



Exelon Generation®

Three Mile Island Unit 1  
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10 CFR 50.73

February 3, 2017

TMI-17-008

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. 2017-001-00  
"Low Temperature Over-Pressurization (LTOP) Technical Specification  
Requirements Were Not Met"

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

IEZZ  
NRR



**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/>)

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 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**  
Low Temperature Over-Pressurization (LTOP) Technical Specification Requirements Were Not Met

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
12	05	2016	2017	001	00	02	03	2017		05000

<b>9. OPERATING MODE</b> N	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>			
	<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)
<b>10. POWER LEVEL</b> 0%	<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 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 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 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 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 December 5, 2016 Three Mile Island Unit 1 was in a cold shutdown condition for a planned maintenance outage to replace the Reactor Coolant Pump 1A seal package. The reactor coolant system (RCS) was being filled and vented prior to pressurizing the RCS. Plant limits and precautions were not adhered to with respect to protecting the RCS from Low Temperature Overpressurization (LTOP) conditions by having RCS inventory too high with the Make-up system pump (MUP) breakers racked-in. This plant condition violated TMI-1 Technical Specification 3.1.12.1 and existed for approximately 3 hours until recognized. Once recognized, RCS inventory (Pressurizer level) was reduced within an hour per the TS action statement. The cause was attributed to operators not reviewing, understanding and complying with procedure limits and precautions for the plant condition. Corrective actions include coaching involved individuals on procedure use and adherence, and, procedure revisions to include actionable steps to improve LTOP Technical Specification compliance. This event is reported as a condition prohibited by Technical Specifications 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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		YEAR	SEQUENTIAL NUMBER	REV NO.
Three Mile Island Unit 1	05000-289	2017	- 001	- 00

**NARRATIVE**

**A. EVENT DESCRIPTION**

Plant Conditions before the event:

Babcock & Wilcox – Pressurized Water Reactor – 2568 MWth Core Power  
 Date/Time: December 5, 2016 / 16:00 hours  
 Power Level: 0%  
 Mode: Cold Shutdown

Three Mile Island Unit 1 (TMI-1) was in a cold shutdown condition with the Reactor Coolant System (RCS) depressurized and drained in support of a Reactor Coolant Pump seal package replacement in December 2016. On 12/05/2016 at 04:36, maintenance activities completed and Operations personnel began to fill the RCS to allow the plant to be re-pressurized.

The final fill of the RCS was performed using the RCS Water Level Control procedure (1103-11), that filled the pressurizer to a maximum level of 390 inches. With the pressurizer at 390 inches, the Control Room Supervisor directed the continuation of another operating procedure to shift the Makeup & Purification (MU) system from Shutdown Mode to Low Temperature Overpressure (LTOP) Mode (procedure OP-TM-211-101). Procedure OP-TM-211-101 provides the guidance and steps to rack-in the breakers for the makeup pumps.

TMI-1 Technical Specification 3.1.12.1 LTOP Protection requires:

3.1.12.1 LTOP Protection

If the reactor vessel head is installed and indicated RCS temperature is  $\leq 313^{\circ}\text{F}$ , High Pressure Injection Pump breakers shall not be racked in unless:

- a. MU-V16A/B/C/D are closed with their breakers open, and MU-V217 is closed, and
- b. Pressurizer level is maintained  $\leq 100$  inches. If pressurizer level is  $> 100$  inches, restore level to  $\leq 100$  inches within 1 hour.

[For purposes of clarity in this report: MU-V-16A/B/C/D are throttle valves for high pressure injection to RCS; MU-V-217 is the high capacity makeup valve to RCS]

The plant condition with the makeup pump breakers racked in and pressurizer level greater than 100 inches went unrecognized as a Technical Specification (TS) violation for approximately 3 hours from ~16:00 to approximately 19:00. Over this 3 hour period, an operations crew turnover occurred. An oncoming crew member questioned the appropriateness of the makeup pump breakers being racked in with pressurizer level greater than 100 inches. The crew rationalized that a pressurizer level of 390 inches with the RCS depressurized and vented would be equivalent to a pressurizer level of 100 inches once the RCS was pressurized. The pressurization of the RCS commenced per procedure 1103-11. When the RCS was pressurized to ~35-45psig, pressurizer level stabilized at a level greater than 100 inches. The crew recognized this condition was not allowed by Technical Specification 3.1.12.1 and a one



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**NARRATIVE**

hour clock to exit the condition was entered at 20:27 and immediate action to lower pressurizer level was initiated. At 21:25, pressurizer level was stabilized at less than 100 inches and the Technical Specification action statement was exited.

**B. CAUSE OF EVENT**

The apparent cause was determined to be inadequate procedure use and adherence fundamentals associated with reviewing, understanding and complying with procedure limitations and precautions. The procedures in use during the violated condition contained guidance to avoid exceeding the LTOP TS requirements.

**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 the Pilot Operated Relief Valve (PORV) was available during the entire time at which the violated TS condition existed. The PORV low pressure set-point for LTOP protection was enabled, operable and available and would have mitigated a potential RCS overpressurization event.

**D. CORRECTIVE ACTIONS**

Immediate actions were taken to address gaps in understanding.

- The involved individuals were coached for gaps in accountability with procedure use and adherence fundamentals associated with reviewing, understanding and complying with procedure limitations and precautions.
- The applicable procedures will be revised with actionable steps to improve LTOP TS compliance.
- Complete a performance analysis to determine training needs to improve understanding of the LTOP Technical Specification for various plant conditions.

**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).