.
Manager, Regulatory Assurance

EPP/sc

Attachment: Licensee Event Report 2017-009-00, Potential Primary Containment System
Inoperability Due to Relay Concerns (3 Pages)

JEZZ
NRR

cc: Mr. Daniel H. Dorman
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

Mr. John Lamb, Senior Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-8C2A
Washington, DC 20555

USNRC Senior Resident Inspector
Pilgrim Nuclear Power Station

Attachment

Letter Number 2.17.050

Licensee Event Report 2017-009-00

Potential Primary Containment System Inoperability Due to Relay Concerns

(3 Pages)

1. FACILITY NAME
Pilgrim Nuclear Power Station

2. DOCKET NUMBER
05000293

3. PAGE
1 OF 3

4. TITLE Potential Primary Containment System Inoperability Due to Relay Concerns

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	17	2017	2017	- 009	00	07	17	2017	N/A	05000 N/A
									N/A	05000 N/A

9. OPERATING MODE
N

10. POWER LEVEL
0

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT
Mr. Everett P. Perkins, Jr. - Regulatory Assurance Manager

TELEPHONE NUMBER (Include Area Code)
508-830-8323

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED
 YES (If yes, complete 15. EXPECTED SUBMISSION DATE) NO

15. EXPECTED SUBMISSION DATE
 MONTH: 10, DAY: 11, YEAR: 2017

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

On May 17, 2017, during Refueling Outage (RFO)-21 while performing an extent of condition review for condition reports it was discovered that the contact indicating tabs of relays 16A-K30 and 16A-K54 of the Pilgrim Nuclear Power Station (PNPS) Primary Containment System, were visually not completely in the mid-position (partial travel).

The relays were replaced during RFO-21 and sent to an offsite vendor for further testing and analysis. Other relays were reviewed to determine if a similar condition may exist; however, the other relays reviewed are not the same type (DC relays and normally energized) and are therefore outside the scope of this extent of condition review.

Pilgrim Nuclear Power Station is conservatively submitting this Licensee Event Report in accordance with 10 CFR 50.73(a)(2)(i)(B) – Operation or condition prohibited by Technical Specifications; and potentially in accordance with 10 CFR 50.73(a)(2)(v)(B), (C) and (D) – Any condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to remove residual heat, control the release of radioactive material and mitigate the consequences of an accident.

This event posed no threat to public health and safety.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Pilgrim Nuclear Power Station	05000-293	YEAR	SEQUENTIAL NUMBER	REV NO.
		2017	- 009	- 00

BACKGROUND

The safety objective of the Primary Containment System (PCS) is to provide the capability in conjunction with other safeguards features to:

- Limit the release of fission products in the event of a postulated design basis accident so that offsite doses would not exceed the guideline values set forth in 10 CFR 100.
- To prevent excessive fuel cladding temperatures.

The Shutdown Cooling (SDC) subsystem is an integral part of the Residual Heat Removal (RHR) system and is placed in operation during normal shutdown and cooldown. The initial phase of nuclear system cooldown is accomplished by dumping steam from the reactor vessel to the main condenser with the main condenser acting as a heat sink. When the nuclear system pressure has decreased to 50 psig the steam supply pressure is no longer sufficient to maintain vacuum in the condenser, the RHR system is placed in the SDC mode of operation to complete cooldown of the nuclear system. Inboard and outboard shutdown suction cooling line isolation valves have an 8 hour mission time.

Group 3 Isolation isolates the SDC mode of the RHR system from the reactor vessel, when conditions indicate a system breach or over pressurization. Relay 16A-K54 gets an initiation signal on high reactor pressure and provides a signal to relay 16A-K30 to energize to close MO-1001-47 (RHR SDC outboard isolation valve). This 16A-K30 relay also isolates the RHR shutdown cooling valve on any one of the following conditions:

- Reactor low water level (+12 inches)
- High drywell pressure (+2.2 psig)
- High reactor pressure (76 psig)

The high reactor pressure isolation setpoint prevents over pressurizing the RHR low pressure piping.

EVENT DESCRIPTION

On May 17, 2017, during Refueling Outage 21 while performing an extent of condition review for condition reports it was discovered that the contact indicating tabs of relays 16A-K30 and 16A-K54 of the Pilgrim Nuclear Power Station (PNPS) Primary Containment System, were visually not completely in the mid-position (partial travel).

CAUSE OF THE EVENT

The cause of the relays potential inoperability is indeterminate at this time. This relays have been sent to an offsite vendor for further testing and analysis.

CORRECTIVE ACTIONS

The relays were replaced, restoring the capability of the Group 3 Isolation of the SDC mode of RHR.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Pilgrim Nuclear Power Station	05000-293	2017	- 009	- 00

Forensic testing is being performed on the removed relays. Any additional corrective actions will be entered into the PNPS Corrective Action Program.

SAFETY CONSEQUENCES

These relays are normally energized and must de-energize to provide Primary Containment Isolation System (PCIS) isolation signal. With the relay contact indicating tabs in a mid-position, there is a potential the contacts would not have completely opened during an accident condition and provided the necessary trip signals for the PCIS logic. The 16A-K53 relay affects the Inboard PCIS logic with the Outboard PCIS logic affected by 16A-K54. With both relays in the same unanalyzed condition system redundancy cannot be credited.

During plant operations the risk of operation with potentially degraded relays in the SDC isolation system is minimal as both trains of Shutdown Cooling Isolation Valves are in the closed position with power removed. With their power removed it is not possible for the Shutdown Cooling Isolation Valves to realign to an undesirable position due to a relay malfunction.

This condition was discovered during the refueling outage when conditions were such that the equipment normally energized/activated by these relays were not required to be operable and there is no firm evidence that the condition existed during plant operation.

There are no consequences to the general safety of the public, nuclear safety, industrial safety and radiological safety from this event. No actions to reduce the frequency or consequence are necessary.

REPORTABILITY

PNPS is submitting this LER in accordance with 10 CFR 50.73(a)(2)(i)(B) – Operation or condition prohibited by Technical Specifications; and potentially in accordance with 10 CFR 50.73(a)(2)(v)(B), (C) and (D) – Any condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to remove residual heat, control the release of radioactive material and mitigate the consequences of an accident.

PREVIOUS EVENTS

A review of PNPS LERs for the past five years did not identify any other LERs that were submitted for the same reason as this submittal.

REFERENCES:

- CR PNP-2017-5390
- CR PNP-2017- 5396