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10 CFR 50.90

RS-10-144
August 30, 2010

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

Limerick Generating Station, Units 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Additional Information Supporting Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate

References:

1. Letter from M. D. Jesse (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate," dated March 25, 2010

2. Letter from P. Bamford (U. S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "Limerick Generating Station, Unit Nos. 1 and 2 – Request for Additional Information Related to Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate," dated July 15, 2010

3. Letter from M. D. Jesse (Exelon Generation Company, LLC) to U. S. NRC, "Schedule for Responding to Request for Additional Information," dated July 28, 2010

In Reference 1, Exelon Generation Company, LLC (EGC) requested an amendment to Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively. Specifically, the proposed changes revise the Operating License and Technical Specifications (TS) to implement an increase in rated thermal power of approximately 1.65%. In Reference 2, the NRC requested additional information to support review of the proposed changes. In response to this request, EGC is providing the attached information for question one of the requested information. As noted in Reference 3, the response to question one of the requested information was to be provided by August 31, 2010.

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Question one of the requested information stated the following:

> The LAR, Attachment 6, Section 3.2.1, "Fracture Toughness," requires additional information. 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 maintain upper-shelf energy (USE) throughout the life of the RV of no less than 50 foot-pounds (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 American Society of Mechanical Engineers (ASME) Code. The submittal states that the minimum USE for LGS, Unit 1 is 24 ft-lbs at 32 effective full-power years (EFPY) for low-pressure coolant injection (LPCI) nozzle forging Q2Q35W, and is 25 ft-lbs for LGS, Unit 2 at 32 EFPY for LPCI nozzle forging Q2Q33W, and therefore, "Equivalent Margin Analyses (EMAs) were performed for the limiting RV beltline plate, weld and nozzle forging materials." The licensee states that NEDO-32205-A, Rev. 1, "10 CFR 50 Appendix G Equivalent Margin Analysis for Low Upper Shelf Energy in [Boiling Water Reactor] BWR/2 through BWR/6 Vessels," was used with a bounding peak fluence of 1.9×10^{18} n/cm^2 [neutrons per square centimeter] to evaluate the vessel against the requirements of 10 CFR Part 50, Appendix G. 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 nozzle materials were not included in the NEDO-32205-A, Rev. 1 analysis. Therefore, the 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, Units 1 and 2 nozzle materials. The methodology contained in I\IEDO-32205-A, Rev. 1, is applicable only to the materials analyzed in the report. For all RV beltline materials with USE values below 50 ft-lbs at 32 EFPY, the licensee must 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.

In response to this request, EGC is submitting the attached evaluation of the USE for the LPCI nozzle forging material (Attachment 1). The results of this plant-specific evaluation show that the LPCI nozzle forgings in the Limerick reactor pressure vessel meet the margins of safety against fracture equivalent to those required by Appendix G of Section XI of the ASME Code and Regulatory Guide 1.161. This conclusion is valid for operation including Measurement Uncertainty Recapture Power Uprate (Thermal Power Optimization).

All other RV beltline materials with USE values less than 50 ft-lbs at 32 EFPY have been evaluated using EMAs in accordance with NEDO-32205-A, which is applicable for the materials evaluated. The list of these materials is contained in Reference 1, Attachment 6, Tables 3-1 and 3-2, "Limerick Unit 1 (Unit 2) Upper Shelf Energy 40-Year License (32 EFPY)."

In accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," EGC requests withholding of Attachment 1. Attachment 1 is considered proprietary by GEH Nuclear Energy. An affidavit supporting this request is included as Attachment 2 and a non-proprietary version of Attachment 1 is provided in Attachment 3.

EGC has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Mr. Kevin Borton at (610) 765-5615.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of August 2010.

Respectfully,

Michael D. Jesse
Manager, Licensing - Power Uprate
Exelon Generation Company, LLC

Attachments:

1. Limerick Generating Station, Units 1&2, Upper Shelf Energy Evaluation for LPCI Forging Material (proprietary version)
2. Affidavit for withholding Limerick Generating Station, Units 1&2, Upper Shelf Energy Evaluation for LPCI Forging Material
3. Limerick Generating Station, Units 1&2, Upper Shelf Energy Evaluation for LPCI Forging Material (non-proprietary version)

cc: NRC Regional Administrator, Region I
NRC Senior Resident Inspector - Limerick Generating Station
NRC Project Manager, NRR - Limerick
Pennsylvania Department of Environmental Protection - Bureau of Radiation Protection

ATTACHMENT 2
Affidavit for Withholding Limerick Generating Station, Units 1&2, Upper Shelf Energy Evaluation for LPCI Forging Material

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, James F. Harrison, state as follows:

(1) I am the Vice President, Fuel Licensing, Regulatory Affairs, GE-Hitachi Nuclear Energy Americas LLC (GEH), and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in Enclosure 1 of GEH letter GEH-LGS-AEP-139, Michael J. Dick (GEH) to Jeffrey L. Wilson (Exelon Nuclear), entitled *Limerick TPO RAI #1 GEH Response Documentation*, dated August 26, 2010. GEH text proprietary information in Enclosure 1, which is entitled, "0000-0114-0580-R0," is identified with a dotted underline placed within double square brackets. [[This sentence is an example.[3]]] Figures and large equation objects containing GEH proprietary information are identified with double square brackets before and after the object. In each case, the superscript notation [3] refers to Paragraph (3) of this affidavit that provides the basis for the proprietary determination.

(3) In making this application for withholding of proprietary information of which it is the owner or licensee, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act (FOIA), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for trade secrets (Exemption 4). The material for which exemption from disclosure is here sought also qualifies under the narrower definition of trade secret, within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975 F2d 871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704 F2d 1280 (DC Cir. 1983).

(4) The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b. Some examples of categories of information that fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GEH's competitors without license from GEH constitutes a competitive economic advantage over GEH and/or other companies.

b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information that reveals aspects of past, present, or future GEH customer-funded development plans and programs, that may include potential products of GEH.

d. Information that discloses trade secret and/or potentially patentable subject matter for which it may be desirable to obtain patent protection.

(5) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to the NRC in confidence. The information is of a sort customarily held in confidence by GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, not been disclosed publicly, and not been made available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary and/or confidentiality agreements that provide for maintaining the information in confidence. The initial designation of this information as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure are as set forth in the following paragraphs (6) and (7).

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, who is the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or who is the person most likely to be subject to the terms under which it was licensed to GEH. Access to such documents within GEH is limited to a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist, or other equivalent authority for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary and/or confidentiality agreements.

(8) The information identified in paragraph (2) above is classified as proprietary because it contains results and conclusions of analysis performed to support Thermal Power Optimization (TPO) for a GEH Boiling Water Reactor. Development of these methods, techniques, and information and their application to the TPO analyses was achieved at a significant cost to GEH. The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GEH asset.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH. The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial. GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GEH would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 26th day of August, 2010.

James F. Harrison
Vice President, Fuels Licensing
Regulatory Affairs
GE-Hitachi Nuclear Energy Americas LLC