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MAR 30 2016

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)/2015-006-01
UNIT 1 LICENSE NO. NPF-14
PLA-7447

Docket No. 50-387
50-388

Attached is a supplement to Licensee Event Report (LER) 50-387(388)/2015-006-01. On September 29, 2015, the Susquehanna Steam Electric Station (SSES) experienced a loss of the 'A' and 'B' trains of the Standby Gas Treatment System (SGTS) during the performance of two cross-divisional surveillance tests. In accordance with 10 CFR 50.72(b)(3)(v)(c), at 1456 hours on September 29, 2015, an 8-hour Event Notification (#51432) was made to the NRC for any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material. In addition, this LER is being submitted for a loss of safety function of the Control Room Emergency Outside Air Supply System which was identified on September 30, 2015 at 0300 hours. There were no actual consequences to the health and safety of the public as a result of this event.

In accordance with NUREG-1022, Revision 2, Section 5.1.5, "Supplemental Information and Revised LERs," revision bars are included to indicate where supplementary information has been added.

This letter contains no new regulatory commitments.



J. A. Franke

Attachment: LER 50-387(388)/2015-006-01

Copy: NRC Region I
Mr. J. E. Greives, NRC Sr. Resident Inspector
Ms. T. E. Hood, Whited, NRC Project Manager
Mr. M. Shields, PA DEP/BRP

**LICENSEE EVENT REPORT (LER)**
(See Page 2 for required number of
digits/characters for each block)

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 internet e-mail to Infocollections.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 5
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4. TITLE

Loss of Safety Function due to Inoperability of Both Trains of the Standby Gas Treatment System and a Loss of Safety Function of the Control Room Emergency Outside Air Supply System due to Air Flow Controller found in Manual

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
09	29	2015	2015	006	01	03	30	2016	Susquehanna SES – Unit 2	05000388
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 1	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"/> 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)
10. POWER LEVEL 097	<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)
	<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 checked="" 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 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 Brenda W. O'Rourke – Senior Engineer, Nuclear Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) (570) 542-1791
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX


14. SUPPLEMENTAL REPORT EXPECTED☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO**15. EXPECTED SUBMISSION DATE**

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On September 29, 2015, at 0900 hours, the 'B' train of the Standby Gas Treatment System (SGTS) was declared inoperable as part of surveillance test SE-030-002B (24-Month Control Structure Ventilation System Operability Test Div II 'B' SGTS). During the test, personnel also commenced testing of the Unit 1 Reactor Pressure Vessel water level instrumentation per SI-180-306 (24-Month Calibration of RWCU PCIS Secondary Containment Isolation and CREOASS Initiation of Reactor Vessel Water Level 2 and MSIV Isolation on Reactor Vessel Water Level 1 for channels LITS-B21-1N026A and B21-1N026C). At 1030 hours, level instrument LITS-B21-1N026A failed its test acceptance criteria, resulting in entry into the Action Statement for TS 3.3.6.2, Condition A. This failed instrument channel is part of the initiation logic for the 'A' train of SGTS. In accordance with TS 3.0.6, since the SGTS is a support system, a loss of safety function determination was performed and concluded the 'A' train of SGTS was inoperable. With both the 'A' and 'B' trains of SGTS inoperable, the Action Statement for TS 3.6.4.3, Condition D, was entered at 1050 hours. At 1456 hours on September 29, 2015, an 8-hour Event Notification (#51432) was made to the NRC per 10 CFR 50.72(b)(3)(v)(c) for a condition that could have prevented the fulfillment of the safety function of the SGTS. On September 30, 2015, during panel walkdowns, it was identified that the 'B' CREOAS system flow controller was still in manual and had not been restored to auto after completion of SE-030-002B on September 29, 2015. As a result, the TS 3.7.3 Action Statement for CREOAS system was entered for the 'B' train being inoperable. In accordance with 10 CFR 50.73(a)(2)(v)(C), this LER is being submitted for any event or condition that at the time of discovery, could have prevented the fulfillment of the safety function of SGTS and the CREOAS system.

Apparent cause: Loss of safety function was not recognized and mitigated when scheduling a surveillance test concurrent with the planned inoperability of the opposite division. Key corrective action: Revise surveillance procedures for instrumentation involving RPS, ECCS initiation, Primary Containment Isolation System (PCIS) and the Secondary Containment Isolation System, to include information on equipment impacts for instruments removed from service, and that redundant equipment is to be operable. There were no actual consequences to the health and safety of the public.

NRC FORM 366A (11-2015)	U.S. NUCLEAR REGULATORY COMMISSION  LICENSEE EVENT REPORT (LER) CONTINUATION SHEET	APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018 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 internet 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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: left; padding: 2px;">3. LER NUMBER</th> </tr> <tr> <td style="width: 33%; text-align: center; padding: 2px;">YEAR</td> <td style="width: 33%; text-align: center; padding: 2px;">SEQUENTIAL NUMBER</td> <td style="width: 33%; text-align: center; padding: 2px;">REV NO.</td> </tr> <tr> <td style="text-align: center; padding: 2px;">2015</td> <td style="text-align: center; padding: 2px;">- 006</td> <td style="text-align: center; padding: 2px;">- 01</td> </tr> </table>	3. LER NUMBER			YEAR	SEQUENTIAL NUMBER	REV NO.	2015	- 006	- 01
3. LER NUMBER											
YEAR	SEQUENTIAL NUMBER	REV NO.									
2015	- 006	- 01									
NARRATIVE <u>CONDITIONS PRIOR TO THE EVENT</u> Unit 1 – Mode 1, 97 percent Rated Thermal Power Unit 2 – Mode 1, 100 percent Rated Thermal Power There were no systems, structures, or components that were inoperable at the start of the event and contributed to the event. <u>EVENT DESCRIPTION</u> On September 29, 2015, at 0900 hours, operations commenced surveillance test SE-030-002B (24-Month Control Structure Ventilation System Test Div II 'B' SGTS). Performance of this test placed Division II of the Control Structure ventilation system equipment in various alignments for data collection. During the performance of SE-030-002B, at 0943 hours, plant personnel commenced testing per SI-180-306 (24-Month Calibration of RWCU PCIS Secondary Containment Isolation and CREOASS Initiation on Reactor Vessel Water Level 2 and MSIV Isolation on Reactor Vessel Water Level 1 for channels LITS-B21-1N026A and B21-1N026C). This SI tests the function of the reactor pressure vessel switches associated with primary containment isolation system (PCIS) actuations and secondary containment isolation actuations, which initiates the logic to start the Standby Gas Treatment System (SGTS) [EIS: BH]. At 1020 hours, Operations entered the Action Statement for Technical Specification (TS) 3.6.4.3 for the 'B' train of SGTS to manually adjust flow in accordance with surveillance procedure SE-030-002B. At 1030 hours, control room personnel were notified that the level instrument LITS-B21-1N026A failed its SI-180-306 surveillance test acceptance criteria. This failed instrument channel is part of the initiation logic for the 'A' train of SGTS. Control room personnel then directed restoration from SE-030-002B to return the 'B' train of SGTS to operable status. However, there was no direction in the controlling surveillance procedure to return the 'B' Control Room Emergency Outside Air Supply (CREOAS) system controller to automatic, and therefore remained in manual. In accordance with TS 3.0.6, since the SGTS is a supported system of the affected instrument, a loss of safety function determination was performed, and the 'A' train of SGTS was declared inoperable. As a result, both the 'A' and 'B' trains of SGTS were inoperable and the Action Statement for TS 3.6.4.3, Condition D, was entered at 1050 hours. In accordance with 10 CFR 50.72(b)(3)(v)(c), at 1456 hours on September 29, 2015, Susquehanna Nuclear, LLC made an 8-hour Event Notification (#51432) to the NRC for any event or condition that could have prevented the fulfillment of a safety function of the SGTS.											

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(11-2015)

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APPROVED BY OMB: NO. 3150-0104

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LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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Susquehanna Steam Electric Station, Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REV NO.
		2015	-006	-01

NARRATIVE

Event Description (cont.)

On September 30, 2015, during panel walkdowns, it was identified that the 'B' CREOASS flow controller [EII: TC] was still in manual and had not been restored to auto after completion of SE-030-002B on September 29, 2015. As a result, the Action Statement for TS 3.7.3 was entered for the 'B' train of CREOAS system being inoperable.

In accordance with 10 CFR 50.73(a)(2)(v)(C), this LER is being submitted for an event or condition that at the time of discovery, could have prevented the fulfillment of the safety function of the Standby Gas Treatment System to control the release of radioactive material. This LER is also being submitted in accordance with 10 CFR 50.73(a)(2)(v)(C), for a loss of safety function of the CREOAS system.

Sequence of Events

9/29/2015 –

0829 hours – Entered TS 3.3.2.2, Condition A for SI-180-306.

0900 hours – Commenced surveillance SE-030-002B. Six hour Allowable Performance Times (APTs) were applicable for TS 3.3.6.1, 3.3.6.2, 3.3.7.1.

0943 hours – Commenced surveillance SI-180-306.

1020 hours – Entered the Action Statement for TS 3.6.4.3 for the 'B' train of the SGTS to manual to adjust flow in accordance with test procedure SE-030-002B.

1030 hours – Instrument LITS-B21-1N026A was outside the acceptance criteria of SI-180-306. I&C Supervisor discussed impact with control room personnel.

1050 hours – Discussed APT impacts and determine they were no longer applicable and the following TS action statements were entered for TS 3.3.6.1, 3.3.6.2 and 3.3.7.1, effective at 1030 hours. Directed the restoration of the 'B' SGTS to normal standby lineup and the performance of SE-030-002B was halted. TS 3.3.6.2, Condition A was entered effective 1030 hours. This is a support system for SGTS. Since SGTS is a supported function of the affected instrument (LITS-B21-1N026A), the 'A' train of SGTS was declared inoperable. With both the 'A' and 'B' trains of SGTS inoperable, TS 3.6.4.3, Condition D was entered since both the 'A' and 'B' trains were inoperable.

1145 hours – The 'B' train of SGTS was restored and declared operable and TS 3.6.4.3, Condition D was exited.

1228 hours – LITS-B21-1N026A instrument was calibrated to within final tolerance, and the surveillance acceptance criteria were met.

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Susquehanna Steam Electric Station, Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REV NO.
		2015	-006	-01

NARRATIVE

Sequence of Events (cont.)

1236 hours – Restored the 1C004 Reactor Pressure Vessel Instrument Rack to service and was declared operable.

1237 hours – Exited TS 3.3.2.2, Condition A, Action Statement.

9/30/2015 –

0300 hours – During panel walkdowns, it was discovered that the 'B' CREOAS system flow controller was still in manual and had not been restored to auto after completion of SE-030-002B on September 29, 2015. As a result, the Action Statement for TS 3.7.3 was entered for the 'B' train being declared inoperable.

CAUSE OF THE EVENT

Apparent Causes:

- Loss of safety function was not recognized and mitigated when scheduling a surveillance test concurrent with the planned inoperability of the opposite division.
- I&C surveillances are written to test all four instrument channels (Division 1 and 2).

Causal Factor:

Misinterpretation of TS 3.3.6.2, Note 2 ("...entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.").

ANALYSIS/SAFETY SIGNIFICANCE

Potential Consequences

An unmonitored, unfiltered release pathway to the environment in the event of a Unit 1 Loss of Coolant Accident.

Actual Consequences

TS 3.6.4.3, Condition D, was entered due to the A and B trains of SGTS being inoperable which required restoration of at least one train to operable status within 4 hours or be in Mode 3 in the next 12 hours. Also, the Action Statement for TS 3.7.3, Condition A, was entered for the 'B' train of CREOAS system being inoperable.

This event will not be counted as a safety system functional failure (SSFF) for the NRC performance indicator. Based on engineering analysis, there was no loss of ability of the SGTS or the CREOAS system to fulfill their safety function. As such, there were no actual consequences to the health and safety of the public as a result of this event.

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(11-2015)

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Susquehanna Steam Electric Station, Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REV NO.
		2015	-006	-01

NARRATIVE

CORRECTIVE ACTIONS

- Revise I&C surveillance procedures for instrumentation involved with the Reactor Protection System (RPS), ECCS initiation, Primary Containment Isolation System (PCIS) and the Secondary Containment Isolation System to include information on equipment impacts for instruments removed from service and redundant equipment to be operable thus preventing a loss of safety system.
- Revise I&C surveillance procedures for instrumentation involved with the RPS, ECCS initiation, PCIS and the Secondary Containment Isolation System to be performed divisionally.
- Revise APT training to include this Operating Experience in the licensed operator requalification training and initial licensed operator training.
- Revise station risk procedure to ensure schedule risk assessments clearly direct review of surveillances concurrently scheduled for both divisions of a safety function to mitigate the risk of a loss of safety function.
- Issue an Operations directive to perform a LOSF review prior to releasing a PCIS or Secondary Containment Isolation System instrument for testing.

PREVIOUS SIMILAR EVENTS

None