

From: [Stone, Zackary](#)
To: [Grzeck, Lee](#)
Cc: [Williams, Shawn](#); [Vaughan, Jordan L](#)
Subject: Oconee Nuclear Station, Units 1, 2, and 3 - December 13, 2021, Clarification Call Summary RE: Use of an Alternative to the ASME Code Case N-853 Acceptance Criteria (EPID L-2021-LLR-0032)
Date: Tuesday, December 14, 2021 1:12:58 PM
Attachments: [Oconee CC N-853 Relief Request Discussion.docx](#)

Dear Mr. Grzeck,

By letter dated May 4, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession ML21124A170), as supplemented by letters dated August 31, 2021 (ADAMS Accession ML21243A515), and October 28, 2021 (ADAMS Accession ML21301A018), Duke Energy Carolinas (Duke, the licensee) requested the use of an alternative to certain provisions of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Case N-853, "PWR Class 1 Primary Piping Alloy 600 Full Penetration Branch Connection Weld Metal Buildup for Material Susceptible to Primary Water Stress Corrosion Cracking, Section XI, Division 1."

On December 8, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff requested a clarification phone call to discuss your request further and provided the attached for discussion. On December 13, 2021, Duke Energy and NRC staff held a conference call and discussed the attached document.

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Summary of the December 13, 2021 Call

The licensee requested references for the NRC staff's statement, "In any cases where alternatives approved by the NRC have allowed the use of IWB-3514 instead of NB-5330 for similar applications (e.g., weld overlays), the subsequent ISI of the location would be a volumetric not a visual, to ensure the defects left in service under IWB-3514 would be monitored for at least one or two refueling cycles, to confirm dormancy."

The NRC staff provided :

- ML070850915, NRC Safety Evaluation for Arkansas Nuclear One, 2007.
- ML071280781, NRC Safety Evaluation for Oconee, 2007.

The licensee discussed that the examination of the outer diameter weld pad surface will include a replacement nozzle, thus the examination will be a "best effort" examination obtaining the maximum coverage available, but be potentially limited in coverage due to the nozzle obstruction. The licensee implied that that they would utilize the same volumetric examination method previously used (manual LPA UT [linear phased array ultrasonic testing]). The NRC stated that the purpose of the one-time volumetric examination is to monitor the fully accessible defects left in service and acknowledged the licensee's interpretation.

The licensee discussed that if the defect is located within the weld pad volume that will be completely removed as part of nozzle replacement activities, the licensee's understanding is that the defect is considered to have been removed, and no further evaluation is required. The NRC staff stated that purpose of the examination is to confirm that any defects left in service are not growing and acknowledged the licensee's interpretation.

The licensee discussed that the one-time examination will be of sufficient volume, and area, such that the previously identified and dispositioned defect will be adequately interrogated to determine any in-service growth. The one-time examination will not include the entire weld pad volume. The NRC staff stated that the purpose is to specifically interrogate any defects left in service under IWB-3514. However, if new cracking is identified in the area or volume examined, then the new cracking is required to be repaired or dispositioned in

accordance with ASME Code.

The licensee discussed that the one-time volumetric examination will use an ASME Code, Section V procedure, demonstrated to the ANII, similar to the fabrication examination required by CC N-853. The NRC staff acknowledge the licensee's comment and suggested the same procedures, equipment, and personnel qualifications from the fabrication examination be applied as written in the licensee's response to request for additional information, RAI-1, in their letter dated August 31, 2021.

The licensee stated that the applicability of these provisions will be limited to solely the N-853 weld pads, and not any other components evaluated to IWB-3514 acceptance criteria. Additionally, the 25% population will be defined as only those CC N-853 weld pads that required this alternative to disposition an identified defect. All other CC N-853 weld pads that were acceptable, either by the presence of no defects, or acceptable using NB-5330 criteria, will not be included in this population. The NRC staff acknowledged the licensee's comments.

In response to these discussions, the licensee stated that it plans to provide a supplement by January 21, 2022, to clarify and justify the basis for its proposed course of action.

There were no regulatory decisions made during the call.

If you have any questions, please contact me at 301-415-0615 or via e-mail at Zackary.Stone@nrc.gov.

Thank you,

Zackary Stone, Project Manager
Plant Licensing Branch, II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, 50-287

The NRC staff reviewed your RAI response letter dated October 28, 2021 (ADAMS Accession ML21301A018) and would like to discuss further.

The NRC staff notes that ASME Code Case N-853 requires use of the Construction Code or NB-5330 to assure that no planar fabrication defects regardless of length or depth left in service will grow to compromise the structural integrity of the weld pad, and eventually the reactor coolant pressure boundary. Based on the above, ASME Code Case N-853 allows the ISI of a weld pad to be only a visual instead of a volumetric.

In any cases where alternatives approved by the NRC have allowed the use of IWB-3514 instead of NB-5330 for similar applications (e.g., weld overlays), the subsequent ISI of the location would be a volumetric not a visual, to ensure the defects left in service under IWB-3514 would be monitored for at least one or two refueling cycles, to confirm dormancy. If the weld examinations showed no indication of crack growth or new cracking, the location could then be placed into a population to be examined on a sampling basis under the licensee's ISI program. The staff would expect a similar principle to apply to the case being requested for Oconee.

As a result, the NRC staff would like to discuss the following to provide an acceptable level of quality and safety of the weld pads subject to Alternative RA-20-0334:

- For acceptance of a weld pad after installation, the licensee will follow ASME Code Case N-853, Section 3, paragraph (d)(3). If the results of the examination are acceptable under NB-5330, the licensee shall follow the ASME Code Case N-853 required subsequent ISI for that weld pad (i.e., visual examination).
- If a defect is detected in a weld pad that is rejectable under NB-5330 but acceptable under IWB-3514, the licensee shall perform a subsequent, one-time volumetric examination of that weld pad during the first or second refueling outage following installation. If the volumetric examination shows no indication of crack growth or new cracking, the weld pad shall be placed into a population to be examined on a sample basis. Twenty-five percent of this population shall be added to the ISI program and shall be examined volumetrically once each inspection interval.
- If during the subsequent, one-time volumetric examination of a weld pad there is an indication of crack growth or new cracking, the licensee will evaluate the condition of the weld pad in accordance with Section XI of the ASME Code and take action (e.g., repair, subsequent re-examination, etc.) in accordance with ASME Code requirements.