

**Kevin Cimorelli**  
Site Vice President

**Susquehanna Nuclear, LLC**  
769 Salem Boulevard  
Berwick, PA 18603  
Tel. 570.542.3795 Fax 570.542.1504  
Kevin.Cimorelli@TalenEnergy.com



December 9, 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 50-388/2021-003-00  
UNIT 2 LICENSE NO. NPF-22  
PLA-7976**

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**Docket No. 50-388**

Attached is Licensee Event Report (LER) 50-388/2021-003-00. The LER reports an event involving an automatic scram due to a main turbine trip. The condition is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in an automatic actuation of the Reactor Protection System (including a reactor scram).

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.

A handwritten signature in black ink, appearing to read "Derek Jones".

*Derek Jones Acting Site VP for K. Cimorelli*

K. Cimorelli

Attachment: LER 50-388/2021-003-00

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



**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/>)

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, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk ail: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

<b>1. Facility Name</b> Susquehanna Steam Electric Station Unit 2	<b>2. Docket Number</b> 05000388	<b>3. Page</b> 1 of 3
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**4. Title**  
Automatic Reactor Scram Due to Main Turbine Trip

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
10	11	2021	2021	- 003 -	00	12	09	2021	Facility Name	05000
										Docket Number
										05000

**9. Operating Mode** 1      **10. Power Level** 095

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

<b>10 CFR Part 20</b>	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<b>10 CFR Part 73</b>
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<b>10 CFR Part 21</b>	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<b>10 CFR Part 50</b>	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	

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

**12. Licensee Contact for this LER**

<b>Licensee Contact</b> D. R. Smith, Senior Engineer – Nuclear Regulatory Affairs	<b>Phone Number (Include Area Code)</b> 570-542-1377
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**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

<b>14. Supplemental Report Expected</b>				<b>15. Expected Submission Date</b>		
<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)			Month	Day	Year
				02	28	2022

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

On October 11, 2021, at approximately 13:21, Susquehanna Steam Electric Station Unit 2 reactor automatically scrambled due to a main turbine trip. Both divisions of the Reactor Protection System (RPS) actuated and all control rods inserted. This event was reported by Event Notification 55514 in accordance with 10 CFR 50.72(b)(2)(iv)(A), (b)(2)(iv)(B) and (b)(3)(iv)(A). This event is also reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in automatic actuation of a system listed in 10 CFR 50.73(a)(2)(iv)(B).

The cause of the event is under investigation and will be provided in a supplement to this LER along with associated corrective actions.

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**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Susquehanna Steam Electric Station Unit 2	05000-388	2021	- 003 -	00

**NARRATIVE**

**CONDITIONS PRIOR TO EVENT**

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

Unit 2 – Mode 1, approximately 95 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 October 11, 2021, at approximately 13:21, Susquehanna Steam Electric Station Unit 2 reactor automatically scrammed due to a main turbine [EIS System/Component Code: TA/TRB] trip. The Unit 2 Control Room received indication of a main turbine trip with both divisions of the Reactor Protection System (RPS) [EIS System Code: JC] actuated and all control rods inserted. The turbine bypass valves [EIS System/Component Code: JI/PCV] opened automatically to control reactor pressure and subsequently remained open causing the reactor to depressurize. Operations manually closed the Main Steam Isolation Valves (MSIVs) [EIS System/Component: SB/ISV] to stop reactor depressurization. The High Pressure Coolant Injection (HPCI) [EIS System Code: BJ] and Reactor Core Isolation Cooling (RCIC) [EIS System Code: BN] systems were manually initiated to control reactor water level. Operations subsequently maintained reactor water at the normal operating band using RCIC and reactor pressure was controlled with HPCI in pressure control mode and the main steam line drains. The Reactor Recirculation Pumps [EIS System/Component Code: AD/P] tripped on End of Cycle Recirculation Pump Trip.

This event was reported by Event Notification 55514 in accordance with 10 CFR 50.72(b)(2)(iv)(A), (b)(2)(iv)(B) and (b)(3)(iv)(A). This event is also reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in automatic actuation of a system listed in 10 CFR 50.73(a)(2)(iv)(B).

**CAUSE OF EVENT**

The cause of the event is under investigation and will be provided in a supplement to this LER.

**ANALYSIS/SAFETY SIGNIFICANCE**

During the reactor scram off-site power remained available to power all safety related shutdown equipment. All control rods inserted as designed and all safety related equipment operated as designed. There was no loss of function that prevented the safe shutdown of the reactor and to maintain it in a safe shutdown condition. All safety systems were available to mitigate the consequences of an accident.

Any additional insights on safety significance identified during the cause evaluation 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.

**CORRECTIVE ACTIONS**

Corrective actions will be provided in a supplement to this LER.



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CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Susquehanna Steam Electric Station Unit 2	05000-388	YEAR 2021	SEQUENTIAL NUMBER - 003 -	REV NO. 00

**NARRATIVE**

**COMPONENT FAILURE INFORMATION**

Component failure information, as applicable, will be provided in a supplement to this LER.

**PREVIOUS OCCURRENCES**

Previous occurrences, as applicable, will be provided in the supplement to this LER.