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Georgia Power
the southern electric system

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

Edwin I. Hatch Nuclear Plant
Response to NRC Bulletin 93-02, Supplement 1

Gentlemen:

On February 18, 1994, the Nuclear Regulatory Commission (NRC) issued Bulletin (NRCB) 93-02, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers." The NRCB describes the staff concerns related to the potential loss of Emergency Core Cooling Systems (ECCS) due to suction strainer clogging. Also, it requests licensees implement certain interim actions until the issue is resolved.

Georgia Power Company (GPC) has complied with the requested actions. The enclosure to this letter contains a description of GPC's planned actions and the schedule for completion.

If you have any questions in this regard, please contact this office.

Sincerely,

J. T. Beckham, Jr.

GKM/cr

Enclosure:

cc: (See next page.)

IE11

cc: *Georgia Power Company*
Mr. H. L. Sumner, Nuclear Plant General Manager
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

Enclosure

Edwin I. Hatch Nuclear Plant
Response to NRC Bulletin 93-02, Supplement 1

The following is a response to NRC Bulletin 93-02, Supplement 1. The bulletin describes staff concerns related to the potential loss of Emergency Core Cooling Systems (ECCS) due to suction strainer clogging and requests licensees implement certain interim actions until the issue is resolved.

Action Requested

Provide training and briefings to apprise operators and other appropriate emergency response personnel of the information contained herein and in the referenced information notices regarding the potential for suppression pool strainer clogging.

GPC Response

A departmental directive has been issued by the Hatch Operations Manager to inform Operations personnel and selected emergency response personnel of concerns with potential ECCS suction strainer plugging. The departmental directive highlights possible indicators of strainer clogging that include:

- Decreased system flow. Division flow less than that expected for a given discharge valve position or less than that expected for the location into which the system is discharging.

- Abnormal discharge pressure indication. As the suction strainer blockage restricts flow to the pump, ECCS suction pressure decreases and produces a reduced pump discharge pressure indication.

- Frequent adjustment of discharge valve position. As strainer clogging occurs, the discharge valve position is required to be periodically adjusted in order to maintain a flow that meets a steady demand for flow.

The departmental directive review with Operations and the appropriate emergency response personnel has been completed.

Action Requested

Assure that the emergency operating procedures (EOP) make the operator aware of possible indications of ECCS strainer clogging and provide guidance on mitigation.

Enclosure
Response to NRC Bulletin 93-02, Supplement 1

GPC Response

A combination of existing plant procedures, training, and a new event-based abnormal operating procedure will satisfy this requested action. A new event-based abnormal operating procedure (AOP) has been developed which gives the operator clear direction if clogging of the ECCS strainers appears to have occurred. An AOP is the proper way to address strainer clogging because it is event instead of symptom based like the EOPs. This abnormal procedure is currently effective on Unit 1 and will be effective on Unit 2 at the end of the present outage. Formal operator training on this procedure will be performed during the normal quarterly operator training cycle beginning May 30, 1994. All operators will have been trained on this procedure by August 18, 1994.

Main control room instrumentation is available that would indicate the loss of ECCS due to possible suction strainer clogging. This instrumentation includes vessel water level, ECCS system flow and ECCS discharge pressure. The operator is trained to recognize abnormal operation parameters and is cognizant of the specific issue regarding ECCS strainer clogging. Upon receiving the above indications during a significant event, the operator would promptly take the appropriate actions including:

- Using normal injection subsystems that have alternate suction sources. These subsystems include the control rod drive system (CRD), reactor core isolation cooling system (RCIC) with suction from the condensate storage tank (CST), core spray (CS) pumps, realigned to take a suction from the CST, and high pressure cooling injection system (HPCI), with suction from the CST. If offsite power is available, condensate and condensate booster pumps would be available which take suction from the condenser hotwell.

- Using the low pressure coolant injection system (LPCI) with suction from the suppression pool in accordance with the EOPs would be allowed. Maintaining adequate core cooling would take a higher priority than the concerns over net positive suction head (NPSH) and pump damage.

- Using alternate injection systems as specified by the EOPs, such as residual heat removal service water (RHRSW), to maintain adequate core cooling.

Action Requested

Institute procedures and other measures to provide compensatory actions to prevent, delay, or mitigate a loss of available NPSH margin under LOCA conditions. Such measures should be consistent with providing the design basis emergency system functions for core and containment cooling. Actions to assure sufficient core and containment cooling may include:

- Reduction of flow (consistent with delivering the required ECCS flow) through the strainers to reduce head loss and extend the time for debris deposition.
- Operator realignment of existing systems to allow back flushing of clogged strainers.
- Operator realignment of existing systems to allow injection to the core from water sources other than the suppression pool.
- Intermittent operation of the containment sprays, when possible, to reduce the transport of debris to the strainers.
- Other plant-specific measures which assure availability of sufficient core and containment cooling to met the design basis of the plant.

GPC Response

The following is the Plant Hatch position on each possible action listed by the Bulletin:

- **Reduction of flow (consistent with delivering the required ECCS flow) through the strainers to reduce head loss and extend the time for debris deposition.**

The new abnormal operating procedure instructs operators to throttle the inservice ECCS division as needed to meet demand. These actions may reduce the entrainment of debris and deposition on the suction strainers, thus prolonging the operability of the inservice ECCS division. As previously stated, the AOP is in effect now.

- **Operator realignment of existing systems to allow back flushing of clogged strainers.**

A review by Plant Hatch Operation and Engineering personnel indicates that, with the Hatch design, there is no existing back flushing capability which would be effective following a LOCA. Gravity-driven systems are available; however, they would not be very helpful at post-LOCA wetwell pressures.

- **Operator realignment of existing systems to allow injection to the core from water sources other than the suppression pool.**

Presently, the emergency operating procedures provide guidance regarding the allowed injection sources into the RPV. Many of the available preferred injection systems have pump suction sources other than the suppression pool (e.g. CRD, condensate/feedwater, HPCI, RCIC, and CS). HPCI, RCIC, and CS are capable of taking a suction from either the CST or the suppression pool. The preferred suction source for HPCI and RCIC is the CST. The emergency operating procedures allow manually aligning HPCI, RCIC, and CS to the CST. Other injection systems such as RHR service water and fire protection water can also be used for RPV level restoration. All of the above described systems alignments and operation allowed by the EOP's have been reiterated in the abnormal operating procedure created to address this specific event. The abnormal operating procedure provides the operating crew with a single reference which includes all of the available event specific accident mitigation options.

- **Intermittent operation of the containment sprays when possible to reduce the transport of debris to the strainers.**

The EOP's presently have spray initiation limits which could cause intermittent operation. The existing procedures require spray operation at 13 psig with termination at 1.85 psig.

- **Other plant-specific measures which assure availability of sufficient core and containment cooling to meet the design basis of the plant.**

Plant Hatch currently has many normal and alternate methods of core cooling. These methods are contained in the EOPs and the new abnormal operating procedure.