Exelon Generation®

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10 CFR 50.73

November 6, 2017

TMI-17-105

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

THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (TMI-1)
RENEWED FACILITY OPERATING LICENSE NO. DPR-50
DOCKET NO. 50-289

SUBJECT: LICENSEE EVENT REPORT (LER) NO. 2017-003-00
"Primary Containment Declared Inoperable Due to Both Airlock Doors Open Simultaneously"

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B) and, 10 CFR 50.73(a)(2)(ii)(A) and, 10 CFR 50.73(a)(2)(v)(C). For additional information regarding this Licensee Event Report contact Michael Fitzwater, Sr. Regulatory Engineer, TMI Unit 1 Regulatory Assurance at (717) 948-8228.

There are no regulatory commitments contained in this LER.

Respectively,

E. W. Callan, Jr.
Site Vice President, Three Mile Island Unit 1
Exelon Generation Co., LLC

cc: TMI Senior Resident Inspector
Administrator, Region I
TMI-1 Senior Project Manager

IE22
NRR

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

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

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.

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
Three Mile Island Unit 1	05000289	1 OF 4

4. TITLE

Primary Containment Declared Inoperable Due to Both Airlock Doors Open Simultaneously

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
09	05	17	2017	- 003	- 00	11	06	17		05000
									FACILITY NAME	DOCKET NUMBER
										05000

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)
	☐ 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)
100	☐ 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)*
Michael Fitzwater – TMI Unit 1 Regulatory Assurance Engineer	717-948-8228

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	NH	AL	CB&I	Y	N/A	N/A	N/A	N/A	N/A

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 September 5, 2017 Three Mile Island Unit 1, was operating at 100% full power and preparing for a scheduled maintenance and refueling outage. During a planned entry through the primary containment personnel airlock of the equipment hatch, both doors were open simultaneously for less than one minute due to failure of the interlock mechanism. The breach of containment was immediately recognized and the inner door of the equipment hatch airlock was closed. Personnel were dispatched to the outer door and closed the door. Investigation determined the interlock linkage designed to prevent both doors from being opened simultaneously failed due to a bent ratchet pawl. During the refueling and maintenance outage (when containment integrity was not required), the equipment hatch airlock interlock linkage failure was able to be repeated. Corrective action included a weld repair and adjustment to the ratchet pawl interlock linkage. Post maintenance testing of the interlock, including local leak rate testing (LLRT) of the airlock, was performed satisfactorily. This event is reportable as a degraded condition to a principal safety barrier, and, a condition that could have prevented fulfillment of a safety function to control the release of radioactive material, and, a condition prohibited by technical specifications. The event had no significant impact on public health and safety.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Three Mile Island Unit 1	05000289	2017	- 003	- 00

NARRATIVE

A. EVENT DESCRIPTION

Plant Conditions before the event:

Babcock & Wilcox – Pressurized Water Reactor – 2568 MWth Core Power
Date/Time: September 5, 2017 / 10:00 EDT
Power Level: 100%
Mode: Power Operation

On September 5, 2017 the plant was operating at steady state full power operation. Preparations for a scheduled refueling and maintenance outage were in progress that included planned entries into the Reactor Building primary containment. Three Mile Island Unit 1 (TMI-1) has two primary containment personnel entry pathways, both utilize a double-door airlock that utilizes an interlock linkage to prevent both doors from being opened simultaneously. The event occurred when technicians inside the Reactor Building, were attempting to exit containment via the Inner Door of the Personnel Airlock of the Equipment Hatch (PAEH). Technicians noted prior to operating the Inner Door of the PAEH, that the PAEH Outer Door indicated closed. The Inner Door was opened approximately 18 inches when the technicians saw light in the PAEH and realized that the Outer Door must not be fully closed. The technicians immediately closed the Inner Door to re-establish containment integrity.

Additional maintenance technicians were dispatched to the Outer Door of the PAEH and found the Outer Door open. A visual inspection of the Outer Door of the PAEH was performed and found indications of wear on the interlock linkage and damage to the Outer Door's seal. The Outer Door of the PAEH was closed. The Inner Door of the PAEH was verified closed in accordance with the plant Technical Specifications (T.S. 3.6.12). Direct communications between the operating stations at the Inner and Outer Doors of the PAEH were established in order to verify door positions. All actions required by the plant Technical Specifications were performed to confirm compliance until the event could be fully investigated and repaired during the refueling and maintenance outage beginning in approximately two weeks.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A) due to a principal safety barrier (primary containment) being seriously degraded and, 10 CFR 50.73(a)(2)(v)(C) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material and, 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

B. CAUSE OF EVENT

TMI-1 entered its planned maintenance and refueling outage on September 18, 2017. During the period of time at which containment integrity was not required for the plant condition, technicians were able to repeat the failure of the interlock linkage of the PAEH. Maintenance discovered that the PAEH interlock linkage designed to prevent both doors from being opened simultaneously had failed due to a bent ratchet pawl. A weld repair to the ratchet pawl interlock linkage was performed. The interlock linkage preventive maintenance was performed that included linkage adjustment. Testing of the interlock linkage of the PAEH was performed satisfactorily.

An extent of condition was performed on the remaining airlock designated as the Reactor Building Personnel Hatch Airlock. The surveillance and preventive maintenance activities performed on the Personnel Hatch Airlock were all satisfactory. This included testing of the Personnel Hatch Airlock interlock mechanism which was completed satisfactorily.

C. ANALYSIS / SAFETY SIGNIFICANCE

This event had no significant impact on public health and safety. TMI-1 was operating at full power when the event occurred. The potential for radioactive material release to the environment was evaluated. The reactor building environmental conditions of pressure and airborne radioactivity were well within operating limits at the time of the event. The resulting consequence for this short duration event is negligible.

Control of the Inner Door of the PAEH was maintained throughout the event. However, the Outer Door of the PAEH was not closed that resulted in a loss of a principal safety barrier (primary containment) and is counted as a safety system functional failure (SSFF) since the event could have prevented fulfillment of a safety function.

D. CORRECTIVE ACTIONS

Actions Completed on the Personnel Airlock of the Equipment Hatch Inner and Outer Doors:

1. Reviewed Airlock door operating practices, assigned designated door operators and established backup door indication verification technique prior to re-commencing reactor building entries.
2. Performed a weld repair to the pawl on interlock linkage.
3. Site Maintenance performed PAEH interlock preventive maintenance, including linkage adjustments.
4. Performed interlock door test to verify operability between the two doors.

NARRATIVE

5. PAEH Outer Door seal was repaired.
6. Performed Outer Door seal test to verify repairs to door seals.
7. Performed a satisfactory LLRT of the Personnel Airlock of the Equipment Hatch.

E. PREVIOUS OCCURENCES

None.