



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 6, 2011

Mr. Michael J. Pacilio
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNIT NOS. 1 AND 2, AND BRAIDWOOD STATION,
UNITS 1 AND 2 – UNACCEPTABLE WITH OPPORTUNITY TO SUPPLEMENT
RE: ALTERNATIVES TO THE ASME CODE REQUIREMENTS FOR REPAIRS
TO THE REACTOR VESSEL HEAD PENETRATIONS (TAC NOS. ME6071,
ME6072, ME6073, AND ME6074)

Dear Mr. Pacilio:

By letter dated April 19, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111100620), Exelon Generation Company, LLC (EGC, the licensee), submitted relief requests (RRs) I3R-20 for Byron Station, Unit Nos. 1 and 2, and I3R-09 for Braidwood Station, Units 1 and 2. The RR's proposed an alternative repair technique using weld overlays on the reactor vessel head penetration housing and J-groove welds to assure structural integrity. The purpose of this letter is to provide the results of the NRC staff's acceptance review of RR's I3R-09 and I3R-20. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the request has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Pursuant to Sections 50.55a(a)(3)(i) and 50.55a(a)(3)(ii) of Title 10 of the *Code of Federal Regulations* (10 CFR), the applicant shall demonstrate that the proposed alternatives would provide an acceptable level of quality and safety, or that compliance with the specified requirements of 10 CFR 50.55a would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

The NRC staff has reviewed your request and concluded that the information delineated in the enclosure to this letter is necessary to enable the staff to make an independent assessment regarding the acceptability of the proposed RR's in terms of regulatory requirements and the protection of public health, safety, and the environment.

In order to make the request complete, the NRC staff requests that EGC supplement the request to address the information requested in the enclosure by June 14, 2011. This will enable the NRC staff to begin its detailed technical review. If the information responsive to the NRC staff request is not received by the above date, the request will not be accepted for review pursuant to 10 CFR 2.101, and the NRC will cease its review activities associated with the RR's. If the request is subsequently accepted for review, you will be advised of any further information needed to support the NRC staff detailed technical review by separate correspondence. The information requested and associated timeframe in this letter were discussed with

M. Pacilio

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The information requested and associated timeframe in this letter were discussed with Richard McIntosh of your staff on June 1, 2011.

If you have any questions, please contact the Project Manager, Nicholas DiFrancesco, at (301) 415-1115.

Sincerely,

A handwritten signature in black ink that reads "Nicholas DiFrancesco FOR". The signature is written in a cursive, flowing style.

Nicholas DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,
STN 50-454 and STN 50-455

Enclosure:
Supplemental Information Request

cc w/encls: Distribution via Listserv

SUPPLEMENTAL INFORMATION REQUEST

RELIEF REQUEST I3R-09

BRAIDWOOD STATION, UNITS 1 AND 2

RELIEF REQUEST I3R-20

BYRON STATION, UNIT NOS. 1 AND 2

EXELON GENERATION COMPANY, LLC

DOCKET NOS. 50-454, 50-455, 50-456, AND 50-457

By letter dated April 19, 2011, Exelon Generation Company, LLC (EGC, the licensee), submitted to the U.S. Nuclear Regulatory Commission (NRC) relief requests (RRs) I3R-09 and I3R-20, for the alternative requirements for repair of reactor vessel head penetrations at Braidwood Station, Units 1 and 2, and Byron Stations, Unit Nos. 1 and 2, respectively, for review and approval (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111100620). The NRC staff finds the RRs I3R-09 and I3R-20 are unacceptable but with an opportunity to supplement additional information supporting the request. The NRC staff requests the following supplemental information to be provided prior to a decision on the acceptability.

- (1) Compliance with the ASME Code requires that mechanical defects for the subject seal weld are repaired according to Section III, NB-4450. The requirements of NB-4450 ensure that flaws are completely removed from the weld material. Provide a basis for the definition of a mechanical discontinuity within the subject RR.
 - (a) Provide a sizing technique for this type of defect and documentation of its demonstrated performance.
 - (b) Provide a qualified volumetric technique and documentation of its demonstrated performance to accurately depth size and characterize mechanical discontinuities in seal welds for the entire area of coverage of the seal weld over all reactor vessel head penetration nozzle angles.
 - (c) Provide a qualification plan to demonstrate the performance of equipment, personnel and procedures to implement the techniques of (a) and (b) above.
- (2) Provide a basis for assurance that a mechanical discontinuity will be re-consumed with additional weld metal as described in Section 5.1.3 of the proposed relief. Demonstration that these mechanical discontinuities are re-consumed is to ensure that indications are removed and that latent welding defects do not emerge during future operating cycles.

Enclosure

- (a) Demonstrate through mockups the amount of weld material needed to be deposited to re-consume all possible mechanical discontinuities in seal welds for the entire area of coverage of the seal weld over all reactor vessel head penetration nozzle angles. Additionally, please provide a summary table of number of required weld beads and area of coverage requirements to ensure re-consumption.
 - (b) Provide a qualified volumetric inspection program which will be capable of ensuring the original defect is re-consumed for the entire area of coverage of the seal weld over all reactor vessel head penetration nozzle angles.
 - (c) Provide a qualification plan to qualify equipment, personnel and procedures to perform (a) and (b) above.
- (3) The NRC would review the request to re-consume mechanical discontinuities under the provisions for providing an acceptable level of quality and safety, as opposed to a hardship or unusual difficulty. As such, the NRC will require a basis for equivalent structural integrity of re-consumed mechanical discontinuities to that achieved through compliance with all American Society of Mechanical Engineers, Section III, requirements for application of the weld material.

M. Pacilio

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The information requested and associated timeframe in this letter were discussed with Richard McIntosh of your staff on June 1, 2011.

If you have any questions, please contact the Project Manager, Nicholas DiFrancesco, at (301) 415-1115.

Sincerely,

/RA by M. Mahoney for/

Nicholas DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,
STN 50-454 and STN 50-455

Enclosure:
Supplemental Information Request

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ADAMS Accession No. ML111330653

NRR-028

OFFICE	DORL/LPL3-2/PM	DORL/LPL3-2/LA	DCI/BC – via electronic memo	DORL/LPL3-2/BC
NAME	NDiFrancesco(MMahoney for)	SRohrer	TLupold	JZimmerman
DATE	6/6/11	6/6/11	5/19/11	6/6/11

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