



PECO NUCLEAR

A Unit of PECO Energy

PECO Energy Company
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

April 12, 2000

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

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

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Meeting with U. S. Nuclear Regulatory Commission on GE14 Fuel

Dear Sir/Madam:

On March 29, 2000, PECO Energy Company and Global Nuclear Fuels met with the U. S. Nuclear Regulatory Commission to discuss the planned implementation of GE14 fuel at Peach Bottom Atomic Power Station, Units 2 and 3. Attachment 1 contains the non-proprietary slides associated with that meeting. Attachment 2 contains the proprietary version of these slides. General Electric requests that these slides be withheld from public disclosure in accordance with 10 CFR 2.790(a)(4). An affidavit supporting this request is contained in Attachment 3.

If you have any questions, please do not hesitate to contact us.

Very truly yours,

James A. Hutton
Director - Licensing

Attachments

cc: H. J. Miller, Administrator, Region I, USNRC
A. C. McMurtry, USNRC Senior Resident Inspector, PBAPS
R. R. Janati, Commonwealth of Pennsylvania

w/o enc
"
"

AP01

Attachment 3

Affidavit



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 as an attachment to the letter, G. A. Watford (GNF-A) to Tom Loomis (PECO Energy), *NRC/PECO/GE Presentation on GE14 Introduction – Proprietary Slides*, dated April 7, 2000.
- (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 10th day of April, 2000



Glen A. Watford
Global Nuclear Fuel – Americas, LLC

Subscribed and sworn before me this 10th day of April, 2000



Notary Public, State of North Carolina

My Commission Expires 10/08/01

Attachment 1
Non-Proprietary Slides



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Babcock

Global Nuclear Fuel – Americas, LLC
Castle Hayne Road, Wilmington, NC 28401
(910) 675-5446, Fax (910) 675-5764
Glen.Watford@gnf.com

Glen A. Watford
Manager, Nuclear Fuel Engineering

FLN-2000-002

April 7, 2000

Tom Loomis
PECO Energy

Subject: NRC/PECO/GE Presentation on GE14 Introduction – Non-proprietary Slides

Attached is the material presented by GE during the subject meeting. The attached slides are non-proprietary.

If you have any questions, please call me at (910) 675-5446.

Sincerely,

A handwritten signature in black ink, appearing to read 'Glen A. Watford', written over a horizontal line.

Glen A. Watford, Manager
Nuclear Fuel Engineering



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

Introduction of GE14

*Glen A. Watford, Manager
Nuclear Fuel Engineering*

Agenda

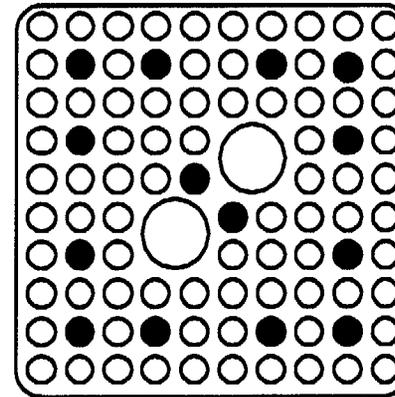
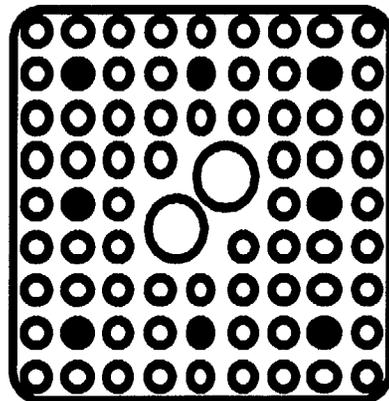
- Design
- Operating experience
- Performance
- Amendment 22 compliance

GE14 evolutionary design philosophy

- Based on proven GE12 experience
 - No material or burnup limit changes
 - No change to components (tie plates, end plugs, bundle hardware)
 - Zircaloy ferrule spacers
 - Axial spacer positions chosen to optimize thermal performance
 - Part length rods shortened to
 - maintain acceptable stability performance
 - Optimized fuel rod thermal-mechanical design
 - Debris filter standard

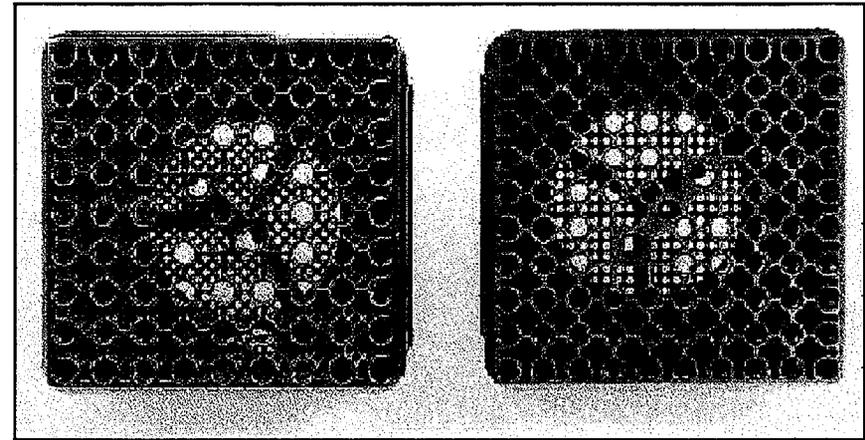
Comparison of GE13, GE12 and GE14

	GE13	GE12	GE14
Lattice	9x9	10 x10	Same as GE12
# of fuel rods	74	92	Same as GE12
# part length rods	8	14	Same as GE12
part length rod length			
# tie rods	8	same as GE13	Same as GE13
# spacers/type	8/ferrule	8/ferrule or unit cell	8/ferrule
Rod to rod pitch			Same as GE12
Water rods	2 large central	same as GE13	Same as GE13
Channel Features	Interactive with trippers	same as GE13	Interactive without trippers
LHGR limit	14.4 kw/ft	11.8 kw/ft	
Discharge exposure (peak pellet)	70000 MWd/MTU	same as GE13	Same as GE13



Debris Filter Lower Tie Plate

- 3500 in operation
- 42 GWd/MT lead
LUA experience
- 3 inspections to date
 - No plugging
 - No structural problems
 - Debris filtering effectiveness confirmed



9x9

10x10

Standard feature for GE14

10x10 operating experience

- ➔ 1st GE12 introduced at Gundremmingen B in 8/93
- ➔ A total of 54 licensed and operating GE12 LUAs in:
 - Taiwan, US, Spain, Sweden, Finland, Germany
 - Lead assembly exposure ~ 60 GWd/MTU with inconel and ferrule spacers.
- ➔ LUAs inspected over entire lifetime
- ➔ > 1900 operating GE12 bundles by March 2000

GE12 experience applicable to GE14

GE14 operating experience

- ⇒ 28 GE14 LUAs operating as of January 2000
- ⇒ First LUAs loaded in 1998
- ⇒ Two Production Reloads Complete- KKM (1999)
and Cooper (2000)
- ⇒ 1st LUA inspection completed August 1999 - KKM
and KKL

GE14 - 1st cycle LUA inspection

- Rod growth as predicted

- Excellent spacer performance
- No spacer/channel interference

- Excellent rod-to-rod spacing

Visual examination:
Outstanding Performance

GE14 - 1st cycle LUA inspection

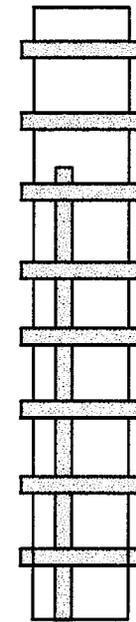
- **Excellent measured rod-to-rod spacing**
 - **As predicted**
- **Zircaloy spacers**
 - **Excellent performance**
 - **No spacer/channel interference**

Visual and Rod Gap Inspection:
Outstanding Performance

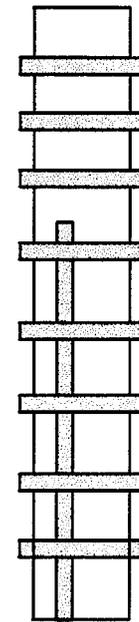
GE14 performance

- Optimized spacer/part length rod locations
 - Spacing at top of bundle for CPR performance
 -
 - Improved $2\phi/1\phi$ pressure drop

GE13



GE14



GE14 performance

- Increased heat transfer to coolant (smaller diameter fuel rod)
- Less negative void coefficient for 10x10
- Flow sensitivity/statistical adjustment factors
- Increased number of rods

Overall improved performance over GE13 design

GE14 licensing

- Amendment 22 evaluations completed in November 1998
 - No change in methods required
 - Same R-factor methodology as GE12/GE13
 - All thermal-mechanical criteria satisfied
 - Full-scale hydraulic testing
 - Critical power database -
 - GEXL uncertainty included in SLMCPR
 - Pressure drop correlations developed
 - Nuclear evaluations unaffected
 - Same lattice design
 - SLMCPR methodology applicable to 10x10 designs
 - R-factor uncertainty accounts for 10x10 design

All Amendment 22 criteria satisfied

Summary

- GE14 is evolutionary change from GE12 10x10 design
 - GE12 experience directly applicable
 - Excellent experience to date with GE14 LUAs
- Overall improved fuel performance relative to GE13
- Amendment 22 evaluations completed
- Plant specific evaluations to be completed during reload licensing process

Prepared for GE14 reloads