HITACHI

GE Hitachi Nuclear Energy

Richard E. Kingston
Vice President, ESBWR Licensing

PO Box 780 M/C A-65
Wilmington, NC 28402-0780
USA

T 910 819 6192
F 910 362 6192
rick.kingston@ge.com

Proprietary Notice
This letter forwards proprietary information in accordance with 10CFR2.390. Upon the removal of Enclosure 1, the balance of this letter may be considered non-proprietary.

MFN 09-216

Docket No. 52-010

April 9, 2009

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 293 - Related to ESBWR Design Certification Application – RAI Number 21.6-96 Supplement 2**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by the Reference 1 NRC letter. GEH response to RAI Number 21.6-96 Supplement 2 is addressed in Enclosures 1 and 2. DCD markups associated with this response are provided in Enclosure 3.

Enclosure 1 contains GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. Enclosure 2 is the public version, which does not contain proprietary information and is suitable for public disclosure.

The affidavit contained in Enclosure 4 identifies that the information contained in Enclosure 1 has been handled and classified as proprietary to GEH. GEH hereby requests that the information in Enclosure 1 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 10 CFR 9.17.

If you have any questions or require additional information, please contact me.

Sincerely,

Richard E. Kingston

Richard E. Kingston
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 09-020, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 293 Related to the ESBWR Design Certification Application*, dated January 8, 2009.

Enclosures:

1. MFN 09-216 – Response to Portion of NRC Request for Additional Information Letter No. 293 - Related To ESBWR Design Certification Application – RAI Number 21.6-96 S02 – GEH Proprietary Information
2. MFN 09-216 – Response to Portion of NRC Request for Additional Information Letter No. 293 - Related To ESBWR Design Certification Application – RAI Number 21.6-96 S02 – Public Version
3. MFN 09-216 – Response to Portion of NRC Request for Additional Information Letter No. 293 - Related To ESBWR Design Certification Application – RAI Number 21.6-96 S02 – DCD Markup Pages
4. MFN 09-216 – Response to Portion of NRC Request for Additional Information Letter No. 293 - Related To ESBWR Design Certification Application – RAI Number 21.6-96 S02 - Affidavit

cc:	AE Cubbage	USNRC (with enclosures)
	JG Head	GEH/Wilmington (with enclosures)
	DH Hinds	GEH/Wilmington (with enclosures)
	eDRF	0000-0099-7600

Enclosure 2

MFN 09-216

Response to Portion of NRC Request for

Additional Information Letter No. 293

Related to ESBWR Design Certification Application

RAI Number 21.6-96 S02

Public Version

NRC RAI 21.6-96 S02

The PCCS is not over capacity starting at about 3 hours; include the response in a licensing document & Code qualification assessment and justification.

Part A: GEH's response to RAI 21.6-96 Supplement 1 states that "For the long-term Passive Containment Cooling System (PCCS) operation, the PCCS is over capacity starting at about 3 hours. Under this overcapacity condition, the PCCS regulates the heat removal rate to match the decay heat by accumulating non-condensable (NC) gases in the lower part of the PCCS tubes."

[a] The statement that "the PCCS is over capacity starting at about 3 hours" is misleading. Both GEH's TRACG and the staff's MELCOR results show that the PCCS does not operate at overcapacity: energy removal rate from the PCCS is below the decay heat generation leading to continuous containment pressurization and heat up for 72 hours after a LOCA.

Each PCCS is designed to remove 11 MW at design conditions stated in ESBWR DCD Tier 2 Rev. 5 Table 6.2-10. It may appear that six PCCS would be able to remove 66 MW which is significantly higher than the decay power (e.g., 29 MW at 24 hours and 21 MW at 72 hours). (See ESBWR DCD Tier 2 Rev. 5 Figure 6.2-14c1.) The PCCS is unable to remove the design capacity power of 66 MW and arrest the containment pressurization during the first 72 hours after a LOCA because it operates at containment conditions which are less favorable than its design conditions. An example is that the design conditions include that the operation of PCCS at 100 percent steam environment but the presence of non-condensables in the drywell adversely affects the steam condensation rate, and thus, the efficiency of PCCS.

Please clarify the statement "the PCCS is over capacity starting at about 3 hours."

[b] Explain what physical conditions force the PCCS to regulate the heat removal rate to match the decay heat.

[c] Update the DCD or a topical report incorporated by reference as appropriate to provide this technical description.

[d] NRC TRACG Inspection 12/15/08 to 12/19/08. The response to RAI 21.6-96 S01 provided assessment comparisons for TRACG04 V53 and TRACG04 V40 against test data. Because some assessment results were degraded (compared to the earlier versions) while some cases were improved, please provide an additional column with qualification justification in the tables listed in RAI 21.6-96 S01. Since the latest version of TRACG04P Level-2 code V5711 was used for DCD safety analysis, provide a similar assessment for V5711 to RAI21.6-96 S01.

GEH RESPONSE

(a) The statement, "the Passive Containment Cooling System (PCCS) is over capacity starting at about 3 hours", simply means that the PCCS has more than enough capacity (surface area) to remove all the decay heat at 3 hours into the postulated accident. The reason it does not remove more heat than the decay heat and depressurize the system is because of its self-regulating characteristics explained in (b) below.

(b) The PCCS is self-regulating because of the feedback between heat removal, condenser pressure and noncondensible gas holdup within the condenser. If the heat removal in the condenser starts to increase beyond that required to condense the steam generated by decay heat, the pressure in the condenser starts to fall. The reduction in condenser pressure reduces the flow of noncondensible gases out of the condenser to the vent. This results in increased holdup of noncondensibles in the condenser tubes and a reduction in the heat removal, until the condensation rate equalizes with the steam inflow. If the heat removal in the condenser drops, the reverse process occurs. The condenser pressurizes and drives out noncondensibles until the heat transfer is restored to match the condensation of the steam flow rate. This regulating behavior of the PCCS has been demonstrated convincingly in the PANDA integral system tests. The reason for the slow increase in containment pressure over 72 hours is mainly due to direct heat addition to the wetwell through leakage and heat transfer from the walls.

(c) The requested information, description stated in Item (a) and Item (b), will be included in the Licensing Topical Report (LTR) NEDE-33440P Revision 1. This LTR is referred in the ESBWR DCD Tier 2, Section 6.2.9 as Reference 6.2-11. ESBWR DCD Tier 2, Section 6.2.2.3 will be revised as noted in the attached markup.

(d) The following 6 TRACG cases were excluded in the assessments performed with the latest Version 5711 of the TRACG04P code.

- Case GIRH1 in GIRAFFE Helium Test
- Case M10b in PANDA Transient Test (M-Series)
- Case P04 and Case P06 in PANDA Transient Test (P-Series)
- Case TE1CE2 and Case TE1CE2_70 in PANDA Exploratory Test

Please note that cases for the test facility are all included where multiple cases are needed to provide the assessment. The reduced set of cases covers all the test facilities. Results from the assessment using the latest TRACG04P Version 5711 Level 2 code are presented in Tables 21.6-96 S02-1 through 21.6-96 S02-17 and Figures 21.6-96 S02-1 through 21.6-96 S02-18. The numbering sequences of the tables and figures are unchanged from what was presented in the response to RAI 21.6-96 S01, MFN 08-644. In general, results from TRACG04P Version 5711 Level

2 do not show any significant deviation from the test data and the previous TRACG version results with the exception of the PANTHERS Isolation Condenser (IC) Performances Tests under Component Performance Tests and One-Sixth Scale Boron Mixing Test under Integral Systems Tests.

For the PANTHERS IC Performances Tests under Component Performance Tests, different behaviors are observed in Test T12 case. Two peaks are predicted in the Inlet Pressure Transient and Heat Transfer as shown in Figure 21.6-96S02-2a and Figure 21.6-96S02-3a. The earlier pressure rise in the TRACG04P Version 5711 Level 2 prediction of Test T12 relative to test data is attributed to entrainment and possibly dissolution of non-condensable gas in the drain flow in the test. Gas dissolution is not modeled in TRACG and entrainment under the conditions produced in the IC test facility may be under predicted. Greater retention of noncondensable gases in the condenser tubes in the TRACG simulation would cause a more rapid increase in the pressure required for condensation of the inlet steam flow. This behavior is similar to that seen in analyses performed with previous versions of TRACG. The noncondensable gas holdup calculated by TRACG is sensitive to calculation parameters such as the condensate velocity and interfacial shear. The initial drop in pressure seen in Figure 21.6-96S02-2a is due to a momentary increase in the calculated noncondensable gas entrainment resulting in a sharply reduced gas holdup. This calculation has shown some sensitivity to the time step size used in the TRACG calculations. A sensitivity study was conducted by reducing the maximum time step size by half. The results are shown in Table 21.6-96S02-5, Figure 21.6-96S02-2 and Figure 21.6-96S02-3. The resulting calculations show pressure and heat transfer trajectories close to the previous results. The peak pressure and timing of the peak are not significantly altered. This shows that while some of the details of this transient are sensitive to the time step size, the overall behavior of the transient calculated by TRACG is not affected.

For the One-Sixth Scale Boron Mixing Test, results for the cases using the TRACG04P Version 5711 code provide better agreement with the data than any other code version that has been used so far to analyze this test, see Figure 21.6-96S02-6 through Figure 21.6-96S02-13. This study was re-done with a better simulation of the facility using air and water. Previous calculations had simulated an equivalent steam-water condition.

In all, the conclusions drawn from previous submittals (listed below) remain valid.

1. GE Hitachi Nuclear Energy, NEDC-32725P, "TRACG Qualification for SBWR," Revision 1 August 2002.
2. GE Hitachi Nuclear Energy, NEDC-33080P, "TRACG Qualification for ESBWR," Revision 0, August 2002.
3. MFN 04-059, Dated June 2, 2004, "Update of ESBWR TRACG Qualification for NEDC-32725P and NEDC-33080P Using the 9-Apr-2004 Program Library Version of TRACG04."

Table 21.6-96 S02-1

Summary of TRACG Results for the Toshiba Low Pressure Void Fraction Tests

[[

]]

Table 21.6-96 S02-2

Summary of TRACG Results for the Ontario Hydro Void Fraction Tests

[[

]]

Table 21.6-96 S02-3
Summary of TRACG Results for the PANTHERS PCC SS Steam-Air Tests

[[								

]]

Table 21.6-96 S02-4
Summary of TRACG Results for the PANTHERS PCC SS Pure Steam Tests

[[				

]]

Table 21.6-96 S02-5

Summary of TRACG Results for the PANTHERS IC Tests

[[				

]]

Table 21.6-96 S02-6

Summary of TRACG Results for the PANDA PCC Tests

[[				

]]

Table 21.6-96 S02-7

Summary of TRACG Results for the Suppression Pool Stratification Test (PSTF Test 5807-29)

[[					

]]

Table 21.6-96 S02-8
Summary of TRACG Results for the GIST Test (Test C01A)

[[						

]]

Table 21.6-96 S02-9

Summary of TRACG Accuracy for GIRAFFE Helium Tests

[[						

]]

Table 21.6-96 S02-10
Summary of TRACG Results for the GIRAFFE Systems Interactions Test

[[						

Table 21.6-96 S02-10
Summary of TRACG Results for the GIRAFFE Systems Interactions Test

[[						

]]

Table 21.6-96 S02-11

Summary of TRACG Results for the PSTF MARK III Test 5703-01

[[						

]]

Table 21.6-96 S02-12

Summary of TRACG Results for the 4T MARK II Test 5101-34

[[						

]]

Table 21.6-96 S02-13

Summary of TRACG Results for the PANDA M-Series

[[						

]]

Table 21.6-96 S02-14

Summary of TRACG Results for the PANDA P-Series

[[						

]]

Table 21.6-96 S02-15

Summary of TRACG Results for the Dodewaard Startup Test

[[					

]]

Table 21.6-96 S02-16

Summary of TRACG Results for the CRIEPI Low Pressure Tests

[[					

]]

Table 21.6-96 S02-17

Summary of TRACG Results for the SIRIUS Two-Phase Instability Tests

[[					

]]

[[

]]

Figure 21.6-96 S02-1. Comparison of TRACG and PANTHERS Inlet Pressure for Test 54
(Figure 4.1-28, Ref. 3)

[[

]]

Figure 21.6-96 S02-2. Comparison of TRACG and PANTHERS Inlet Pressure Transient for Test 12 (Reduced maximum time step size) (Figure 4.2-6, Ref. 3)

[[

]]

Figure 21.6-96 S02-2a. Comparison of TRACG and PANTHERS Inlet Pressure Transient for Test 12
(Figure 4.2-6, Ref. 3)

[[

]]

Figure 21.6-96 S02-3. Comparison of TRACG and PANTHERS Heat Transfer for Test 12 (Reduced maximum time step size)
(Figure 4.2-7, Ref. 3)

[[

]]

Figure 21.6-96 S02-3a. Comparison of TRACG and PANTHERS Heat Transfer for Test 12 (Figure 4.2-7, Ref. 3)

[[

]]

Figure 21.6-96 S02-4. TRACG Suppression Pool Nodalization
(Suppression Pool Stratification Tests)

[[

]]

Figure 21.6-96 S02-5. Final Pool Temperature Comparison, TRACG04 Version 53, TRACG04 Version 5711 Level 2.
(Suppression Pool Stratification Tests)

[[

]]

Figure 21.6-96 S02-6. Channel at 41-in. Center: Well-Mixed Model (Boron Mixing Tests, Figure 5.4-3, Ref. 3)

[[

]]

Figure 21.6-96 S02-7. Channel at 55-in. Middle: Well-Mixed Model (Boron Mixing Tests, Figure 5.4-4, Ref. 3)

[[

]]

Figure 21.6-96 S02-8. Channel at 41-in. Periphery: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-5, Ref. 3)

[[

]]

Figure 21.6-96 S02-9. Bypass at 41-in. Center: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-6, Ref. 3)

[[

]]

Figure 21.6-96 S02-10. Bypass at 55-in. Middle: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-7, Ref. 3)

[[

]]

Figure 21.6-96 02-11. Bypass at 41-in. Periphery: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-8, Ref. 3)

[[

]]

Figure 21.6-96 S02-12. Lower Plenum at 14-in. Middle: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-9, Ref. 3)

[[

]]

Figure 21.6-96 S02-13. Lower Plenum Center: Well-Mixed Model
(Boron Mixing Tests, Figure 5.4-10, Ref. 3)

[[

]]

Figure 21.6-96 S02-14. DW Pressure Response
(PSTF Mark III Test 5703-01, Figure 5.5-5, Ref. 3)

[[

]]

Figure 21.6-96 S02-15 DW Pressure Response
(4T/Mark II Test 5101-34, Figure 5.6-5, Ref. 3)

[[

]]

Figure 21.6-96 S02-16. WW Pressure Response
(4T/Mark II Test 5101-34, Figure 5.6-6, Ref. 3)

[[

]]

Figure 21.6-96 S02-17. Steam Flow to PCC3 for Test E2 -
Power Reduced 50%
(PANDA Exploratory Tests, Figure 6.4-18, Ref. 3)

Note: Case TE1CE2 and Case TE1CE2_70 in PANDA Exploratory Test for Natural Circulation and Flow Oscillation Tests are eliminated from V5711 level 2 code assessment.

[[

]]

Figure 21.6-96 S02-18. Steam Flow to PCC3 for Test E2 - Power Reduced 70%
(PANDA Exploratory Tests, Figure 6.4-18, Ref. 3)

Note: Case TE1CE2 and Case TE1CE2_70 in PANDA Exploratory Test for Natural Circulation and Flow Oscillation Tests are eliminated from V5711 level 2 code assessment.

DCD IMPACT

ESBWR DCD Tier 2, Subsection 6.2.2.3 will be revised as noted in the Enclosure 3 markup.

LTR NEDE-33440P Table 1.1 will be revised as shown in the attached markup. A new Section 13 will be added to NEDE-33440P to contain this response to RAI 21.6-96 S02 in its entirety.

Attachment

Revision Page for Table 1.1 of NEDE-33440P

Enclosure 3

MFN 09-216

Response to Portion of NRC Request for

Additional Information Letter No. 293

Related to ESBWR Design Certification Application

RAI Number 21.6-96 S02

DCD Markup Pages

6.2.2.3 Design Evaluation

The PCCS condenser is an integral part of the containment DW pressure boundary and it is used to mitigate the consequences of an accident. This function classifies it as a safety-related ESF. ASME Code Section III, Class MC and Section XI requirements for design and accessibility of welds for inservice inspection apply to meet 10 CFR 50, Appendix A, Criterion 16. Quality Group B requirements apply per RG 1.26. The system is designed to Seismic Category I per RG 1.29. The common cooling pool that PCCS condensers share with the ICs of the Isolation Condenser System is a safety-related ESF, and it is designed such that no locally generated force (such as an IC system rupture) can destroy its function. Protection requirements against mechanical damage, fire and flood apply to the common IC/PCC pool.

The PCCS components located in a subcompartment of the safety-related IC/PCC pool are protected by the IC/PCC pool subcompartment from the effects of missiles tornados to comply with 10 CFR 50, Appendix A, Criteria 2 and 4.

The PCCS condenser cannot fail in a manner that damages the safety-related ICS/PCC pool because it is designed to withstand induced dynamic loads, which are caused by combined seismic, DPV/ SRV or LOCA conditions in addition to PCCS operating loads.

In conjunction with the pressure suppression containment (Subsection 6.2.1.1), the PCCS is designed to remove heat from the containment to comply with 10 CFR 50, Appendix A, Criterion 38. Provisions for inspection and testing of the PCCS are in accordance with Criteria 39, 52 & 53. Criterion 51 is satisfied by using nonferritic stainless steel in the design of the PCCS.

The intent of Criterion 40, testing of containment heat removal system is satisfied as follows:

- The structural and leak-tight integrity can be tested by periodic pressure testing;
- Functional and operability testing is not needed because there are no active components of the system; and
- Performance testing during in-plant service is not feasible; however, the performance capability of the PCCS was proven by full-scale PCCS condenser prototype tests at a test facility before their application to the plant containment system design. Performance is established for the range of in-containment environmental conditions following a LOCA. Integrated containment cooling tests have been completed on a full-height reduced-section test facility, and the results have been correlated with TRACG computer program analytical predictions; this computer program is used to show acceptable containment performance (Reference 6.2-10, Section 5.3, and Reference 6.2-11, Section 13), which is reported in Subsection 6.2.1.1 and Chapter 15.

6.2.2.4 Testing and Inspection Requirements

The PCCS is an integral part of the containment, and it is periodically pressure tested as part of overall containment pressure testing (Subsection 6.2.6). Also, the PCCS condensers can be isolated using spectacle flanges for individual pressure testing during maintenance.

If additional inservice inspection becomes necessary, it is unnecessary to remove the PCCS condenser because ultrasonic (UT) testing of tube-to-drum welds and eddy current testing of tubes can be done with the PCCS condensers in place during refueling outages.

Enclosure 4

MFN 09-216

Response to Portion of NRC Request for

Additional Information Letter No. 293

Related to ESBWR Design Certification Application

RAI Number 21.6-96 S02

Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, David A. Piepmeyer, state as follows:

(1) I am Senior Project Manager, ESBWR Certification, GE Hitachi Nuclear Energy ("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's letter, MFN 09-216 Mr. Richard E. Kingston to U.S. Nuclear Energy Commission, entitled "*Response to Portion of NRC Request for Additional Information Letter No. 293 – Related to ESBWR Design Certification Application – RAI Number 21.6-96 Supplement 2,*" dated April 9, 2009. The proprietary information in enclosure 1, which is entitled "*MFN 09-216 – Response to Portion of NRC Request for Additional Information Letter No. 293 – Related to ESBWR Design Certification Application – RAI Number 21.6-96 S02 – GEH Proprietary Information,*" is delineated by a [[dotted underline inside double square brackets{3}]]. Figures and large equation objects 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, 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 qualify 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, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

(4) Some examples of categories of information which 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 which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;

c. Information which reveals aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;

d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b. above.

(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, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

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

(8) The information identified in paragraph (2) is classified as proprietary because it contains details of GEH's design and licensing methodology. The development of the methods used in these analyses, along with the testing, development and approval of the supporting methodology was achieved at a significant cost to GEH.

(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 9th day of April 2009.

David A. Piepmeyer
GE-Hitachi Nuclear Energy Americas LLC