September 25, 1996

Mr. Craig P. Kipp
Plant Manager
General Electric Nuclear Energy
Nuclear Energy Production
P.O. Box 780, Mail Code A20
Wilmington, NC 28402-0780

SUBJECT: NONPROPRIETARY VERSION OF NRC INSPECTION REPORT NO. 99900003/96-01

Dear Mr. Kipp:

This letter transmits the nonproprietary version of the U.S. Nuclear Regulatory Commission's (NRC's) Inspection Report 99900003/96-01. Our letter to you dated September 10, 1996, transmitted the original (proprietary) version of the report. On the basis of our discussions and review of the information in your September 19, 1996, letter (RJR-96-107), and its enclosure (Proprietary Information Summary Sheet), we have concluded that the specific items identified in your letter could be regarded as proprietary and, as such, were removed from the inspection report. In the revised nonproprietary (public) version of the report, we have briefly summarized the deleted or revised text.

Your response to either this letter or our letter dated September 10, 1996, and their enclosures are not subject to the clearance procedures of the Office of Management and Budget, as required by the Paperwork Reduction Act of 1980, Public Law No. 96-511.

In accordance with Section 2.790(a) of the NRC "Rules of Practice," of Title 10 of the Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room. Should you have any questions concerning this matter, pleased contact Steven M. Matthews of my staff at (301) 415-3191.

Sincerely,

ORIGINAL SIGNED BY

Robert M. Gallo, Chief
Special Inspection Branch
Division of Inspection
and Support Programs
Office of Nuclear Reactor Regulation

Docket No.: 99900003
Enclosure: NRC letter to GE, September 10, 1996

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* See previous concurrence. 63

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Inspections

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 10, 1996

Mr. Craig P. Kipp
Plant Manager
General Electric Nuclear Energy
Nuclear Energy Production
P.O. Box 780, Mail Code A20
Wilmington, NC 28402-0780

SUBJECT: NRC INSPECTION REPORT NO. 99900003/96-01

Dear Mr. Kipp:

On May 10, 1996, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of the General Electric Company (GE) activities at the Nuclear Energy Production facilities in Wilmington, North Carolina. This letter transmits the report of that inspection.

During this inspection, the NRC inspection team did not identify any instances where your evaluation of the safety limit minimum critical power ratio (SLMCPR) errors or the notification of NRC licensees failed to meet NRC requirements in Part 21 of Title 10 of the Code of Federal Regulations (10 CFR). However, the team concluded that GE could have taken actions to evaluate the SLMCPR problem earlier than its "discovery date" of March 28, 1996, when GE initiated its potentially reportable condition evaluation. The team determined that in August 1995, GE determined that it was possible to have an R-factor distribution that would yield a higher number of fuel rods that would approach boiling transition than the bounding values used in its generic SLMCPR analyses. This information was contained in an internal GE document titled "Discussion of Deviation from Design Procedure," August 1995, based on the SLMCPR analysis for the Kernkraftwerk Krümmel plant.

Pursuant to an April 17, 1996, meeting with NRC staff, GE provided a list of 13 NRC licensee plants that were most likely to be impacted by the SLMCPR errors. Letter notifications that included plant specific status were transmitted to all GE fueled boiling-water reactors (BWRs) by letters dated April 18, 1996, although some licensees were orally notified a few days earlier. Thus, the team found that from the time the potential design defect was identified (March 28, 1996), approximately one month elapsed before GE notified licensees of needed interim corrective actions. GE's failure to evaluate its potential SLMCPR problem when indications of the problem first appeared in August 1995 and to timely notify licensees of the need to take interim corrective actions is considered a weakness in GE's responsiveness to the SLMCPR issue.

In its May 24 1996, letter, "10 CFR Part 21, Reportable Condition, Safety Limit MCPR Evaluations," GE informed NRC of the reportable condition finding for its SLMCPR evaluations. The 10 CFR Part 21 notification identified 11 NRC licensed plants that have SLMCPR limits that are above their currently licensed technical specification SLMCPR values. GE's reanalyses of 29 domestic GE fueled BWRs was reportedly complete on May 29, 1996, over two months from the official "discovery date" and approximately nine months after the problem was initially documented by GE in August 1995.

The team concluded that GE's response to the SLMCPR plant specific evaluations was inadequate to provide clear and accurate corrective action information to NRC licensees on a schedule appropriate for the safety issues involved. The team also concluded that the clarity and effectiveness of GE's notifications could have been enhanced if GE had placed more attention to timely completion of the plant specific evaluations and to reporting and explaining the plant specific results rather than deemphasizing the impact of the SLMCPR error on affected plants.

During this inspection the NRC team determined that the implementation of your quality assurance program failed to meet certain NRC requirements imposed on you by licensees and NRC approved methodology. The most significant nonconformance was the team's finding that GE failed to recalculate or reconfirm the applicability of the generically determined SLMCPR to new fuel bundle designs as required by Appendix B to 10 CFR Part 50, and Amendment 22 of the "General Electric Standard Application for Reload (GESTAR) II" topical report documented in NEDE-24011-P-A, "General Electric Standard Application For Reactor Fuel" (approved by the NRC on July 23, 1990). GE's failure to recalculate or reconfirm the applicability of the generically determined SLMCPR to new fuel bundle designs resulted in licensees operating 11 reactor cores with incorrect and nonconservative technical specification safety limit MCPR values.

In addition, the staff notes that certain licensees failed to verify that GE complied with the NRC approved methodology required by the plant technical specifications.

The team found that your recent generic SLMCPR evaluations did not comply with the NRC approved search procedure that assures a conservative power distribution representative of the limiting permissible rod configurations. Specifically, the input power distribution assumptions employed by GE for recent generic analyses did not conform to the inputs that were implicit to the NRC approved methods in "General Electric BWR Thermal Analysis Basis (GETAB): Data, Correlation and Design Application," NEDE-10958-PA, January 1977, and referenced in GESTAR. In addition, the cycle-specific evaluations were based on planned operating conditions during the cycle and did not bound all rod configurations permitted by the plant technical specifications and operating controls. The team also found that the R-factor definition was changed for GE11 fuel; and the R-factor data used in the GE11 SLMCPR analysis was not adequately verified and was not bounding for many plant specific GE11 fuel designs.

These nonconformances are cited in the enclosed Notice of Nonconformance (NON), and the circumstances surrounding them are described in detail in the enclosed report. You are requested to respond to the nonconformances and should follow the instructions specified in the enclosed NON when preparing your response.

In accordance with Section 2.790(a) of 10 CFR, a copy of this letter and its enclosure will be placed in the NRC Public Document Room and made available to the public unless you notify this office by telephone within 10 days of the date of this letter and submit a written application to withhold the information contained therein. Such application must be consistent with the requirements of 10 CFR 2.790(b)(1). Your response to this letter and its enclosure is not subject to the clearance procedures of the Office of Management and Budget, as required by the Paperwork Reduction Act of 1980, Public Law No. 96-511.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you. Thank you for your cooperation during this process.

Sincerely,

Robert M. Gallo, Chief
Special Inspection Branch
Division of Inspection
and Support Programs
Office of Nuclear Reactor Regulation

Docket No.: 99900003

Enclosures: 1. Notice of Nonconformance
2. Inspection Report 99900003/96-01