

RS-09-033

February 26, 2009

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

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. 50-456 and 50-457

Subject: Supplemental Information Regarding Relief Request I3R-04 Associated with the Third 10-Year Inservice Inspection (ISI) Interval

Reference: Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to the NRC, "Third 10-Year Inservice Inspection Interval, Relief Request I3R-04, Request for Relief from 10 CFR 50.55a(g)(6)(ii)(E), Reactor Coolant Pressure Boundary Examination Scheduling Requirements in accordance with 10 CFR 50.55a(a)(3)(i)," dated February 5, 2009

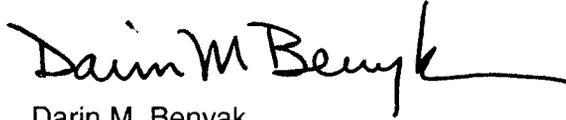
In the referenced letter, Exelon Generation Company, LLC (EGC), requested authorization to use augmented NDE examinations performed during previous refueling outages as an alternative to the reactor vessel bottom-mounted instrument (BMI) penetrations examination program required in accordance with 10 CFR 50.55a(g)(6)(ii)(E), Footnote 1. Specifically, the NRC mandated, through a revision to 10 CFR 50.55a, the use of Code Case N-722, as modified by 10 CFR 50.55a(g)(6)(ii)(E)(1) through (4), which required that bare-metal visual (BMV) examinations be performed during each unit's next refueling outage after January 1, 2009 (i.e., A1R14 for Unit 1 (spring 2009) and A2R14 for Unit 2 (fall 2009)). I3R-04 is requested on the basis that the proposed alternative will provide an acceptable level of quality and safety.

In a teleconference on February 12, EGC agreed to provide supplemental information to the NRC regarding relief request I3R-04 by February 27, 2009. This supplemental information is provided in the attachment to this letter.

There are no regulatory commitments contained in this letter. If you have any questions concerning this letter, please contact Ms. Lisa A. Schofield at (630) 657-2815.

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Respectfully,

A handwritten signature in black ink that reads "Darin M Benyak". The signature is written in a cursive style with a long horizontal line extending to the right.

Darin M. Benyak
Director - Licensing

Attachment: Supplemental Information Regarding Relief Request I3R-04 Associated with the
Third 10-Year Inservice Inspection (ISI) Interval - Braidwood Station, Units 1 and 2

ATTACHMENT

Supplemental Information Regarding Relief Request I3R-04
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Braidwood Station, Units 1 and 2

The NRC staff has reviewed the application and has concluded that the information delineated below is necessary to enable the staff to proceed with its detailed technical review and make an independent assessment regarding the acceptability of the proposed relief request in terms of regulatory requirements and the protection of public health and safety.

- 1. The licensee provided limited information to justify the ultrasonic testing (UT) techniques used. The licensee referred to NUREG-1863 as its justification for the adequacy of its UT technique. The text that the licensee referred to was a brief summary of high level information that industry had provided to the NRC staff. This part of the NUREG was not an evaluation of industry's UT. In order to complete its review, the NRC staff will need documentation that describes the UT/ET techniques that the licensee used and a detailed description of how the licensee demonstrated the adequacy of those techniques.*

Response:

The demonstrations were conducted in accordance with the protocol of MRP-166, "Demonstration of Equipment and Procedures for the Inspection of Alloy 600 Bottom Mounted Instrument (BMI) Head Penetrations" which is based on blind mockup testing. The ultrasonic technique demonstrated at the EPRI NDE Center and used at Braidwood Station was the ultrasonic time-of-flight diffraction (UT TOFD) technique. Although not specifically discussed in MRP-166, zero degree longitudinal and 45-degree shear wave ultrasonic scans were also used during the EPRI demonstrations and during the examinations performed at Braidwood Station. The eddy current technique probes used for demonstration at the EPRI NDE Center and used for the Braidwood inspections were "X" point probes, which are similar to the "+" point probes that are used for steam generator tubing inspections. The eddy current probes were used for surface flaw detection, length sizing, and axial and circumferential flaw locations and orientations.

For the WesDyne BMI demonstrations applicable to Westinghouse three and four loop configurations there were no flaws missed located on inside diameter or outside diameter surfaces as documented in MRP-166. All analyst personnel are certified to at least Level II under WesDyne's written practice for NDE certification and trained to WesDyne TOFD and ET bottom-mounted instrument (BMI) data acquisition and analysis procedures.

For the Westinghouse three loop and four loop configurations, the results of the blind BMI demonstration testing performed at the EPRI NDE Center were as follows:

- Through wall extent (TWE) between 10% to 100% detected
- All inside diameter (ID) connected flaws detected
- All outside diameter (OD) connected flaws detected

For both Braidwood Unit 1 and 2 (both four loop configuration plants), there were no recordable indications noted in any of the BMIs in either unit during the inspections.

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- In addition, the request states, "The CRDM [control rod drive mechanism] head penetration demonstration program was used as the basis for the BMI demonstration program." The NRC staff has reviewed MRP-166, "Demonstration of Equipment and Procedures for the Inspection of Alloy 600 Bottom Mounted Instrumentation (BMI) Head Penetrations," which relates to the UT/ET techniques that the licensee may have used. MRP-166 (page 1-1) notes that BMI demonstrations differ from CRDM demonstrations as there are significantly different nozzle configurations and sizes. In light of this statement, if MRP-166 is part of the licensee's basis for the UT/ET inspections performed, the licensee should justify its use of the CRDM penetration demonstration as the basis for the BMI demonstration program and provide a detailed comparison of the demonstration for the lower head penetrations with the demonstration industry used to justify the UT techniques for the CRDM inspections required by NRC Order EA 03-009.*

Response:

To clarify, only the BMI demonstrations are used to justify the use of the examination procedures for BMI. The BMI and CRDM demonstrations were conducted in a very similar fashion and protocol with similar flaw types. Due to the smaller size of the BMI fewer flaws were able to be placed in them for the demonstration. The required CRDM inspection volume was from the bottom of the tube to 2 inches above the weld. There was no required inspection volume for the BMI, but in the four loop mockup, flaws were placed within 1 inch above and below the weld as the weld causes distortion in the tube and thus would be the most challenging to examine in the field. The CRDM demonstrations were done from below the dry mockup while the BMI demonstrations were done from above the submerged mockup (similar to how they would be inspected in the field). All of the ID and OD connected flaws representing the flaws of interest were detected in the Westinghouse three and four loop mockups.