



Three Mile Island Unit 1  
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February 22, 2013  
TMI-13-026

10 CFR 50.73

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. 2012-002-01  
"Missing Seals in Air Intake Tunnel Conduits"

This supplement updates Licensee Event Report (LER) 289/2012-002-00. The supplement revises the LER to provide the resulting safety significance based upon the assessment and evaluation of the reported condition. The corrective action to modify the design to provide the required flood protection for air intake tunnel conduits was completed. This supplement LER describes the safety significance of a past condition.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(B). For additional information regarding this LER contact Mike Fitzwater, Sr. Regulatory Engineer, TMI-1 Regulatory Assurance at (717) 948-8228.

There are no regulatory commitments contained in this LER.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Newcomer", with a small "for" written below it.

Mark Newcomer  
Plant Manager, Three Mile Island, Unit 1  
Exelon Generation Co., LLC

MN/mdf

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

Handwritten initials "JF22" and "MLR" in black ink.

## LICENSEE EVENT REPORT (LER)

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

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 Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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

Three Mile Island, Unit 1

## 2. DOCKET NUMBER

05000289

## 3. PAGE

1 OF 3

## 4. TITLE: Missing Seals in Air Intake Tunnel Conduits

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
08	10	2012	2012	- 002 -	01	02	22	2013	N/A	05000
									N/A	05000

## 9. OPERATING MODE

N

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

## 10. POWER LEVEL

100

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

## 12. LICENSEE CONTACT FOR THIS LER

## FACILITY NAME

Michael Fitzwater, TMI-1 Regulatory Assurance Engineer

## TELEPHONE NUMBER (Include Area Code)

(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

## 14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO15. EXPECTED  
SUBMISSION  
DATE

MONTH	DAY	YEAR

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

On 08/10/12 a TMI-1 flood inspection walkdown discovered that conduits carrying cabling from yard electrical vaults through the Air Intake Tunnel (AIT) to the Auxiliary Building (AB) did not contain internal seals for flood protection. When the plant was constructed in the early 1970's the conduit seals were never installed. The conduit seals are internal to the conduit fittings and not visible externally. The cause has been attributed to inadequate configuration management during original construction. The corrective action to modify the design to provide the required flood protection for AIT conduits was completed in October 2012. The safety significance of the past condition was evaluated. Had a probable maximum flood (PMF) event occurred at TMI-1, after a greater flood hazard was recognized in September 2011 and before the AIT conduit deficiency was identified and temporarily mitigated in August 2012, it is likely that some safe shutdown equipment would have been adversely affected but safe shutdown conditions would have been maintained and there would not have been any adverse impact on public health and safety.

The submittal of this LER constitutes reporting to the NRC in accordance with 10 CFR 50.73 (a)(2)(v)(B).

**LICENSEE EVENT REPORT (LER)**

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**A. EVENT DESCRIPTION**

Plant Conditions before the event:

Babcock & Wilcox – Pressurized Water Reactor – 2568 MWth Core Power

Date/Time: August 10, 2012 / 12:30 hours

Power Level: 100% steady state power

Mode: Power Operations

Event:

A flood protection walkdown (Post Fukushima response required by NRC 50.54(f) letter) in the air intake tunnel (AIT) was required to conduct visual inspection of 43 conduit penetrations. The sealing of all penetrations into the air intake tunnel is required to satisfy a license commitment that the plant can be maintained in a safe shutdown condition during an external flood with river flows up to the Probable Maximum Flood (PMF) (1,625,000 CFS). On 08/02/12, inspection confirmed that an internal seal fitting (Crouse Hinds model EYS) was installed at each penetration and that each conduit penetration through the wall was externally sealed. The inspection team also noted drain holes in the conduit fittings. Following that inspection, the team discussed a plan to inspect the internal seal. A second inspection was conducted on 08/10/12, and a borescope was inserted into the conduits where possible (i.e., cable configurations with respect to the holes limited the capability to view the internal configuration of all of the conduits). Six conduits were inspected and none contained the internal sealing compound material (Chico A).

Based on the apparent condition (i.e., none of the conduits had the internal seal installed in the EYS fitting), the NRC was notified of the existence of an "Event or Condition that could have prevented fulfillment of a Safety Function" as required by 10 CFR 50.72(b)(3)(v)(B) via Event Notification (EN) 48179 on 08/10/12. A subsequent Licensee Event Report (LER) 2012-002-00 was submitted on 10/09/12 with the planned intent to supplement the LER by 01/15/2013 after an evaluation on the safety significance of the event was completed. Docketed correspondence TMI-13-003 dated 01/15/13 updated the status of the evaluation and provided a revised planned date to supplement LER 2012-002-00 by 02/22/13.

**B. CAUSE OF EVENT**

When the plant was constructed in the early 1970's the conduit seals were never installed. The conduit seals are internal to the conduit fittings and not visible externally. The cause has been attributed to inadequate configuration management during original construction. The design drawings for the AIT conduit routing (215-162 & 215-163) show the Crouse Hinds EYS fittings, and the EYS fittings are installed. However, the internal sealing compound material, Chico A, was never installed in the EYS fittings.

**C. ANALYSIS / SAFETY SIGNIFICANCE**

Adequate flood protection was maintained for the emergency power systems, emergency feedwater, river water systems, Reactor Coolant Pump (RCP) seal cooling, and vital instruments. The operations and emergency response staff would have had adequate information concerning plant conditions at all times to maintain core cooling.

NRC FORM 366A (10-2010)		U.S. NUCLEAR REGULATORY COMMISSION				
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The reactor would have been shutdown, and Reactor Coolant System (RCS) temperature and pressure reduced to place the decay heat removal system in service before the deficient flood protection barriers were challenged.

The impact of the leakage from the AIT conduits into the Auxiliary Building was evaluated assuming no mitigating credit was taken by the Emergency Response Organization. A technical evaluation took into account the aggregate impact of identified flood barrier deficiencies. The plant would have been shutdown on Decay Heat Removal (DHR) with the Severe Flood Mitigation System (SFMS) equipment staged and Once Through Steam Generator (OTSG) cooling available as provided in the flood abnormal operating procedure when the inleakage to the Auxiliary Building would have adversely impacted the DHR system. The evaluation concluded the Make-Up (MU) system would have subsequently been adversely impacted as well.

The plant would have been maintained stable on natural circulation using the emergency feedwater system with condensate inventory, then river water supply and a defense in depth supply using the SFMS system from the condenser pit. The RCS inventory would have been maintained. RCP seal cooling would be retained using the Intermediate Closed Cooling Water (ICCW) system. Inventory would be maintained to address nominal operating leakage by using the SFMS system which utilizes the spent fuel pool for its supply. The Core Flood (CF) system additionally would have provided a significant volume as a defense in depth inventory supply to the RCS.

As a result of the missing AIT conduit seals the DHR and MU systems would be lost due to flood water intrusion from the PMF. The emergency feedwater system, emergency diesel generators, reactor river system, SFMS, CF tanks, and RCP seal cooling are maintained. The RCS is maintained on natural circulation core cooling at reduced RCS pressure and temperature with the emergency organization staffed.

#### D. CORRECTIVE ACTIONS

- An industry notification was provided regarding an original construction deficiency where internal conduit seal fittings were installed but the seals were not installed.
- The flood protection design was modified for all affected AIT conduits and completed in October 2012.

#### E. PREVIOUS OCCURENCES

There are no previous occurrences that are applicable for this LER supplement.