

Brad Berryman
Site Vice President

Susquehanna Nuclear, LLC
769 Salem Boulevard
Berwick, PA 18603
Tel. 570.542.2904 Fax 570.542.1504
Brad.Berryman@TalenEnergy.com



JAN 19 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 50-388/2017-008-01
UNIT 2 LICENSE NO. NPF-22
PLA-7661**

Docket No. 50-388

Attached is Licensee Event Report (LER) Supplement 50-388/2017-008-01. The original LER reported an event involving inoperability of a Primary Containment Isolation Valve (PCIV) due to a loose terminal block. Based on further evaluation of the reported condition, Susquehanna determined that the condition existed for longer than previously reported. This supplement provides information concerning the longer duration.

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.

A handwritten signature in blue ink, appearing to read "Berryman", with a long horizontal stroke extending to the right.

B. Berryman

Attachment: LER 50-388/2017-008-01

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 (04-2017)		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 2				2. DOCKET NUMBER 05000388		3. PAGE 1 OF 3		
4. TITLE Condition Prohibited by Technical Specifications Due to a Loose Terminal Block Associated with Primary Containment Isolation Valves								
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR
04	21	2013	2017	- 008	- 01	01	19	2018
					8. OTHER FACILITIES INVOLVED			
					FACILITY NAME		DOCKET NUMBER	
							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)						
1		<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)
10. POWER LEVEL 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)(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 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 EPIX	CAUSE	SYSTEM	COMPONENT	REPORTABLE TO EPIX
A	JM	Terminal Block	USD	Y				
14. SUPPLEMENTAL REPORT EXPECTED					15. EXPECTED SUBMISSION DATE		MONTH	DAY
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO								
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)								
<p>On July 19, 2017 at approximately 02:25, while performing a control room panel walk down, Operations observed indication for Primary Containment Isolation Valves HV21313 and HV21314 extinguished. Troubleshooting commenced and Technical Specification (TS) 3.3.3.1, Condition A was entered for loss of remote position indication for HV21313 and HV21314. On July 19, 2017 at approximately 10:49, investigation of the condition concluded that the isolation circuit for HV21314 was affected and the valve would not close if called upon to do so, and TS 3.6.1.3, Condition A was entered. The investigation identified a loose terminal block. The block was securely snapped back into the seat and the mounting screw was tightened. On July 19, 2017 at approximately 13:56, TS 3.3.3.1, Condition A and TS 3.6.1.3, Condition A were exited.</p> <p>The loose terminal block was caused by improper seating during installation on April 21, 2013. Seismic evaluation concluded that the installed configuration (i.e., not properly seated) is not a dynamically qualified configuration and that operability in this condition is therefore indeterminate. Based on this information, the affected components are considered to have been inoperable since installation in April 2013. Since the amount of time between the installation and restoration of operability was greater than allowed by Technical Specifications, this is a condition prohibited by Technical Specifications.</p> <p>The cause was determined to be a loose terminal block due to a human performance error during installation in 2013. Planned corrective actions include a read and sign for applicable electricians and procedure changes regarding how to verify proper seating of terminal blocks.</p> <p>There were no actual consequences to the health and safety of the public as a result of this event.</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 2	05000-0388	YEAR	SEQUENTIAL NUMBER	REV NO.
		2017	- 008	- 01

NARRATIVE**CONDITIONS PRIOR TO EVENT**

Unit 1 – Mode 1, approximately 100 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

On July 19, 2017 at approximately 02:25, while performing a control room panel walk down, Operations observed amber and red indication for Primary Containment Isolation Valves (PCIVs) HV21313 and HV21314 (Reactor Building Closed Cooling Water Outboard Isolation Valves) [EIS System/Component Identifier: CC/ISV] extinguished (should have been showing red indication with valves open). The red LED indicating lamp was changed with a known good bulb and the red indication briefly returned along with a dim amber indication while the bulb was being changed. Locally, an operator found normal indication at HV21313, but no indication for HV21314. The operator replaced the red and amber indicating lamps at the local panel with no return of indication. During the process of changing the bulb at the local panel, the red indication in the control room briefly displayed a dim indication but extinguished after approximately one minute. The operator verified Breaker 2B236092 [EIS Component Identifier: BKR] to HV21314 closed and the valve itself open. Additionally, no Bypass Indication System (BIS) alarms were indicated for a loss of power to a containment isolation indicating the issue was with indication only and not control power. Technical Specification 3.3.3.1, Condition A was entered for loss of remote position indication for HV21313 and HV21314.

During troubleshooting, an open neutral was identified, and on July 19, 2017 at approximately 10:49, investigation of the condition concluded that the loss of continuity revealed that the isolation circuit for HV21314 was affected and the valve would not close if called upon to do so. Technical Specification 3.6.1.3, Condition A was entered. The investigation identified a loose terminal block in 2B236092 due to not being seated properly. The block was subsequently securely snapped back into the seat and the mounting screw was tightened.

On July 19, 2017 at approximately 13:56, Technical Specification 3.3.3.1, Condition A and Technical Specification 3.6.1.3, Condition A were exited.

Further investigation identified the following timeline:

On April 21, 2013, a new bucket was installed into Breaker 2B236092.

On May 21, 2013, the post-maintenance testing (PMT) for the new bucket was completed.

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CONTINUATION SHEET**

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Susquehanna Steam Electric Station Unit 2	05000-0388	YEAR	SEQUENTIAL NUMBER	REV NO.
		2017	- 008	- 01

The terminal block affects HV21314 as well as the control room indication for both HV21313 and HV21314. The loose terminal block was caused by improper seating during installation on April 21, 2013. Seismic evaluation concluded that the installed configuration (i.e., not properly seated) is not a dynamically qualified configuration and that operability in this condition is therefore indeterminate. Based on this information, HV21314 as well as the control room indication for both HV21313 and HV21314 are considered to have been inoperable since installation of the new bucket in April 2013 when the terminal block was not properly seated. Since the amount of time between the installation and restoration of operability was greater than allowed by Technical Specifications, this is a condition prohibited by Technical Specifications and is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B). Although the event date is listed as April 21, 2013, the discovery date is considered to be July 19, 2017.

CAUSE OF EVENT

The cause was determined to be a loose terminal block caused by a human performance error during installation in 2013.

ANALYSIS/SAFETY SIGNIFICANCE

PCIV HV21314 would not have been able to electrically close with the identified condition. HV21314 is the outboard containment isolation valve. The inboard containment isolation valve, HV21346, was operable and would have provided the required isolation of the containment penetration. The containment design and testing only requires one containment isolation valve in each penetration to close for successful isolation. All containment leakage rates and all containment isolation requirements would have been met. In addition, no inoperability of control room indication associated with the redundant PCIVs was identified during the period of inoperability based on review of Technical Specification logs.

CORRECTIVE ACTIONS

Key corrective actions include the following:

1. Applicable electricians will be required to complete a read and sign regarding how to verify proper seating of terminal blocks.
2. A step will be added to applicable procedures regarding how to verify proper seating of terminal blocks.

COMPONENT FAILURE INFORMATION

Terminal Block, Pull Apart, 8 Pole 11330 Series manufactured by USD.

PREVIOUS SIMILAR EVENTS

No previous similar events were identified.