



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 14, 2019

Mr. Kevin Cimorelli  
Site Vice President  
Susquehanna Nuclear, LLC  
769 Salem Boulevard  
NUCSB3  
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 -  
REGULATORY AUDIT PLAN REGARDING APPLICATION OF FRAMATOME  
METHODOLOGIES TO SUPPORT TRANSITION TO ATRIUM 11 FUEL  
(EPID L-2019-LLA-0153)

Dear Mr. Cimorelli:

By letter dated July 15, 2019 Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request (LAR) for Susquehanna Steam Electric Station, Units 1 and 2, to allow application of the Framatome analysis methodologies necessary to support a planned transition to ATRIUM 11 fuel under the currently licensed Maximum Extended Load Line Limit Analysis operating domain.

To support its safety evaluations, the U.S. Nuclear Regulatory Commission staff has determined the need for a regulatory audit to be conducted in accordance with the Office of Nuclear Reactor Regulation Office Instruction LIC-111, "Regulatory Audits," to gain a better understanding of the licensee's approach, calculations, and other aspects of the LAR. The audit plan to support the review of this LAR is enclosed.

If you have any questions, please contact me at (301) 415-8004 or by e-mail to [Sujata.Goetz@nrc.gov](mailto:Sujata.Goetz@nrc.gov).

Sincerely,

/RA/

Sujata Goetz, Project Manager  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosures  
NRC Regulatory Audit Pan

cc: Listserv

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 -  
REGULATORY AUDIT PLAN REGARDING APPLICATION OF FRAMATOME  
METHODOLOGIES TO SUPPORT TRANSITION TO ATRIUM 11 FUEL  
(EPID L-2019-LLA-0153) DATED NOVEMBER 14, 2019

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\*by e-mail

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REGULATORY AUDIT PLAN  
TO SUPPORT REVIEW OF LICENSE AMENDMENT REQUEST REGARDING APPLICATION  
OF FRAMATOME METHODOLOGIES FOR TRANSITIONING TO ATRIUM 11 FUEL  
SUSQUEHANNA NUCLEAR, LLC  
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
DOCKET NOS. 50-387 AND 50-388

1.0 BACKGROUND

By letter dated July 15, 2019 (Agencywide Documents Access and Management Accession No. ML19196A270), Susquehanna Nuclear, LLC (the licensee) submitted a license amendment request (LAR) for Susquehanna Steam Electric Station, Units 1 and 2, to allow application of the Framatome analysis methodologies necessary to support a planned transition to ATRIUM 11 fuel under the currently licensed Maximum Extended Load Line Limit Analysis operating domain.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that a regulatory audit of the background technical analysis for this LAR should be conducted in accordance with the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits," to gain a better understanding of the licensee's calculations and other aspects of the LAR.

2.0 REGULATORY AUDIT SCOPE

The regulatory audit is a planned licensing-related activity that will require the examination and evaluation of non-docketed information. The audit is being conducted with the intent to gain understanding, to verify information and/or to identify information that will require docketing to support the basis for the NRC decision regarding the license amendments. Items of interest specific to this audit are in attached Appendix A.

3.0 TEAM MEMBERS

The NRC staff performing this audit will include, but may not be limited to, the following:

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|--|--|
| • Ashley Smith, Nuclear Engineer, NRR        | <a href="mailto:Ashley.Smith@nrc.gov">Ashley.Smith@nrc.gov</a>           |
| • Shie-Jeng Peng, Nuclear Engineer, NRR      | <a href="mailto:Shie-Jeng.Peng@nrc.gov">Shie-Jeng.Peng@nrc.gov</a>       |
| • Diana Woodyatt, Nuclear Engineer, NRR      | <a href="mailto:Diana.Woodyatt@nrc.gov">Diana.Woodyatt@nrc.gov</a>       |
| • Scott Krepel, Nuclear Engineer, NRR        | <a href="mailto:Scott.Krepel@nrc.gov">Scott.Krepel@nrc.gov</a>           |
| • Sujata Goetz, Project Manager, NRR         | <a href="mailto:Sujata.Goetz@nrc.gov">Sujata.Goetz@nrc.gov</a>           |
| • Ganesh Cheruvenki, Materials Engineer, NRR | <a href="mailto:Ganesh.Cheruvenki@nrc.gov">Ganesh.Cheruvenki@nrc.gov</a> |

#### 4.0 LOGISTICS

The regulatory audit will be conducted through an electronic reading room. The licensee will make relevant information available in an online information portal for review by the NRC staff. Site visits and teleconferences will be held as necessary for clarification of information and determination of supplemental information to be docketed to support the NRC staff's review.

#### 5.0 DELIVERABLES

The NRC staff will prepare a regulatory audit summary within 90 days of the completion of the audit. Additionally, the results of this audit will be utilized to focus the scope of any requests for additional information issued in the course of this review.

## **Appendix A: Audit Items for Review and Discussion**

Below is a list of topics to assist in preparation for the audit and is subject to change. These were listed in the enclosures of your July 15, 2019 LAR.

1. ANP-3653P, Revision 0, "Fuel Design Evaluation for ATRIUM 11 BWR Reload Fuel," Information Design Report, Framatome Inc., dated September 2018 (Enclosure 9a, Reference 5).
2. Calculation book and computer output (or summary of output) of representative case for RODEX4 analysis as reported in Enclosure 11a Table 3.2.
3. Calculation books and computer outputs (or summary of output) for the limiting loss of coolant accident highest peak cladding temperature (PCT) case as reported in Enclosure 15a Table 6.1 (or Figure 6.1-6.15).
4. Same as 3 above, but from the record of analysis for Susquehanna Steam Electric Station that was not loaded with ATRIUM 11 (i.e., only ATRIUM 10 or ATRIUM XM, etc.).
5. Calculation books (or summary of calculation results) that documented the PCT values for both pump discharge and power supply unit for all cases shown in Table 6.2 of Enclosure 15a.
6. Calculation books (or summary of calculation results) that documented the PCT values for all break spectrum calculations with different size, location and axial power shape for single failure of battery power.
7. Analysis and evaluation performed to comply with the limitations and conditions of the Safety Evaluation for ANP-10322P-A, as discussed in Enclosure 15a, Appendix A.
8. Plant and fuel-specific analyses performed for seismic/loss-of-coolant accident liftoff as cited in Table 3.1 of ANP-3761P.