Exelon Generation

200 Exelon Way
Kenneth Square, PA 19348
www.exeloncorp.com

PROPRIETARY INFORMATION – WITHHOLD UNDER 10 CFR 2.390

10 CFR 50.90
10 CFR 54

October 15, 2012

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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Response to Request for Additional Information - License Amendment Request for Relocation of Pressure and Temperature Limit Curves to the Pressure and Temperature Limits Report

References:

1) Letter from M. D. Jesse (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "License Amendment Request – Relocation of Pressure and Temperature Limit Curves to the Pressure and Temperature Limits Report," dated April 27, 2012

2) Memorandum from R. B. Ennis (U.S. Nuclear Regulatory Commission – Plant Licensing Branch I-2) to M. K. Khanna (U.S. Nuclear Regulatory Commission – Plant Licensing Branch I-2), "Peach Bottom Atomic Power Station, Units 2 and 3, Draft Request for Additional Information (TAC Nos. ME8535 and ME8536)," dated August 22, 2012

In the Reference 1 letter, Exelon Generation Company, LLC (Exelon) requested proposed changes that would modify Technical Specification (TS) Section 1.1 ("Definitions"), Section 3.4.9 ("RCS Pressure and Temperature (P/T) Limits"), and Section 5.6 ("Reporting Requirements") by replacing the existing reactor vessel heatup and cooldown rate limits and the pressure and temperature (P-T) limit curves with references to the Pressure and Temperature Limits Report (PTLR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

In the Reference 2 memorandum, the U.S. Nuclear Regulatory Commission requested additional information. Attached is our response to this request.

Attachment 1 contains information proprietary to GE Hitachi Nuclear Energy. GE Hitachi Nuclear Energy requests that this document be withheld from public disclosure in accordance with 10 CFR 2.390. Attachment 2 contains a non-proprietary version of the GE Hitachi Nuclear Energy documents. An Affidavit supporting these requests is contained in Attachment 2.

Attachment 1 transmitted herewith contains Proprietary Information.
When separated from attachments, this document is decontrolled.

Exelon has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the U.S. Nuclear Regulatory Commission 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 submittal.

Should you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 15th of October 2012.

Respectfully,

Michael D. Jesse
Director, Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachments: 1) Proprietary Version of GE Hitachi Nuclear Energy Letter (Letter from L. Beese (GE Hitachi Nuclear Energy) to J. Searer (Exelon Generation Company, LLC), "GEH Responses to NRC RAIs Regarding PBAPS Proposed License Amendment Relocation of the P/T Limit Curves to the PTLR," dated October 3, 2012)

2) Non-Proprietary Version of GE Hitachi Nuclear Energy Letter and Affidavit

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, PBAPS
USNRC Senior Project Manager, PBAPS
R. R. Janati, Bureau of Radiation Protection
S. T. Gray, State of Maryland

ATTACHMENT 2

Non-Proprietary Version of GE Hitachi Nuclear Energy Letter and Affidavit

Enclosure 2

7491-1-2S83W9-HE0-2

GEH Responses to NRC RAIs

Non-Proprietary Information-Class I (Public)

Non-Proprietary Notice

This is a non-proprietary version of the Enclosure 1 of 7491-1-2S83W9-HE0-2 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 [[ ]].

NRC RAI 1

Section 1.0 of Attachment 1 to the licensee's application dated April 27, 2012, states that relocation of the P-T limit curves to the PTLR is consistent with the guidance provided in NRC-approved GE Hitachi Nuclear Energy Licensing Topical Report NEDC-33178P-A, Revision 1 (ADAMS Accession No. ML092370486). Equations 4-2 and 4-3 in Section 4.3.2.1.1 of NEDC-33178P-A are used to determine if the generic Pressure Test - Non-Beltline, Curve A is applicable. The equations are as follows:

$$R / t^{1/2} = 138 / 8^{1/2} = 49 \text{ inch}^{1/2} \qquad \text{Equation 4-2}$$

$$R / t^{1/2} \qquad \text{Equation 4-3}$$

As discussed in Section 4.3.2.1.1 of NEDC-33178P-A, if the plant-specific result of Equation 4-3 is greater than that of the generic value from Equation 4-2, the user is directed to perform a plant-specific evaluation. The NRC staff conducted the comparison and found that the PBAPS-provided geometry information results in a value greater than the generic value. Justify the use of the Section 4.3.2.1.1 curve or submit a plant-specific evaluation.

GEH Response

The plant-specific bottom head dimensions for both PBAPS Unit 2 and Unit 3 are R = 125.5 inches and t = 8.0 inches minimum, resulting in $R/(t)^{1/2} = 44.4 \text{ in}^{1/2}$. Because the generic value of $R/(t)^{1/2} = 49 \text{ inch}^{1/2}$ is larger, the generic P-T curve is conservative when applied to the plant-specific bottom head.

NRC RAI 2

10 CFR Part 50, Appendix G, Paragraph IV.A states that, "the pressure-retaining components of the reactor coolant pressure boundary (RCPB) that are made of ferritic materials must meet the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, supplemented by the additional requirements set forth below." These requirements include paragraph IV.A.2, "Pressure-Temperature Limits and Minimum Temperature Requirements." Therefore, 10 CFR Part 50, Appendix G requires that P-T limits be developed for the ferritic materials in the reactor vessel (RV) beltline (neutron fluence $\geq 1 \times 10^{17}$ n/cm^2, E > 1 MeV), as well as ferritic materials not in the RV beltline (neutron fluence $< 1 \times 10^{17}$ n/cm^2, E > 1 MeV). Further, 10 CFR Part 50, Appendix G requires that all RCPB components must meet the ASME Code, Section III requirements. The relevant ASME Code, Section III requirement that will affect the P-T limits is the lowest service temperature requirement for all RCPB components specified in Section III, NB-2332(b).

The P-T limit calculations for ferritic RCPB components that are not RV beltline shell materials may define P-T curves that are more limiting than those calculated for the RV beltline shell materials due to the following factors:

a) RV nozzles, penetrations, and other discontinuities have complex geometries that may exhibit significantly higher stresses than those for the RV beltline shell region. These higher stresses can potentially result in more restrictive P-T limits, even if the reference temperature (RT_{NDT}) for these components is not as high as that of RV beltline shell materials that have simpler geometries.
b) Ferritic RCPB components that are not part of the RV may have initial RT_{NDT} values, which may define a more restrictive lowest operating temperature in the P-T limits than those for the RV beltline shell materials.

Consequently, please describe how the P-T limit curves submitted for PBAPS, Units 2 and 3 and the methodology used to develop these curves, considered all RV materials (beltline and non-beltline) and the lowest service temperature of all ferritic RCPB materials, consistent with the requirements of 10 CFR Part 50, Appendix G.

GEH Response

Exelon used the methods described in Topical Report NEDC-33178P-A, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves" (Reference 1) to develop the pressure-temperature (P-T) limits for Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3 (Reference 2). The Reference 1 report describes methods for compliance with the requirements of 10 CFR 50 Appendix G (Reference 3), ASME Code Appendix G (Reference 4), and Welding Research Council (WRC) Bulletin 175 (Reference 5). The NRC has reviewed the methods described in Reference 1 and approved the report by issuance of a Safety Evaluation Report (SER) dated April 27, 2009 (Reference 6).

The PBAPS P-T limits were generated consistent with the requirements of 10CFR50 Appendix G and Regulatory Guide 1.99 (Reference 7) as defined in Reference 1. The reference

temperature for nil-ductility transition (RT_{NDT}) values of the reactor vessel beltline and non-beltline plates, welds, forgings, and bolting were determined using the NRC-approved GE/BWROG methodology defined in NEDC-32399-P (Reference 8).

Reference 1 is applicable to most of the BWR fleet. Tables 4-4 and 4-5 of Reference 1 provide a list of all non-beltline vessel RCPB components included in the P-T limit evaluation. In accordance with the Reference 3 definition of materials exposed to "sufficient neutron radiation damage," the Reference 1 topical report identifies all materials in the vessel beltline region that experience end of license fluence greater than or equal to 1.0e17 n/cm^2. This typically extends the beltline region considered to some distance both above and below active fuel. Appendix E of Reference 1 demonstrates the method used to identify these materials, and the Adjusted Reference Temperature (ART) table in Section 4 of Reference 1 includes the evaluation of all materials exposed to fluence greater than or equal to 1.0e17 n/cm^2.

The GEH topical report (Reference 1) describes the methodology employed to develop bounding P-T limit curves for three regions of the vessel, shown below. Two P-T curves were developed to represent all vessel non-beltline discontinuities; beltline discontinuities are evaluated in accordance with ASME Code requirements.

- The non-beltline upper vessel curve is based upon the bounding component, the [[ ]], and its associated transients. The bounding transient for the upper vessel is defined in Figure 4-3 of the topical report. The [[ ]] in the upper vessel curve (see Table 4-4 of Reference 1). The feedwater curve is [[ ]] of Reference 1; therefore, it is assured that the upper vessel curve bounds the requirements for each of these components.
- The non-beltline bottom head curve is based upon the Control Rod Drive (CRD) penetrations. All components identified in Table 4-5 of Reference 1 are included in the evaluation. The CRD penetration curve is [[ ]] of Reference 1; therefore, it is assured that the bottom head curve bounds the requirements for each of these components. [[ ]] the bounding transients applied for the bottom head curve are [[ ]] conditions as defined in Figure 4-2 of Reference 1.
- The beltline curve considers all materials adjacent to the reactor core plus all materials above and below this region that will be exposed to fluence greater than or equal to 1.0e17 n/cm^2 at end of license.

Each non-beltline discontinuity is considered to be bounded by either or both the upper vessel and bottom head curves. T-RT_{NDT} was determined for each discontinuity using Finite Element Analysis (FEA) methods, conservatively based upon [[ ]] is accepted by the ASME Code. Specific examples showing the method of assuring that the most limiting discontinuity is considered in the development of each curve are provided in Section 4.3.2 of Reference 1. The [[ ]] and CRD penetrations, due to the consideration of

loading, transients, and the dimensions of the vessel and nozzles, are more limiting relative to stress than any of the Class 1 ferritic branch piping in the Reactor Coolant Pressure Boundary (RCPB). It is further noted that most of the RCPB piping is fabricated from non-ferritic materials.

The GEH methodology for P-T curve development (Reference 1) contains a number of [[ ]] considerations. Detailed stress analyses of [[ ]] non-beltline components were performed specifically for the purpose of fracture toughness. The [[ ]] designs; this is demonstrated in Reference 2. The analyses considered mechanical loading and anticipated thermal transients that [[ ]], and were applied to all vessel discontinuities. In addition, [[ ]] in this evaluation. The results of these transients experienced by and evaluated for the P-T curve evaluation are more severe for the vessel and nozzles than those anticipated for the attached piping and equipment.

ASME Code, Appendix G, Article G-3000, paragraph G-3100 states that materials "used for piping, pumps, and valves for which impact tests are required (NB-2311), the tests and acceptance standards of Section III, Division 1 are considered to be adequate to prevent non-ductile failure under the loadings and with the defect sizes encountered under normal, upset, and testing conditions. Level C and Level D Service Limits should be evaluated on an individual case basis (NB-2300)." As described in Section 4.3 of Reference 1, [[ ]] in the development of all non-beltline P-T limits.

The General Design Criteria (GDC) proposed at the time that PBAPS Units 2 and 3 were fabricated, are cited in Appendix H of the PBAPS UFSAR (Reference 9). Units 2 and 3 conformed with the intent of the AEC (NRC) proposed General Design Criteria for Nuclear Power Plants, 10 CFR 50, Appendix A, July 1967. These criteria were required in accordance with 10 CFR 50.34 to be included in development of the plant. The NRC requirement regarding the GDC is that the plant application "provide assurance that its principal design criteria encompass all those facility design features required in the interest of public health and safety."

Criterion 9, "Reactor Coolant Pressure Boundary (Category A)" states:

"The reactor coolant pressure boundary shall be designed and constructed so as to have an exceedingly low probability of gross rupture or significant leakage throughout its design lifetime."

Criterion 33, "Reactor Coolant Pressure Boundary Capability (Category A)," states:

"The reactor coolant pressure boundary shall be capable of accommodating without rupture, and with only limited allowance for energy absorption through plastic deformation, the static and

dynamic loads imposed on any boundary component as a result of an inadvertent and sudden release of energy to the coolant."

Criterion 34, "Reactor Coolant Pressure Boundary Rapid Propagation Failure Prevention (Category A)," states:

The reactor coolant pressure boundary shall be designed to minimize the probability of rapidly propagating type failures. Consideration shall be given (a) to notch-toughness properties of materials extending to the upper shelf of the Charpy transition curve, (b) to the state of stress of materials under static and transient loadings, (c) to the quality control specified for materials and component fabrication to limit flaw sizes, and (d) to the provisions for control over service temperature and irradiation effects which may require operational restrictions."

Criterion 35, "Reactor Coolant Pressure Boundary Brittle Fracture Prevention (Category A)," states:

Under conditions where reactor coolant pressure boundary system components constructed of ferritic materials may be subjected to potential loadings, such as a reactivity-induced loading, service temperature shall be at least 120°F above the nil ductility transition (NDT) temperature of the component material if the resulting energy release is expected to be absorbed by plastic deformation or 60°F above the NDT temperature of the component material if the resulting energy release is expected to be absorbed within the elastic strain energy range."

Finally, Criterion 36, "Reactor Coolant Pressure Boundary Surveillance (Category A)," states:

"Reactor coolant pressure boundary components shall have provisions for inspection, testing, and surveillance by appropriate means to assess the structural and leak-tight integrity of the boundary components during their service lifetime. For the reactor vessel, a material surveillance program conforming with ASTM E-185-66 shall be provided."

These GDC are further addressed as to the PBAPS compliance in Section H.2.6 of the PBAPS UFSAR. These are general overview statements; detailed information is contained within specific sections of the PBAPS UFSAR.

Criterion 33 is satisfied by:

"The inherent safety features of the reactor core design, in combination with certain engineered safety features (control rod velocity limiter and control rod housing) and the plant reactivity control system, are such that the consequences of the most severe potential nuclear excursion accident, caused by a single component failure within the reactivity control system (rod drop accident), cannot result in damage (either by motion or rupture) to the reactor coolant pressure boundary."

Criterion 34 is satisfied by:

"The applicable ASME and ANSI codes are used as the established and acceptable criteria for design, fabrication, and operation of components of the reactor coolant pressure boundary."

Criterion 35 is satisfied by:

"Brittle fracture failure of reactor coolant pressure boundary system components is prevented by judicious selection of ferritic steels for fabrication which have notch toughness properties suitable for the system service temperatures. Appropriate consideration is given in the design to the mechanical properties to ensure that, at the service temperatures, there is:

1. Complete energy absorption with fully ductile behavior (e.g., in the energy absorption region of 100 percent shear fracture) whenever the boundary can be pressurized beyond the systems safety valve setting by operational transients in postulated accidents.
2. An NDT temperature at least 60°F below the service temperature whenever the boundary can be pressurized beyond 20 percent of its design pressure by operational transients, hydrotests, and postulated accidents.

It is believed that Criterion 35 should be applicable only to those components or systems whose failure would result in a loss of coolant in excess of the normal makeup capability of the reactor coolant system.

In this way it is ensured that brittle fracture is prevented in the above defined components and systems under all potential service loading conditions."

Criterion 36 is satisfied by:

"The reactor coolant pressure boundary is given a hydrostatic test in accordance with code requirements prior to initial reactor startup. The system is checked for leaks, and abnormal conditions are corrected before reactor startup. The minimum vessel temperature during the hydrostatic test shall at least be 60°F above the calculated NDT temperature prior to pressurizing the vessel. The reactor coolant pressure boundary also has provisions for hydrostatic testing during the service lifetime of the boundary components. An extensive quality assurance program is also followed during the entire fabrication of the reactor coolant pressure boundary. Surveillance samples of vessel material are located within the reactor primary vessel to enable periodic monitoring of the effects of radiation on material properties. The program includes specimens of the base metal, heat-affected zone metal, weld metal specimens, and standard specimens. Leakage from the reactor coolant pressure boundary is monitored during reactor operation."

It is noted that both PBAPS Unit 2 and Unit 3 are participating in the Integrated Surveillance Program (ISP). Unit 2 surveillance capsules are representative in the ISP and will be removed and tested in accordance with this program. The Unit 3 surveillance capsules are not included in the ISP; however, one capsule was removed and tested before the ISP was implemented. The remaining capsules are still in place in the Unit 3 vessel, and will be available for testing should the need arise.

References:

1. GEH Nuclear Energy, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves," NEDC-33178P-A, Revision 1, Report for BWR Owners' Group, June 2009.
2. Letter, Michael D. Jesse (Exelon) to US NRC, "Peach Bottom Atomic Power Station, Units 2 and 3, Renewed Facility Operating License Nos. DPR-44 and DPR-56, NRC Docket Nos. 50-277 and 50-278, License Amendment Request – Relocation of Pressure and Temperature Limit Curves to the Pressure and Temperature Limits Report," April 27, 2012.
3. "Fracture Toughness Requirements" Appendix G to Part 50 of Title 10 of the Code of Federal Regulations, December 1995.
4. "Fracture Toughness Criteria for Protection against Failure," Appendix G to Section XI of the ASME Boiler & Pressure Vessel Code, 1998 Edition with Addenda through 2000.
5. "PVRC Recommendations on Toughness Requirements for Ferritic Materials," Welding Research Council (WRC) Bulletin 175, August 1972.
6. Safety Evaluation Report, Thomas B. Blount (NRC) to Doug Coleman (BWROG), "Final Safety Evaluation for Boiling Water Reactors Owners' Group Licensing Topical Report NEDC-33178P, General Electric Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves (TAC No. MD2693)," April 27, 2009.
7. "Radiation Embrittlement of Reactor Vessel Materials," USNRC Regulatory Guide 1.99, Revision 2, May 1988.
8. GE Nuclear Energy, "Basis for GE RT_{NDT} Estimation Method," Report for BWR Owners' Group, NEDC-32399-P, September 1994; USNRC Letter from B. Sheron to RA Pinelli, "Safety Assessment of Report NEDC-32399-P, Basis for GE RT_{NDT} Estimation Method, September 1994," December 16, 1994.
9. PBAPS UFSAR.

Enclosure 3

Affidavit for Enclosure 1

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

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

(1) I am the Vice President, Regulatory Affairs, Services Licensing, of 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, 7491-1-2S83W9-HE0-2, "GEH Responses to NRC RAIs Regarding PBAPS Proposed License Amendment Relocation of the P/T Limit Curves to the PTLR," dated October 3, 2012. The GEH proprietary information in Enclosure 1, which is entitled "GEH Responses to NRC RAIs," is identified by a dotted underline inside double square brackets. [[This sentence is an example.{3}]] In each case, the superscript notation {3} refers to Paragraph (3) of this affidavit, which 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 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, resulting in potential products to 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 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 the design information for the pressure temperature curves for GEH Boiling Water Reactor (BWR). These methods, techniques, and data along with their application to the design, modification, and analyses associated with the power range neutron monitoring system was achieved at a significant cost to GEH.

The development of the evaluation processes along with the interpretation and application of the analytical results is derived from the extensive experience databases that constitute 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 3rd day of October 2012.

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