

Enclosure 3 Contains ~~Proprietary Information to be Withheld from  
Public Disclosure Pursuant to 10 CFR 2.390~~

PSEG Nuclear LLC  
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236



10 CFR 50.90

LR-N21-0018  
LAR H20-04

April 29, 2021

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

Hope Creek Generating Station  
Renewed Facility Operating License No. NPF-57  
NRC Docket No. 50-354

Subject: **Response to Requests for Additional Information SNSB-RAI 2 and  
SNSB-RAI 3 Re: License Amendment Request to Revise Low Pressure  
Safety Limit to Address General Electric Part 21 Safety Communication  
(EPID L-2020-LLA-0210)**

- References:
1. PSEG letter to NRC, "License Amendment Request: Revise Hope Creek Generating Station Low Pressure Safety Limit to Address General Electric Nuclear Energy Part-21 Safety Communication SC05-03," dated September 24, 2020 (ADAMS Accession No. ML20272A063)
  2. NRC letter to PSEG, "Hope Creek Generating Station – Request for Additional Information RE: License Amendment Request to Revise Low Pressure Safety Limit to Address General Electric Part 21 Safety Communications (EPID L-2020-LLA-0210)," dated February 18, 2021, (ADAMS Accession No. ML21041A397)

In the Reference 1 letter, PSEG Nuclear LLC (PSEG) submitted a license amendment request (LAR) for Hope Creek Generating Station (HCGS). The proposed amendment would revise HCGS Technical Specifications (TS) 2.1.1 to lower the Low Pressure Safety Limit to address General Electric (GE) Nuclear Energy Part 21 Safety Communication SC05-03.

In the Reference 2 letter, the U.S. Nuclear Regulatory Commission staff provided PSEG a Request for Additional Information (RAI) to support the NRC staff's detailed technical review of Reference 1. The enclosures to this letter contain responses to questions RAI 2 and RAI 3 contained in the Reference 2 letter. As discussed with NRC staff, the response to question RAI 1 in the Reference 2 letter will be transmitted in a separate letter by May 31, 2021. The non-

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proprietary version of the responses to questions RAI 2 and RAI 3 are provided in Enclosure 1. Enclosure 2 contains an affidavit for withholding information executed by GE-Hitachi. The proprietary version of the responses to questions RAI 2 and RAI 3 are provided in Enclosure 3.

PSEG has determined that the information provided in this submittal does not alter the conclusions reached in the 10 CFR 50.92 no significant hazards determination previously submitted. In addition, the 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.

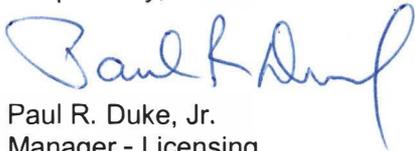
There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please contact Mr. Michael Wiwel at 856-339-7907.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 29, 2021  
(Date)

Respectfully,



Paul R. Duke, Jr.  
Manager - Licensing  
PSEG Nuclear LLC

- Enclosure 1 Non-Proprietary Response to Request for Additional Information (EPID L-2020-LLA-0210)
- Enclosure 2 Affidavit for withholding information executed by GE-Hitachi
- Enclosure 3 Proprietary Response to Request for Additional Information (EPID L-2020-LLA-0210)

cc: Administrator, Region I, NRC  
NRC Project Manager  
NRC Senior Resident Inspector, Hope Creek  
Ms. A. Pfaff, Manager, NJBNE  
PSEG Corporate Commitment Tracking Coordinator  
Station Commitment Tracking Coordinator

**Enclosure 1**

**Response to Questions RAI 2 and RAI 3 in Request for Additional Information  
by Nuclear Systems Performance Branch on Changes in Technical Specification 2.1.1  
Due to General Electric Safety Communication SC05-03 for Hope Creek Generating  
Station**

**L-2020-LLA-0210**

**(Non-Proprietary Version)**

**SNSB-RAI 2:**

Regulatory Basis:

Criterion 10 - Reactor Design: The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

RAI:

For the analysis to evaluate the performance of the GEXL14 and GEXL17 correlations against the GNF3 test data, Reference 2, Section 3.0 states:

[[

]]

(a) Explain why the [[

]]

(b) Explain what is meant by [[

]]

(c) Confirm that the [[

]]

respectively. If not, provide the source of the [[

]]

(d) Based on the statement in Reference 5, Section 5.2.5, the additive constant applied to each fuel rod location [[

]]

Explain how this [[

]]

**Response to SNSB-RAI 2:**

(a) The purpose of this evaluation is to show the adequacy of the GEXL17 (or GEXL14) correlation in predicting the critical power trends of GNF2 (or GE14) fuel down to 600 psia. Due to the lack of critical power data for GNF2 (or GE14) fuel down to 600 psia, the critical power data for GNF3 fuel are used in this evaluation. While the pressure trends between fuel product lines are expected to be similar, the GEXL17 (or GEXL14) correlation is not expected to accurately predict the absolute value of GNF3 critical power data due to the difference in critical power performance between fuel designs (e.g. different geometry and different spacer designs). [[

]]

(b) The GEXL correlation is a best-estimate correlation based on experimental data. The GEXL correlation coefficients and R-factor additive constants are determined such that the GEXL correlation has a mean ECPR (Experimental Critical Power Ratio, where  $ECPR = \frac{\text{Predicted Critical Power}}{\text{Measured Critical Power}}$ ) close to 1.0 and a minimized standard deviation. For example, the GEXL17 correlation coefficients and R-factor additive constants are determined to accurately predict GNF2 critical power data. [[

]]

(c) [[

]] See response to RAI 2-(b) above for more details.

(d) The fuel rod specific R-factor additive constants are determined as part of the normal development of the GEXL correlation and.]]

]] See response to RAI 2-(b) above.

**SNSB-RAI 3:**

Regulatory Basis:

Criterion 10 - Reactor Design: The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

RAI:

Reference 2, Section 3.1, states [[  
Explain what is the significance and/or basis of [[ ]]

**Response to SNSB- RAI 3:**

Critical power test data are collected for each unique rod position for a fuel bundle. A wide range of mass flux and inlet subcooling conditions are tested at a typical BWR operating pressure of 1000 psia. [[



**Enclosure 2**

**Affidavit from GEH Supporting the Withholding of Information in Enclosure 3  
From Public Disclosure**

# Global Nuclear Fuel – Americas

## AFFIDAVIT

I, **Brian R. Moore**, state as follows:

- (1) I am General Manager, Core & Fuel Engineering, Global Nuclear Fuel – Americas, LLC (GNF-A), 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 GNF-A report, 006N6017 Revision 0, GNF Responses to NRC RAI 2 and RAI 3 for the Hope Creek Generating Station License Amendment Request to Revise the Low Pressure Safety Limit GNF Responses to Hope Creek Generating Station dated April 2021. The GNF-A proprietary information is identified by a dotted underline inside double square brackets. [[This sentence is an example <sup>{3}</sup>]]. Figures and large objects containing GNF-A proprietary information are identified with double square brackets before and after the object. In all cases, the 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, GNF-A 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, 975 F2d 871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704 F2d 1280 (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 GNF-A's competitors without license from GNF-A 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 GNF-A customer-funded development plans and programs, resulting in potential products to GNF-A;
  - 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 GNF-A, 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 GNF-A, 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 GNF-A.
- (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 GNF-A 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 detailed data and results including the process and methodology for the analysis to evaluate the performance of the GEXL14 and GEXL17 correlations against the GNF3 test data. The development, evaluation, and design details of the GEXL Correlations and their application to GNF fuel was achieved at a significant cost to GNF-A and are derived from an extensive experience database that constitutes a major GNF-A asset.
- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GNF-A's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GNF-A'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 GNF-A.

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.

GNF-A's competitive advantage will be lost if its competitors are able to use the results of the GNF-A 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 GNF-A 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 GNF-A 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 28<sup>th</sup> day of April 2021.

A handwritten signature in black ink that reads "Brian R. Moore". The signature is written in a cursive style with a large initial "B" and "M".

Brian R. Moore  
General Manager, Core & Fuel Engineering  
Global Nuclear Fuel - Americas, LLC  
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Wilmington, NC 28401  
Brian.Moore@ge.com