



Entergy Operations, Inc.  
1340 Echelon Parkway  
Jackson, MS 39213-8298  
Tel 601 368 5758

Michael A. Krupa  
Director  
Nuclear Safety & Licensing

August 20, 2001

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: River Bend Station  
Docket No. 50-458  
License No. NPF-47  
Revised Response to NRC Request for Additional Information Regarding  
Proposed Amendment to Revise Reactor Vessel Pressure/Temperature Limits  
(TAC NOS. MB1114 and MB1153), LAR 2000-26

Reference:

1. RBF1-01-0139, dated July 2, 2001, "Response to NRC Request for  
Additional Information Regarding Proposed Amendment to Revise Reactor  
Vessel Pressure/Temperature Limits (TAC NOS. MB1114 and MB1153),  
LAR 2000-26"
2. CNRO-2001-00037, dated August 6, 2001, "Clarification of Response to  
NRC Request for Additional Information Regarding Proposed Amendment  
to Revise Reactor Vessel Pressure/Temperature Limits (TAC NOS. MB1114  
and MB1153), LAR 2000-26"

RBF1-01-0184  
CNRO-2001-00039

Gentlemen:

On July 2, 2001 Entergy Operations, Inc. responded to a NRC Request for Additional Information (RAI) regarding proposed changes to the reactor vessel pressure/temperature (P/T or P-T) limits as specified in River Bend Station Technical Specification 3.4.11 (Reference 1). This response was clarified on August 6, 2001 (Reference 2).

This letter replaces References 1 and 2 in their entirety. This revision to the RAI does not change any of the information transmitted in the two references. It transmits the same information in a different format to clarify which portions of that response were proprietary and which were non-proprietary.

The text of the Reference 1, previously submitted under oath and affirmation, have not been altered, only reformatted. The conclusions of the original no significant hazards considerations remain unchanged. This letter introduces no new commitments.

A Pol

Revised Response to NRC RAI Regarding Proposed Amendment to Revise Reactor Vessel P/T Limits  
August 20, 2001  
RBF1-01-0184  
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Page 2 of 3

Attachment 1 of this letter provides the responses to the RAI. Attachment 1 references information provided by General Electric (GE) Nuclear Energy in a letter to Mr. Kenneth Baker of Entergy dated June 18, 2001. Attachment 2 contains a proprietary version of the GE information. Attachment 3 contains the non-proprietary version of Attachment 2. Consistent with the proprietary information notice provided in the preface of the report, General Electric requests information provided in Attachment 2 be withheld from public disclosure pursuant to 10 CFR 2.790(a)(4). An affidavit supporting the proprietary information has been provided by GE (the information owner) as Attachment 4. The return address for response to the affidavit is General Electric Company, 175 Curtner Avenue, San Jose, CA 95125.

Entergy Operations requests the NRC approve this amendment request and use of Code Case N-640 on or before September 1, 2001, such that it may be implemented prior Refueling Outage 10, which is scheduled in the Fall of 2001.

Pursuant to 28 U.S.C.A. Section 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 20, 2001.

Very truly yours,



MAK/ABS/baa

attachment:    1. Response to Request for Additional Information  
                    2. Proprietary Response from GE  
                    3. Non- Proprietary Response from GE  
                    4. Affidavit Concerning Proprietary Information  
cc:                (See Next Page)

Revised Response to NRC RAI Regarding Proposed Amendment to Revise Reactor Vessel P/T Limits  
August 20, 2001  
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CNRO-2001-00039  
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cc: Mr. Ellis W. Merschoff (w/o)  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-8064

Mr. R. E. Moody, NRR DLPM/PD IV-1 (w/a)  
**ATTN: ADDRESSEE ONLY**  
U. S. Nuclear Regulatory Commission  
One Flint North, Mail Stop 07-D1  
11555 Rockville Pike  
Rockville, MD 20852-2378

NRC Senior Resident Inspector (w/o)  
P. O. Box 1050  
St. Francisville, LA 70775

Prosanta Chowdhury (w/o)  
Louisiana Department of Environmental Quality  
Office of Environmental Compliance  
Surveillance Division  
P.O. Box 82215  
Baton Rouge, LA 70884-2215

ATTACHMENT 1

TO

LETTER NO. CNRO-2001-00039

Response to Request for Additional Information

### **Question 1**

Paragraph 4.2.1.2, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) Using the  $K_{IC}$  Methodology" gives the values of the fluence used for the estimation of the 32 effective full power years P/T limit curves. The justification states that, "The values used are the currently licensed values." Please provide the original reference which describes how these values were derived and/or calculated.

### **Response**

In direct response to a Staff request, the vessel fluence used for the current P/T limit curves was estimated to support approval of the 105% power uprate amendment, Amendment 114 to NPF-47 (TAC NO. MA6185). Reference 3 describes the methodology used to develop this fluence value. The relevant pages (Appendix E of Reference 3) are attached. For further clarification, the fluence values used in the proposed P-T curves requested by LAR 2000-26 are the same as those used for the current curves approved by Amendment No. 114. The Staff evaluated the basis for the fluence determinations and accepted the P-T Limit Curves submitted in Amendment No. 114 based on 32 EFPY with a limited use up to 16 EFPY (ref. NRC Safety Evaluation from Mr. Jefferey F. Harold to Mr. Edington dated October 6, 2000).

EOI understands the Staff's concerns regarding the RBS fluence calculations. Therefore, consistent with Amendment 114, Entergy proposes acceptance of the revised P/T curves based on their use of a 32 EFPY fluence value with a limited use not to exceed 16 EFPY of operation. This provides adequate conservatism to account for any anomalies that may exist in the current fluence determination methodology until revised P/T curves, which are developed based on the test results from the RBS RPV surveillance capsule program, are reviewed and approved by the Staff. This proposal is consistent with the Staff's evaluation of the current RBS P/T curves previously approved in the aforementioned correspondence.

### **Question 2**

Page 29: It was suggested on page 29, for the feedwater nozzle/upper vessel region, that a coolant temperature change of 20 degrees Fahrenheit per hour ( $^{\circ}\text{F/hr}$ ) existed during the pressure test and its effect of [*for proprietary information contained in this question, please refer to Attachment 2*] was included in the computed value of  $(T - RT_{\text{NDT}})$ . Why was a similar adjustment not made for the bottom head in its tabulated values shown on page 25?

### **Response**

For the Proprietary version of this response, refer to Attachment 2 of this letter. For the Non-Proprietary version of this response, refer to Attachment 3 of this letter.

**Question 3**

Page 30: *[for proprietary information contained in this question, please refer to Attachment 2]* Please clarify.

**Response**

For the Proprietary version of this response, refer to Attachment 2 of this letter. For the Non-Proprietary version of this response, refer to Attachment 3 of this letter.

**Question 4**

Page 57: The P/T limit curve for the core beltline B' was missing in Figure 5-10. Please provide a complete Figure 5-10.

**Response**

The P/T limit curve for the core beltline B' was included in the Final report as issued (The correct values are listed in Table 5-10). The line is difficult to see due to the coloring/shading of the line. A revised Figure 5-10 (page 57) is attached with the P/T limit curve for the core beltline B' clearly marked.

**References:**

1. Letter from R. E. Moody (NRC) to R.. K. Edington (Entergy), "River Bend Station, Unit 1 – Request for Additional Information – License Amendment Request (LAR 2000-26) to Revise Reactor Vessel Pressure/Temperature Limits (TAC Nos. MB1114 and MB1153), dated May 3, 2001.
2. S. A. Kleinsmith, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) using the K<sub>IC</sub> Methodology River Bend," GE-NE-B13-02094-00-01, Revision 0, January, 2001. (GE Proprietary)
3. R. G. Carey, "105% Power Uprate Evaluation Report for Entergy Operations, Inc. River Bend Station," GE-NE-A22-00081-12, Revision 0, February 1999.

ATTACHMENT 3

TO

LETTER NO. CNRO-2001-00039

Non-Proprietary Response from GE



**GE Nuclear Energy**

Shawn A. Kleinsmith - (408) 925-1263  
Shawn.Kleinsmith@gene.ge.com  
Vessel Analysis Engineer

General Electric Company  
Structural Mechanics and Materials  
175 Curtner Avenue  
San Jose, CA 95125

**GE-NE-B13-02094-00-01-LTR-RAI-NP2**  
**Revision 0**  
**Class I – GE Non-proprietary Information**  
**June 18, 2001**

**TO: Mr. Kenneth Baker**  
**Entergy Operations**  
**1340 Echelon Parkway**  
**Mail Stop M-ECH-36**  
**Jackson, Mississippi 39213**

**FROM: Shawn A. Kleinsmith**

**SUBJECT: NRC Request for Additional Information (RAI) for River Bend Reactor Vessel**  
**Pressure/Temperature Limits**

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Enclosed are GE's responses to the NRC RAI (Reference 1) on the Reference 2 Report.

- 1. Paragraph 4.2.1.2, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) Using the  $K_{IC}$  Methodology" gives the values of the fluence used for the estimation of the 32 effective full power years P/T limit curves. The justification states that, "The values used are the currently licensed values." Please provide the original reference which describes how these values were derived and/or calculated.**

*The vessel fluence used for the P/T limit curves was estimated as part of the 105% power uprate (3039MWt). Reference 3 describes the methodology used to develop this fluence value. The relevant pages (Appendix E of Reference 3) are attached.*





2. Page 29: It was suggested on page 29, for the feedwater nozzle/upper vessel region, that a coolant temperature change of 20 degrees Fahrenheit per hour ( $^{\circ}\text{F/hr}$ ) existed during the pressure test and its effect of        was included in the computed value of  $(T - RT_{\text{NDT}})$ . Why was a similar adjustment not made for the bottom head in its tabulated values shown on page 25?

*As noted on page 27,*

*In the case of the feedwater nozzle, the stresses are based upon a WRC 175 methodology that does not consider thermal stresses.*

3. Page 30:

**Please clarify.**

*As noted on page 30,*



- 4. Page 57: The P/T limit curve for the core beltline B' was missing in Figure 5-10. Please provide a complete Figure 5-10.**

*The P/T limit curve for the core beltline B' was included in the Final report as issued (The correct values are listed in Table 5-10). The line is difficult to see due to the coloring/shading of the line. A revised Figure 5-10 (page 57) is attached with the P/T limit curve for the core beltline B' clearly marked.*

Verification of this letter is documented in DRF B13-0002094-00. Should you have any questions with this transmittal, please contact Brian Frew at (408) 925-5714.

Very truly yours,

Shawn A. Kleinsmith  
Vessel Analysis Engineer

References:

1. Letter from R. E. Moody (NRC) to R. K. Edington (Entergy), "River Bend Station, Unit 1- Request for Additional Information- License Amendment Request (LAR 2000-26) to Revise Reactor Vessel Pressure/Temperature Limits (TAC Nos. MB1114 and MB 1153), dated May 3, 2001.
2. S. A. Kleinsmith, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) Using the  $K_{IC}$  Methodology River Bend," GE-NE-B13-02094-00-01, Revision 0, January 2001. (GE Proprietary)
3. R. G. Carey "105% Power Uprate Evaluation Report for Entergy Operations, Inc. River Bend Station," GE-NE-A22-00081-12, Revision 0, February 1999. (GE Proprietary)

Attachments:

- (1) Appendix E of GE-NE-A22-00081-12
- (2) Page 57 to replace previous page 57 in report. (Changed line color and symbol)

**Appendix E**  
**Estimated Vessel Neutron Fluence**  
**for Power Uprate per**  
**Subsection 2.2**

GE-NE-A22-00081-12 Revision 0

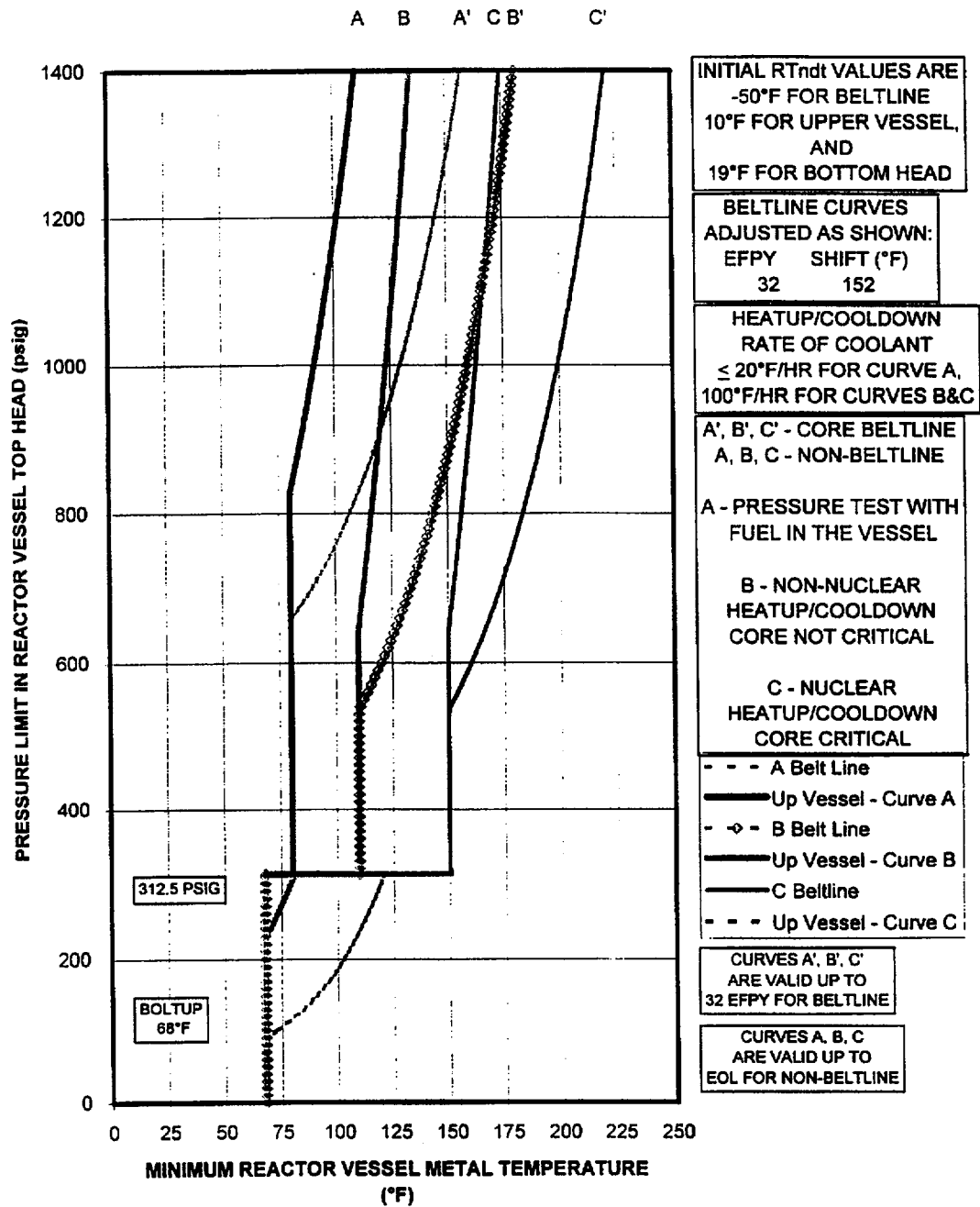


Figure 5-10. P-T Curves A, B, and C up to 32 EFPY

ATTACHMENT 4

TO

LETTER NO. CNRO-2001-00039

Affidavit Concerning Proprietary Information



**GE Nuclear Energy**

Shawn A. Kleinsmith - (408) 925-1263  
Shawn.Kleinsmith@gene.ge.com  
Vessel Analysis Engineer

General Electric Company  
Structural Mechanics and Materials  
175 Curtner Avenue  
San Jose, CA 95125

**GE-NE-B13-02094-00-01-LTR-RAI-T3P**

**Revision 0**

**Class I**

**July 26, 2001**

**TO: Mr. Kenneth Baker**  
**Entergy Operations**

**FROM: Shawn A. Kleinsmith**

**SUBJECT: Transmittal for NRC Request for Additional Information (RAI) for**  
**River Bend Reactor Vessel Pressure/Temperature Limits**

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**SUMMARY:**

The purpose of this letter is to transmit GE's responses to the Nuclear Regulatory Commission's Request for Additional Information (RAI) [1] pertaining to the final pressure-temperature curves for the River Bend Unit report [2].

This transmittal contains GE-NE proprietary information that is provided under the Entergy Operations Inc/GE-NE proprietary information agreement. GE-NE customarily maintains this information in confidence and withholds it from public disclosure.

The attached affidavit identifies that the designated information has been handled and classified as proprietary to GE-NE. Along with the affidavit this information is suitable for review by the NRC. GE-NE hereby requests that the designated information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.790.

As an additional note, Section 4.2 (page 14) of [2] contained an incorrect Table reference for the vessel adjusted reference temperature. Attached is a revised page 14, referencing Table 4-4.

GE-NE-B13-02094-00-01-LTR-RAI-T3P

Transmittal Letter 1



**REFERENCES:**

1. Letter from R. E. Moody (NRC) to R. K. Edington (Entergy), "River Bend Station, Unit 1- Request for Additional Information- License Amendment Request (LAR 2000-26) to Revise Reactor Vessel Pressure/Temperature Limits (TAC Nos. MB1114 and MB 1153), dated May 3, 2001.
2. S. A. Kleinsmith, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) Using the  $K_{IC}$  Methodology River Bend," GE-NE-B13-02094-00-01, Revision 0, January 2001. (GE Proprietary)

Very truly yours,

Shawn A. Kleinsmith  
Vessel Analysis Engineer

**ATTACHMENT:**

1. Affidavit, Margaret E. Harding, dated July 26, 2001.
2. Letter from S. Kleinsmith (GE) to Kenneth Baker (Entergy), "NRC Request for Additional Information (RAI) for River Bend Reactor Vessel Pressure/Temperature Limits" (GE Proprietary), dated June 18, 2001.
3. Revised Page 14 of the report written by Shawn A. Kleinsmith, "Pressure Temperature Curves for Entergy Operations, Inc. (EOI) Using the  $K_{IC}$  Methodology River Bend," GE-NE-B13-02094-00-01, Revision 0, January 2001 (GE Proprietary) to replace previous page 14 in report. (Corrected Table reference)
4. Letter from S. Kleinsmith (GE) to Kenneth Baker (Entergy), "NRC Request for Additional Information (RAI) for River Bend Reactor Vessel Pressure/Temperature Limits" (GE Non-proprietary), dated June 18, 2001.



## General Electric Company

### AFFIDAVIT

**I, Margaret Harding**, being duly sworn, depose and state as follows:

- (1) I am Project Manager, Technical Services, General Electric Company ("GE") 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 the GE proprietary letter from S. Kleinsmith (GE) to Kenneth Baker (Entergy), "NRC Request for Additional Information (RAI) for River Bend Reactor Vessel Pressure/Temperature Limits", dated June 18, 2001 which pertains to the GE proprietary report GE-NE-B13-02094-00-01-R0, *Pressure-Temperature Curves for Entergy Operations Inc. (EOI) Using the KJC Methodology River Bend*, Revision 0, Class III (GE Proprietary Information), dated January 2001. The proprietary information is delineated by bars marked in the margin adjacent to the specific material.
- (3) In making this application for withholding of proprietary information of which it is the owner, GE 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), 2.790(a)(4), and 2.790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions 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 General Electric's competitors without license from General Electric 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 cost or price information, production capacities, budget levels, or commercial strategies of General Electric, its customers, or its suppliers;
- d. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, of potential commercial value to General Electric;
- e. 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 both paragraphs (4)a. and (4)b., above.

- (5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, 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 GE, 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. Access to such documents within GE 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, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE 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), above, is classified as proprietary because it contains detailed methods and processes, which GE has developed and applied to pressure-temperature curves for the BWR over a number of years.

The development of the BWR pressure-temperature curves was achieved at a significant cost, on the order of ¾ million dollars, to GE. 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 GE asset.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE'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 GE.

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.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE 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 GE 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 GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

STATE OF CALIFORNIA            )  
  )        ss:  
COUNTY OF SANTA CLARA        )

Margaret E. Harding, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at San Jose, California, this 26<sup>th</sup> day of JULY 2000. <sup>MEH 7/26/01</sup> 1

Margaret E. Harding  
Margaret E. Harding  
General Electric Company

Subscribed and sworn before me this 26<sup>th</sup> day of July 2000. <sup>MEH 7/26/01</sup> 1

Vicky D. Schroer  
Notary Public, State of California

