

April 3, 2000

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MEMORANDUM TO: Stuart A. Richards, Director  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: Robert M. Pulsifer, Project Manager, Section 2  
Project Directorate I /RA/  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MEETING WITH GENERAL ELECTRIC NUCLEAR  
ENERGY REGARDING THERMAL POWER OPTIMIZATION

On March 14, 2000, members of the staff met with Mr. Klapproth of General Electric (GE) to discuss the status of GE's thermal power optimization program for power uprate application to Boiling Water Reactors (BWRs). A list of attendees is provided as Attachment 1.

No members from the public were in attendance; therefore, the proprietary discussion immediately began. However, a copy of the non-proprietary handouts provided by GE for their presentation is included as Attachment 2.

GE provided a brief overview of their stretch power uprate and extended power uprate processes that they are using for BWRs, presently based on a topical report submitted by Caldon, Inc. for an ultrasonic flow meter. GE stated that their approach in support of an increased reactor thermal power level is consistent with an approved feedwater flow measurement technology. Mr. Klapproth discussed the status of this effort and the staff expressed some concern about the review and indicated that the priority for the review of new topical reports presently has been reduced. The scheduling of a review will be addressed when the topical report has been received by the staff.

Project No. 691

- Attachments: 1. Attendance List  
2. Non-proprietary Handout

cc w/att: See next page

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GE Nuclear Energy

Project No. 691

cc:

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MEETING BETWEEN GENERAL ELECTRIC AND NRC

MARCH 14, 2000

**GE NUCLEAR ENERGY**

J. Klapproth

**NRC**

R. Pulsifer  
J. Donoghue  
R. Caruso  
S. Dembek



**GE Nuclear Energy**

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Attachment 2

# *GE's Thermal Power Optimization Program-Update*

*Open Session*

Jim Klapproth, GE

March 14, 2000





## *Thermal Power Optimization: GE's Approach*

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### **Background...**

- NRC proposed a rulemaking which would change a requirement in 10 CFR part 50 appendix K
  - Allows utilities option to apply reduced adder to the nominal licensed power level
  - Based on reduced feedwater flow measurement instrument error
  
- Change based on topical report submitted to NRC by Caldon, Inc. (Caldon)
  - Ultrasonic flow meter (leading edge flow meter - LEFM)
  - Demonstrated more accurate feedwater flow measurement
  
- NRC issued SER approving Caldon's LEFM technology



## *Thermal Power Optimization: GE's Approach*

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### **Background...**

- BWR operating license (OL) is supported by a number of analyses and evaluations based on 2% feedwater flow uncertainty
  - Apply reduced feedwater flow uncertainty to those analyses
    - Utility may justify increasing the reactor thermal power level consistent with approved feedwater flow measurement and still remain within boundaries of these specific analyses
  
- Significant number of other safety analyses and evaluations that also support OL are performed at either nominal reactor thermal power level without an adder for feedwater flow uncertainty, or through statistical application of this uncertainty
  - These analyses and evaluations must be either re-performed or disposed for application of an increased reactor thermal power level



## *Thermal Power Optimization: GE's Approach*

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### **Background...**

- Utilities have approached GE to request this type of support for their BWRs
- GE recognizes need to adapt and simplify NRC-approved power uprate processes for this application
- GE has called this meeting to discuss GE's streamlined approach to Thermal Power Optimization and provide status update



## *Thermal Power Optimization: GE's Approach*

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### **Agenda for the Closed (Proprietary) Session...**

- Overview of GE's NRC-Approved Stretch Power Uprate (SPU) and Extended Power Uprate (EPU) processes for application to Boiling Water Reactors (BWRs)
- Review of GE's approach to support increase in reactor thermal power level (Thermal Power Optimization, or "TPO") consistent with approved feedwater flow measurement
- Status/Schedule
- NRC Feedback