

June 11, 2026

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

10 CFR 50.46

**SUSQUEHANNA STEAM ELECTRIC STATION**  
**10 CFR 50.46 ANNUAL REPORT**  
**PLA-8222**

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**Docket Nos. 50-387**  
**and 50-388**

- References:*
- 1) *“Susquehanna Steam Electric Station - 10 CFR 50.46 Annual Report (PLA-8180)” dated June 12, 2025 (ADAMS Accession No. ML25163A136).*
  - 2) *Framatome Record FSI-0084470, Revision 1.0, “10 CFR 50.46 PCT Error Report for the Susquehanna Units – April 2025 to April 2026,” dated April 22, 2026.*

Pursuant to the reporting requirements of 10 CFR 50.46(a)(3)(ii), enclosed are the Emergency Core Cooling System (ECCS) evaluation model annual reports for Susquehanna Steam Electric Station (SSES) Units 1 and 2. The enclosed reports summarize the nature of and estimated effect of any modeling changes or error corrections in the ECCS models.

Enclosure 1 provides a summary of the Framatome EXEM BWR-2000 LOCA (Loss of Coolant Accident) methodology which is applicable to ATRIUM-10 fuel for the period April 10, 2025, through April 9, 2026, for SSES Units 1 and 2. Since the last 10 CFR 50.46 annual report (Reference 1), there were no evaluation model changes or corrections to EXEM BWR-2000 LOCA methodology reported to SSES. The current licensing basis peak cladding temperature (PCT) remains in compliance with 10 CFR 50.46 requirements.

Enclosure 2 provides a summary of the Framatome AURORA-B LOCA methodology which is applicable to ATRIUM-11 fuel for the period April 10, 2025, through April 9, 2026, for SSES Units 1 and 2. Since the last 10 CFR 50.46 annual report (Reference 1), there were no evaluation model changes or corrections to the AURORA-B LOCA methodology reported to SSES. The current licensing basis PCT remains in compliance with 10 CFR 50.46 requirements.

There are no new or revised regulatory commitments contained in this submittal.

If you have any questions regarding this letter, please contact Ms. Melisa Krick, Manager – Nuclear Regulatory Affairs, at (570) 542-1818.



M. Jones

Enclosures:

1. 10 CFR 50.46 ECCS Evaluation Model Annual Report for ATRIUM-10 Fuel
2. 10 CFR 50.46 ECCS Evaluation Model Annual Report for ATRIUM-11 Fuel

Copy: NRC Region I  
Mr. R. Wehrmann, NRC Senior Resident Inspector  
Mr. T. Sierra, NRC Project Manager  
Mr. M. Shields, PA DEP/BRP

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**Enclosure 1 to PLA-8222**

**10 CFR 50.46 ECCS Evaluation Model  
Annual Report for ATRIUM-10 Fuel**

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**BACKGROUND**

In accordance with 10 CFR 50.46(a)(3)(ii), this annual report summarizes the nature of and estimated effect of any modeling changes or error corrections in the ECCS model for the period April 10, 2025, through April 9, 2026 (hereafter referred to as “reporting period”).

**DISCUSSION**

ATRIUM-10 and ATRIUM-11 fuel was co-loaded in SSES Units 1 and 2 for the reporting period. The ECCS performance evaluation method applicable to ATRIUM-10 fuel for both SSES Units 1 and 2 is the Framatome EXEM BWR-2000 LOCA methodology.

For the reporting period, there were no reportable 10 CFR 50.46 modeling changes or error corrections to the ECCS evaluation method (Reference 2).

**IMPACT**

Table 1  
Non-Zero PCT Changes Resulting from Modeling Changes / Error Corrections in  
Calculated ECCS Performance  
Evaluation Model: Framatome EXEM BWR-2000 LOCA Methodology

Description of Change/Error	Estimated $\Delta$ PCT (°F)	Absolute Value of $\Delta$ PCT (°F)
HUXY capability enhancement to model each fuel rod individually (ADAMS Accession No. ML17158B382)	-1	1
Updated steam dryer information (ADAMS Accession No. ML19161A131)	+5	5
Total Since Initial PCT (Reference 2)	+4	6

**CONCLUSION**

As documented in Table 1, SSES Units 1 and 2 ATRIUM-10 Loss of Coolant Accident Analysis PCT remains in compliance with 10 CFR 50.46(b)(1), which requires that the PCT not exceed 2200°F.

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**Enclosure 2 to PLA-8222**

**10 CFR 50.46 ECCS Evaluation Model  
Annual Report for ATRIUM-11 Fuel**

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**BACKGROUND**

In accordance with 10 CFR 50.46(a)(3)(ii), this annual report summarizes the nature of and estimated effect of any modeling changes or error corrections in the ECCS model for the reporting period.

**DISCUSSION**

ATRIUM-10 and ATRIUM-11 fuel was co-loaded in SSES Units 1 and 2 for the reporting period. The ECCS performance evaluation method applicable to ATRIUM-11 fuel is the Framatome AURORA-B LOCA methodology.

For the reporting period, there were no reportable 10 CFR 50.46 modeling changes or error corrections to the ECCS evaluation method (Reference 2).

**IMPACT**

Table 2  
Non-Zero PCT Changes Resulting from Modeling Changes / Error Corrections in  
Calculated ECCS Performance  
Evaluation Model: Framatome AURORA-B LOCA Methodology

Description of Change/Error	Estimated $\Delta$ PCT ( $^{\circ}$ F)	Absolute Value of $\Delta$ PCT ( $^{\circ}$ F)
Pellet-Cladding Mechanical Interaction routines in RODEX4 (ADAMS Accession No. ML21161A005)	-1	1
Lower tie plate bypass flow hole size increase (ADAMS Accession No. ML21161A005)	-3	3
Upper tie plate loss coefficient used in MICROBURN-B2 (ADAMS Accession No. ML21161A005)	+5	5
Hot wall effect temperature (ADAMS Accession No. ML22161A074)	+5	5
Total Since Initial PCT (Reference 2)	+6	14

**CONCLUSION**

As documented in Table 2, SSES Units 1 and 2 ATRIUM-11 Loss of Coolant Accident Analysis PCT remains in compliance with 10 CFR 50.46(b)(1), which requires that the PCT not exceed 2200 $^{\circ}$ F.