Proprietary Information – Withhold From Public Disclosure Under 10 CFR 2.390
The Balance Of This Letter May Be Considered Non-Proprietary Upon Removal Of Enclosure 3

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William F. Maguire
Site Vice President
River Bend Station

RBG-47903

October 4, 2018

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: Response to License Amendment Request to Correct a Non-Conservative Technical Specification Figure 3.4.11 -1 "Minimum Temperature Required vs. RCS Pressure" by Replacing with 54 Effective Full Power Years (EFPY) Curves NRC Request for Additional Information (RAI)
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

References: 1) Entergy Letter: License Amendment Request (LAR) (RBG-47824 dated April 2, 2018) (ADAMS Accession No. ML18092B187)

2) NRC email: River Bend Station, Unit 1, Request for Additional Information dated August 16, 2018 (ADAMS Accession No. ML18229A008)

Dear Sir or Madam:

In Reference 1, Entergy Operations, Inc (Entergy) submitted a request for the review and approval of the corrections to Technical Specification Figure 3.4.11 -1 "Minimum Temperature Required vs. RCS Pressure" by Replacing with 54 Effective Full Power Years (EFPY) Curves. In an email dated August 16, 2018, (Reference 2) the NRC staff made a request for additional information needed to complete the license amendment request. Enclosure 1 contains the non-proprietary responses to the RAIs.

Enclosure 3 is Proprietary in its entirety, as it contains information in RAI responses 3 and 4 that is proprietary to Global Nuclear Fuel – Americas (GNF). Attachment 1 contains the Proprietary Information Affidavit from GNF. The purpose of this attachment is to withhold the proprietary information contained in RAI responses 3 and 4 in Enclosure 3, The Affidavit, signed by as owner of the information, set forth the basis for which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390 of the Commission's regulations. Accordingly, it is

respectfully requested that the information proprietary to GNF be withheld from public disclosure in accordance with 10 CFR 2.3.90.

In addition to the RAI responses Enclosure 2 contains a supplement to RBG-47824 Attachment 2: Technical Specification (TS) Pages – Clean. The brackets surrounding "Without Uncertainty for Instrumentation Error" at the bottom of the page have been removed to clarify that the information is not proprietary.

This letter does not contain any new commitments.

If you require additional information, please contact Mr. Tim Schenk at (225) 381-4177 or tschenk@entergy.com.

In accordance with 10 CFR 50.91(b)(1), Entergy is notifying the State of Louisiana and the State of Texas by transmitting a copy of this letter to the designated State Official.
I declare under penalty of perjury that the foregoing is true and correct. Executed on October 4, 2018.

Sincerely,

WFM/bj

Enclosure 1: Responses to Request for Additional Information (Non-Proprietary)
Attachment 1: Global Nuclear Fuel – Americas 10 CFR 2.390 Affidavit
Enclosure 2: Updated RBG-47824 Attachment 2 Technical Specification (TS) Pages – Clean
Enclosure 3: Responses to Request for Additional Information **(Proprietary)**

cc: U.S. Nuclear Regulatory Commission
Region IV

U.S. Nuclear Regulatory Commission

NRC Senior Resident Inspector – River Bend Station

LA Department of Environmental Quality
Office of Environmental Compliance
Radiological Emergency Planning and Response Section

Public Utility Commission of Texas

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Enclosure 1

Responses to Request for Additional Information (Non-Proprietary)

REQUEST FOR ADDITIONAL INFORMATION
TS Figure 3.4.11-1 P/T Curves
RIVER BEND STATION, UNIT 1
DOCKET NO.: 50-458

RAI 1 Description:

The staff is aware that instruments used to monitor reactor coolant system (RCS) pressures and temperatures during TS required P-T monitoring may include some degree of uncertainty in accuracy of pressure or temperature readings taken by the instruments. The updated P-T limit curves proposed in Attachment 2 of the LAR and the contents of NEDC-33882P, Rev. 1, both indicate that the P-T limit curves for 54 EFPY were developed [[ ]]. Clarify where the treatment or assessment of P-T [[ ]] will be accounted for if they have not been accounted for in the calculational bases for the proposed P-T limits in Attachment 2 of the LAR.

RAI 1 Response:

Instrument Uncertainty was not included in the limits listed in Attachment 2 of the LAR. Instrument Uncertainty will be applied in RBS procedure STP-050-0700, RCS Pressure/Temperature Limits Verification. Changes to STP-050-0700 are being made following the Entergy procedure change process and are being tracked in the Paperless Condition Reporting System (PCRS) by LR-LAR-2018-00129.

RAI 2 Description:

The current SR in TS Section 3.4.11.1 requires the licensee to perform P-T monitoring during non-nuclear heatup and cooldown operations (Service Level B conditions) and during inservice leak rate or hydrostatic pressure testing (Service Leve A conditions) of the RCS, and to verify that the "RCS pressure and temperature are within the limits of Figure 3.4.11-1...." If this LAR is approved by the staff, TS Figure 3.4.11-1 will be amended to include P-T limit curves for Service Level A and B loading conditions of both the beltline and bottom head regions of the RPV. Clarify how Entergy will be capable of distinguishing the specific types of P-T monitoring activities to be performed against the P-T limits for the RPV bottom head from those for the RPV beltline region under these loading conditions. Clarify whether the SR in TS Section 3.4.11.1 needs to be amended (as part of this LAR) in order to better define specific SR P-T monitoring requirements for the RPV bottom head and for the RPV beltline region under Service Level A and B loading conditions.

RAI 2 Response:

STP-050-0700, RCS Pressure/Temperature Limits Verification, is the RBS procedure utilized to satisfy Technical Specification (TS) Surveillance Requirements associated with TS Figure 3.4.11-1, Minimum Temperature Required vs. RCS Pressure. This current revision of this procedure only utilizes temperatures at the beltline region. With implementation of the proposed change to include both beltline and bottom head curves, this procedure will be revised to require the performer to verify the corresponding temperature is being maintained above the minimum metal temperature for its corresponding curve in the new Figure 3.4.11-1. The SR in TS Section 3.4.11.1 will not need to be amended to better define specific SR P-T monitoring requirements for the RPV bottom head and

for the RPV beltline region under Service Level A and B loading conditions. Changes to STP-050-0700 are being made following the Entergy procedure change process and are being tracked in PCRS by LR-LAR-2018-00129.

RAI 3 Description:

In NEDC-33882P, Rev. 1, GEH adjusted the [[

]], even though this type basis was defined and performed in GEH Proprietary Report No. NEDC-33178P-A, Revision 1 only for the generic stress assessment of the [[ ]] Explain your basis for applying [[ ]] in the sample, plant-specific stress analysis [[ ]]. If there is a valid technical basis for performing [[ ]] for the [[ ]], provide a sample [[ ]] and the [[ ]] over the entire range of pressures evaluated in the stress and P-T limit analysis for the component (i.e., 0 psi to 1400 psi).

RAI 3 Response:

The [[ ]] for the [[ ]] is based on the assumptions and recommendation of Welding Research Council (WRC) Bulletin 175 (Reference 3-1) that provides the technical background for Appendix G (Fracture Toughness Criteria for Protection Against Failure) of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI. WRC Bulletin 175 proposes the methodology for how to estimate the stresses when the secondary and peak stresses calculated on an elastic basis exceed the yield stress. This is to consider the [[ ]] However, for the application to the [[ ]] the [[ ]] is not applied to [[

]] The technical detail for this method is described in Section 5.C.3 of WRC Bulletin 175. The applicability of this procedure to the pressure vessel was studied in a Pressure Vessels & Piping (PVP) conference paper (Reference 3-2).

As a sample calculation, the [[ ]] under a pressure of 1,070 psi is determined as follows:

[[ ]] (Equation 1)

Where [[

]]

Applying the above data into Equation 1,

[[

]]

[[ ]] over the entire range of pressures are shown in Table 3-1.

Table 3-1: [[ ]]

Pressure (psig)	[[			
0				
100				
200				
300				
400				
500				
600				
700				
800				
900				
1000				
1100				
1200				
1300				
1400				]]

Note:
1. [[ ]]

RAI 4 Description:

In the LAR, the licensee developed proposed P-T limit curves for the RPV bottom head region using the generic methodology for [[ ]] in GEH Proprietary Report No. NEDC-33178P-A, Revision 1. The staff-approved generic methodology in NEDC-33178P-A, Revision 1, states that it is valid to use the [[

]] Provide the plant-specific [[ ]] for the design of the RPV bottom head at River Bend Station so that the staff can confirm that the [[ ]]

RAI 4 Response:

The plant-specific bottom head dimensions are [[ ]] and [[ ]] (Reference 4-1), resulting in:

Plant-specific: [[ ]]

Because the [[

]] for the reactor pressure vessel (RPV) bottom head stress assessment.

References:

3-1 Welding Research Council Bulletin 175, "PVRC Recommendations on Toughness Requirements for Ferritic Materials," August 1972.

3-2 Mehta, H.S., Stevens, G.L., Sommerville, D.V., Benson, M., Kirk, M., Griesbach, T.J., and Kusnick, J., "Treatment of Stresses Exceeding Material Yield Strength in ASME Code Section XI Appendix G Fracture Toughness Evaluations," 2014 ASME Pressure Vessels and Piping Conference, PVP2014-28397, July 2014.

4-1 Chicago Bridge & Iron Nuclear Company, Drawing No. VPF #3614-460, Revision 5, "Bottom Head Plate Details," September 1975.

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Attachment 1

Global Nuclear Fuel – Americas 10 CFR 2.390 Affidavit

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, Lisa K. Schichlein, state as follows:

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

(2) The information sought to be withheld is contained in Enclosure 1 of GEH letter DOC-0010-1238-02, "GEH Responses to Entergy River Bend Station Pressure-Temperature Limits License Amendment Request RAIs 3 and 4," dated September 19, 2018. The GEH proprietary information in Enclosure 1, which is entitled "GEH Responses to RAIs 3 and 4 in Support of the River Bend Station Pressure-Temperature Limits LAR," 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 U.S.C. Sec. 552(b)(4), and the *Trade Secrets Act*, 18 U.S.C. 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 F.2d 871 (D.C. Cir. 1992), and Public Citizen Health Research Group v. FDA, 704 F.2d 1280 (D.C. 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 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 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.

(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 or confidentiality agreements.

(8) The information identified in paragraph (2), above, is classified as proprietary because it contains details on the GEH fluence methodology for boiling water reactors (BWRs). Development of these methods, techniques, and information and their application for the design, modification, and analyses methodologies and processes 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 is true and correct.

Executed on this 19th day of September 2018.

Lisa K. Schichlein

Lisa K. Schichlein
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Enclosure 2

Updated RBG-47824 Attachment 2 Technical Specification (TS) Pages – Clean

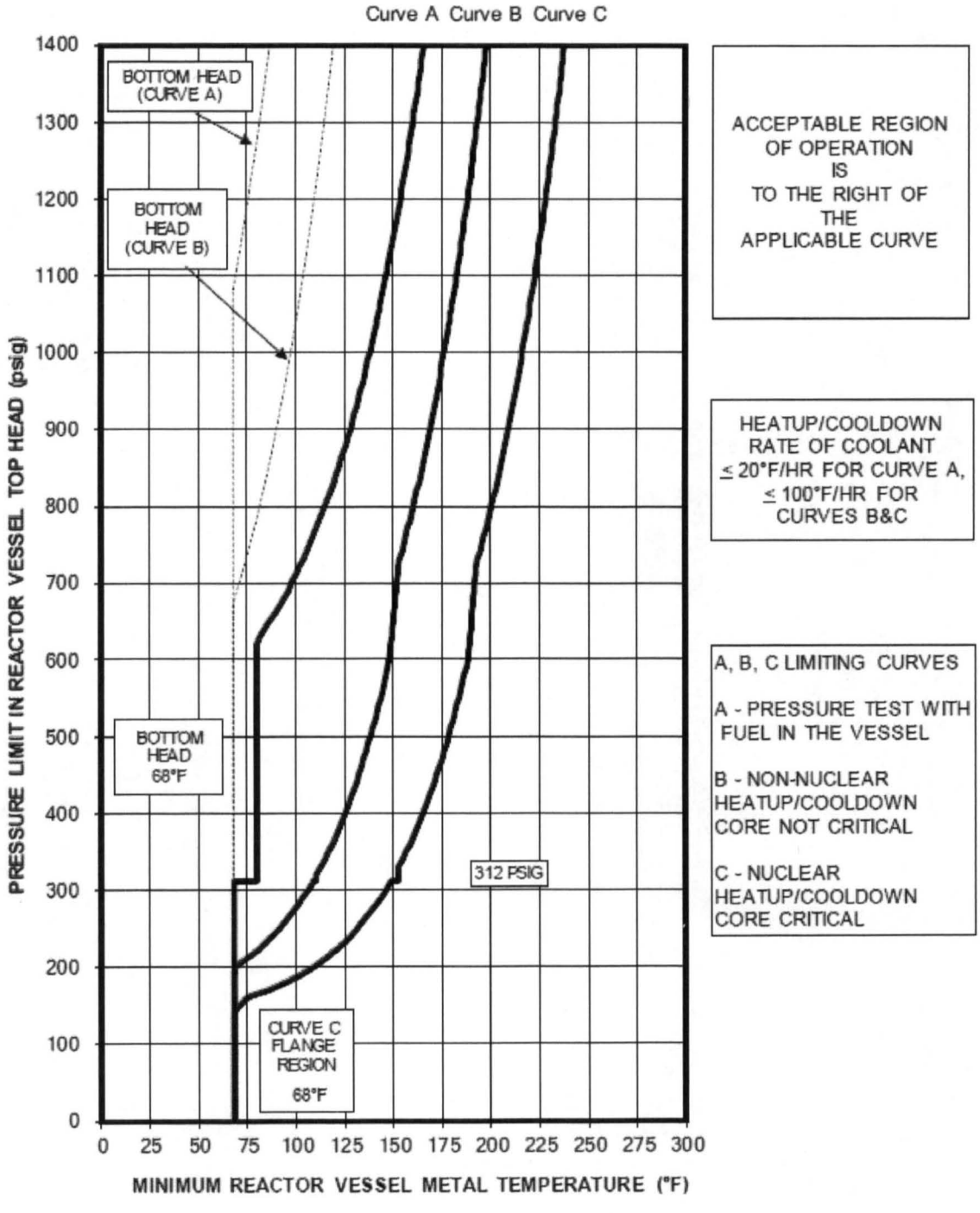

Figure 3.4.11-1 (page 1 of 1)
Minimum Temperature Required vs. RCS Pressure
Without Uncertainty for Instrumentation Error