From:	Stone, Zackary
To:	Grzeck, Lee
Cc:	Vaughan, Jordan L; Williams, Shawn
Subject:	Oconee Nuclear Station, Units 1, 2, and 3 - Request for Additional Information RE: Alternative Request (RA-20-0334) Regarding use of an Alternative to the ASME Code Case N-853 Acceptance Criteria (EPID L-2021-LLR-0032)
Date:	Friday, October 1, 2021 9:03:00 AM
Attachments:	Oconee RAI CC N-853 RR.docx

Dear Mr. Grzeck,

By letter dated May 4, 2021, as supplemented by letter dated August 31, 2021, Duke Energy Carolinas, LLC, submitted a relief request for Oconee Nuclear Station, Units 1, 2, and 3, requesting to use 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."

The U.S. Nuclear Regulatory Commission staff has determined that additional information is needed as provided in the attached. A clarification call to ensure mutual understanding was conducted on September 30, 2021.

Please respond within 30 days of the date of this e-mail.

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

Sincerely,

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, and 50-287

cc w/encl: Listserv

REQUEST FOR ADDITIONAL INFORMATION
PROPOSED ALTERNATIVE RA-20-0334 REGARDING USE OF ALTERNATIVE TO THE ASME CODE CASE N-853 ACCEPTANCE CRITERIA
DUKE ENERGY CAROLINAS
OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
DOCKET NUMBERS 50-269, 50-270, AND 50-287
EPID: L-2021-LLR-0032

By letter dated May 4, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession ML21124A170), as supplemented by letter dated August 31, 2021 (ADAMS Accession ML21243A515), Duke Energy Carolinas (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." The proposed alternative RA-20-0334 was submitted in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), requesting to use the preservice inspection (PSI) acceptance criteria of ASME Code, Section XI, IWB-3514 in lieu of the ASME Code Case N-853 required Section III, NB-5330 fabrication acceptance criteria, to disposition welding flaws detected during ultrasonic testing (UT) of the Alloy 52M weld pad. RA-20-0334 is for remainder of the fifth 10-year inservice inspection (ISI) interval of the Oconee Nuclear Station (Oconee), Units 1, 2, and 3.

To complete its review, the NRC staff requests the following additional information.

RAI No. 3

The NRC staff notes that ASME Code Case N-853 requires the weld pad to be ultrasonically examined in accordance with Construction Code or Section III, NB-5330 fabrication acceptance criteria:

- To assure adequate fusion (i.e., adequate bond) with the base material, and
- To detect welding flaws, such as interbead lack of fusion, inclusions, or cracks.

The above requirement provides the basis for allowing only a visual examination for subsequent ISI of the weld pads in ASME Code Case N-853, because using the Section III, NB-5330 acceptance criteria ensures that there are no detrimental flaws (lack of fusion, cracks, etc.) that could propagate and compromise the weld pad. The licensee's proposal to use Section XI, IWB-3514 PSI acceptance criteria for the fabrication inspection could allow welding flaws that could propagate and compromise the structural integrity and leak tightness of the reactor coolant pressure boundary piping. Leaving welding flaws in the weld pads uninspected and unmonitored during service has not been justified.

In addition, the licensee stated that the precedent in reference 8 to letter dated May 4, 2021, approved the use of Section XI, IWB-3514 for full structural weld overlays (ASME Code Case N-638-1) in lieu of the Section III, NB-5330 acceptance criteria and is directly applicable to this proposed alternative RA-20-0334 using ASME Code Case N-853. However, the NRC staff notes that the full structural weld overlays in reference 8 to letter dated May 4, 2021, are volumetrically examined during subsequent ISI intervals to ensure that flaws left in service using

the acceptance criteria of Section XI, IWB-3514 would be monitored and evaluated to ensure the flaws would not propagate to compromise the function of the weld overlay. However, there is only a visual examination performed during subsequent ISI interval for the weld pad used in ASME Code Case N-853, and the visual examination cannot monitor the flaws left in service. Therefore, the precedent in reference 8 to letter dated May 4, 2021, is not directly applicable due to the differences in monitoring the flaws left in service.

Provide justification for potentially leaving welding flaws in the weld pads without a periodic inservice volumetric examination. Provide discussion on how it maintains an acceptable level of quality and safety compared to the weld pad with no welding flaws, and how these as-left flaws would not grow during service to compromise the structural integrity and leak tightness of the reactor coolant pressure boundary piping without periodic monitoring by the inservice volumetric examination. In lieu of the above justification, the licensee may also provide the volumetric inspection criteria for monitoring the flaws to be left in service in the weld pad that would form the basis for using Section XI, IWB-3514 acceptance criteria for the weld pad, similar to the inservice examinations that monitor flaws in full structural weld overlays.