Constellation

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January 23, 2023 10 CFR 50.90

RS-23-004

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

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Subject: Response to Request for Additional Information Regarding Transition to GNF3 Fuel License Amendment Request

References:
1. Letter from P.R. Simpson (Constellation Energy Generation, LL C) to U.S. NRC, "License Amendment Request Regarding Transition to GNF3 Fuel," dated August 8, 2022 (ADAMS Accession No. ML22230C927)
2. Email from S. Arora (U.S. NRC) to L. Palutsis (Constellation Energy Generation), "FINAL RAI: Dresden 2 and 3 - License Amendment Pertaining to GNF3 Fuel Transition (EPID L-2022-LLA-0121)," dated January 12, 2023 (ADAMS Accession No. ML23019A013)

In Reference 1, Constellation Energy Generation, LLC (CEG) requested an amendment to Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, respectively. The proposed changes support the transition from Framatome (formerly AREVA) ATRIUM 10XM fuel to Global Nuclear Fuel – Americas, LLC (GNF-A) GNF3 fuel.

In Reference 2, the NRC requested additional information that is needed to complete review of the proposed amendment. The Attachment to this letter provides the additional information requested.

CEG has reviewed the information supporting the finding of no significant hazards consideration, and the environmental consideration that were previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendments do not involve a significant hazards consideration. In addition, the information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

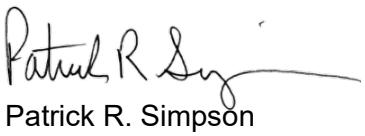
CEG is notifying the State of Illinois of this supplement to a previous application for a change to the operating license by sending a copy of this letter and its attachments to the designated State Official in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b).

There are no regulatory commitments included in this letter.

Should you have any questions concerning this letter, please contact Mrs. Linda Palutsis at 630-657-2821.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 23rd day of January 2023.

Respectfully,



Patrick R. Simpson
Sr. Manager Licensing
Constellation Energy Generation, LLC

Attachment: Response to Request for Additional Information

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station
Illinois Emergency Management Agency – Department of Nuclear Safety

ATTACHMENT
Response to Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION

BY THE NUCLEAR SYSTEMS PERFORMANCE BRANCH

LICENSE AMENDMENT REQUEST REGARDING TRANSITION TO GNF3 FUEL

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

DOCKET NOs. 50-237 AND 50-249

EPID: L-2022-LLA-0121

INTRODUCTION

By letter dated August 18, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22230C927) (Reference 1), Constellation Energy Generation, LLC (CEG, the licensee), submitted a license amendment request (LAR) for amendment to the Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, respectively. The proposed change supports the transition from Framatome, Inc. ATRIUM 10XM fuel to Global Nuclear Fuel – Americas, LLC (GNF) GNF3 fuel at DNPS Units 2 and 3.

After reviewing the LAR (Reference 1), the Nuclear Systems Performance Branch (SNSB) staff requests response to the request for additional information (RAI) given below.

SNSB-RAI 1

Regulatory Basis:

The following General Design Criteria of 10 CFR 50, Appendix A are applicable for containment design:

Criterion 16—Containment design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

Criterion 38—Containment heat removal. A system to remove heat from the reactor containment shall be provided. The system safety function shall be to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any loss-of-coolant accident and maintain them at acceptably low levels.

Criterion 50—Containment design basis. The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature

conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and as required by § 50.44 energy from metal-water and other chemical reactions that may result from degradation but not total failure of emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters.

RAI:

Due to differences in the fuel decay heat and the stored sensible energy in the reactor internals (for example in fuel assemblies and other components), the fuel transition from the ATRIUM 10XM to GNF3 fuel may impact the small break and the following design basis accident (DBA) loss-of-coolant accident (LOCA) containment analysis of record (AOR):

(i). Small break and DBA mass and energy (M&E) release analysis,
(ii). Containment Short-Term Response to a DBA (Updated Final Safety Analysis Report (UFSAR) Section 6.2.1.3.2.1),
(iii). Containment Long-Term Response to a DBA (UFSAR Section 6.2.1.3.2.2),
(iv). Containment Response to a DBA-LOCA for Minimum Net Positive Suction Head (NPSH) (UFSAR Section 6.2.1.3.3),
(v). LOCA Transient Loads (UFSAR Section 6.2.1.3.5.2).

For a mixed core (ATRIUM 10XM and GNF3) and full core transition from ATRIUM 10XM to GNF3 fuel, provide the following:

(a). Provide justification that the five AOR above, (i) through (v), remain bounding, or

(b). If any of the five AOR above, (i) through (v), are not bounding, provide a discussion of the impact, the AOR results, and revised results along with changes in the method(s) of analysis, inputs, and assumptions.

CEG Response

The five AOR mentioned in the RAI above in items (i) through (v) are being addressed as part of the fuel transition project. Any changes to these AOR will be reviewed, as applicable, in accordance with 10 CFR 50.59.