



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-21-014

January 19, 2021

10 CFR 50.90

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

Watts Bar Nuclear Plant Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Response to Request for Additional Information for Expedited Application for Approval to Use an Alternate Method of Determining Probability of Detection for the Watts Bar Nuclear Plant, Unit 2 Steam Generators (WBN TS-391-20-024) (EPID L-2020-LLA-0273)**

- References:
1. TVA Letter to NRC, CNL-20-104, "Expedited Application for Approval to Use an Alternate Method of Determining Probability of Detection for the Watts Bar Nuclear Plant, Unit 2 Steam Generators (WBN TS-391-20-024)" dated December 23, 2020 (ML20358A141)
 2. NRC Electronic Mail to TVA, "Request for Additional Information Regarding TVA's Request to Revise the Watts Bar UFSAR to Use Alternate Probability of Detection (EPID L-2020-LLA-0273)," dated January 11, 2021 (ML21012A203)

In Reference 1, Tennessee Valley Authority (TVA) submitted a request for an amendment to Facility Operating License No. NPF-96 for the Watts Bar Nuclear Plant (WBN), Unit 2. The proposed license amendment request revises the WBN dual-unit Updated Final Safety Analysis Report (UFSAR) to apply an eddy current probability of detection (POD) of 0.9 to indications of axial outside diameter stress corrosion cracking at tube support plates with bobbin voltage amplitudes of greater than or equal to (\geq) 3.2 volts, but less than ($<$) 6.0 volts and a POD of 0.95 to indications of \geq 6.0 volts in the WBN, Unit 2 steam generators (SG) for the beginning of cycle (BOC) voltage distribution in support of the WBN, Unit 2 operational assessment (OA).

In Reference 2, the Nuclear Regulatory Commission (NRC) issued a request for additional information and requested TVA respond by January 19, 2021. Enclosure 1 to this letter provides the response to the RAI (Westinghouse Letter Report, LTR-CDMP-21-3 P-Attachment, Revision 0).

Proprietary Information Withhold Under 10 CFR § 2.390
This letter is decontrolled when separated from Enclosure 1

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Enclosure 1 contains information that Westinghouse considers to be proprietary in nature pursuant to 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," paragraph (a)(4). Enclosure 2 contains a non-proprietary version of Enclosure 1 (Westinghouse Letter Report, LTR-CDMP-21-3 NP-Attachment, Revision 0). Enclosure 3 provides the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-21-5142 affidavit supporting this proprietary withholding request. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390. Enclosure 4 provides a TVA supplement to the first sentence of the response to RAI 5 as provided in Enclosures 1 and 2.

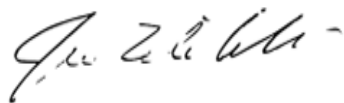
TVA requests that the information, which is proprietary to Westinghouse, be withheld from public disclosure in accordance with 10 CFR Section 2.390. Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-21-5142 and should be addressed to Zachary S. Harper, Manager, Licensing Engineering, Westinghouse Electric Company, 1000 Westinghouse Drive, Suite 165, Cranberry Township, Pennsylvania 16066.

This letter does not change the no significant hazard considerations or the environmental considerations contained in Reference 1. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and the enclosure to the Tennessee Department of Environment and Conservation.

There are no new regulatory commitments associated with this submittal. Please address any questions regarding this request to Kimberly D. Hulvey, Senior Manager, Fleet Licensing, at (423) 751-3275.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 19th day of January 2021.

Respectfully,



James T. Polickoski
Director, Nuclear Regulatory Affairs

Enclosures

cc: See Page 3

Proprietary Information Withhold Under 10 CFR § 2.390
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**Proprietary Information Withhold Under 10 CFR § 2.390
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Enclosures:

1. Response to NRC Request for Additional Information (Proprietary) Westinghouse Letter Report, LTR-CDMP-21-3 P-Attachment, Revision 0
2. Response to NRC Request for Additional Information (Non-Proprietary) Westinghouse Letter Report, LTR-CDMP-21-3 NP-Attachment, Revision 0
3. Westinghouse Electric Company LLC Application for Withholding Proprietary Information From Public Disclosure (Affidavit CAW-21-5142)
4. Supplement to the RAI 5 Response

cc: (Enclosures):

NRC Regional Administrator – Region II
NRC Project Manager – Watts Bar Nuclear Plant
NRC Senior Resident Inspector – Watts Bar Nuclear Plant
Director, Division of Radiological Health – Tennessee State Department of
Environment and Conservation

Proprietary Information Withhold Under 10 CFR § 2.390

Enclosure 1

Response to NRC Request for Additional Information (Proprietary)

Westinghouse Letter Report, LTR-CDMP-21-3 P-Attachment, Revision 0

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Proprietary Information Withhold Under 10 CFR § 2.390

Enclosure 2

Response to NRC Request for Additional Information (Non-Proprietary)

Westinghouse Letter Report, LTR-CDMP-21-3 NP-Attachment, Revision 0

Westinghouse Non-Proprietary Class 3

Westinghouse Electric Company

**LTR-CDMP-21-3 NP-Attachment
Revision 0**

**Responses to Request for Additional Information Regarding
the Watts Bar Unit 2 Alternate Probability of Detection (POD) License Amendment
Request**

January 14, 2021

Author:

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**Electronically approved records are authenticated in the Electronic Document Management System.*

**Responses to Request for Additional Information Regarding
the Watts Bar Unit 2 Alternate Probability of Detection (POD) License Amendment Request**

Background

By letter dated December 23, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20358A141), Tennessee Valley Authority requested a license amendment to change Section 5.5.2.4, "Tests and Inspections," of the Updated Final Safety Analysis Report (UFSAR) for Watts Bar Nuclear Plant (Watts Bar), Unit 2. The proposed changes would assign alternative probability of detection (POD) values for the eddy current bobbin probe inspections of steam generator (SG) tubes performed according to Generic Letter (GL) 95-05, "Voltage-Based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking [ODSCC]." These inspections and the associated POD values are used in determining if the SG tubes meet the regulatory requirements for structural and leakage integrity.

Regulatory Requirements

Fundamental regulatory requirements with respect to the integrity of the SG tubing are established in Title 10 of the Code of Federal Regulations (10 CFR) Part 50. Specifically, the general design criteria (GDC) in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 provide regulatory requirements that state the reactor coolant pressure boundary shall have "an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture" (GDC 14), "shall be designed with sufficient margin" (GDCs 15 and 31), shall be of "the highest quality standards practical" (GDC 30), and shall be "designed to permit periodic inspection and testing...to assess their structural and leak tight integrity" (GDC 32). Section 3.1.2 of the Watts Bar UFSAR addresses conformance with the GDC in Appendix A to 10 CFR Part 50 (ADAMS Accession No. ML19176A129).

Information Requested

In order to complete its evaluation of whether the proposed changes meet the requirements described above, the U.S. Nuclear Regulatory Commission Staff requests the following information.

- 1. Section 2.2, "Evaluation of Proposed Changes," of Enclosure 1 states that using the standard GL 95-05 evaluation methods (i.e., $POD = 0.6$ for all indications) SG3 and SG4 did not meet the criteria for a full cycle operational assessment, and that different POD values must be used to support continued operation. With respect to meeting the SG tube structural and leakage integrity requirements, identify the period for which the proposed POD values support continued operation and the criteria that will not be met after that time.*

Response:

The application of the proposed alternate POD values as described in the license amendment request (LAR) is anticipated to result in a Watts Bar Nuclear Plant (WBN) Unit 2 Operational Assessment (OA) duration for the WBN Unit 2 steam generators (SG) of approximately 270 calendar days, which would result in WBN Unit 2 having to perform a mid-cycle outage in August 2021 to re-perform the

SG tube inspection. Operation of WBN Unit 2, beyond the OA supporting the proposed POD values would result in exceeding the cumulative probability of burst (POB) criterion of less than 1×10^{-2} during a postulated main steam line break (MSLB), which is the limiting tube integrity criteria.

- 2. *The technical basis for the proposed POD depends on relationships between the bobbin probe eddy current indication peak-to-peak voltage (V_{pp}) and vertical maximum voltage (V_{vm}). Confirm the NRC Staff’s understanding that the bobbin probe voltage values discussed in Section 3.3 of Enclosure 1 and in the proposed revision to the UFSAR are V_{pp} values.*

Response:

The bobbin probe voltage values discussed in Section 3.3 of Enclosure 1 and in the proposed revision to the UFSAR are V_{pp} values.

- 3. *Regarding eddy current signal-to-noise (S/N) ratio, clarify the statement in Enclosure 2, Section 2.1.1, that **[[** **]]***

Response:

[]^{a,c,e} .

- 4. *Please provide the following information about Enclosure 3, Figure 1, “ETSS I28411S/N-POD Data Points and Regression Curve.”*

- a. *If any points from ETSS I28411 are not included in Figure 1, discuss the reason for excluding them. For example, ETSS I28411 appears to have more values for PODs of 0.1 and 0.2 than are shown in Figure 1.*

Response:

All data points from the ETSS I28411 dataset are included in the development of the Figure 1 S/N regression plot. There are stacked data points which look like a single data point in Figure 1, so they can't be accurately counted from the figure. Also, the maximum plotted S/N value is limited to better display the regression. This excludes a few data points beyond the S/N value where the regressions converge at close to 1.0. These points were used in the development of the regression but showing them would limit the graphical detail contained in the figure.

- b. *Describe how the noise was determined in order to calculate the S/N values used to generate Figure 1. Also, clarify whether the tube noise value referenced in the last paragraph on page 5 of Enclosure 3 is a tube from Watts Bar, Unit 2 or a tube used in the development of ETSS I28411.*

Response:

For each tube in ETSS I28411, noise measurements were taken at []^{a,c,e}

*** This record was final approved on 1/14/2021 4:47:54 PM. (This statement was added by the PRIME system upon its validation)

[

]a,c,e.

The “tube noise value” term in the last paragraph of page 5 of Enclosures 2 and 3 to the LAR is a reference to the average noise from the ETSS tube (determined using the method as described in the above paragraph).

5. *Enclosure 3, Section 2.2, “Data Union Software (DUS) Flaw Injection,” includes figures comparing injected eddy current flaw signals (3.2 volts and 6.0 volts) to the noise signal amplitude (1.54 Vvm) at the tube with the highest noise signal.*

Discuss the source of the noise signals and injected signals compared to the actual inspection measurements from the plant in the U2R3 inspection. Explain if the 3.2 volt and 6.0 volt injected signals are the 3.21 volt and 6.06 volt indications listed in Table 1 of Enclosure 1. If not, describe their origin.

Response:

The 3.2 volt and 6.0 volt injected signals are the WBN2 U2R3 3.21 volt and 6.06 volt indications listed in Table 1 of Enclosure 1 to the LAR.

6. *Confirm that the references to Section 3.1 and Section 3.2 in Section 3.0, “Summary of Results and Conclusions,” of Enclosure 3 are meant to refer to Sections 2.1 and 2.2.*

Response:

It is confirmed that the references in Section 3.0, “Summary of Results and Conclusions,” of Enclosures 2 and 3 to the LAR should have referred to Sections 2.1 and 2.2 of the Enclosures 2 and 3 to the LAR.

Enclosure 3

Westinghouse Electric Company LLC Application for Withholding Proprietary Information
From Public Disclosure (Affidavit CAW-21-5142)

COMMONWEALTH OF PENNSYLVANIA:

COUNTY OF BUTLER:

- (1) I, Zachary S. Harper, have been specifically delegated and authorized to apply for withholding and execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse).
- (2) I am requesting the proprietary portions of LTR-CDMP-21-3 P-Attachment, Revision 0, “Responses to Request for Additional Information Regarding the Watts Bar Unit 2 Alternate Probability of Detection (POD) License Amendment Request,” be withheld from public disclosure under 10 CFR 2.390.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged, or as confidential commercial or financial information.
- (4) Pursuant to 10 CFR 2.390, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse and is not customarily disclosed to the public.
 - (ii) The information sought to be withheld is being transmitted to the Commission in confidence and, to Westinghouse’s knowledge, is not available in public sources.
 - (iii) Westinghouse notes that a showing of substantial harm is no longer an applicable criterion for analyzing whether a document should be withheld from public disclosure. Nevertheless, public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation

justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.


- (5) Westinghouse has policies in place to identify proprietary information. Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:
- (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.
 - (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage (e.g., by optimization or improved marketability).
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.

- (6) The attached documents are bracketed and marked to indicate the bases for withholding. The justification for withholding is indicated in both versions by means of lower-case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower-case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (5)(a) through (f) of this Affidavit.

I declare that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 01/14/2021


Zachary S. Harper, Manager
Licensing Engineering

Enclosure 4

Supplement to the RAI 5 Response

The first sentence of the second paragraph RAI 5 of Enclosures 1 and 2 states: "Discuss the source of the noise signals and injected signals compared to the actual inspection measurements from the plant in the U2R3 inspection." TVA is supplementing the response to RAI 5 of Enclosures 1 and 2 by noting that the source of the noise signals and injected signals is provided in Section 2.2 to Enclosures 2 and 3 of the License Amendment Request (Reference).

Reference

TVA Letter to NRC, CNL-20-104, "Expedited Application for Approval to Use an Alternate Method of Determining Probability of Detection for the Watts Bar Nuclear Plant, Unit 2 Steam Generators (WBN TS-391-20-024)" dated December 23, 2020 (ML20358A141)