



10 CFR 50.90

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March 18, 2008

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

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

Subject: Supplement to License Amendment Request for Extended Power Uprate

Reference: 1) Letter from George P. Barnes (PSEG Nuclear LLC) to USNRC,  
September 18, 2006  
3) Letter from George P. Barnes (PSEG Nuclear LLC) to USNRC,  
March 22, 2007

In Reference 1, PSEG Nuclear LLC (PSEG) requested an amendment to Facility Operating License NPF-57 and the Technical Specifications (TS) for the Hope Creek Generating Station to increase the maximum authorized power level to 3840 megawatts thermal (MWt).

Attachment 15 to Reference 1 provided a Hope Creek specific supplement to GE Licensing Topical Report NEDC-33173P based on a preliminary extended power uprate (EPU) core design for Cycle 15. The legacy fuel in the preliminary design consisted of 192 thrice or more burned SVEA 96+ bundles. As demonstrated in Section 2.0, of the Hope Creek report, the EPU values for the key metrics of the legacy SVEA 96+ fuel were consistent with the current licensed thermal power (CLTP) core values, thereby demonstrating that the legacy fuel would effectively operate at pre-EPU conditions, consistent with the current operational experience.

Attachment 1 to this letter provides similar comparisons for the legacy fuel in the actual cycle 15 core design.

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Attachment 1 contains information proprietary to GE-Hitachi Nuclear Energy, LLC (GEH). GEH requests that the proprietary information in Attachment 1 be withheld from public disclosure in accordance with 10 CFR 9.17(a)(4) and 2.390(a)(4). An affidavit supporting this request is included with Attachment 1. A non-proprietary version of the document is provided in Attachment 2.

PSEG has determined that the information contained in this letter and attachments does not alter the conclusions reached in the 10CFR50.92 no significant hazards analysis previously submitted.

There are no regulatory commitments contained within this letter.

Should you have any questions regarding this submittal, please contact Mr. Paul Duke at 856-339-1466.

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

Executed on 3/18/08  
(date)

Sincerely,



George P. Barnes  
Site Vice President  
Hope Creek Generating Station

Attachments (2)

1. Supplement to Request for License Amendment
2. Supplement to Request for License Amendment (non-proprietary version)

cc: S. Collins, Regional Administrator – NRC Region I  
J. Lamb, Project Manager - USNRC  
NRC Senior Resident Inspector - Hope Creek  
P. Mulligan, Manager IV, NJBNE

**PROPRIETARY INFORMATION NOTICE**

This enclosure contains proprietary information of the GE-Hitachi Nuclear Energy, LLC (GEH) and is furnished in confidence solely for the purpose(s) stated in the transmittal letter. No other use, direct or indirect, of the document or the information it contains is authorized. Furnishing this enclosure does not convey any license, express or implied, to use any patented invention or, except as specified above, any proprietary information of GEH disclosed herein or any right to publish or make copies of the enclosure without prior written permission of GEH.

The header of those pages in this enclosure that contain proprietary information carries the notation "GEH Proprietary Information." The complete information on those pages so marked is proprietary. Paragraph 3 of the affidavit in this Attachment provides the basis for the proprietary determination.

## GE-Hitachi Nuclear Energy Americas LLC

### AFFIDAVIT

I, **Richard E. Kingston**, state as follows:

- (1) I am Vice President, Methods Licensing, Regulatory Affairs, GE-Hitachi Nuclear Energy Americas LLC ("GEH"), 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, GE-HCGS-EPU-676, Edward D. Schrull (GE) to Larry Curran (PSEG), *Transmittal - Key Metric Comparison Actual Cycle 15 Core Design*, dated March 17, 2008. The header of those pages that contain proprietary information in Enclosure 1, which is entitled, *Slides for Key Metric Comparison Actual Cycle 15 Core Design*, carries the notation "GEH Proprietary Information." The complete chart on each of those pages so marked is proprietary. Paragraph 3 of this affidavit 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) above is classified as proprietary because it contains results and conclusions regarding GEH Methods supporting evaluations of the safety-significant changes necessary to demonstrate the regulatory acceptability for the expanded power/flow operating domains including Extended Power Uprates for a BWR, using analytical models and methods, including computer codes, which GE has developed, obtained NRC approval of, and applied to perform evaluations of transient and accident events in the GEH Boiling Water Reactor (BWR). 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 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 17th day of March 2008.

*Richard E. Kingston*

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Richard E. Kingston  
GE-Hitachi Nuclear Energy Americas, LLC

## **ATTACHMENT 2**

### **Hope Creek Generating Station**

#### **Facility Operating License NPF-57 Docket No. 50-354**

#### **Extended Power Uprate**

#### **Supplement to License Amendment Request**

In Reference 1, PSEG Nuclear LLC (PSEG) requested an amendment to Facility Operating License NPF-57 and the Technical Specifications (TS) for the Hope Creek Generating Station (HCGS) to increase the maximum authorized power level to 3840 megawatts thermal (MWt).

Attachment 15 to Reference 1 provided a Hope Creek specific supplement to GE Licensing Topical Report NEDC-33173P based on a preliminary extended power uprate (EPU) core design for Cycle 15. The legacy fuel in the preliminary design consisted of 192 thrice or more burned SVEA 96+ bundles. As demonstrated in Section 2.0, of the Hope Creek specific report, the EPU values for the key metrics of the legacy SVEA 96+ fuel were consistent with the current licensed thermal power (CLTP) core values, thereby demonstrating that the legacy fuel would effectively operate at pre-EPU conditions, consistent with the current operational experience.

The actual Cycle 15 core design contains 216 SVEA 96+ bundles, eight of which are twice burned. The remainder of the SVEA 96+ bundles are thrice or more burned. Comparisons of key parameter predictions for the actual Cycle 15 core design to the EPU Reference Plant experience base are provided below. The updated comparisons demonstrate that, for the actual Cycle 15 EPU core, the legacy fuel will effectively operate at pre-EPU conditions, consistent with the current operational experience and the information previously provided in Attachment 15 to Reference 1. The introduction of the eight twice burned SVEA-96+ fuel assemblies did not alter the trends in any manner that would change the conclusions of Attachment 15 to Reference 1.

#### **References**

- 1) Letter from George P. Barnes (PSEG Nuclear LLC) to USNRC, September 18, 2006

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Figure 2.1 – Maximum Bundle Power for HC Cycle 15 Compared to  
Reference BWR Operational Experience

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Figure 2.2 – Maximum Bundle Power/Flow Ratio for HC Cycle 15  
Compared to Reference BWR Operational Experience

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Figure 2.3 – Exit Void Fraction of Maximum Power Bundle for HC  
Cycle 15 Compared to Reference BWR Operational Experience

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Figure 2.4 – Maximum Channel Exit Void Fraction for HCGS Compared to  
Reference BWR Operational Experience

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Figure 2.5 – Core Average Exit Void Fraction for HCGS Compared to  
Reference BWR Operational Experience

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Figure 2.6 – Peak LHGR for HCGS Compared to Reference BWR  
Operational Experience

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Table 2.2 – Peak End of Cycle Nodal Exposure for HCGS Compared to Reference BWR Operational Experience

Plant	Cycle	Peak EOC Nodal Exposure (GWD/ST)
A	18	45.96
	19	43.94
B	9	56.50
	10	53.36
C	9	52.52
	10	40.67
D	30	52.66
	31	58.78
HCGS	14 CLTP	51.66
	15 EPU	57.97

Table 2.3 – Ranges of Operational Experience

Metric	Comparison Value	HCGS 115% EPU Value	Consistent with Experience (Y/N)
Max. Bundle Power (MW)	7.58	7.18	Y
Max. Bundle Power/Flow Ratio (MW/(lb/hr x1.0E-04))	0.89	0.77	Y
Exit Void Fraction of Max. Power Bundle	0.90	0.88	Y
Max. Channel Exit Void Fraction	0.90	0.88	Y
Core Avg. Exit Void Fraction	0.77	0.76	Y
Peak LHGR (kW/ft)	13.4	12.52	Y
Peak Nodal Exposure (GWd/ST)	58.8	57.97	Y