



1101 Market Street, Chattanooga, Tennessee 37402

NNP-25-004

May 20, 2025

10 CFR 50.34
10 CFR 2.101
10 CFR 2.390

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-001

Clinch River Project
NRC Docket No. 99902056

Subject: Submittal of the Preliminary Safety Analysis Report and Exemptions and
Variances in Support of the Clinch River Nuclear Site Construction Permit
Application

- References
1. U.S. Nuclear Regulatory Commission, Tennessee Valley Authority – Clinch River Nuclear Site Early Site Permit (ESP-006), dated December 19, 2019 (ML19352D868)
 2. U.S. Nuclear Regulatory Commission, Response to Tennessee Valley Authority Request for Exemption from Certain Requirements of Title 10 of the Code of Federal Regulations Section 2.101(a)(5), dated November 21, 2023 (ML23045A008)
 3. U.S. Nuclear Regulatory Commission, Preapplication Readiness Assessment Summary Report on the Tennessee Valley Authority Draft Preliminary Safety Analysis Report, Construction Permit Application, Clinch River Nuclear Site, dated January 27, 2025 (ML24302A104)
 4. Tennessee Valley Authority, Submittal of the Environmental Report in Support of the Clinch River Nuclear Site Construction Permit Application, dated April 28, 2025 (ML25118A209)

U.S. Nuclear Regulatory Commission
NNP-25-004
Page 2
May 20, 2025

The Tennessee Valley Authority (TVA) hereby submits the enclosed portions of its construction permit application (CPA) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," to construct a GE-Hitachi (GEH) BWRX-300 small modular reactor (SMR) at the Clinch River Nuclear Site (CRN Site) in Oak Ridge, Tennessee. The GEH BWRX-300 is an 870 megawatt-thermal (300 megawatt-electric) water-cooled, natural circulation SMR that utilizes simple natural phenomena-driven safety systems. This CPA incorporates by reference the Clinch River Nuclear Site Early Site Permit (ESP-006), dated December 19, 2019 (Reference 1).

The requirements in 10 CFR 2.101(a)(5) for submitting a CPA state that an applicant may submit the information required in two parts. Further, Section (a)(5) specifies that the Preliminary Safety Analysis Report (PSAR) (required by 10 CFR 50.34(a)(1)) must be submitted with "whichever part is filed first." By letter dated November 21, 2023 (Reference 2), the NRC granted TVA an exemption that allows submittal of the PSAR with the second part of the CPA. In Reference 4, TVA submitted the first part of the CPA in Letter NNP-25-003, Submittal of the Environmental Report in Support of the Clinch River Nuclear Site Construction Permit Application, dated April 28, 2025 (ML25118A209). Therefore, consistent with the exemption from 10 CFR 2.101(a)(5), this letter provides the second part of the CPA for the CRN Site, the PSAR and Exemptions and Variances, in this final CPA filing. Specifically, this submittal includes the information required by 10 CFR 50.34(a)(1).

Enclosure 1 of this letter contains the public version of the CRN Site CPA, Enclosure 3, PSAR – Public.

Enclosure 2 of this letter contains the public version of the CRN Site CPA, Enclosure 4, Exemptions and Variances – Public.

Enclosure 3 of this letter contains the non-public version of the CPA, Enclosure 2, PSAR – Non-Public.

Enclosure 3 of this letter contains security-related information and, as such, it is requested that it be withheld from public disclosure in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Security-related information has been redacted from the document provided in Enclosure 1. Redacted information is identified in Enclosure 1 of this letter by including "**Security-Related Information - Withhold Under 10 CFR 2.390**" in the header of the page.

NRC completed a preapplication readiness assessment of selected portions of TVA's draft Preliminary Safety Analysis Report on October 8, 2024, in accordance with LIC-116, "Preapplication Readiness Assessment." NRC's observations provided TVA with the

U.S. Nuclear Regulatory Commission
NNP-25-004
Page 3
May 20, 2025

opportunity to resolve questions and ensure sufficient information is provided in the PSAR to foster an efficient NRC acceptance review and a predictable schedule for the staff's technical review. TVA dispositioned the NRC's general and specific observations from the Preapplication Readiness Assessment Report (Reference 3) during completion of the enclosed Preliminary Safety Analysis Report.

Based on the preapplication engagements, TVA requests a 24-month review schedule be considered for the Preliminary Safety Analysis Report and Exemptions and Variances.

Activities that are subject to other licenses will be embedded in the 10 CFR Part 50 licensed facility, including the ability to receive, possess, produce, use, and transfer special nuclear material, source material, and byproduct material. Further information is provided in Enclosure 1 of the CPA, which was submitted in Reference 4, and requests for additional licenses will be submitted to the NRC with a future application and request for an operating license under 10 CFR 50.34(b) or earlier, if needed, to support activities on the construction site.

As communicated previously, the TVA Board has not yet authorized the deployment of an SMR at the CRN Site. TVA's submittal of the CPA is an important step to de-risk the licensing aspect of a potential, future SMR deployment. Any decisions about deployment will be subject to support, risk sharing, required internal and external approvals, and completion of necessary environmental and permitting reviews.

Please address any questions regarding this application to Mr. Ray Schiele, Senior Manager Licensing, New Nuclear Program, at rjschiele@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 20th day of May 2025.

Sincerely,



Scott W. Hunnewell
Vice President, New Nuclear Program

Enclosures:

1. Clinch River Nuclear Site Construction Permit Application Enclosure 3, Preliminary Safety Analysis Report (Public Version)
2. Clinch River Nuclear Site Construction Permit Application Enclosure 4, Exemptions and Variances (Public Version)

U.S. Nuclear Regulatory Commission
NNP-25-004
Page 4
May 20, 2025

3. Clinch River Nuclear Site Construction Permit Application Enclosure 2,
Preliminary Safety Analysis Report (Non-Public Version)

cc: (with Enclosures):

Mike King, Acting Director, Office of Nuclear Reactor Regulation (NRR)
Gregory T. Bowman, Deputy Office Director for New Reactors, NRR
Michele M. Sampson, Director, Division of New and Renewed Licenses
Chris M. Regan, Director, Division of Rulemaking, Environmental, and Financial
Support
Samuel S. Lee, Deputy Director, Division of New and Renewed Licenses
John M. Moses, Deputy Director, Division of Rulemaking, Environmental, and
Financial Support
Michele Hayes, Branch Chief, New Reactor Licensing Branch
Daniel Barnhurst, Branch Chief, Environmental Review New Reactors Branch
Allen H. Fetter, NRC Project Manager, Clinch River Nuclear Site
Madelyn Nagel, Project Manager, Environmental Review of New Reactors Branch