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

December 28, 2017

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

SUBJECT: Licensee Event Report 2017-009-01, Supplement to Potential Primary Containment System Inoperability Due to Relay Concerns

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

LETTER NUMBER: 2.17.070

Dear Sir or Madam:

The enclosed Licensee Event Report 2017-009-01, Supplement to Potential Primary Containment System Inoperability Due to Relay Concerns, is submitted in accordance with Title 10 Code of Federal Regulations 50.73. Revisions to the previously submitted LER are annotated by a vertical bar to the right of the wording changes.

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,

Everett P. Perkins, Jr.
Manager, Regulatory Assurance

EPP/sc

Attachment: Licensee Event Report 2017-009-01, Supplement to Potential Primary Containment System Inoperability Due to Relay Concerns (3 Pages)

1622
NRR

cc: Mr. David C. Lew
Acting 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 2.17.070

Licensee Event Report 2017-009-01

Supplement to Potential Primary Containment System Inoperability Due to Relay Concerns

(3 Pages)

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(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/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Pilgrim Nuclear Power Station	05000293	1 OF 3

4. TITLE Supplement to 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
									N/A	N/A
05	17	2017	2017	- 009	01	11	15	2017	FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
N	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
0	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☒ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Mr. Everett P. Perkins, Jr. - Regulatory Assurance Manager	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
B	JM	RLY	G080	Y					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

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 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 hanging in the mid-position (partial travel).

The relays were replaced during RFO-21 along with 16A-K29 and 16A-K53, and all four relays were sent to an offsite vendor for further testing and analysis. Other relays were reviewed but were determined to be outside the scope of this extent of condition review.

PNPS stated at the time that this event was reportable under 10 CFR 50.73(a)(2)(i)(B) – Operation or condition prohibited by Technical Specifications; and potentially reportable 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. However, additional information provided by our offsite vendor and an engineering evaluation, support the conclusion that there was never a loss of safety function regarding any of the four relays (16A-K29, 16A-K30, 16A-K53 and 16A-K54). Therefore, this event was not reportable under 10 CFR 50.73(a)(2)(i)(B) nor under 10 CFR 50.73(a)(2)(v)(B), (C) or (D).

This event posed no threat to public health and safety.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Pilgrim Nuclear Power Station	05000-293	2017	- 009	- 01

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.

Group 3 Isolation isolates the Shutdown Cooling (SDC) mode of the Residual Heat Removal (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:

a. Reactor low water level (+12 inches)
b. High drywell pressure (+2.2 psig)
c. 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 it was discovered that the contact indicating tabs of relays 16A-K29, 16A-K30, 16A-K53 and 16A-K54 of the Pilgrim Nuclear Power Station (PNPS) Primary Containment System, were visually hanging in the mid-position (partial travel).

CAUSE OF THE EVENT

The relays were sent to an offsite vendor for further testing and analysis. The results of the testing proved that the relays would have made the associated isolation valves go closed, which satisfies the safety function of isolating the valves on a Group 3 isolation signal.

CORRECTIVE ACTIONS

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

Forensic testing was performed on the removed relays proving that the relays would have made the associated isolation valves go closed, which satisfies the safety function of isolating the valves on a Group 3 isolation signal.

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SAFETY CONSEQUENCES

The function of 16A-K29 is to energize and isolate MO-1001-50 upon a Primary Containment Isolation System Group 3 Isolation signal. Once the Group 3 signal is manually cleared by Operations, 16A-K29 de-energizes to provide a permissive to re-open MO-1001-50. Field troubleshooting and the offsite vendor analysis demonstrated that 16A-K29 would consistently provide the isolation signal to close MO-1001-50 during testing, which satisfies the safety related function of the relay.

The engineering analysis that was performed concluded that this event did not constitute a Safety System Functional Failure (SSFF). (Reference NEI 99-02, Revision 7, Regulatory Assessment Performance Indicator Guideline, Section 2.2, Mitigating Systems Cornerstone, Safety System Functional Failures, Clarifying Notes, Engineering analyses.) As such, this event will not be reported in the NRC Performance Indicator (PI) for safety system functional failures since an engineering analysis was performed which determined that even though the isolation valves would have required a manual reset to reopen, the relays would have performed as required to close the valves on a Group 3 isolation signal, thereby proving that they were capable of performing the safety function during this event.

This condition was discovered during the refueling outage when conditions were such that the equipment normally energized/activated by these relays was not required to be operable.

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 stated at the time that this event was reportable under 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. However, additional information provided by our offsite vendor and an engineering evaluation, support the conclusion that there was never a loss of safety function. Therefore, this event was not reportable under 10 CFR 50.73(a)(2)(i)(B) nor under 10 CFR 50.73 (a)(2)(v)(B), (C) or (D).

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