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SEP 05 2018

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

10 CFR 50.73

**SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2018-003-01
UNIT 1 LICENSE NO. NPF-14
PLA-7730**

Docket No. 50-387

Attached is a supplement to Licensee Event Report (LER) 50-387/2018-003-00. The LER reported an event involving inoperability of a Main Steam Line Isolation Valve (MSIV) that was determined to be reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

There were no actual consequences to the health and safety of the public as a result of this event.

This letter contains no new regulatory commitments.


Should you have any questions regarding this submittal, please contact Mr. Jason Jennings, Manager – Nuclear Regulatory Affairs at (570) 542-3155.

A handwritten signature in black ink, appearing to be "B. Berryman", with a long horizontal line extending to the right.

B. Berryman

Attachment: LER 50-387/2018-003-01

Copy: NRC Region I
Ms. T. E. Hood, NRC Project Manager
Ms. L. H. Micewski, NRC Sr. Resident Inspector
Mr. M. Shields, PA DEP/BRP

NRC FORM 366 (04-2018)		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 Susquehanna Steam Electric Station Unit 1		2. Docket Number 05000387		3. Page 1 OF 3	
4. Title Main Steam Isolation Valve Leakage Due to Pilot Poppet and Pilot Poppet Seat Wear/Degradation					
5. Event Date			6. LER Number		7. Report Date
Month	Day	Year	Year	Sequential Number	Rev No.
04	05	2018	2018	- 003	- 01
					Month Day Year 09 05 2018
			8. Other Facilities Involved		
			Facility Name		Docket Number 05000
			Facility Name		Docket Number 05000
9. Operating Mode 5		11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
		<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)	
		<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)	
		<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)	
		<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)	
10. Power Level 000		<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)	
		<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)	
		<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)	
		<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)	
		<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)(i)(C)		<input type="checkbox"/> 50.73(a)(2)(vii)	
		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
		<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(ii)	
		<input type="checkbox"/> 73.77(a)(2)(iii)		<input type="checkbox"/> 73.77(a)(2)(iii)	
		<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)			
12. Licensee Contact for this LER					
Licensee Contact C. E. Manges, Jr., Senior Engineer – Nuclear Regulatory Affairs				Telephone Number (Include Area Code) (570) 542-3089	
13. Complete One Line for each Component Failure Described in this Report					
Cause	System	Component	Manufacturer	Reportable To ICES	
X	SB	ISV	A585	Y	
14. Supplemental Report Expected					15. Expected Submission Date
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No					Month Day Year
Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)					
<p>During Local Leak Rate Testing (LLRT) conducted during the recent Unit 1 refueling outage, combined as-found leakage through the inboard Main Steam Isolation Valve (MSIV) (HV141F022D) and outboard MSIV (HV141F028D) in the "D" Main Steam Line was 78,782 standard cubic centimeters per minute (sccm). Subsequent testing on April 5, 2018, measured the leakage through HV141F028D as 54,623 sccm, which exceeded the Technical Specification (TS) 3.6.1.3 limit of 100 scfh (47,194 sccm) for individual valve leakage.</p> <p>Based on cause and history, there is firm evidence that the condition existed during the last operating cycle for longer than allowed by TS 3.6.1.3. The condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.</p> <p>The cause of the leakage was identified as pilot poppet and pilot poppet seat wear/degradation. Repairs to the valve were made resulting in an acceptable as-left LLRT.</p> <p>There were no actual safety consequences associated with the condition.</p>					

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

(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 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.

1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
Susquehanna Steam Electric Station Unit 1		05000-387	YEAR	SEQUENTIAL NUMBER	REV NO.
			2018	- 003	- 01

NARRATIVE**CONDITIONS PRIOR TO EVENT**

Unit 1 – Mode 5, 0 percent Rated Thermal Power

Unit 2 – Mode 1, approximately 100 percent Rated Thermal Power

There were no structures, systems, or components that were inoperable at the start of the event that contributed to the event.

EVENT DESCRIPTION

During Local Leak Rate Testing (LLRT) conducted during the recent Unit 1 refueling outage, combined as-found leakage through the inboard Main Steam Isolation Valve (MSIV) (HV141F022D) [EIS System / Component Code: SB/ISV] and outboard MSIV (HV141F028D) [EIS System / Component Code: SB/ISV] in the “D” Main Steam Line was 78,782 standard cubic centimeters per minute (sccm). Subsequent testing on April 5, 2018, measured the leakage through HV141F028D as 54,623 sccm, which exceeded the Technical Specification (TS) 3.6.1.3 limit of 100 standard cubic feet per hour (scfh) (47,194 sccm) for individual valve leakage.

Based on the test results, HV141F028D internal inspection and repair was performed. As-found inspection identified guide rib degradation, pilot poppet seating surface degradation, and minor in-body seat indications. As-found valve internal mapping data measured a relatively flat in-body seating surface, with a 0.001” high spot at the 270° seat location. As-found blue check of the pilot poppet seating surface identified seat distortion (i.e. wide and uneven contact line). Pilot poppet and pilot poppet seat degradation were determined to be the main source of as-found leakage.

Based on discussions and evaluation with the original equipment manufacturer (OEM), a repair plan was developed that included lapping of the in-body seat, lapping of the pilot poppet and seating surface, skim cut of the main poppet hard face surface, and clean-up of the identified guide rib degradation.

Based on cause and history, there is firm evidence that the condition existed during the last operating cycle for longer than allowed by TS 3.6.1.3. The condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

CAUSE OF EVENT

The cause was identified as pilot poppet and pilot poppet seat wear/degradation.

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1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
Susquehanna Steam Electric Station Unit 1		05000-387	YEAR	SEQUENTIAL NUMBER	REV NO.
			2018	- 003	- 01

ANALYSIS/SAFETY SIGNIFICANCE

The redundant MSIV (HV141F022D) in the "D" Main Steam Line had an as found individual leakage value of 24,159 sccm (51.2 scfh) which is below the TS 3.6.3.1 limit of 100 scfh (47,194 sccm). As a result, there was no loss of operability for the redundant valve. Additionally, an engineering analysis was performed assuming leakage through the penetration equal to the leakage through the outboard valve (54,623 sccm). This analysis determined that, with leakage of 54,623 sccm through the penetration (i.e., not crediting the inboard valve), the dose consequences remain within the regulatory limit of 5 rem TEDE for the control room and 25 rem TEDE for the low population zone (LPZ) and exclusion area boundary (EAB). As such, for the identified condition, there was no loss of safety function for the main steam penetration nor any actual or potential consequences to the health and safety of the public.

CORRECTIVE ACTIONS

Corrective actions include the following:

1. Repairs to the valve resulting in an acceptable as-left LLRT.

COMPONENT FAILURE INFORMATION

Component Identification – HV141F028D

Component Name – Unit 1 Main Steam Line 'D' Outboard Isolation Valve

Valve Manufacturer – Atwood & Morrill

Valve Type – Wye Globe

Valve Size – 26 inch

Actuator Manufacturer – Hanna

Actuator Type – Tandem Cylinder

PREVIOUS SIMILAR EVENTS

The following are the most recent Susquehanna LERs involving MSIV leakage:

LER 50-387/2012-006-01, "D" Outboard Main Steam Isolation Valve Leakage – 2012, dated August 8, 2013

LER 50-387/2010-004-00, "D" Outboard Main Steam Isolation Valve Leakage – 2010, dated August 8, 2013