



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

February 3, 2022

Mr. David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer (CNO)
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 6055

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 – AUDIT PLAN TO SUPPORT THE REVIEW OF LICENSEE’S INFORMATION RELATED TO EQUIPMENT QUALIFICATION RE: LICENSE AMENDMENT REQUEST FOR TRANSITION TO GNF3 FUEL (EPID L-2021-LLA-0159)

Dear Mr. Rhoades:

By application dated September 14, 2021 (Agencywide Document Access and Management System (ADAMS) Accession No. ML21257A419), as supplemented by letter dated November 3, 2021 (ADAMS Accession No. ML21307A444), Exelon Generation Company, LLC¹ (the licensee) submitted a license amendment request (LAR) with a proposed change that supports the transition from Framatome ATRIUM 10XM fuel to GNF3 [Global Nuclear Fuel] fuel at Quad Cities Nuclear Power Station, Units 1 and 2. The proposed change includes revising Technical Specification 5.6.5, "Core Operating Limits Report [COLR]," paragraph b, to add a report that supports the General Electric Standard Application for Reactor Fuel analysis methodology to the list of approved methods to be used in determining the core operating limits in the COLR. The licensee also plans to utilize Framatome RODEX2A methodology with an additional thermal conductivity degradation penalty in mixed core thermal-mechanical calculations. Additionally, in support of the proposed transition to GNF3 fuel, the licensee proposes to revise the alternative source term loss-of-coolant accident analysis to use a bounding core inventory. In the November 3, 2021, supplement, the licensee provided a response to the U.S Nuclear Regulatory Commission (NRC) staff’s request to supplemental information (ADAMS Accession No. ML21294A003) during acceptance review, which included the topic of environmental qualification (EQ) of electrical equipment documentation.

Part of the LAR included the review and approval of licensee’s information related to EQ of relevant electrical equipment. The NRC staff will conduct a regulatory audit to support its review in accordance with the enclosed audit plan. A regulatory audit is a planned activity that includes the examination and evaluation of primarily non-docketed information.

The NRC staff will perform the audit to support its evaluation of whether the licensee’s request can be approved per Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90 and

¹ On February 1, 2022 (ADAMS Accession No. ML22032A333), Exelon Generation Company, LLC was renamed Constellation Energy Generation, LLC.

for the staff to review continued compliance with 10 CFR 50.49. The audit will be conducted to determine and identify whether additional information is needed, that will require docketing or for NRC staff to develop conclusions to support the the staff's regulatory findings. The audit will be conducted between February 14, 2022, and March 11, 2022, primarily for staff to review documents remotely, and hold virtual conference calls as necessary, and with the use of an online portal (also known as electronic portal, ePortal, electronic reading room) established by the licensee. The enclosed audit plan was discussed with your staff on February 1, 2022.

If you have any questions, please contact Booma Venkataraman at 301-415-2934, or Robert Kuntz at 301-415-3733.

Sincerely,

/RA/

Booma Venkataraman, Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-254, 50-265

Enclosure:
Audit Plan

cc: Listserv



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REGULATORY AUDIT PLAN
TO SUPPORT REVIEW OF EQUIPMENT QUALIFICATION
OF ELECTRICAL EQUIPMENT RELATED TO THE LICENSE AMENDMENT REQUEST
REGARDING TRANSITION TO GNF3 FUEL
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2
DOCKET NO. 50-254 AND 50-265

1.0 BACKGROUND

By letter dated September 14, 2021 (Agencywide Documents Access Management System Accession No. ML21257A420), as supplemented by letter dated November 3, 2021 (ADAMS Accession No. ML21307A444), Exelon Generation Company, LLC² (the licensee) submitted a request for review and approval a license amendment request (LAR) for Quad Cities Nuclear Power Station, Units 1 and 2 (Quad Cities), focused on the transition to Global Nuclear Fuel, GNF3 fuel. Part of the LAR included the U.S. Nuclear Regulatory Commission (NRC) review and approval of the licensee's information related to environmental qualification (EQ) of relevant electrical equipment. The NRC staff will conduct a regulatory audit to support its EQ review on this LAR. The NRR Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195), states that a regulatory audit is a planned, licensed or regulation-related activity that includes the examination of primarily non-docketed information with the intent to gain understanding, to verify information, or to identify information that will require docketing to support the basis of the licensing or regulatory decision.

2.0 REGULATORY AUDIT BASIS

The NRC staff will perform the audit to support its evaluation of whether the licensee's request can be approved per Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90 and for the staff to review continued compliance with 10 CFR 50.49.

3.0 REGULATORY AUDIT SCOPE

The NRC staff will review the licensee's information related to EQ of relevant electrical equipment to determine if any additional information will require docketing to support or develop conclusions for the NRC staff's safety evaluation of the requested license amendment.

² On February 1, 2022 (ADAMS Accession No. ML22032A333), Exelon Generation Company, LLC was renamed Constellation Energy Generation, LLC.

4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE REGULATORY AUDIT

The NRC staff requests the licensee to have the following information readily available and accessible for the NRC staff's review preferably via an internet-based portal (e.g., ePortal, electronic reading room) so the audit can be performed remotely related to EQ of electrical equipment:

- a. The engineering technical evaluation that compared the revised Total Integrated Dose (TID), which includes both normal, accident, and margin dose components, to the current qualified TID that the licensee used to evaluate the radiological impacts of the fuel transition on the Quad Cities Environmental Qualification Program.
- b. Vendor prepared documentation to support statements regarding the impacts of the fuel transition on other environmental parameters such as temperature, pressure, humidity, and chemical spray.

The NRC staff will determine whether it needs to request any additional documents to be available after reviewing the above information.

5.0 TEAM AND REVIEW ASSIGNMENTS

The regulatory audit will be held virtually. The audit team will consist of the following NRC staff:

- Robert Kuntz, Senior Project Manager
- Sheila Ray, Senior Electrical Engineer
- Matthew McConnell, Senior Electrical Engineer

6.0 LOGISTICS

The audit will be conducted between February 14, 2022, to March 11, 2022. The licensee should provide the necessary documents and relevant licensee staff who can discuss the issue. The audit will include an exit meeting to summarize key points, actions, and any follow-up items.

The audit will include review of documents by the NRC staff, and a discussion with the licensee using a virtual platform (e.g., Microsoft Teams) during the week of March 7, 2022. The NRC staff will also confirm the sensitivity of any information discussed or provided.

If any additional information is submitted to the electronic reading room, the audit team will confirm with the licensee that the information made available on the online portal contains any sensitive or proprietary information. The audit team may request that representatives of the licensee answer audit team questions during the audit related to information provided on the portal at a mutually agreeable day and time by telephone or Microsoft Teams conference, if needed.

The NRC project manager will coordinate any changes to the audit schedule or needs of an onsite audit with the licensee.

7.0 SPECIAL REQUESTS

The audit team would like access to documents through an online portal (also known as eDocs, electronic reading room, ePortal) that allows the audit team to access documents via the internet. The following conditions associated with the online portal must be maintained throughout the duration that the audit team has access to the online portal:

- The online portal will be password-protected, and separate passwords will be assigned to the NRC staff who are participating in the audit.
- The online portal will be sufficiently secure to prevent the NRC staff from printing, saving, downloading, or collecting any information on the online portal.
- Conditions of use of the online portal will be displayed on the login screen and will require acknowledgement by each user.

User name and password information should be provided directly to the NRC staff. The NRC project manager will provide the licensee any additional names and contact information of the NRC staff if needed. All other communications should be coordinated through the NRC project manager.

8.0 DELIVERABLES

An audit summary, which may be made public, will be provided within 90 days of the completion of the audit. Additionally, the NRC staff will develop any requests for additional information, after the audit, as needed, which will be provided to the licensee via separate docketed correspondence.

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- MMcConnell, NRR
- RKuntz, NRR

ADAMS Accession No.: ML22032A125

*by e-mail

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