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NL-22-0583
10 CFR 170.11(a)

ATTN: Document Control Desk
Chief Financial Officer Cherish Johnson
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant Units 1 and 2
Request for Fee Exemption for NRC Review Fees for the Licensing Amendment
Request and 10 CFR 50.68 Exemption Submitted for Lead Test Assemblies with
Increased Enrichment

Ms. Johnson,

Pursuant to 10 CFR 170.11(a), this letter requests that Nuclear Regulatory Commission (NRC) review fees be exempted for the evaluation of the June 30, 2022 Southern Nuclear Operating Company (SNC) requested license action (RLA) pertaining to Lead Test Assemblies (LTAs) at Vogtle Electric Generating Plant (VEGP) (ADAMS Accession Nos. ML22181B155, ML22181B156) (References 1). These LTAs will contain fuel rods enriched up to 6% by weight U-235 and will contain accident tolerant fuel (ATF) technologies in “limiting” core regions. If approved, the LTAs would be installed during the Fall 2023 Unit 2 refueling outage, and operating data would be generated that would support NRC rulemaking plans for increased enrichment of Light Water Reactor (LWR) fuels. In addition, the LTAs will provide valuable operating data for the NRC to support more efficient licensing of full core reloads containing fuel technologies that exceed prescriptive regulatory limits of 5% by weight U-235.

Background

The nuclear industry, with the assistance from the Department of Energy, is planning to deploy new ATF technologies along with increased enrichment and higher burnup fuels (Reference 2). While the current regulatory framework does not preclude licensing fuels with increased enrichment, some regulations are prescriptive by limiting enrichment to 5.0 weight percent U-235 (e.g., 10 CFR 50.68, “Criticality accident requirements”). These restrictions necessitate that exemptions be approved along with license amendments for higher enriched fuels, resulting in an additional regulatory burden on both the NRC and licensees without a commensurate increase in safety.

Fuel vendors and licensees are pursuing the use of increased enrichment beyond 5.0 weight percent U-235 to optimize efficiencies in the entire fuel cycle. The public benefits of utilizing higher enriched fuels with ATF technologies include increased safety margins and the potential to lower the cost of electricity through increased nuclear power plant operational efficiencies. As

defined in the Nuclear Energy Innovation and Modernization Act (NEIMA) Section 107, “Commission report on Accident Tolerant Fuel,” ATF technology is one that increases resiliency to nuclear incidents and lowers the cost of electricity over the licensed lifetime. According to the NRC’s project plan for licensing ATF technologies (Reference 2), the NRC considers the pursuit of higher burnup and increased enrichment fuels a component of the ATF program.

The industry interest in ATF technologies is driven by the increased safety margins and economic benefits. Higher enriched fuels enable economic benefits from more efficient fuel cycles by achieving higher burnup which would result in potentially extending operating times between refueling outages and increasing operational flexibility. Longer fuel cycles would reduce the number of planned outages over the remaining life of the reactor and therefore reduce worker radiation exposures over time. Higher enriched and higher burnup fuels also have the potential to decrease the radiological impact at the end of fuel cycle by reducing the number of fresh fuel assemblies per operating cycle and hence the amount of radiological waste generated. The reduced generated waste is a substantial public benefit that has the potential to save ratepayers and the federal government with the downstream costs for storage, transportation, and ultimate disposal (Reference 3). It is expected that there will be increased demand of fuels with enrichments greater than 5.0 weight percent U-235 across the existing light water reactor fleet and the advanced reactor community, and therefore, the need to generically address the regulatory framework is acknowledged as a high priority by the NRC and the nuclear industry (References 2, 3, and 4).

On December 20, 2021, in SECY-21-0109, “Rulemaking Plan on Use of Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors” (Reference 5), the NRC staff requested Commission approval to initiate a rulemaking to amend requirements for the use of LWR fuel containing uranium enriched to greater than 5.0 weight percent U-235. The goal of the rulemaking is to increase flexibility and reduce exemption requests for the use of increased enrichment fuel while maintaining safety. The SECY specifically identifies 10 CFR 50.68 as a regulation specifying a 5.0 weight percent enrichment criterion which currently necessitates an exemption. The planned rulemaking would increase licensing efficiency by eliminating the need for such exemptions and by clarifying the licensing process by minimizing requests for additional information and regulatory uncertainties. On March 16, 2022, the Commission approved the rulemaking plan in the Staff Requirements Memorandum (SRM) to SECY-21-0109 (Reference 6). The approved rulemaking plan includes a schedule for developing a regulatory basis within 18 months of the SRM issuance. However, in the SRM, the Commission encouraged the staff to reevaluate the schedule to determine if key milestones can be achieved sooner. In the SRM, the Commission also encouraged the NRC staff to expeditiously work with stakeholders to identify and develop necessary technical bases to support effective and efficient licensing of increased enrichment applications.

On June 22, 2022, the Office of Nuclear Reactor Regulation and the Office of Nuclear Material Safety and Safeguards staff held a comment-gathering public meeting to discuss the planned rulemaking detailed in SECY-21-0109 and SRM-SECY-21-0109 (Reference 7). At the meeting, representatives of the Nuclear Energy Institute (NEI) expressed a goal to have a regulatory infrastructure in place for increased enrichment fuels by the mid-2020s.

SNC Request Licensing Action

On June 30, 2022, SNC submitted an RLA which included a license amendment request and exemption requests to 10 CFR 50.68, CFR 50.46, and 10 CFR 50 Appendix K for LTAs that contain fuel rods with U-235 enrichment of up to 6% by weight U-235 and that contain ATF features in “limiting” core regions (Reference 1). The requested approval date for the RLA is July 22, 2023. SNC requests that fees be waived for the NRC fees accrued after the approval of this fee exemption.

The subject RLA, if approved and implemented, will directly support the development of operating experience and data informing the SRM SECY-21-0109 rulemaking activities in support of the LTA objectives for producing data to qualify analytical codes and methods necessary for establishing a safety basis [see “Lead Test Assemblies” section in the NRC’s “Project Plan to Prepare the U.S. Nuclear Regulatory Commission for Efficient and Effective Licensing of Accident Tolerant Fuels,” dated September 2021 (Reference 2)]. This first-of-a-kind RLA will support more efficient and effective licensing application reviews and will save both NRC and industry resources for subsequent increased enriched fuel applications. Lessons learned from this review activity will provide information to support the development of generically applicable guidance for increased enriched fuel applications for both operating reactors and advanced reactor concepts. In addition to supporting the rulemaking and guidance development, this first case demonstration will increase clarity and predictability for subsequent licensing reviews to implement increased enriched fuels and thus result in continued regulatory efficiencies.

Fee Exemption Basis

This fee exemption request is based on the following provisions of 10 CFR 170.11 which state,

10 CFR 170.11(a) No application fees, license fees, renewal fees, inspection fees, or special project fees shall be required for:

(1) A special project that is a request/report submitted to the NRC—

...

(ii) When the NRC, at the time the request/report is submitted, plans to use the information in response to an NRC request from the Office Director level or above to resolve an identified safety, safeguards, or environmental issue, or to assist the NRC in generic regulatory improvements or efforts (e.g., rules, regulatory guides, regulations, policy statements, generic letters, or bulletins).

10 CFR 170.11(a)(13) All fee exemption requests must be submitted in writing to the Chief Financial Officer in accordance with § 170.5, and the Chief Financial Officer will grant or deny such requests in writing.

The SNC RLA will assist the NRC by providing a regulatory basis and subsequent actual operating experience and data to support the NRC’s rulemaking effort and to support generic regulatory improvements necessary for the deployment of ATF technologies containing

enrichments that exceed prescriptive thresholds in the existing regulatory infrastructure. The SNC RLA specifically addresses the 10 CFR 50.68 regulation. In addition, the proposed schedule for approving and implementing the SNC RLA aligns with the NRC's estimated schedule for the rulemaking.

In accordance with 10 CFR 170.11(a)(1)(ii), the SNC RLA is a special, first-of-a-kind LTA project submitted to the NRC for review that will be useful in providing information assisting the NRC in its generic regulatory improvements (modified rules) to support efficient and effective licensing of ATF technologies which utilize higher than 5% enrichment fuels. Therefore, SNC respectfully requests that NRC review fees be exempted for the subject RLA.

This letter contains no NRC commitments. If you have any questions, please contact Ryan Joyce, Licensing Manager, at 205.992.6468.

Respectfully submitted,



Cheryl Gayheart
Regulatory Affairs Director

cc: NRC Regional Administrator, Region II
NRC NRR Project Manager – Vogtle
NRR, Director
NMSS, Director
NRC Senior Resident Inspector - Vogtle
NRR, DSS, Director
NRR, DORL, Director

References

- 1) SNC, LAR, June 30, 2022, "License Amendment Request and Exemptions to Allow Use of Lead Test Assemblies for Accident-Tolerant Fuel" (ADAMS Accession Nos. ML22181B155 ML22181B156)
- 2) NRC "Project Plan to Prepare the U.S. Nuclear Regulatory Commission for Efficient and Effective Licensing of Accident Tolerant Fuel," September 2021, ADAMS Accession No. ML21243A298
- 3) Nuclear Energy Institute white paper, "The Economic Benefits and Challenges with Utilizing Increased Enrichment and Fuel Burnup for Light-Water Reactors," February 2019 (ADAMS Accession No. ML21259A191)
- 4) NRC Chairman Hanson RIC 2022 plenary speech
- 5) NRC, SECY-21-0109, "Rulemaking Plan on Use of Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors" December 20, 2021, (ADAMS Accession No. ML21232A237),

- 6) NRC SRM-SECY-21-0109, "Staff Requirements – SECY-21-0109 – Rulemaking Plan on use of Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light Water Reactors," March 16, 2022, (ADAMS Accession No. ML22075A103)
- 7) NRC, Public Meeting Summary of June 22, 2022 Public Meeting (ADAMS Accession No. ML22208A001)