

**Attachment 2 contains Proprietary Information.  
Withhold From Public Disclosure Under 10 CFR 2.390.  
When separated from Attachment 2, this document is decontrolled.**

RS-11-033

March 14, 2011

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

LaSalle County Station, Units 1 and 2  
Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

**Subject:** Additional Information Supporting Request for License Amendment Regarding Revised Pressure/Temperature Curves

- References:**
1. Letter from P. R. Simpson (Exelon Generation Company, LLC) to U. S. NRC, "License Amendment Request Regarding Reactor Coolant System Pressure and Temperature Limit Curves," dated April 19, 2010
  2. Letter from J. L. Hansen (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Regarding Request for License Amendment Regarding Revised Pressure/Temperature Curves," dated October 5, 2010
  3. Letter from J. L. Hansen (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Supporting Request for License Amendment Regarding Revised Pressure/Temperature Curves," dated October 15, 2010
  4. Letter from E. A. Brown (U. S. NRC) to M. J. Pacilio (Exelon Generation Company), "Request for Additional Information Related to Request to Incorporate Revised Pressure/Temperature Curves (TAC Nos. ME3801 and ME3802)," dated February 4, 2011

In Reference 1, Exelon Generation Company, LLC (EGC) requested an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, respectively. Specifically, the proposed change revises Technical Specifications (TS) to incorporate revised Pressure and Temperature (P-T) curves that are valid for up to 32 effective full power years of operation. EGC supplemented Reference 1 by letters dated October 5 and 15, 2010, References 2 and 3. In Reference 4, the NRC requested additional information to support review of the proposed change and requested a response by March 23, 2011.

**Attachment 2 contains Proprietary Information.  
Withhold From Public Disclosure Under 10 CFR 2.390.  
When separated from Attachment 2, this document is decontrolled.**

Specifically, EGC was requested to provide an impact assessment and the information in item 1 of Reference 4.

In response to this request, EGC is providing the impact assessment as attached information. Attachment 1 provides the requested information. Proprietary and non-proprietary versions are included in Attachments 2 and 3, respectively. An affidavit is in Attachment 4.

Portions of the information in the Attachment 2 are proprietary to GE Hitachi Nuclear Energy (GEH) and are supported by an affidavit signed by GEH. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed in paragraph (a)(4) of 10 CFR 2.390, "Public inspections, exemptions, requests for withholding" and paragraph (a)(4) of 10 CFR 9.17, "Agency records exempt from public disclosure." Accordingly, it is requested that the information that is proprietary to GEH be withheld from public disclosure in accordance with 10 CFR 2.390 and 10 CFR 9.17. In addition, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act, 5 USC Sec 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905. A non-proprietary version of the information is provided in Attachment 3.

The information provided in this letter does not affect the No Significant Hazards Consideration, or the Environmental Consideration provided in Attachment 1 of the original license amendment request as described in the Reference 1 submittal.

In accordance with 10 CFR 50.91(b), "State consultation," EGC is providing the State of Illinois with a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained in this letter. If you have any questions concerning this letter, please contact Mr. Richard W. McIntosh at (630) 657-2816.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14<sup>th</sup> day of March 2011.

Respectfully,



Jeffrey L. Hansen  
Manager – Licensing  
Exelon Generation Company, LLC

Attachments:

1. Response to Request for Additional Information
2. Enclosure 1 of GE Hitachi Nuclear Energy (GEH) Letter, 7491-1-2LH0AV-HA0-1, "LaSalle PT Curve RAI-1 Response – Proprietary"
3. Enclosure 2 of GEH Letter, 7491-1-2LH0AV-HA0-1, "LaSalle PT Curve RAI-1 Response – Non-Proprietary"
4. GEH Cover Letter 7491-1-2LH0AV-HA0-1, "GEH Response to Pressure Temperature Curve RAI-1," dated March 3, 2011, (without Enclosures 1 and 2), and containing Enclosure 3, "Affidavit"

cc: NRC Regional Administrator, Region III  
NRC Senior Resident Inspector – LaSalle County Station  
Illinois Emergency Management Agency – Division of Nuclear Safety

**ATTACHMENT 1**  
**Response to Request for Additional Information**

**NRC Request** (e.g., Reference 1)

1. ***In the submittal dated October 18 [sic 15], 2010, the response to RAI-1 stated that, "GEH performed an impact assessment that demonstrated for LSCS Units 1 and 2 the [water level instrument] WLI nozzle curves are bounded by the beltline and upper vessel curves provided in reports (GE-NE-0000-0003-5526-02R1a (Unit 1) and GE-NE-0000-0003-5526-01R1a (Unit 2)." Provide this impact assessment ensuring that the following is addressed:***
  - a. ***The materials of the WLI nozzle and the weld that attached the nozzle to the reactor pressure valve;***
  - b. ***The upper-shelf energy status of the WLI nozzle if it is ferritic; and***
  - c. ***The type of the welding, i.e., full penetration or half penetration.***

**Response**

Proprietary and non-proprietary versions of the requested report (Reference 2) are in Attachments 2 and 3, respectively. Sub-parts a, b and c of the requested information in RAI-1 have been addressed on page 2 of Attachments 2 and 3, "LaSalle PT Curve RAI-1 Response." Attachment 4 contains the Affidavit that is associated with the request for withholding for this information.

**Reference**

1. Letter from E. A. Brown (U. S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2 – Request for Additional Information Related to Request to Incorporate Revised Pressure/Temperature Curves (TAC Nos. ME3801 and ME3802," dated February 4, 2011
2. GE Hitachi Nuclear Energy (GEH) Letter 7491-1-2LH0AV-HA0-1, "GEH Response to Pressure Temperature Curve RAI-1," dated March 3, 2011.

**ATTACHMENT 3**

**ENCLOSURE 2 OF  
GE HITACHI NUCLEAR ENERGY (GEH) LETTER,  
7491-1-2LH0AV-HA0-1,  
LASALLE PT CURVE RAI-1 RESPONSE – NON-PROPRIETARY**

## ENCLOSURE 2

7491-1-2LH0AV-HA0-1

LaSalle PT Curve RAI-1 Response – Non-proprietary

### **NON-PROPRIETARY NOTICE**

This is a non-proprietary version of the Enclosure 1 of 7491-1-2LH0AV-HA0-1 which has the proprietary information removed. Portions of the document that have been removed are indicated by an open and closed bracket as shown here [[ ]].

**RAI-1:**

*In the submittal dated October 18, 2010, the response to RAI-1 stated that, "GEH performed an impact assessment that demonstrated for LSCS Units 1 and 2 the [water level instrument] WLI nozzle curves are bounded by the beltline and upper vessel curves provided in reports GE-NE-0000-0003-5526-02R1a (Unit 1) and GE-NE-0000-0003-5526-01R1a (Unit 2)." Provide this impact assessment ensuring that the following is addressed:*

- a. The materials of the WLI nozzle and the weld that attached the nozzle to the RPV;*
- b. The upper-shelf energy status of the WLI nozzle if it is ferritic; and*
- c. The type of the welding, i.e., full penetration or half penetration*

**GEH Response:**

During NRC Staff review of the GEH Licensing Topical Report for Pressure-Temperature (P-T) Curve Methodology (Reference 1), an NRC request for additional information (RAI) was provided regarding the Water Level Instrumentation (WLI) nozzle that occurs in the beltline region of many BWRs. As a result, a finite element analysis (FEA) was performed for a bounding WLI nozzle configuration and loading that resulted in specific stresses applicable to the WLI nozzle. The NRC requested that GEH perform an assessment of all previously provided P-T curves to ensure that the WLI nozzle was properly represented. This assessment was completed, and included LaSalle Units 1 and 2.

The LaSalle Units 1 and 2 WLI nozzles are of the [[ ]] configuration, as discussed in Appendix J of Reference 1. Therefore, an evaluation of the P-T curves prepared for LaSalle in the Unit 1 P-T curve report (Reference 2) and the Unit 2 P-T curve report (Reference 3) was performed. The results of this evaluation demonstrated that the WLI curves, prepared as defined in Reference 1, are bounded by the beltline and upper vessel curves for both Units 1 and 2. Figures 1 through 6 present the A, B, and C curves from References 2 and 3, modified to include the WLI nozzle curve, the beltline curve (including the LPCI nozzle), and the upper vessel curve, separately on one plot. This demonstrates the margin between the WLI and the other curves. All parameters for the beltline and upper vessel P-T curves remain the same as in References 2 and 3. Table 1 provides the ART calculation for the WLI nozzle materials for both Units.

Available information was reviewed to determine the materials used in the WLI nozzle forgings and the welds connecting the forgings to the vessel shell. It was found that the forgings for both Units 1 and 2 were fabricated from [[ ]] materials. Unit 1 and 2 welding records indicate that the weld connecting the forging to the vessel shell is of [[ ]] materials.

Fracture toughness evaluations, including that for Upper Shelf Energy, are not required for the Unit 1 and 2 non-ferritic WLI nozzle forgings or connecting welds, as noted in the RAI, Item (b).

It can be seen in Figures 1 through 6 that the WLI nozzle curves are bounded by the upper vessel and beltline curve composite in all cases (Curves A, B, and C) for both Units 1 and 2.

**References:**

1. NEDC-33178P-A, "Licensing Topical Report, GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves," Class III (GEH Proprietary Information), Revision 1, June 2009.
2. GE-NE-0000-0003-5526-02R1, "Pressure-Temperature Curves for Exelon LaSalle Unit 1," Revision 1, May 2004 (GEH Proprietary Information).
3. GE-NE-0000-0003-5526-01R1, "Pressure-Temperature Curves for Exelon LaSalle Unit 2," Revision 1, May 2004 (GEH Proprietary Information).

Table 1

[[

]]

Figure 1

[[

]]

Figure 2

[[

]]

Figure 3

[[

]]

Figure 4

[[

]]

Figure 5

[[

]]

Figure 6

[[

]]

**ATTACHMENT 4**

**GEH COVER LETTER 7491-1-2LH0AV-HA0-1,  
"GEH RESPONSE TO PRESSURE TEMPERATURE CURVE RAI-1,"  
DATED MARCH 3, 2011,**

**(without Enclosures 1 and 2), and  
containing Enclosure 3, "Affidavit"**



**HITACHI**

**GE HITACHI NUCLEAR ENERGY**

**Larry Beese**  
Senior Technical Projects Manager

3901 Castle Hayne Road, M/C – F12  
Wilmington, NC 28402

T 910 819-5029  
C 910 233-7922  
F 910 362-5029  
Larry.Beese@ge.com

**Proprietary Notice**

This letter forwards proprietary information in accordance with 10 CFR 2.390. Upon the removal of Enclosure 1, the balance of this letter may be considered non-proprietary.

GEH Letter - 7491-1-2LH0AV-HA0-1

March 3, 2011

Ms. Joann Shields  
Exelon Generation Company, LLC  
2601 North 21<sup>st</sup> Road  
Marseilles, Illinois 61341-9757

GEH: Region Manager  
Commercial Leader  
PLL  
P&L Manager

**Site:** LaSalle County Station – Units 1 & 2

**Project:** Contract 00000833 Release 00697 9/30/2010

**Reference:** 1. Letter E. Brown (NRC) to M Pacilio (Exelon) titled "LaSalle County Station, Units 1 and 2 – Request for Additional Information Related to Request to Incorporate Revised Pressure/Temperature Curves (TAC Nos. ME3801 and ME3802)(RS-10-080)" (ML110260371)

**Subject:** GEH Response to Pressure Temperature Curve RAI-1

Dear Ms. Shields:

This letter transmits the verified proprietary and non-proprietary responses to the NRC Request for Additional Information (RAI) transmitted by Reference 1 along with the associated affidavit. The responses are verified in accordance with GEH's NRC approved 10 CFR 50 Appendix B Quality Assurance Program.

Please note that Enclosure 1 contains information that is considered proprietary by GEH and must be protected in accordance with the provisions for such information pursuant to the Exelon / GEH proprietary agreement. In support of Exelon's use of the enclosed information with the NRC, the affidavit contained in Enclosure 3 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GEH. GEH hereby requests Exelon to request the NRC to withhold the information contained in Enclosure 1 from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17.

GEH requests that any transmittal of this proprietary information to the NRC be accompanied by the enclosed affidavit and proprietary notice. In order to maintain the applicability of the affidavit and to meet the requirements of 10 CFR 2.390, the transmittal to the NRC should:

- 1) faithfully reproduce the proprietary information,

- 2) preserve the proprietary annotations, and
- 3) include the words similar to "GEH Proprietary Information" at the top of the first page and each page containing the proprietary information.

Further, 10 CFR 2.390 requires that the proprietary information be incorporated, as far as possible, into a separate paper. Therefore, Enclosure 1 hereto contains the proprietary information, and the non-proprietary information is provided in Enclosure 2.

Based on past discussions with the NRC, GEH has been encouraged to request its customers to provide a paragraph similar to the following paragraph in the customer letters transmitting proprietary information to the NRC in order to clearly indicate the proprietary nature of the information and to document the source of the proprietary information as indicated in the GEH affidavit.

"The enclosed contains proprietary information as defined by 10 CFR 2.390. GEH, as the owner of the proprietary information, has executed the enclosed affidavit, which identifies that the enclosed proprietary information has been handled and classified as proprietary, is customarily held in confidence, and has been withheld from public disclosure. The proprietary information was provided to Exelon in a GEH transmittal that is referenced by the affidavit. The proprietary information has been faithfully reproduced in the enclosed such that the affidavit remains applicable. GEH hereby requests that the enclosed proprietary information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17. Information that is not considered proprietary is provided in a separate enclosure."

If you have any questions please do not hesitate to contact me.

Sincerely,



Larry Beese  
Senior Technical Projects Manager

Enclosures

- 1 - LaSalle PT Curve RAI-1 Response - Proprietary
- 2 - LaSalle PT Curve RAI-1 Response - Non-proprietary
- 3 - Affidavit

ENCLOSURE 3

7491-1-2LH0AV-HA0-1

Affidavit

# GE-Hitachi Nuclear Energy Americas LLC

## AFFIDAVIT

I, **Edward D. Schrull**, state as follows:

- (1) I am the Vice President, Regulatory Affairs, Services Licensing, GE-Hitachi Nuclear Energy Americas LLC (GEH). I 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 GEH letter, 7491-1-2LH0AV-HA0-1, Larry Beese (GEH) to Joann Shields (Exelon), "GEH Response to Pressure Temperature Curve RAI-1," dated March 3, 2011. The proprietary information in Enclosure 1 entitled, "LaSalle PT Curve RAI-1 Response - Proprietary," is identified by a dotted underline inside double square brackets. [[This sentence is an example.<sup>{3}</sup>]]. Figures containing GEH proprietary information are identified with double square brackets before and after the object. In each case, the superscript notation <sup>{3}</sup> 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 of an analysis performed by GEH to support the LaSalle County Station revision to Technical Specification 3.4.11, RCS [reactor coolant system] pressure and temperature (P/T) limit curves. This analysis is part of the GEH derivation of P/T curves. Development of the P/T Curve methodology and the supporting analysis techniques and information, and their application to the design, modification, and processes were achieved at a significant cost to GEH.

The development of the methodology 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 3<sup>rd</sup> day of March 2011.



Edward D. Schrull  
Vice President, Regulatory Affairs  
Services Licensing  
GE-Hitachi Nuclear Energy Americas LLC  
3901 Castle Hayne Rd.  
Wilmington, NC 28401  
edward.schrull@ge.com