Georgia Power Company
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 992-7122

Georgia Power
the southern electric system

C. K. McCoy
Vice President, Nuclear
Vogtle Project

January 30, 1997

LCV-0910-C

Docket No. 50-424
50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Ladies and Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
REPLY TO A NOTICE OF VIOLATION

Pursuant to 10 CFR 2.201, Georgia Power Company submits the enclosed information for Vogtle Electric Generating Plant in response to a violation first identified in Nuclear Regulatory Commission (NRC) Integrated Inspection Reports 50-424;425/96-11, which concerns the inspection conducted by NRC Resident Inspectors from September 29, 1996, through November 9, 1996, and discussed at an Enforcement Conference (EA 96-479) on December 19, 1996. The Notices of Violation were issued as an enclosure to the NRC's letter of December 31, 1996, summarizing the proceedings of the meeting and later referenced in NRC Integrated Inspection Reports 50-424;425/96-12, dated January 17, 1997. Additionally, as requested by the NRC, the response to the NOV includes a description for the appropriate functional testing criteria for safety-related pump motor coolers.

Should you have any questions feel free to contact this office.

Sincerely,

C. K. McCoy

CKM/CTT/AFS 030033

Enclosure and distribution: (continued next page)

Enclosure: Reply to NOV 50-424;425/ 96-479 -01013, -01023)

cc: Georgia Power Company
Mr. J. B. Beasley, Jr.
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. L. L. Wheeler, Licensing Project Manager, NRR
Mr. C. L. Ogle, Senior Resident Inspector, Vogtle

ENCLOSURE

VOGTLE ELECTRIC GENERATING PLANT - UNITS 1 & 2
REPLY TO A NOTICE OF VIOLATION
NRC INSPECTION REPORTS 50-424; 425/96-11

VIOLATION A (50-424/ 96-479-01013)

The following is a transcription of violation A as cited in the Notice of Violation (NOV):

"During an NRC inspection conducted on September 29 through November 9, 1996, violations of NRC requirements were identified. In accordance with the 'General Statement of Policy and Procedures for NRC Enforcement Actions,' (NUREG-1600), [a] violation [is] listed below:

A. Technical Specification (TS) 3.5.2 Limiting Condition for Operation, Emergency Core Cooling System (ECCS) Subsystems - T_{ave} Greater than or Equal to 350 °F, requires that two independent ECCS subsystems be operable when in modes 1, 2, or 3. Each subsystem is comprised of one operable centrifugal charging pump, one operable safety injection pump, one operable residual heat removal heat exchanger, and one operable residual heat removal pump.

TS 3.5.2 Action Statement (a) requires that with one ECCS subsystem inoperable that the inoperable subsystem be restored to operable status within 72 hours or be in Hot Standby within the next six hours and in Hot Shutdown within the following 6 hours.

Contrary to the above, from at least September 30, 1991, through October 23, 1996, when Unit 1 was operated in modes 1, 2, and 3, the licensee failed to maintain two independent ECCS subsystems operable, and the provisions of TS 3.5.2 Action Statement (a) were not met. Specifically, the Unit 1, Train B safety injection pump (1B SIP) was inoperable due to blocked cooling flow to one of its motor coolers and approximately one-third flow to its other motor cooler. (01013)

This is a Severity Level III problem (Supplement I)."

RESPONSE TO VIOLATION A (50-424/ 96-479-01013)

Admission or Denial of the Violation:

This violation occurred as stated in the notice of violation.

Reason for the Violation:

On October 15, 1996, a plant equipment operator noticed that the return line from one of the two Unit 1 safety injection pump (SIP) B motor coolers was warmer than the other. Since the coolers are supplied by a common header personnel were unable to explain the different temperatures and a work order was written to investigate. On October 22, 1996, one of the two Unit 1 SIP B motor coolers was disassembled and personnel found its tubesheet was blanked off with gasket material.

During disassembly/reassembly, personnel noted the possibility of reversing the plenum and determined that a plan was warranted for checking other motor coolers. A field verification of temperature differentials was initiated and on October 25, 1996, personnel inspected the other Unit 1 SIP B motor cooler to ensure proper plenum installation and found this cooler had a reversed plenum. The effect of this configuration was that cooling water flow made only one pass through this Unit 1 SIP B motor cooler rather than the design of three passes through the cooler.

The cause of this violation was improper gasket installation and inadequate procedural guidance resulting in incorrect assembly of the motor coolers. A review of work orders determined that the as-found motor cooler assemblies' configurations had been in place at least since 1991, and possibly since original construction. Therefore, the inoperability of the 1B SIP in conjunction with the out-of-service time due to normal maintenance/testing for the 1A SIP resulted in a failure to maintain two independent ECCS subsystems operable.

While SIP B was incapable of performing its intended safety function, the incidence of SIP A unavailability during unit operation in Modes 1, 2, or 3, was found to average approximately 2 and 1/2 hours per year. This condition was addressed by performing an evaluation of the VEGP probabilistic safety assessment (PSA) model which assumed an unavailability of 10 hours per year. This evaluation determined that the impact on the annual VEGP core damage frequency (CDF) due to the inadvertent unavailability of SIP B for an entire year, would be an increase of about 5.3 percent. Also from a review of the PSA model, it was concluded that this condition does not significantly amplify the impact on CDF resulting from any concurrent normal equipment maintenance, such as charging pumps, RHR pumps, or SIP A. It was also determined that this condition caused the calculated annual VEGP large early release frequency (LERF) to increase by approximately 48 percent. The accident sequences causing this increase are related to the likelihood of core damage following a steam generator tube rupture event. From the current evaluation, as a percentage of CDF, the contribution of this LERF would only increase to 5.2 percent, which amounts to a negligible impact on the overall VEGP containment performance capability.

The above risk assessment was performed assuming that at least one SI pump (in conjunction with a centrifugal charging pump and a residual heat removal pump) was required to mitigate the spectrum of LOCAs to prevent core damage. However, Westinghouse, VEGP's nuclear steam supply system vendor, was asked to reevaluate the small break loss-of-coolant accident (SB LOCA) for the impact of the loss of an SI pump. The SB LOCA analysis was determined to be limiting with respect to the loss of the SI pumps. The existing VEGP SB LOCA analysis of record (AOR) was performed with the 1985 Westinghouse SB LOCA Accident Evaluation Model using the NOTRUMP code.

Since that time a new methodology has been approved by the NRC for use which features improvements that lead to increased ECCS flow to the reactor coolant system (RCS) as well as enhanced depressurization in the RCS. Westinghouse used this methodology in their evaluation of this event for VEGP. Specifically, a generic Westinghouse pressurized water reactor input deck was used with VEGP specific centrifugal charging pump and SIP flows. First an evaluation was performed to demonstrate that the generic model with VEGP specific flows was sufficiently close to the VEGP SB LOCA AOR for comparison purposes. Having successfully demonstrated a valid comparison, a range of postulated break sizes of 1.5", 2.0", and 3.0" was evaluated to confirm the limiting break size. The limiting single failure of loss of a complete train of ECCS was assumed, and the remaining operating SIP was assumed to fail after one hour. The one-hour time frame was based on a conservative engineering evaluation of the impact of loss of motor cooling on the SIP motor. It was determined that the SIP motor could be conservatively expected to operate for at least one hour. The results of the evaluation demonstrated a limiting peak clad temperature of 1936° F, which demonstrates that adequate margin to the 10 CFR 50.46 limits remain.

Finally, there was no event during the period from 1991, until the 1B SIP was returned to operable status that would have required safety injection.

Corrective Steps Which Have Been Taken and the Results Achieved:

1. The gasket that blanked off the Unit 1 SIP B motor cooler tubesheet was removed and a properly cut gasket was installed. Also, the plenum was correctly aligned.

2. Upon discovery, a field verification of temperature differentials of other similar safety-related motor coolers was performed with one reversed plenum detected on the Unit 2 containment spray pump (CSP) Train A motor cooler. The plenum installation was corrected. Subsequent additional inspections have confirmed correct plenum orientations, and the plenums were permanently marked accordingly.

3. The inspection scope was expanded to non-safety related pumps and reversed plenums were found on one of the two non-safety related auxiliary component cooling water (ACCW) system pumps on each unit. These were subsequently corrected.

4. An evaluation of the impact to the qualified life of the Unit 1 SIP B motor was performed and concluded there was only an insignificant reduction in the motor's qualified life.

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NRC INSPECTION REPORTS 50-424; 425/96-11

Corrective Steps Which Will Be Taken to Avoid Further Violations:

1. To address functional testing following motor cooler reassembly, maintenance procedure 27118-C, "Westinghouse Large Frame Motor Heat Exchanger Maintenance" and engineering support procedure 83308-C, "Flow Testing of Safety-Related NSCW System Coolers", will be revised by February 19, 1997, to include the functional testing criteria and instructions on performing the test. Listed are the methods which will be utilized:

   a. Utilizing Polysonics, flow will be verified through each motor cooler by one of two methods: 1) measure each individual motor cooler flow, or 2) when it is not possible to measure each individual motor cooler flow, measure the combined flow for both associated motor coolers and measure flow through at least one individual motor cooler in order to calculate the other. This test will ensure that the coolers have been vented properly and that normal flow exists to each cooler.

   b. An independent verification of proper plenum orientation via the "match-marks" after cooler reassembly will be performed.

2. An engineering evaluation will be conducted to identify an appropriate method of performance testing safety-related pump motor coolers. This evaluation requires that accessible local instrumentation be identified or possibly installed on each pump to monitor critical motor parameters such as bearing, winding or air temperature. The tests would involve monitoring one or more of these parameters during a pump run and ensuring that maximum allowable temperatures are not exceeded once the temperatures have stabilized. If this type of testing is determined to be feasible, a detailed procedure for testing each type of motor cooler will be developed and approved by May 31, 1997, and baseline testing will be completed on each motor cooler by the end of the next respective unit's refueling outage, 1R7 and 2R6. Periodic testing frequencies will then be established based on evaluation of the baseline test results.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on October 23, 1996, when the 1B SIP was returned to operable status.

ENCLOSURE

VOGTLE ELECTRIC GENERATING PLANT - UNITS 1 & 2
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NRC INSPECTION REPORTS 50-424; 425/96-11

VIOLATION B (50-424;425/ 96-479-01023)

The following is a transcription of the violation B as cited in the Notice of Violation (NOV):

"During an NRC inspection conducted on September 29 through November 9, 1996, violations of NRC requirements were identified. In accordance with the 'General Statement of Policy and Procedures for NRC Enforcement Actions,' (NUREG-1600), [a] violation [is] listed below:

B. TS 6.7.1.a requires that written procedures be established covering activities delineated in Appendix A of Regulatory Guide 1.33, Revision 2, dated February 1978.

Regulatory Guide 1.33, Revision 2, dated February 1978, requires that procedures be written for performance of maintenance that can affect safety-related equipment.

Maintenance Procedure Checklist SCL022238, Nuclear Service Cooling Water Heat Exchangers - Periodic Inspections, Revision 8, dated September 29, 1995, provided general instructions to remove, replace, and re-install heat exchanger gaskets and plenums.

Contrary to the above, as of October 25, 1996, the licensee failed to establish adequate procedural guidance to assure the correct installation of motor cooler gaskets and plenums for safety-related equipment. As a result, the gasket for the 1B SIP inboard motor cooler was installed backwards and the plenum on the outboard motor cooler was reversed rendering the pump inoperable. Additionally, the plenums were installed backwards on a Unit 2 Train A containment spray pump motor cooler, on a Unit 1 auxiliary component cooling water (ACCW) Pump 2 motor cooler, and on both Unit 2 ACCW Pump 1 motor coolers. (01023)

This is a Severity Level III problem (Supplement I)."

RESPONSE TO VIOLATION B (50-424;425/ 96-479-01023)

Admission or Denial of the Violation:

This violation occurred as stated in the notice of violation.

Reason for the Violation:

The original vendor manuals for the Westinghouse large frame water cooler motors did not provide any specific guidance for disassembly/reassemble of components; therefore

the level of detail included in the maintenance procedure checklist was less than adequate for motor cooler disassembly/reassembly. Additionally, VEGP failed to consider or assess the need to establish a comprehensive procedure to ensure motor cooler components were properly installed. The failure to establish an adequate procedure resulted in the incorrect assembly of components listed in the violation.

The circumstances concerning the 1B SIP are discussed above in the previous violation response. On October 24, 1996, the Unit 2 containment spray pump (CSP) Train A motor cooler was found to have a reversed plenum. On that same day the reversed plenum was corrected. An engineering evaluation determined the reduced Unit 2 CSP A motor cooling capacity was sufficient to prevent winding or bearing failure. Therefore, the Unit 2 CSP A would have been capable of performing its intended safety function.

Additionally, during subsequent investigations of non-safety related pumps, reversed plenums were found on one of the two non-safety related auxiliary component cooling water (ACCW) system pumps on each unit. These were subsequently corrected. An engineering evaluation also determined these pumps would have been capable of performing their intended function.

Corrective Steps Which Have Been Taken and the Results Achieved:

1. Maintenance procedure 27118-C, "Westinghouse Large Frame Motor Heat Exchanger Maintenance", for Westinghouse large frame water cooled motors has been developed and requires concurrent dual verification for gasket and plenum installation.

2. Technical manuals have been revised to provide guidance on proper installation of the cooler plenums.

Corrective Steps Which Will Be Taken to Avoid Further Violations:

1. This event and instructions on the new maintenance procedure will be included in maintenance continuing training. This training will be completed by May 1, 1997.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on December 6, 1996, when procedure 27118-C, "Westinghouse Large Frame Motor Heat Exchanger Maintenance", was approved providing specific instructions for correct assembly/disassembly of motor cooler components.