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TALEN ENERGY

May 6, 2021

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

10 CFR 50.73

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2021-001-00
UNIT 1 LICENSE NO. NPF-14
PLA-7939

Docket No. 50-387

Attached is Licensee Event Report (LER) 50-387/2021-001-00. The LER reports an event involving the inoperability of the High Pressure Coolant Injection System (HPCI) due to the HPCI Turbine Exhaust Inboard Vacuum Breaker Valve failing to stroke fully closed on demand. The condition is being reported in accordance with 10 CFR 50.73(a)(2)(v) as an event or condition that could have prevented fulfillment of a safety function.

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

This letter contains no new or revised regulatory commitments.

K. Cimorelli

Attachment: LER 50-387/2021-001-00

Copy: NRC Region I
Mr. C. Highley, NRC Senior Resident Inspector
Ms. S. Goetz, NRC Project Manager
Mr. M. Shields, PA DEP/BRP

NRC FORM 366 (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

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LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
Susquehanna Steam Electric Station	05000387	1 of 3

4. Title

Unplanned Inoperability of the High Pressure Coolant Injection (HPCI) System due to a Primary Containment Isolation (PCIV) Valve Failure to Stroke Full Closed On-demand due to an Intermittent Break in the Close Control Circuitry

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
										05000
03	09	2021	2021	001	00	05	06	2021	Facility Name	Docket Number
										05000

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **Other** (Specify here, in Abstract, or in NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include Area Code)
Derek R. Smith, Senior Engineer – Nuclear Regulatory Affairs	(570) 542-1377

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
X	BJ	VACB	A391	Y					

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☒ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On March 9, 2021 at approximately 03:13, during performance of quarterly Unit 1 High Pressure Coolant Injection System (HPCI) valve exercising, dual indication was received in the control room for the HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve (HV155F079) due to the valve failing to stroke fully closed on demand. Upon discovery of the condition, Operations entered Unit 1 Technical Specification (TS) 3.6.1.3, Condition A for one or more penetration flow paths with one Primary Containment Isolation Valves (PCIV) inoperable. The HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve was then closed, resulting in unplanned inoperability of HPCI. At the time the condition was identified, Unit 1 was already in TS 3.5.1, Condition D, HPCI system inoperable, due to the planned surveillance testing.

This event was reported by Event Notification 55128 in accordance with 10 CFR 50.72(b)(3)(v)(D). The condition is also being reported in accordance with 10 CFR 50.73(a)(2)(v) as an event or condition that could have prevented fulfillment of a safety function. The cause of the event was an intermittent break in the valve's close control circuitry likely due to dirty contacts on HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve hand switch. Key corrective actions include planned replacement of hand switch (HS15579). There were no actual consequences to the health and safety of the public as a result of this event.

NARRATIVE

CONDITIONS PRIOR TO EVENT

Unit 1 – Mode 1, approximately 100 percent Rated Thermal Power
Unit 2 – Mode 1, approximately 75 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 March 9, 2021 at approximately 03:13, during performance of quarterly High Pressure Coolant Injection System (HPCI) [EIIS System Code: BJ] valve exercising, dual indication was received in the control room for the HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve (HV155F079) [EIIS Component Code: VACB] due to the valve failing to stroke fully closed on demand. Upon discovery of the condition, Operations entered Unit 1 Technical Specification (TS) 3.6.1.3, Condition A for one or more penetration flow paths with one Primary Containment Isolation Valve (PCIV) inoperable. The HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve was then closed, resulting in unplanned inoperability of HPCI. At the time the condition was identified, Unit 1 was already in TS 3.5.1, Condition D, HPCI system inoperable, due to the planned surveillance testing. After the initial failure, operations personnel were dispatched to the valve and no issues were observed. The valve was successfully stroked open and closed within acceptance times. In addition, maintenance investigations observed and monitored the valve and valve closure circuitry during multiple subsequent valve strokes and no issues were noted. TS 3.6.1.3, Condition A was exited on March 10, 2021 at approximately 18:13 and TS 3.5.1 was exited on March 10, 2021 at approximately 18:59.

This event was reported by Event Notification 55128 in accordance with 10 CFR 50.72(b)(3)(v)(D). The condition is also being reported in accordance with 10 CFR 50.73(a)(2)(v) as an event or condition that could have prevented fulfillment of a safety function.

CAUSE OF EVENT

The direct cause of the event was an intermittent break in the valve's close control circuitry likely due to dirty contacts on HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve hand switch (HS15579).

NARRATIVE

ANALYSIS/SAFETY SIGNIFICANCE

An engineering evaluation was completed to analyze the HPCI Turbine Exhaust Vacuum Breaker valve's failure to stroke closed. The turbine exhaust header is equipped with a three-inch tap that forms the turbine exhaust vent header. The vent header contains two primary containment isolation valves HV155F079 (inboard) and HV155F075 (outboard). The open function of these valves supports HPCI operation and is not of concern since the valve successfully stroked open. The closure function of the valves supports primary containment isolation. Closure of any one valve is sufficient to achieve containment isolation. Review of the completed valve exercising surveillance determined valve HV155F075 (outboard) did successfully stroke closed and therefore would have performed the containment isolation function. With the containment isolation function successfully performed, the condition did not represent a safety system functional failure and all design requirements associated with the penetration continued to be met. Accordingly, this event will not be counted as a safety system functional failure in the Reactor Oversight Process Performance Indicators. There were no actual consequences to the health and safety of the public as a result of this event.

CORRECTIVE ACTIONS

Key corrective actions include planned replacement of the HPCI Turbine Exhaust Vacuum Breaker inboard isolation valve hand switch (HS15579).

COMPONENT FAILURE INFORMATION

Component Identification – HV155F079

Component Name – HPCI Turbine Exhaust Inboard Vacuum Breaker Valve

Valve Manufacturer – Anchor Darling

Valve Type – 3" Flex Wedge Gate Valve

Actuator Manufacturer – Limitorque Corporation

Actuator Size – SMB-000

PREVIOUS OCCURRENCES

None.