Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-65

Mailing Address
Post Office Box 4545
Atlanta, Georgia 30302

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

the southern electric system

NON-00314
0045e

September 15, 1988

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

PLANT VOGTLE - UNIT 1
NRC DOCKET 50-424
OPERATING LICENSE NPF-68
REPLY TO A NOTICE OF VIOLATION

Gentlemen:

In accordance with the provisions of 10 CFR 2.201, Georgia Power Company (GPC) submits the enclosed information in response to NRC Enforcement Action 88-167 which concerns violation 50-424/88-24-01. The subject violation was identified in NRC Inspection Report 50-424/88-24 and was discussed in an enforcement conference with the NRC Region II staff on July 5, 1988.

In the enclosure, transcription of the NRC violation precedes GPC's response.

Should there be any questions in this regard, please contact this office at any time.

Sincerely,

W. G. Hairston, III

JAE/KP:11h

Enclosure:
1. Violation 88-24-01 and GPC Response

c: (see next page)

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c: Georgia Power Company
Mr. P. D. Rice
Mr. G. Bockhold, Jr.
Mr. J. E. Swartzwelder
Mr. J. P. Kane
GO-NORMS
Vogtle-NORMS

U. S. Nuclear Regulatory Commission
Dr. J. N. Grace, Regional Administrator
Mr. J. B. Hopkins, Licensing Project Manager, NRR (2 copies)
Mr. J. F. Rogge, Senior Resident Inspector - Operations, Vogtle

Georgia Power

ENCLOSURE

PLANT VOGTLE - UNIT 1
NRC DOCKET 50-424
OPERATING LICENSE NPF-68
NRC NOTICE OF VIOLATION 88-24-01 AND GPC RESPONSE

VIOLATION 50-424/88-24-01

"License Condition 2.G requires that the licensee implement and maintain in effect all the provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for the facility and as approved in the NRC Safety Evaluation Report (SER) (NUREG-1137) through Supplement 5.

Section 9.5.1.1, "Fire Protection Requirements," of the SER (NUREG-1137) dated June 1985, states that General Design Criteria (GDC) 3 requires that fire fighting systems be designed to ensure that rupture or inadvertent operation does not significantly impair the safety capability of structures, systems, and components important to safety. The SER also states that in order to satisfy the requirements of GDC 3, the licensee by letter dated February 22, 1985, stated that the components required for shutdown are designed so that rupture, inadvertent operation, or intentional operation of Fire Suppression Systems will not adversely affect the operability of these components. In addition, redundant trains of components that are susceptible to damage from water spray are physically separated so that manual fire fighting activities will not adversely affect the operability of the components not involved in the postulated fire.

Contrary to the above, as of June 3, 1988, the fire suppression systems were not designed to assure that operation of the systems or manual fire fighting activities would not adversely affect the operability of components required for shutdown or components not involved in the postulated fire. Specifically, because of improperly designed floor penetration seals, a fire in the "B" train cable spreading room could have caused a loss of the auxiliary shutdown panel, the "B" train safe shutdown functions, and due to the water leakage into the control room from fire suppression activities, the "A" train safe shutdown process monitoring could have been rendered inoperable.

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

ENCLOSURE (Continued)

NRC NOTICE OF VIOLATION 88-24-01 AND GPC RESPONSE

RESPONSE TO VIOLATION 50-424/88-24-01

Admission or denial of alleged violation:

The violation occurred as stated.

Reason for violation:

The violation occurred due to an inadequate design in that the vendor's qualification test report for the penetration seal detail did not represent typical Upper Cable Spreading Room (UCSR) penetration. The detail that was qualified did not contain a high density cable fill within the penetration whereas the typical UCSR penetration contains a high density cable fill. Further, the architect engineer assumed that the seal weld at the interface of the embedded bottom angle to the top angle would provide an adequate water stop in the event that the UCSR had water on the floor. Testing in Unit 2 (described in detail in the Licensee Event Report (LER) 88-016 dated June 29 ,1988) showed that a flowpath existed for water to flow between the top angle and the floor and underneath the embedded angle and into the control room. This has been attributed to the potential deformation of the embedded angle iron caused by the seal welding of the embedded angle to the top angle during installation.

The seals in the UCSR are unique when compared to most other seals in the plant since they are located above sensitive unsealed equipment (process control cabinets and reactor protection cabinets).

Corrective steps which have been taken to avoid further action:

A. Short-term corrective actions:

The following short-term corrective actions were taken promptly after the incident on June 3, 1988:

(1) Silicone sealant (Dow Corning RTV 732) was applied to the interface between the floor and the penetration top angle for all such penetrations in the UCSR. This material was suitable as an interim solution as proven by a test conducted on a typical penetration in the Unit 2 UCSR. Details of this test are contained in LER 88-016.

(2) The control room panels were inspected for water intrusion and damage and then dried. No damage was found by the inspection. An engineering evaluation was performed on potential failures within the affected cabinetry, and a determination was made that only the circuitry which spuriously actuated needed to be tested. On

June 4, 1988, functional tests were performed to assure that all circuits which had spuriously actuated had not been damaged and were completely functional. These affected panels will be inspected for corrosion during the Fall 1988 refueling outage which is scheduled to begin October 7, 1988.

(3) The deluge valves for sprinkler system 080 located in the UCSR and sprinkler systems 078 and 081 located in the adjacent hallway were isolated so that a spurious actuation of the fire system would not cause a repeat of this event.

(4) A continuous fire watch was established in the UCSR as compensation for deactivation of the sprinkler systems. Sandbag berms were built inside of both UCSR doors to a height of 6 inches in order to prevent water intrusion from the hallway.

(5) Drains for sprinkler systems 079 and 080 (within the UCSR) were routed, under temporary modification control, to the building floor drain.

(6) A broadness review was initiated to determine the location of other seals in the plant which, because of slight leakage, could affect safe-shutdown and water-sensitive safety related equipment. The review identified locations where one train of safe-shutdown (SSD) equipment in a room was located above another room containing opposite train SSD equipment where water could leak from one train to the other train of equipment.

B. Long-term corrective actions:

The following long-term corrective actions have been taken:

(1) A full scale prototype test assembly was fabricated on-site to qualify the new penetration seal detail to be used for seals of the type used in the UCSR that would be water-tight. Figure 1 represents a schematic of the current penetration seal configuration in the UCSR. The following methodology was used to determine the materials to be used:

A sealant (Dow Corning RTV 790) was applied around the concrete/angle iron interface and the foam/angle iron interface. The test assembly was then subjected to water to check for leaks. No leakage was observed beneath the penetration.

A series of tests were then devised to determine the most suitable material that would flow freely in and around highly dense cable bundles. This was done using open ended buckets poured with foam seals with high density cable bundles through the seal. The

material, P-12 (a 50/50 blend of Dow Corning 3140 and 3145) was poured around the cables. Once the material had cured, water was poured on the top of the material and observations were made beneath for leakage. No leakage was observed. To confirm that the P-12 material selected for use did in fact flow around cables before applying it to the prototype for qualification, the bucket was dissected. The P-12 material was found to penetrate between the foam and the cables and had tightly adhered to the cable jacket and the foam.

The P-12 material was then applied around cables in the prototype test assembly. Once the material had cured, the entire test assembly was then subjected to a water spray directly on top of the penetration seal. Water was sprayed on the test assembly until 2 inches of water was above the top of the seal. This configuration was held for one hour at the end of which time the bottom of the seal was inspected for leakage. No leakage was observed.

(2) The broadness review was completed on August 15, 1988 and identified 131 penetrations that could potentially have water leakage and adversely affect SSD equipment and/or water-sensitive electrical equipment. Each of the 131 penetrations was evaluated for potential effects on safe shutdown. This evaluation showed that potential water leakage through 122 of the penetrations would not adversely affect safe shutdown. For the remaining penetrations, located in the mezzanine level of rooms B-47 and B-48 of the Control Building, compensatory measures have been established to preclude use of water for fire fighting purposes in the area, from any other source, since there are no sprinkler systems in the area. These measures included posting signs that warned against the use of water for fire fighting in this area, and placing additional dry chemical extinguishers in this area.

Several short-term corrective actions (items A1, A3, A4, and A5) were removed subsequent to the initiation of the referenced long-term corrective measures.

Corrective steps which will be taken to avoid further violations:

A second full size prototype test assembly which simulates typical foam penetrations in the plant will be water tested. The testing is scheduled for completion on September 30, 1988. As a result, the leaktightness of various types of penetration commodities (i.e., items passing through the penetration) other than the ones shown in Figure 1 will be verified.

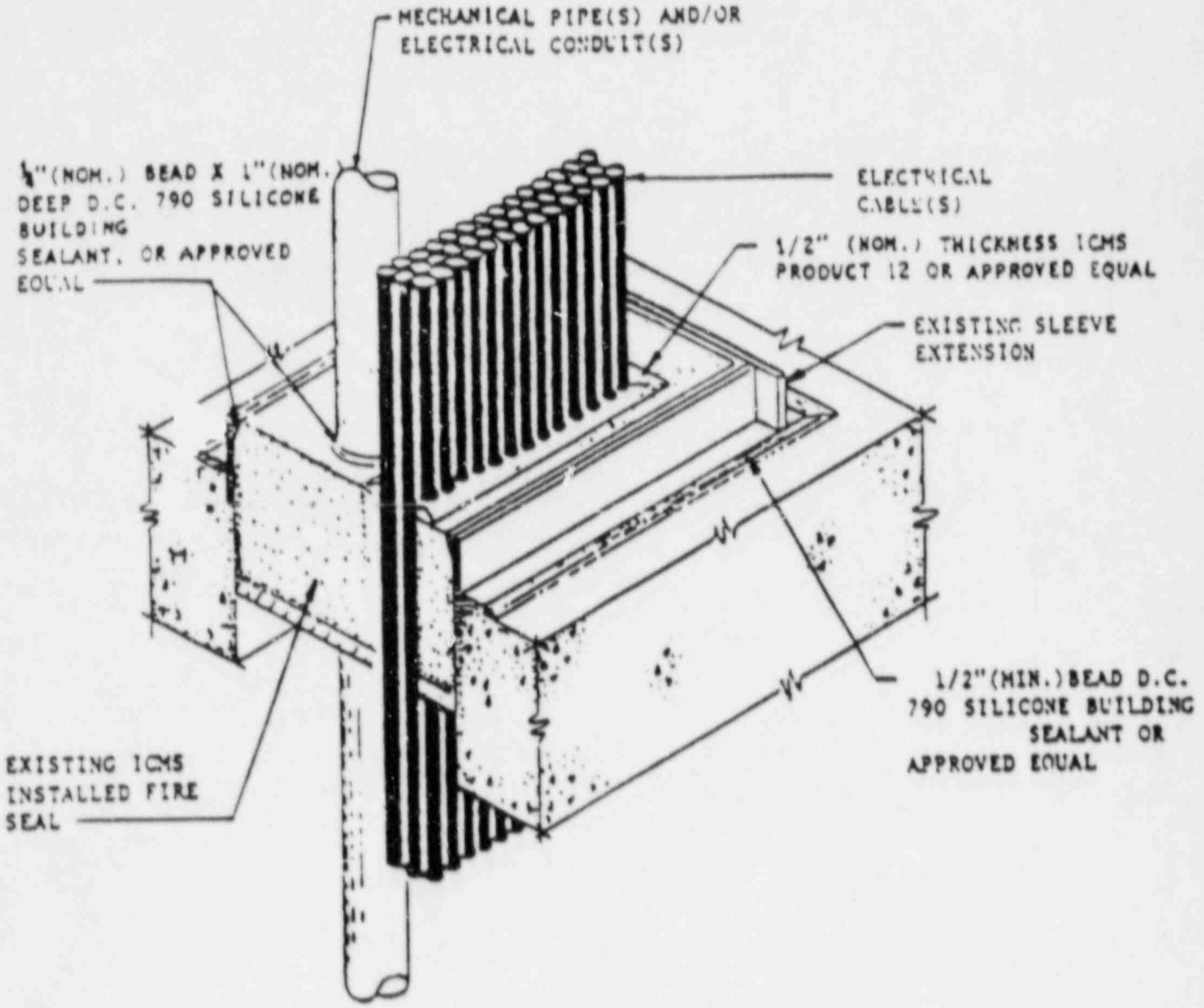
ENCLOSURE (Continued)

NRC NOTICE OF VIOLATION 88-24-01 AND GPC RESPONSE

Subsequent to the testing of the second prototype assembly, the test results will be reviewed to identify the total number of the previously identified 131 penetration seals that will require modification.

Date when full compliance will be achieved:

Completion of the penetration seal re-work is expected by January 30, 1989, at which time full compliance will be achieved.


MECHANICAL PIPE(S) AND/OR
ELECTRICAL CONDUIT(S)
¼"(NOM.) BEAD X 1"(NOM.
DEEP D.C. 790 SILICONE
BUILDING
SEALANT, OR APPROVED
EQUAL
ELECTRICAL
CABLE(S)
1/2" (NOM.) THICKNESS ICMS
PRODUCT 12 OR APPROVED EQUAL
EXISTING SLEEVE
EXTENSION
1/2"(MIN.)BEAD D.C.
790 SILICONE BUILDING
SEALANT OR
APPROVED EQUAL
EXISTING ICMS
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SEAL

FIGURE 1