Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-3195

Mailing Address:
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 868-5581

W. G. Hairston, III
Senior Vice President
Nuclear Operations

HL-882
000071

January 23, 1990

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W., Suite 2900
Atlanta, Georgia 30323
ATTN: Mr. S. D. Ebneter

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

Gentlemen:

Generic Letter 89-13, "Service Water System Problems affecting Safety Related Equipment" was issued on July 18, 1989 to all holders of operating licenses or construction permits. The generic letter requires licensees to take actions to ensure that the service water systems are in compliance and will be maintained in compliance with 10 CFR Part 50, Appendix A, General Design Criteria 44, 45, and 46 and Appendix B, Section XI. Licensees are required to provide a response indicating plans to implement recommendations I-V of the generic letter or advise the NRC of an equally effective alternate course of action. Generic Letter 89-13 further states that if an alternative course of action is chosen, justification that the heat removal requirements of the service water system are satisfied by use of the alternative program should be documented and retained in appropriate plant records. Licensees are also required to provide confirmation to the NRC indicating that all initial tests or activities have been completed and that continuing programs have been established within 30 days after implementation.

In response, Georgia Power Company (GPC) plans to augment existing programs or implement new programs to meet the intent of the generic letter with respect to safety-related portions of the service water systems. The attached enclosure provides a discussion of each of the initial recommended actions along with GPC's response. GPC intends to implement the program as described in the enclosure; however, should more effective methods become available for implementing these actions in the future, the program may be revised accordingly. Implementation of the recommended or equally effective actions and establishment of a continuing program will be complete for both units prior to plant startup following

A065
1/1

the Unit 1 Fall 1991 refueling outage. A response indicating that all initial tests or activities have been completed and that continuing programs have been established will be submitted within 30 days of the final implementation.

Mr. W. G. Hairston, III states that he is a Senior Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company and that, to the best of his knowledge and belief, the facts set forth in this letter are true.

GEORGIA POWER COMPANY

BY: W. G. Hairston, III

Sworn to and subscribed before me this 23rd day of January 1990.

Notary Public

MY COMMISSION EXPIRES DEC. 15, 1992

JKB/eb
000071

Enclosure: Service Water System Problems Affecting Safety-Related Equipment

c: Georgia Power Company
Mr. H. C. Nix, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
GO-NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. P. Crocker, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. J. E. Menning, Senior Resident Inspector - Hatch

ENCLOSURE

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

I. GENERIC LETTER ISSUE I; NRC RECOMMENDED ACTION:

For open-cycle service water systems, implement and maintain an ongoing program of surveillance and control techniques to significantly reduce the incidence of flow blockage problems as a result of biofouling. The following program, or an equally effective program, is acceptable:

A. The intake structure should be visually inspected, once per refueling cycle, for macroscopic biological fouling organisms (i.e., Asiatic clams) sediment and corrosion. Inspections should be performed either by scuba divers or by dewatering the intake structure or by other comparable methods. Any fouling accumulations should be removed.

B. The service water system should be continuously (for example, during spawning) chlorinated (or equally effectively treated with another biocide) whenever the potential for a macroscopic biological fouling species exists (for example, Asiatic clams at freshwater plants). Precautions should be taken to obey Federal, State and local environmental regulations regarding the use of biocides.

C. Redundant and infrequently used cooling loops should be flushed and flow tested periodically at the maximum design flow to ensure that they are not fouled or clogged. Other components in the service water system should be tested on a regular schedule to ensure that they are not fouled or clogged. Service water cooling loops should be filled with chlorinated or equivalently treated water before lay-up. Systems that use raw service water as a source, such as some fire protection systems, should also be chlorinated or equally effectively treated before lay-up to help prevent microbiologically influenced corrosion (MIC). Precautions should be taken to obey Federal, State and local environmental regulations regarding the use of biocides.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

D. Samples of water and substrate should be collected annually to determine if Asiatic clams have populated the water source. Water and substrate sampling is only necessary at freshwater plants that have not previously detected the presence of freshwater clams in their source water bodies. If Asiatic clams are detected, this sampling activity may be discontinued if desired and the chlorination treatment program should be modified to be in agreement with paragraph B, above.

GPC RESPONSE:

A. GPC has previously performed visual inspections and cleaning of the Plant Hatch service water intake structure through implementation of procedure 52PM-MME-006-0, "Intake Pit Suction Inspection". The existing program will be reviewed and revised as necessary with regard to the visual inspection and cleaning of the intake structure by means of scuba divers to remove accumulations of macroscopic biological fouling organisms and sedimentation to the extent practical. The intake structure at Plant Hatch is common for both Units 1 and 2. Corrosion of the intake structure is not a problem since the intake structure is constructed of concrete. The next inspection is currently planned for the summer of 1991. Future inspections will initially be established on a once per refueling cycle frequency. The inspection frequency will be revised, if necessary, based on the results of inspections.

B. GPC currently has a program in place to chlorinate the service water system during periods when needed. This chlorination process is in accordance with the existing plant effluent discharge permit. A review of the existing chemical treatment programs associated with the service water systems with regard to biofouling, corrosion, and silting will be performed. The program will be augmented, if appropriate, to meet the intent of the recommendations provided in the Generic Letter. Future biocidal treatments will continue to comply with environmental regulations regarding the use of biocides.

C. The service water system at Plant Hatch is basically a once through system. The appropriate maintenance and operations programs will be reviewed and revised, as appropriate, to periodically flush, or operate low flow or infrequently used portions of the service water system.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

Inspection or testing for fouling may be used in lieu of flushing or operation. The program will be developed for both units prior to startup from the Unit 1, Fall 1991 refueling outage. The schedule for flushing, operation, inspecting, or testing will be determined as part of the overall program.

Actions necessary to restore deficient conditions identified will be addressed by the inspection and maintenance programs and procedures corresponding to the actions for Generic Letter Issue III.

The Plant Hatch program for testing safety-related heat exchangers is addressed in the response for Generic Letter Issue II. Other service water system components (i.e., vents, drains, instrument lines) are not included in this program.

The fire protection system would normally receive water from deep draft wells rather than from the Altamaha River. Consequently, chlorinating or equivalently treating the fire protection water suppression system is not required. Connections between the service water system and the fire protection water system exist but are intended only as a backup water sources for the systems. The connection point between the service water and fire protection systems will be considered in the scope of this program.

D. Samples of water and substrate will be collected annually to determine the extent to which Asiatic clams may have populated the water source. Historically, Asiatic clams have not been a problem at Plant Hatch. We will continue the sampling program and take appropriate actions based on the results of water and substrate sample analyses.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

II. GENERIC LETTER ISSUE II; NRC RECOMMENDED ACTION:

Conduct a test program to verify the heat transfer capability of all safety-related heat exchangers cooled by service water. The total test program should consist of an initial test program and a periodic retest program, and should include heat exchangers connected to or cooled by one or more open-cycle systems. The initial frequency for the periodic retesting should be at least once per fuel cycle, but after three tests, licensees and applicants should determine the best frequency for testing to provide assurance that the equipment will perform the intended safety functions during the intervals between tests and meet the requirements of GDC 44, 45, 46. The minimum final testing frequency should be once every five years. A summary of the program should be documented, including the schedule for tests, and all relevant documentation should be retained in appropriate plant records.

The need for testing of closed-cycle system heat exchangers has not been considered necessary because of the assumed high quality of existing chemistry control programs. If the adequacy of these chemistry control programs cannot be confirmed over the total operating history of the plant or if during the conduct of the total testing program any unexplained downward trend in heat exchanger performance is identified that cannot be remedied by maintenance of an open-cycle system, it may be necessary to selectively extend the test program and the routine inspection and maintenance program addressed in Action III below to the attached closed-cycle systems.

Testing should be done with necessary and sufficient instrumentation, though the instrumentation need not be permanently installed. The relevant temperatures should be verified to be within design limits. If similar or equivalent tests have not been performed during the past year, the initial tests should be completed before plant startup following the first refueling outage beginning nine months or more after the date of this letter.

As a part of the initial test program, it may be decided to take corrective action before testing. Tests should be performed for the heat exchangers after the corrective actions are taken to establish baseline data for future monitoring of heat exchanger performance. In the periodic retest program, the best frequency for testing to provide assurance that the equipment will perform the intended safety functions during the intervals between tests should be determined

after the completion of three tests. Therefore, in the periodic retest program, testing should be performed for the heat exchangers before any corrective actions are taken. As in the initial test program, tests should be repeated after any corrective actions are taken to establish baseline data for future monitoring of heat exchanger performance.

An example of an alternative action that would be acceptable to the NRC is frequent regular maintenance of a heat exchanger in lieu of testing for degraded performance of the heat exchanger. This alternative might apply to small heat exchangers, such as lube oil coolers, pump bearing coolers or readily serviceable heat exchangers located in low radiation areas of the facility.

The following program, or an equally effective program to ensure satisfaction of the heat removal requirements of the service water system, is acceptable:

A. All Heat Exchangers

Monitor and record cooling water flow and inlet and outlet temperatures for all affected heat exchangers during the modes of operation in which cooling water is flowing through the heat exchanger. For each measurement, verify that the cooling water temperatures and flows are within design limits for the conditions of the measurement. The test results from periodic testing should be trended to ensure that flow blockage or excessive fouling accumulation does not exist.

B. Water-to-Water Heat Exchangers (In Addition to Item A above)

1. Perform functional testing with the heat exchanger operating, if practical, at its design heat removal rate to verify its capabilities. Temperature and flow compensation should be made to adjust the results to the design conditions. Trend the results, as explained above, to monitor degradation.

2. If it is not practical to test the heat exchanger at the design heat removal rate, then trend test results for the heat exchanger efficiency or overall heat transfer coefficient. Verify that heat removal would be adequate for the system operating with the most limiting combination of flow and temperature.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

C. Air-to-Water Heat Exchangers (In addition to Item A above)

1. Perform efficiency testing (for example, in conjunction with surveillance testing) with the heat exchanger operating under the maximum heat load that can be obtained practically and correct the results for off-design conditions. Verify design heat removal capacity and trend results to identify any degraded equipment.

2. If it is not possible to test the heat exchanger to provide statistically significant results (for example, if error in the measurement exceeds the value of the parameter being measured), then trend test results for both the air and water flow rates in the heat exchangers and perform visual inspections, where possible, of both the air and water sides of the heat exchanger to ensure cleanliness of the heat exchanger.

D. Heat Exchangers Other than Water-to-Water and Air-to-Water (In Addition to Item A above)

1. If plant conditions allow testing at design heat removal conditions, verify that the heat exchanger performs its intended functions and trend the test results to monitor degradation.

2. If testing at design conditions is not possible, then provide for extrapolation of test data to design conditions. The heat exchanger efficiency or the overall heat transfer coefficient of the heat exchanger should be determined whenever possible. Where possible, provide for visual inspection of the heat exchanger.

GPC RESPONSE:

GPC will develop and implement a test program for both units prior to startup from the Unit 1 Fall 1991 refueling outage to verify the acceptable performance of safety-related heat exchangers cooled by the service water system. The test program will consist of an initial test with periodic retest. The initial test and periodic retesting program will consider the EPRI Guidance published in their interim report titled, "Heat Exchanger Performance Monitoring Guidelines for Service Water Systems" as much as practical.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

The results of the initial test, operating history, and performance criteria will be used to determine the appropriate frequency for future testing to provide assurance that the equipment will perform the intended safety functions during the intervals between tests. Based on the results of initial tests, a given heat exchanger may not be tested initially for three consecutive cycles and a retest interval greater than five years may be established. In cases where the testing frequency is greater than the recommended frequency, sufficient justification to provide assurance that the equipment will perform the intended safety function during the intervals between tests will be developed. All relevant documentation will be retained in appropriate plant records.

Testing of the safety-related heat exchangers cooled by service water will be performed with sufficient instrumentation, using both permanently installed and temporary instrumentation. The test program will address the evaluation of the heat exchanger performance with respect to design limits. A summary of the test program including test schedules and bases will be documented.

Actions necessary to restore deficient conditions identified during the initial testing and periodic retests will be addressed by the inspection and maintenance program and procedures corresponding to the actions for Generic Letter Issue III. The program will ensure that tests are conducted before and after any corrective actions that could impact the performance of heat transfer capabilities (e.g., cleaning or plugging tubes).

In some cases regular maintenance of a heat exchanger may be implemented in lieu of testing.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

III. GENERIC LETTER ISSUE III; NRC Recommended Action

Ensure by establishing a routine inspection and maintenance program for open-cycle service water system piping and components that corrosion, erosion, protective coating failure, silting and biofouling cannot degrade the performance of the safety-related systems supplied by service water. The maintenance program should have at least the following purposes:

1. To remove excessive accumulations of biofouling agents, corrosion products, and silt;

2. To repair defective protective coatings and corroded service water system piping and components that could adversely affect performance of their intended safety functions.

This program should be established before plant startup following the first refueling outage beginning 9 months after the date of this letter. A description of the program and the results of these maintenance inspections should be documented. All relevant documentation should be retained in appropriate plant records.

GPC RESPONSE:

GPC has previously inspected portions of the service water system piping utilizing ultrasonic testing to identify pipe thinning and pipe blockage. Where appropriate, corrective actions have been implemented. The corrective actions include replacement of some portions of the safety-related carbon steel lines with stainless steel. GPC also plans to begin adding a chemical dispersant to the service water system in 1991 to remove suspended solids from the service water. The current inspection and maintenance programs in place at Plant Hatch will be reviewed and, if required, augmented to ensure that corrosion, erosion, silting and biofouling of piping and components of the service water systems will not adversely affect the performance of the safety-related heat exchangers in the systems. The program will be largely based on plant historical data to identify system inspections and nondestructive testing required to establish baseline conditions.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

A description of the inspection and maintenance program will be documented as well as inspection results.

IV. GENERIC LETTER ISSUE IV; NRC RECOMMENDED ACTION:

Confirm that the service water systems will perform its intended function in accordance with the licensing basis for the plant. Reconstitution of the design basis of the system is not intended. This confirmation should include a review of the ability to perform required safety functions in the event of failure of a single active component. To ensure that the as-built systems is in accordance with the appropriate licensing basis documentation, this confirmation should include recent (within the past 2 years) system walkdown inspections. This confirmation should be completed before plant startup following the first refueling outage beginning 9 months or more after the date of this letter. Results should be documented and retained in appropriate plant records.

GPC RESPONSE:

GPC will confirm the ability of the systems to perform in accordance with the licensing basis of the plant. A review model of the plant service water system will assure the current as-built configuration of the system, based on plant walkdown and design information. A document will be developed which provides system piping data and an equipment thermal and hydraulic data base which includes design pressure drop, flow, and heat loads as well as physical heat exchanger data (e.g., type, materials, tube arrangement and number). Heat exchanger performance will be based on the design maximum 95°F service water temperature. The analysis of LOCA mode will consider the effect of single failure predictions on the capability to remove accident heat loads.

GENERIC LETTER 89-13, SERVICE WATER
SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

RECOMMENDED ACTIONS

V. GENERIC LETTER ISSUE V; NRC RECOMMENDED ACTION:

Confirm that maintenance practices, operating and emergency procedures, and training that involves the service water system, are adequate to ensure that safety-related equipment cooled by the service water system will function as intended and that operators of this equipment will perform effectively. This confirmation should include recent (within the past 2 years) reviews of practices, procedures and training modules. The intent of this action is to reduce human errors in the operation, repair and maintenance of the service water system. This confirmation should be completed before plant startup following the first refueling outage beginning 9 months or more after the date of this letter. Results should be documented and retained in appropriate plant records.

GPC RESPONSE:

GPC has recently completed the Procedure Upgrade Program (PUP) that reviewed and, as necessary, revised safety-related plant procedures for both units. The PUP charter was to verify the technical adequacy and usability of the plant procedures. GPC intends to confirm the adequacy of maintenance practices, operating procedures, and EOPs by utilizing the information, evaluations, and procedures developed in response to Generic Letter Issue I through IV. The training program will be made consistent with the importance of the operation of the safety-related equipment cooled by the Service Water Systems. These actions will be documented in the appropriate plant records.