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AUG 02 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(388)/2018-005-00
UNIT 1 LICENSE NO. NPF-14
UNIT 2 LICENSE NO. NPF-22
PLA-7726

Docket No. 50-387
50-388

Attached is Licensee Event Report (LER) 50-387(388)/2018-005-00. This LER is reporting two related events involving drifting of Reactor Pressure Steam Dome – Low permissive switches. These events, one at Unit 1 and one at Unit 2, were 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.

 8/2/18
Derek Jones Plant Mgr for Brad Berryman
B. Berryman

Attachment: LER 50-387(388)/2018-005-00

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



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 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
Susquehanna Steam Electric Station Unit 1

2. Docket Number
05000387

3. Page
1 OF 4

4. Title Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches

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
06	05	2018	2018	- 005	- 00	08	02	2018	Susquehanna Steam Electric Station Unit 2	05000388
									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)(ii)
	<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)(iii)
	<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

Telephone Number (Include Area Code)

C. E. Manges, Jr., Senior Engineer – Nuclear Regulatory Affairs

(570) 542-3089

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

Cause	System	Component	Manufacturer	Reportable To ICES	Cause	System	Component	Manufacturer	Reportable To ICES

14. Supplemental Report Expected

15. Expected Submission Date

Month	Day	Year
10	05	2018

☒ Yes (If yes, complete 15. Expected Submission Date) ☐ No

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On June 5, 2018, the Unit 1 "B" Reactor Steam Dome Pressure – Low permissive switch was found outside of the Technical Specification (TS) 3.3.5.1 allowable value during testing. Subsequently, on June 6, 2018, the Unit 2 "C" Reactor Steam Dome Pressure – Low permissive switch was found outside of the TS 3.3.5.1 allowable value during testing. Both drifted outside of the lower allowable value which is intended to ensure that the Emergency Core Cooling System (ECCS) injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46.

Based on the information currently available, Susquehanna Steam Electric Station (SSES) believes that the condition existed for longer than allowed by Units 1 and 2, TS 3.3.5.1 and TS 3.5.1. As such, this is a condition prohibited by Technical Specifications and is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B).

The cause is still under investigation. Compensatory actions include the following: calibration using the quarterly calibration procedures will be performed every 45 days on Unit 1 and every 30 days on Unit 2. Additional corrective actions will be determined following completion of the cause analysis. Causal and corrective action information will be provided in a supplement to this LER.

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



LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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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	- 005	- 00

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

SSES had been utilizing Barton 288A switches in the Reactor Steam Dome Pressure – Low channels [EIS System/Component Identifier/PS] that provide the injection permissive for the Core Spray system [EIS System Identifier: BM] (TS 3.3.5.1, Function 1d) and the Low Pressure Coolant Injection system (LPCI) [EIS System Identifier: BO] (TS 3.3.5.1, Function 2d). All eight Barton pressure switches were replaced with GE recommended Cameron 288A pressure switches between September 6, 2017 and November 15, 2017 to address drift issues with the Barton switches. The switches were bench tested prior to installation and calibration checked at the time of installation. Subsequent calibration checks were performed at more frequent intervals than the quarterly TS required calibrations.

After replacement of the Barton switches, drift issues have continued. A detailed timeline of events is as follows:

- September 20, 2017 - the obsolete Barton 288A pressure switch for Unit 2 PIS-B21-2N021C was replaced with a GE recommended Cameron 288A pressure switch.
- October 9, 2017 - the obsolete Barton 288A pressure switch for Unit 2 PIS-B21-2N021D was replaced with a GE recommended Cameron 288A pressure switch.
- November 15, 2017 - the obsolete Barton 288A pressure switch for Unit 1 PIS-B21-1N021B was replaced with a GE recommended Cameron 288A pressure switch.
- December 5, 2017 – Unit 2 PIS-B21-2N021C and Unit 2 PIS-B21-2N021D were found outside of the TS 3.3.5.1 allowable value during the calibration check. Both drifted outside of the upper allowable value which is intended to ensure that the reactor dome pressure has fallen to a value below the Core Spray and RHR/LPCI maximum design pressures to preclude over-pressurization of the low pressure systems prior to low pressure injection initiation. Unit 2 PIS-B21-2N021C exceeded the TS 3.3.5.1 allowable value by 1.3 psi (455.8 psi versus an upper allowable value of 454.5 psi). Unit 2 PIS-B21-2N021D exceeded the TS 3.3.5.1 allowable value by 2.8 psi (457.8 psi versus an upper allowable value of 455 psi). Both switches were adjusted to within the TS allowable value. These conditions were reported in LER 50-388/2017-010-00 on February 2, 2018.

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

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Susquehanna Steam Electric Station Unit 1	05000-387	YEAR	SEQUENTIAL NUMBER	REV NO.
		2018	- 005	- 00

- June 5, 2018 - Unit 1 "B" (PIS-B21-1N021B) was found outside of the TS 3.3.5.1 allowable value during testing. The switch drifted outside of the lower allowable value which is intended to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. PIS-B21-1N021B exceeded the TS 3.3.5.1 allowable value by 2.7 psi (417.0 psi versus a lower allowable value of 419.7 psi). The switch was adjusted to within the TS allowable value. This switch had been installed on November 15, 2017 and had been tested on December 7, 2017 and March 6, 2018 with acceptable results.
- June 6, 2018 - Unit 2 "C" (PIS-B21-2N021C) was found outside of the TS 3.3.5.1 allowable value during testing. The switch drifted outside of the lower allowable value which is intended to ensure that the ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. PIS-B21-2N021C exceeded the TS allowable value by 1.5 psi (427.0 psi versus a lower allowable value of 428.5 psi). The switch was adjusted to within the TS allowable value. This switch had been installed on September 20, 2017 and tested on October 20, 2017 with acceptable results. The switch drifted outside of the upper TS 3.3.5.1 allowable value limit on December 5, 2017. This switch was subsequently tested on January 4, 2018, February 8, 2018, March 7, 2018, and May 3, 2018 with acceptable results.

Based on the information currently available, SSES believes that the condition existed for longer than allowed by Units 1 and 2, TS 3.3.5.1 and TS 3.5.1. As such, this is a condition prohibited by Technical Specifications and is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B).

CAUSE OF EVENT

The cause is still under investigation. Further information associated with the cause will be provided in a supplement to this LER.

ANALYSIS/SAFETY SIGNIFICANCE

Information concerning safety significance will be provided in a supplement to this LER.

CORRECTIVE ACTIONS

The following compensatory actions have been taken:

1. Calibration using the quarterly calibration procedures will be performed every 45 days on Unit 1 and every 30 days on Unit 2.

Additional corrective actions will be determined following completion of the cause analysis and will be provided in a supplement to this LER.



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

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		2018	- 005	- 00

COMPONENT FAILURE INFORMATION

The switches that drifted are Cameron Model 288A pressure switches.

PREVIOUS SIMILAR EVENTS

LER 50-388(387)/2015-001-01, "Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Steam Dome-Low Switches", dated February 10, 2016.

LER 50-388/2017-010-00, "Condition Prohibited by Technical Specifications Due to Drift of Reactor Pressure Switches", dated February 2, 2018.