



Entergy Nuclear Generation Co.  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360

Mike Bellamy  
Site Vice President

April 13, 2001  
ENGCLtr. 2.01.047

10 CFR 50.90

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

Docket No. 50-293  
License No. DPR-35

Subject: Response to Request for Additional Information and Supplemental Proposed Change to Pilgrim's Technical Specifications Concerning the Safety Limit Minimum Critical Power Ratio

References:

1. ENGCLtr. dated February 5, 2001 (ENGCLtr. 2.01.004)  
Subject: Proposed Change to Pilgrim's Technical Specification Concerning the Safety Limit Minimum Critical Power Ratio
2. Global Nuclear Fuel\* letter (REK: 01-042), dated April 4, 2001  
Subject: Response to NRC Request for Additional Information on Pilgrim Cycle 14 SLMCPR

Reference 1 proposed to amend Facility Operating License DPR-35 for Pilgrim Nuclear Power Station by modifying the Technical Specifications.

This letter is submitted as a result of a teleconference call on April 4, 2001. The call was arranged to answer NRC staff questions on Reference 1. Specifically, questions on Technical Specification 5.6.5.a.7, the proposed changes to Technical Specification 5.6.5.b (Reference 1), and the calculated GETAB SLMCPR value for Cycle 14 [Reference 1 Attachment 5 (proprietary information) page 2 of 12].

Attachment 1 contains a description of the supplemental proposed changes discussed in the conference call. Attachment 2 contains the current Technical Specification pages marked up with the supplemental proposed revisions. Attachment 3 contains the proposed revised Technical Specification pages to reflect this supplemental request. The supplemental changes are administrative and have no impact on plant safety. The Determination of No Significant Hazards Consideration and the Environmental Assessment of the changes proposed in Reference 1 are not affected by these changes.

\*Global Nuclear Fuel – Americas, LLC is a joint venture of General Electric, Toshiba, and Hitachi.

**ATTACHMENT 4 CONTAINS PROPRIETARY INFORMATION**

APD

Attachment 4 contains a copy of Reference 2 which contains proprietary information. The attachment addresses a NRC staff technical reviewer question regarding the GETAB SLMCPR value for cycle 14 contained in Reference 1 Attachment 5. Attachment 4 includes an affidavit supporting the request that the information contained within double brackets in Attachment 4 be considered Global Nuclear Fuel proprietary information as described in 10 CFR 2.790(a)(4). Therefore, it is requested the information within the double brackets in Attachment 4 be withheld from public disclosure.

Prompt review and approval of this amendment is requested in order to support startup from the 2001 refueling outage (RFO-13). The refueling outage is currently scheduled to commence on April 21, 2001. Therefore, in order to support Cycle 14 operation, it is requested the proposed changes be issued by the first week in May 2001, to provide sufficient time to revise affected documents prior to startup from RFO-13.

Following approval of the proposed amendment, the Core Operating Limits Report and applicable operating procedures will be revised prior to start-up from RFO-13.

Please feel free to contact Mr. Douglas Ellis of my staff at (508) 830-8160 if you have questions regarding this subject.



Mike Bellamy

Commonwealth of Massachusetts)  
County of Plymouth )

Then personally appeared before me, Mike Bellamy, who being duly sworn, did state that he is Pilgrim Station Site Vice President and that he is duly authorized to execute and file the submittal contained herein in the name and on behalf of Entergy Nuclear Generation Company and that the statements in said submittal are true to the best of his knowledge and belief.

My commission expires: September 20, 2002  
DATE



NOTARY PUBLIC

Attachments (as stated)  
DWE/201047.doc

Attachments:

1. Description of Supplemental Proposed Technical Specifications Change
2. Technical Specification Marked Up Pages
3. Technical Specification Revised Pages
4. Global Nuclear Fuel letter (REK:01-042), dated April 4, 2001

cc: Mr. Alan B. Wang, Project Manager  
Project Directorate I-1  
Office of Nuclear Reactor Regulation  
Mail Stop: 14B2  
U. S. Nuclear Regulatory Commission  
1 White Flint North  
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Rockville, MD 20852

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Senior Resident Inspector  
Pilgrim Nuclear Power Station

Mr. Robert Hallisey, Director  
Radiation Control Program  
Massachusetts Department of Public Health  
305 South Street  
Boston, MA 02130

## ATTACHMENT 1

### Description of Supplemental Proposed Technical Specifications Change

#### **DESCRIPTION OF PROPOSED CHANGES**

##### Change 1

Delete Technical Specification 5.6.5.a.7 (4.2 – Reactor Core).

##### Change 2

Revise the parenthetical statement in Section 5.6.5.b.1 from “the approved version...in the COLR” to “through the latest approved amendment at the time the reload analyses are performed as specified in the COLR”.

##### Change 3

Delete Technical Specification 5.6.5.b sub-items .2 (NEDC-31852P) and .3 (NEDC-31312-P) in their entirety.

##### Change 4

Delete Technical Specification 5.6.5.b sub-item .4 that was proposed for addition in Reference 1.

#### **DISCUSSION OF THE PROPOSED CHANGES**

##### Change 1

Technical Specification 5.6.5.a identifies a listing of core operating limits that were established in the COLR by application of the identified metrologies. This list includes Technical Specification 4.2 – Reactor Core. Technical Specification 4.2 addresses reactor vessel core design and not a core operating limit and therefore, is proposed to be removed from the list.

Removing this item is an administrative change since Technical Specification 4.2 provides controls consistent with those established by Technical Specification 5.6.5 for the remaining core operating limits. These controls are established by requiring that the reactor vessel core design be limited to fuel assemblies which have been analyzed with NRC approved codes and methods and approved by the NRC in its acceptance of Amendment 22 of GESTAR II and that the design be described in the COLR.

## **ATTACHMENT 1 (cont.)**

### **Change 2**

Technical Specification 5.6.5.b specifies that the analytical methods used to determine core operating limits be listed.

The first document listed is NEDE-24011-P-A. The clarifying note states “the approved version at the time the reload analyses are performed shall be identified in the (Core Operating Limits Report).” In practice, GENE submits amendments to this document for NRC review and approval. Once approved, these amendments are not necessarily incorporated into the current version of NEDE-24011-P-A. Several amendments may exist before NEDE-24011-P-A is revised. Thus, this change clarifies that the latest amendment used at the time the reload analyses (GESTAR) are performed as specified in the Core Operating Limits Report.

### **Change 3**

Delete Technical Specification 5.6.5.b sub-items .2 (NEDC-31852P) and .3 (NEDC-31312-P).

Changes to the parenthetical statements after each of these two documents were requested in Reference 1. These documents, however, are plant-specific applications that are not analytical methods. Technical Specification 5.6.5.b requires the listing of analytical methods used to determine the core operating limits. The second and third documents listed are plant-specific applications, not analytical methods. Thus, the second and third documents listed as Technical Specification 5.6.5.b sub-items .2 and .3 need not be listed because these documents are plant-specific applications, not analytical methods.

### **Change 4**

This change requests the withdrawal of a proposed (new) Technical Specification 5.6.5.b sub-item .4.

The addition of a new Technical Specification 5.6.5.b sub-item .4 was proposed in Reference 1 and is being withdrawn as a requested change for the same reason as Change 3 above.

**ATTACHMENT 2**

Marked-up Pages of Technical Specifications

## 5.6 Reporting Requirements

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### 5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a by May 15th of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and process control procedures and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

### 5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

### 5.6.5 Core Operating Limits Report (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

1. Table 3.1.1 – APRM High Flux trip level setting
2. Table 3.2.C – APRM Upscale trip level setting
3. 3.11.A – Average Planar Linear Heat Generation Rate (APLHGR)
4. 3.11.B – Linear Heat Generation Rate (LHGR)
5. 3.11.C – Minimum Critical Power Ratio (MCPR)
6. 3.11.D – Power/Flow Relationship During Power Operation
- ~~7. 4.2 – Reactor Core~~

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," ~~(the approved version at the time the reload analyses are performed shall be identified in the COLR).~~

(through the latest approved amendment at the time the reload analyses are performed as specified in the COLR).  
(continued)

5.6 Reporting Requirements

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5.6.5 (continued)

- ~~2. NEDC-31852P, "Pilgrim Nuclear Power Station SAFER/GESTR-LOCA Loss of Coolant Accident Analysis", dated September, 1990 (the approved version at the time the reload analyses are performed shall be identified in the COLR), and~~
  - ~~3. NEDC-31312-P, "ARTS Improvement Program Analyses for Pilgrim Nuclear Power Station", dated September 1987, (the approved version at the time the reload analyses are performed shall be identified in the COLR).~~
  - c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.
  - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.
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**ATTACHMENT 3**

Revised Pages of Technical Specifications

## 5.6 Reporting Requirements

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### 5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a by May 15th of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and process control procedures and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

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  2. Table 3.2.C –APRM Upscale trip level setting
  3. 3.11.A – Average Planar Linear Heat Generation Rate (APLHGR)
  4. 3.11.B – Linear Heat Generation Rate (LHGR)
  5. 3.11.C –Minimum Critical Power Ratio (MCPR)
  6. 3.11.D – Power/Flow Relationship During Power Operation
  
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
  1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," (through the latest approved amendment at the time the reload analyses are performed as specified in the COLR).

5.6.5

(continued)

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.
  - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.
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**ATTACHMENT 4**

Global Nuclear Fuel letter REK:01-042 dated April 4, 2001.  
Subject: Response to NRC Request for Additional on Pilgrim Cycle 14 SLMCPR

**(Contains Proprietary Information)**



## Global Nuclear Fuel

**Rick Kingston**  
Fuel Project Manager

A Joint Venture of GE, Toshiba, & Hitachi

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Castle Hayne Road, Wilmington, NC 28401  
(910) 675-6192, Fax (910) 675-5684  
rick.kingston@gnf.com

April 4, 2001  
REK:01-042

cc: G.T. James

ecc: C. Heck  
L. A. Leatherwood  
K.R. Nicholas  
J.P. Riley  
S. B. Shelton

Mr. S. Paranjape  
Entergy Nuclear Generation Company  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth MA 02360-5599

Subject: Response to NRC Request for Additional Information on Pilgrim Cycle 14 SLMCPR

Reference: Letter, REK:00-161, "Pilgrim Cycle 14 SLMCPR Information Transmittal", dated  
10/26/2000

Dear Raja:

The GNF response to the NRC request for additional information on the reference calculation of the SLMCPR and an affidavit for NRC submittal are enclosed. Note the entire response is GNF proprietary so a non-proprietary version is not included.

Please note that this information is GNF Proprietary.

Please call Charlie Heck at x6134 or me if you have any questions.

Very truly yours,

R. E. Kingston  
Fuel Project Manager



**Global Nuclear Fuel**

A Joint Venture of GE, Toshiba, & Hitachi

**Affidavit**

**I, Glen A. Watford**, being duly sworn, depose and state as follows:

- (1) I am Manager, Nuclear Fuel Engineering, Global Nuclear Fuel – Americas, L.L.C. (“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 attachment, “Response to NRC Request for Additional Information on Pilgrim Cycle 14 SLMCPR,” April 4, 2001.
- (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 2.790(a)(4) 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 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 cost or price information, production capacities, budget levels, or commercial strategies of GNF-A, its customers, or its suppliers;
  - d. Information which reveals aspects of past, present, or future GNF-A customer-funded development plans and programs, of potential commercial value to GNF-A;
  - 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 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 GNF-A, and is in fact so held. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in (6) and (7) following. 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.

- (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. Access to such documents within GNF-A 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 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 details of GNF-A's fuel 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, on the order of several million dollars, to GNF-A or its licensor.

- (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 fuel design and licensing methodology 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 or its licensor.

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.

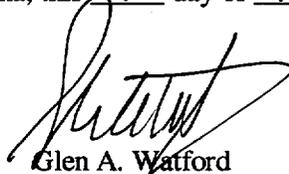
Affidavit

State of North Carolina )  
County of New Hanover ) SS:

Glen A. Watford, being duly sworn, deposes and says:

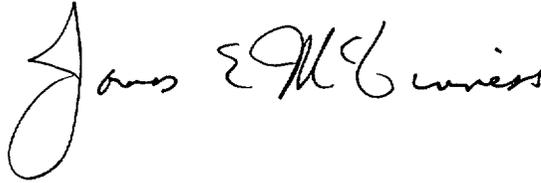
That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at Wilmington, North Carolina, this 4<sup>th</sup> day of April, 2001



Glen A. Watford  
Global Nuclear Fuel – Americas, LLC

Subscribed and sworn before me this 4<sup>th</sup> day of April, 2001



Notary Public, State of North Carolina

My Commission Expires \_\_\_\_\_  
JAMES E. MCGINNESS  
Notary Public, State of North Carolina  
New Hanover County  
My Commission Expires 1/23/2001