From: Cotton, Karen
Sent: Friday, April 23, 2021 4:50 PM
To: Zaremba, Arthur H.
Subject: Catawba Verbal Relief Request RAI
Attachments: Catawba RAI.pdf

Please find attached the Verbal Relief Request RAI Document. If you have any questions, please feel free to call me.

Best,
Karen

Hearing Identifier: NRR_DRMA
Email Number: 1149

Mail Envelope Properties (MN2PR09MB54981C7B08C92C0087C43E4685459)

Subject: Catawba Verbal Relief Request RAI
Sent Date: 4/23/2021 4:49:36 PM
Received Date: 4/23/2021 4:49:36 PM
From: Cotton, Karen

Created By: Karen.Cotton@nrc.gov

Recipients:
"Zaremba, Arthur H." <Arthur.Zaremba@duke-energy.com>
Tracking Status: None

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MESSAGE	136	4/23/2021 4:49:36 PM
Catawba RAI.pdf	65871	

Options
Priority: Normal
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:

VERBAL AUTHORIZATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION FOR PROPOSED ALTERNATIVE RA-21-0133
ALTERNATE REPAIR OF A REACTOR VESSEL HEAD PENETRATION 74
DUKE ENERGY CAROLINAS, LLC
CATAWBA UNIT 2 DOCKET NO. 50-414

By letter dated April 23, 2021, Duke Energy Carolinas, LLC (the licensee) submitted Proposed Alternative RA-21-0133 for the repair of degraded reactor vessel closure head (RVCH) penetration number 74 at Catawba Nuclear Station, Unit 2 (CNS2). In order to repair the degraded penetration J-groove weld, the licensee proposed to use the embedded flaw repair process described in the NRC-approved WCAP-15987-P, Revision 2-P-A report. The licensee made this request in accordance with 10 CFR 50.55a(z)(1) on the basis that the proposed alternative repair will provide an acceptable level of quality and safety. The licensee requested the alternative for one cycle of operation. During the initial review the NRC staff identified the following items for which additional information is requested.

RAI-1. In paragraph 4.0 Reason for Request, the licensee states that a bare metal visual examination of the complete RVCH was performed with no head penetration leakage detected. Was the bare metal visual examination a visual examination (VE) in accordance with Note 1 of Table 1 of ASME Code Case N-729-6?

RAI-2. In paragraph 5.1.D the licensee states, “Additionally, the seal weld will extend onto and encompass the outside diameter of the penetration tube Alloy 600 material by at least one-half inch.” This is different than the discussion during the teleconference on April 22, 2021 and appears to be different than indicated in Figure 2 of the submittal and Figure 1 of the Westinghouse Report LTR-SDA-21-027, Rev. 0, as attachment 1 of the submittal. Clarify the extent of the embedded flaw repair weld on the nozzle length.

RAI-3. In paragraph 5.1.D the licensee states that light grinding will be applied to the weld surface. However, no minimum weld thickness is identified. The minimum thickness of three weld layers is difficult to evaluate for the adequacy of this repair, if known grinding will occur. Given the operational experience of addressing potential fabrication defects with the Alloy 52 or 52M weld materials, grinding is expected to address these issues. Additionally, as noted in the Westinghouse Report LTR-SDA-21-027, Rev. 0, this location is the limiting flaw evaluation for the determination of the design life of the repair. The thickness of the repair weld in the report states only “about 3/16 inch thick.” Therefore, NRC staff requests a minimum thickness for the repair weld over the J-groove weld and nozzle materials be specified.

RAI-4. In paragraph 5.2 Item (1)b. the licensee states, “UT reinspection frequency of the nozzle tube shall be at least once every 36 months of operating time.” This is not in accordance with ASME Code Case N-729-6 which states in Note 8 of Table 1, “Additionally, repaired areas shall be examined during the next refueling outage following the repair.” For clarity, NRC staff requests this provision be either modified to N-729-6 requirements or a suitable technical basis is provided for the change.

RAI-5. In the Westinghouse Report LTR-SDA-21-027, Rev. 0, the report states, “Thus, the 10 year or more service life justified by analysis has remained valid after each inspection, extending the operation duration to another 10 years for the repair.” The NRC staff, given the information available, does not concur with this statement without a volumetric inspection of the repair weld. A surface examination would detect new flaws initiating but would not be able to verify the initial flaw in the Alloy 182/82 weld metal did not grow into the repair weld material.

Therefore, an automatic 10-year reset would not be acceptable given the current nondestructive examination scope for this proposed alternative. NRC requests that the licensee either remove the statement or provide a sufficient technical basis to justify an additional 10-year design life change for the embedded flaw repair after each inspection.