



Exelon Generation®

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October 5, 2015

TMI-15-107

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. 2015-001-00  
"Seismically Qualified BWST Aligned to Non-Seismic Piping"

This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B). For additional information regarding this LER contact Mike 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

JE22  
HRR

NRC FORM 366  
(01-2014)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104

EXPIRES: 01/31/2017



**LICENSEE EVENT REPORT (LER)**  
(See Page 2 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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet 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.

<b>1. FACILITY NAME</b> Three Mile Island, Unit 1	<b>2. DOCKET NUMBER</b> 05000289	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Seismically Qualified BWST Aligned to Non-Seismic Piping

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	06	2015	2015	001	00	10	05	2015	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b>	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>			
N	<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)
100	<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 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 checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Michael Fitzwater, TMI Unit 1 Regulatory Assurance Engineer	TELEPHONE NUMBER (Include Area Code) (717) 948-8228
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**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>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On August 6, 2015 NRC provided TMI-1 the final response to Task Interface Agreement 2015-01 "Assessment of Three Mile Island Nuclear Station's Use of a Non-Seismic Qualified Cleanup Path for the Borated Water Storage Tank." It concluded that opening the boundary valve between the safety related and seismically qualified Borated Water Storage Tank (BWST) and the non-seismically qualified clean-up system piping during power operation mode renders the BWST inoperable. A review of operator logs determined that the BWST was connected and recirculated via the clean-up system while in the power operation mode within the past three years and for a period of time greater than the applicable Technical Specification completion time allowed. This represented a condition prohibited by Technical Specifications and is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B). This event had no effect on public health and safety.



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

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1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Three Mile Island, Unit 1	05000289	2015	- 001	- 00	2 OF 3

**NARRATIVE**

**A. EVENT DESCRIPTION**

Plant Conditions before the event:

Babcock & Wilcox – Pressurized Water Reactor – 2568 MWth Core Power  
 Date/Time: August 6, 2015 / 14:30 hours  
 Power Level: 100%  
 Mode: Power Operation

TMI Unit 1 (TMI-1) had recirculated and cleaned up the BWST since original plant operation (operating license issued April 19, 1974). On January 26, 2012 the NRC issued Information Notice IN 2012-01 “Seismic Considerations-Principally Involving Tanks”. IN 2012-01 discussed the Shearon Harris plant’s recirculation of a seismically qualified RWST (refueling water storage tank) through non-seismic fuel pool piping purification system piping causing the RWST to be made inoperable. TMI-1 reviewed the IN 2012-01 and stopped the practice of BWST recirculation on October 3, 2012 to conduct a further investigation of the licensing basis. The procedure for BWST recirculation and clean-up was revised with a supporting 10 CFR 50.59 screening review that supported use of the BWST clean-up system. The BWST was subsequently recirculated via the clean-up system (while in power operation mode) on June 1, 2013, and later secured from the clean-up system on June 11, 2013. TMI-1 periodically used the BWST clean-up system until the NRC Resident Inspectors communicated their concerns on March 10, 2014. At that time TMI-1 ceased use of the BWST clean-up system while at power operation until the issue was resolved. TMI-1 was cited a traditional violation for failure to perform a 10 CFR 50.59 Evaluation for the BWST Seismic Qualifications on May 14, 2014 via NRC Inspection Report 5000289/2014002. On August 6, 2015, NRC provided the final response to Task Interface Agreement (TIA) 2015-01 “Assessment of Three Mile Island Nuclear Station’s Use of a Non-Seismic Qualified Cleanup Path for the Borated Water Storage Tank.” A review of TIA 2015-01 coupled with a review of operator logs determined that a condition prohibited by Technical Specifications existed and is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B).

**B. CAUSE OF EVENT**

The apparent cause was historical interpretation of the TMI-1 licensing basis. TMI-1 staff interpreted the original plant licensing basis as a pre-GDC plant (designed prior to published Appendix A to 10 CFR 50 General Design Criteria) to not include an ECCS performance requirement coincident with a seismic event. The seismic capability for pre-GDC 2 plants was subsequently questioned and the USI A-46 process established to resolve the issue. TMI-1 interpreted the USI A-46 resolution and original FSAR description of the BWST recirculation process path as an acceptable basis for operation.

When TIA 2015-01 was published on August 6, 2015, final resolution of this issue was concluded: “Based on a review of TMI’s licensing basis (i.e., the draft GDC and design bases in the UFSAR), the NRR staff has concluded that the BWST cannot be credited to perform its intended safety function when it is connected to the non-seismically qualified piping for cleanup. This configuration is unanalyzed and

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Three Mile Island, Unit 1	05000289	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 3
		2015	- 001	- 00	

**NARRATIVE**

renders the BWST inoperable according to TS. Also, manual actions are not approved as a justification for compliance with Criterion 2 of the AEC draft GDC.”

**C. ANALYSIS / SAFETY SIGNIFICANCE**

This event had no effect on the health and safety of the public. There were no actual safety consequences for the condition because there were no seismic events that impacted the non-seismic BWST clean-up and recirculation piping.

A technical evaluation was completed for the non-seismic BWST Cleanup and Recirculation piping. The technical evaluation concluded that the piping used for cleanup or recirculation of the BWST will withstand a safe shutdown earthquake (SSE) without loss of pressure boundary integrity. The additional defense-in-depth measure during an SSE or Operating Basis Earthquake (OBE) seismic event was provided by the timely removal of the BWST from Cleanup or Recirculation operation by implementing emergency operating procedure OP-TM-AOP-003 “Earthquake.” Therefore, had an event occurred, the actions implemented in emergency operating procedure OP-TM-AOP-003 “Earthquake” would have provided additional defense-in-depth.

**D. CORRECTIVE ACTIONS**

- Implemented administrative controls to prohibit aligning the BWST to the non-seismic qualified clean-up piping in modes power operations, Startup, Hot Standby and Hot Shutdown
- A license amendment request was submitted on July 23, 2015 to provide Temporary Restoration of Borated Water Storage Tank Cleanup and Recirculation Operation until permanent resolution is implemented
- Various options that include permanent plant modifications are being evaluated

**E. PREVIOUS OCCURENCES**

Previous Events	Previous Event Review
None	

\* Energy Industry Identification System (EIIIS), System Identification (SI) and Component Function Identification (CFI) Codes are included in brackets, [SI/CFI] where applicable, as required by 10 CFR 50.73 (b)(2)(ii)(F).