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

December 8, 2010

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

SUBJECT: LIMERICK GENERATING STATION, UNIT NOS. 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING MEASUREMENT UNCERTAINTY RECAPTURE POWER UPRATE (TAC NOS. ME3589 AND ME3590)

Dear Mr. Pacilio:

By letter dated March 25, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100850380), Exelon Generation Company, LLC (Exelon) submitted a license amendment request (LAR) proposing to revise the operating license and technical specifications for Limerick Generating Station (LGS), Unit Nos. 1 and 2. This LAR proposes to implement an increase of approximately 1.65% in rated thermal power from the currently licensed thermal power limit of 3458 megawatts thermal.

The Nuclear Regulatory Commission staff has been reviewing the response and has determined that additional information is needed to complete its review. The specific question is found in the enclosed request for additional information (RAI). The question was sent via electronic transmission on November 29, 2010, to Mr. Kevin Borton, of your staff. The draft question was sent to ensure that the question was understandable, the regulatory basis for the question was clear, and to determine if the information was previously docketed. The draft question was discussed in a teleconference with your staff on December 3, 2010. It was agreed that a response to this RAI would be submitted by January 3, 2011. If a response is not received by that date, the request will be subject to denial, pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.108, "Denial of application for failure to supply information."

Please contact me at 301-415-2833, if you have any questions.

Sincerely,

Peter Bamford

Peter Bamford, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-352 and 50-353

Enclosure:
As stated

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REQUEST FOR ADDITIONAL INFORMATION

LIMERICK GENERATING STATION, UNIT NOS. 1 AND 2

MEASUREMENT UNCERTAINTY RECAPTURE

POWER UPRATE REQUEST

DOCKET NOS. 50-352 AND 50-353

By letter dated March 25, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100850380), Exelon Generation Company, LLC (Exelon, the licensee) submitted a license amendment request proposing to revise the operating license and technical specifications for Limerick Generating Station (LGS), Unit Nos. 1 and 2. This LAR proposes to implement an increase of approximately 1.65% in rated thermal power from the currently licensed thermal power limit of 3458 megawatts thermal. The increase would be based on the improved thermal power measurement accuracy, which would be achieved through the utilization of the Cameron International (formerly Caldon) CheckPlus™ leading edge flowmeter ultrasonic flow measurement instrumentation. By letter dated July 15, 2010 (ADAMS Accession No. ML101940053), the Nuclear Regulatory Commission (NRC) staff requested additional information to review and evaluate the information provided by Exelon. The licensee responded by letter dated August 30, 2010 (ADAMS Accession No. ML102440265). The NRC has been reviewing the submittal and has determined that additional information is needed to complete its review.

1. Appendix G to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, "Fracture Toughness Requirements," states that reactor vessel (RV) beltline materials must have a Charpy upper-shelf energy (USE) in the transverse direction for base material and along the weld for weld material according to the [American Society of Mechanical Engineers] ASME Code, of no less than 75 ft-lb initially, and must maintain Charpy USE throughout the life of the RV of no less than 50 ft-lbs, unless it is demonstrated in a manner approved by the Director, Office of Nuclear Reactor Regulation, that lower values of Charpy USE will provide margins of safety against fracture equivalent to those required by Appendix G of Section XI of the ASME Code.

   In Table 3-1 of Attachment 6 to the licensee's March 25, 2010, submittal, low pressure coolant injection (LPCI) nozzle weld (heat number 07L669/K004A27A) is identified with an initial transverse USE of 54 ft-lb. In Table 3-2 of Attachment 6 to the licensee's March 25, 2010. submittal, LPCI nozzle weld KA (heat number C3L46C/J020A27A) and weld KA (heat number 422B7201/L030A27A) are identified with initial transverse USE values of 40 ft-lb and 38 ft-lb, respectively. In response to an NRC request for additional information, by letter dated August 30, 2010, when discussing the LPCI forgings, the licensee stated that, "All other RV beltline materials with USE values less than 50 ft-lbs at 32 [Effective Full Power Years] EFPY have been evaluated using [Equivalent Margin Analyses] EMAs in accordance with NEDO-32205-A, [Rev. 1, "10 CFR 50 Appendix G Equivalent Margin Analysis for Low Upper Shelf Energy in BWR/2 through BWR/6 Vessels,"] which is applicable for the materials evaluated."

In NEDO-32205-A, Rev. 1, the materials addressed in the analysis included: SA302 Grade B and Grade B Modified low allow steel plate, SA533 Grade B Class 1 low alloy steel plate, Shielded Metal Arc Welds, Electroslag Welds, Submerged Arc Welds (SAW) made with non-Linde 80 flux, and SAW with Linde 80 flux. The methodology contained in NEDO-32205-A, Rev. 1 is applicable only to the materials analyzed in the report. The LGS LPCI nozzle weld materials do not appear to be included in the NEDO-32205-A, Rev. 1 analysis. Therefore, based on the information provided, the NRC staff does not find the application of NEDO-32205-A, Rev. 1 acceptable for demonstrating compliance with Appendix G to 10 CFR Part 50 for LGS, Unit Nos. 1 and 2 nozzle weld materials.

Therefore, for RV beltline nozzle weld materials with USE values below 75 ft-lbs for unirradiated conditions and below 50 ft-lbs at 32 EFPY, please submit analyses to demonstrate that the lower values of Charpy USE will provide margins of safety against fracture equivalent to those required by Appendix G of Section XI of the ASME Code, or provide additional justification to demonstrate that these materials are within the scope of the materials addressed by NEDO-32205-A, Rev. 1.

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Sincerely,
/ra/
Peter Bamford, Project Manager
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ADAMS Accession Number: ML103350521 * concurrence via email

OFFICE	LPLI-2/PM	LPLI-2/LA	CVIB/BC	LPL1-2/BC
NAME	PBamford	ABaxter *	MMitchell*	HChernoff (w/comment)
DATE	12/03/2010	12/07/2010	11/26/2010	12/08/2010

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