NRR-PMDAPEm Resource

From: Wiebe, Joel
Sent: Monday, April 16, 2012 10:17 AM
To: Wiebe, Joel
Cc: Zimmerman, Jacob; Rosenberg, Stacey; Poehler, Jeffrey; McGhee, James
Subject: NRC Verbal Approval for Quad Cities Nuclear Power Station, Unit 2 Relief Request I4R-19

Purpose: This e-mail to file documents the verbal authorization of the subject relief request and will be placed in the Agencywide Documents Access and Management System (ADAMS) as required by Nuclear Reactor Regulation Office Instruction LIC-102, "Relief Request Reviews" (ADAMS ML091380595).

In accordance with LIC-102, the staff may provide verbal approval of relief requests provided:

- The proposed alternative is in writing and all information that the staff requires to write the SE has been docketed.
- An identified need for the verbal authorization is recognized given the circumstances of the licensee's request.
- The NRC technical staff has completed its review and determined that the proposed alternative is technically justified, but has not yet formally documented it in an SE.
- The technical branch and the Division of Operating Reactor Licensing (DORL) branch chiefs have agreed to the verbal authorization.

On April 15, 2012, a teleconference was held between the NRC staff and Exelon Generation Company, LLC (Exelon) for the purposes of providing verbal authorization of the subject relief request.

The participants in the teleconference were:

NRC Staff
Stacey Rosenberg – Chief, Vessels and Internals Integrity Branch (EVIB)
Jacob Zimmerman – Chief, Plant Licensing Branch III-2 (LPL3-2)
Jeffrey Poehler – Senior Materials Engineer, EVIB
James McGhee – Senior Resident Inspector, Quad Cities Nuclear Power Station, NRC Region III
Joel Wiebe – Senior Project Manager, LPL3-2

Exelon
David Gullott – Corporate Licensing
Glen Kaegi – Corporate Licensing
Steve Queen – Corporate Engineering
Rich Hall – Corporate Engineer
Joe Bauer – Corporate Licensing
Wally Beck – Site Regulatory Assurance
Scott Darin – Acting Plant Manager
Tom Wojcik – Site Engineering
Doug Collins – Site Engineering
Ricky May – Site Engineering
Max Rice – Site Engineering
Nick Johnson – Site Engineering

Teleconference Summary

By letter dated April 6, 2012, Exelon Generation Company, LLC (the licensee) requested NRC approval to implement an alternative (I4R-19) to certain requirements of the 1995 Edition through 1996 Addenda of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for Quad Cities Nuclear Power Station,

Unit 2. The alternative was requested under the provisions of Title 10 of the Code of Federal Regulations (CFR) 50.55a(a)(3)(i).

The proposed alternative is to the following ASME Code, Section XI requirements:

- The requirements of IWA-4410 and IWB 4611 related to the removal of, or reduction in size of defects.

- The requirements of IWB-3420 and IWB-3610(b) to perform nondestructive examination to characterize the flaw size and shape.

- The requirements for subsequent nondestructive examination of IWB-2420(b) and (c) if a component is accepted for continued service in accordance with IWB-3132.3 or IWB-3142.4.

Under this request, the licensee would repair a leaking reactor vessel (RV) instrument nozzle penetration without removing, sizing, or otherwise handling the presumed flawed volume of the penetration. The licensee would provide a flaw evaluation to justify this repair.

On April 6, 2012, the licensee reported that during a pressure test an instrument nozzle attached to the RV, N-11B, was found to have approximately 60 drops per minute of leakage. This leakage was identified during the Quad Cities, Unit 2, R21 spring outage. The licensee has attributed the leakage to intergranular stress corrosion cracking (IGSCC). The licensee requested relief from requirements of the ASME Code to inspect, size, remove, etc. the leaking flaw. As an alternative, the licensee proposed to create a new pressure boundary on the outer diameter (OD) of the RV, as opposed to the original boundary on the inner diameter (ID) of the RV.

Specifically, the licensee proposed to perform a "half-nozzle" repair technique where a portion of the existing nozzle assembly at or near the OD surface of the RV would be cut and removed by machining, and replaced with an Alloy 690 nozzle resistant to IGSCC. This repair would allow the licensee to come to power and exit their outage.

The licensee provided additional information to demonstrate that the proposed alternative would maintain an acceptable level of quality and safety under all licensing basis conditions of operation until the next refueling outage starting in approximately April, 2014. This information included a flaw evaluation and a corrosion evaluation. The NRC staff determined that the flaw evaluation used conservative assumptions regarding the flaw size, stress state, and potential for flaw growth during the cycle, and determined that the postulated flaw would meet the structural margins required by the ASME Code, Section XI, under all nomal, upset, and emergency conditions. The NRC staff determined that the corrosion evaluation demonstrated that no structurally significant material loss due to corrosion will occur over one cycle as a result of the small amount of low-alloy steel exposed to steam or water during operation by the design of the repair. The NRC staff has considered the submittal on leakage from the RV and the repair procedure and concludes that the repair is acceptable, because the alternative represents an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

The NRC has completed its review of the information provided in the licensee's submittal for proposed alternative I4R-19 regarding the repair of RV nozzle N-11B. The NRC has concluded that the information provided by the licensee is consistent with the provisions of 10 CFR 50.55a(a)(3)(i) and supports the granting of the proposed alternative to the ASME Code requirements described in Section 5.0 of the Attachment to the licensee's April 6, 2012 letter (ML12100A012), with the exception of the relief from subsequent examinations required by IWB-2420(b) and (c). Since these examinations would not be required until after the current cycle, any alternative to the requirement for subsequent examinations will be addressed in a future request for alternative. Accordingly, following the guidance in NRR Office Instruction LIC-102, "Review of Relief Requests," Rev. 2, the chiefs of the NRC's Vessel and Internals Integrity Branch (EVIB) and the Plant Licensing Branch III-2 (LPL3-2) verbally affirmed the authorization for the licensee to implement the proposed alternative in accordance with the information provided in the licensee's letters dated April 6, April 11, April 12, April 13, and April 14, 2012. The authorization is immediately effective, and will remain in effect until the next refueling outage estimated to begin in April, 2014. The NRC staff will follow up in writing in 150 days or less.

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