

June 17, 1994

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Subject: River Bend Station - Unit 1  
Docket No. 50-458  
NRC Bulletin 93-02, Supplement 1

File No.: G9.5, G9.33.1

RBG-40657

Gentlemen:

This letter provides the final response to Supplement 1 of NRC Bulletin 93-02, "Debris Plugging of Emergency Core Cooling Suction Strainers." River Bend Station (RBS) is a General Electric (GE) BWR-6/Mark III and utilizes a suppression pool similar to that of the plants that were identified in the bulletin. RBS formed a task force that corresponded with similarly designed plants and actively participated in the BWR Owners Group (BWROG) to resolve this issue.

Also, RBS has taken additional steps to ensure suppression pool cleanliness during the current refueling outage. Actions include:

- Placing tight controls on material allowed into the containment.
- Removing loose material from containment.
- Cleaning and inspecting the suppression pool.

220041

NRC Bulletin 93-02, Supplement 1

June 17, 1994

RBG-40657

Page 2 of 2

Our initial response to Supplement 1 was provided in a letter dated April 19, 1994 (RBG-40512). Attachment 1 provides an updated status and final response to Supplement 1 of NRC Bulletin 93-02. Changes are indicated by revision bars. If you have any questions or comments, please contact Mr. O. P. Bulich of my staff at (504) 336-6251.

Sincerely,



James J. Fisicaro

Director-Nuclear Safety

JJF/jr

enclosure

cc: U. S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

NRC Resident Inspector  
P. O. Box 1051  
St. Francisville, LA 70775

Mr. E. T. Baker  
U. S. Nuclear Regulatory Commission  
11555 Rockville Pike  
M/S OWFN 13-H-15  
Rockville, MD 20852

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

---

LICENSE NO. NPF-47

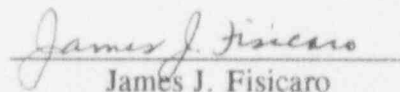
---

IN THE MATTER OF  
GULF STATES UTILITIES COMPANY  
CAJUN ELECTRIC POWER COOPERATIVE AND  
ENERGY OPERATIONS, INC.

---

AFFIRMATION


I, James J. Fisicaro, state that I am the Director-Nuclear Safety of Entergy Operations, Inc., at River Bend Station; that on behalf of Entergy Operations, Inc., I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this response requesting information regarding NRC Bulletin 93-02, Supplement 1, for River Bend Station; that I signed this request as Director-Nuclear Safety at River Bend Station of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information, and belief.

  
James J. Fisicaro

STATE OF LOUISIANA  
WEST FELICIANA PARISH

SUBSCRIBED AND SWORN TO before me, an ex-officio Notary Public, in and for the Parish and State above named, this 17<sup>th</sup> day of JUNE, 1994.

(SEAL)

  
ex-officio Notary Public

My Commission expires 1/1/97.

## ATTACHMENT 1

Bulletin 93-02, Supplement 1, describes NRC staff concerns related to potential common-mode failure of Emergency Core Cooling Systems (ECCS) due to suction strainer plugging. The bulletin requests licensees implement certain interim actions pending final resolution of this issue. The following is River Bend Station's (RBS) final response to this bulletin.

### 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.**

### RBS Response

Operators are kept informed of industry-wide concerns via the current training program. Specific training materials have been prepared that provide the Operations staff with an overview of applicable portions of the information notices referenced in the bulletin supplement, and apprise them of the concerns related to this issue. A site-specific review of debris types and transport mechanisms was included. Also, the training material includes information about indications available to the operator to detect ECCS suction strainer blockage and strategies to mitigate the event. Operations crews and appropriate Emergency Response personnel have been trained using this material.

### Action Requested

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

### RBS Response

Emergency Operating Procedures (EOPs) at RBS are symptom-based and are consistent with guidance provided by the BWR Owner's Group (BWROG) Emergency Procedure Guidelines, Revision 4. Through use of these procedures the operator responds to symptoms without the need to diagnose specific events. These procedures lead the operator to alternate sources of water for any declining reactor vessel water level event such as the postulated blockage of the ECCS suction strainers.

The operator has indications available to him (i.e., flow rate, pump motor amps, and water level indication) to monitor performance of low pressure ECCS systems. Indication of system suction pressure degradation is available via monitoring these parameters. Additionally, systems would not be expected to degrade uniformly or to fail simultaneously; therefore, loss of the first pump, should it occur, would alert the operator to a potential failure of the remaining pumps.

Indication of pump suction pressure for the High Pressure Core Spray System (HPCS) and the Reactor Core Isolation Cooling System (RCIC) is available to the operator in the main control room. Also, low suction pressure of these systems is annunciated and RCIC automatically trips on a low suction pressure condition. However, since both systems are normally aligned to the Condensate Storage Tank (CST), they are not subject to a decrease in suction pressure due to strainer plugging until the transfer to suppression pool suction occurs. Also, the EOPs provide guidance to the operator to maintain these systems aligned to the CST, whenever possible. This line-up is emphasized in the current training being provided to the operators.

Additional precautions have been added to the System Operating Procedures (SOPs) for the ECCS systems. The precautions provide additional information to alert the operators to indications of potential strainer plugging.

Based on the operator training, the SOP changes, and a detailed review of other operating procedures with respect to the issue, changes to the EOPs are not required. This position is consistent with the latest BWROG Emergency Procedures Committee recommendations on this issue.

#### Action Requested

**Institute procedures and other measures to provide compensatory action 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 backflushing of clogged strainers.**

#### RBS Response

The EOPs direct the operators to maintain RPV water level between 9.7 inches and 51 inches. If this band cannot be maintained, the control band is expanded to maintain water level above the top of active fuel (TAF). As long as these conditions can be satisfied, adequate core cooling is assured and operators may throttle, realign or secure ECCS systems as directed by the SRO in charge. If RPV level cannot be maintained above TAF, the operator is directed to inject irrespective of NPSH limits.

While the control bands for RPV parameters are established by the EOPs, a new Abnormal Operating Procedure (AOP-0059) has been drafted to amplify instructions for operating ECCS systems during an ECCS strainer plugging event.

The procedure will provide the following information:

- Identify the symptoms of the event, including system response and control room indications.
- Provide directions to delay or mitigate the loss of available NPSH for ECCS pumps.
- Provide direction for reducing flow for those systems that can be throttled and for alternating ECCS systems/divisions within the constraints of the EOPs.
- Provide directions to realign existing systems to allow backflushing clogged strainers where allowed by design.

An AOP is the appropriate format for this procedural guidance because they are event-oriented. AOP-0059 will be fully implemented after completing the first training module of licensed operator continuing training following RF-5.

#### Action Requested

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

#### RBS Response

RBS does not have a containment spray system. Therefore, this method of debris transport to the suppression pool and ultimately the suction strainers does not exist at RBS. Also, RBS has determined that no other drywell transport mechanism other than line breaks exists.

#### Action Requested

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

RBS has a number of design features as well as initiatives to mitigate the probability of a LOCA and to assure ECCS system availability should a LOCA occur. These were discussed in the initial submittal April 19, 1994. Updated information is provided below:

- During the current Refueling Outage, RBS is performing Mechanical Stress Improvement on IGSCC-susceptible vessel nozzles to safe-end welds and safe-end extension welds > 4 inches in diameter.
- RBS has revised the Inservice Test program for the low pressure ECCS systems to require a 6-hour run once each year for each system while periodically monitoring suction pressure. The new tests will help detect any buildup of debris on the suction strainers during normal operations that could impact the NPSH available to the pumps.

- RBS is performing a detailed inspection of the suppression pool and suction strainers using divers near the end of RF-5 to ensure no blockage existed.

The initiatives and systems described in the original submittal and above, in combination with identified procedure changes and operator and emergency response personnel training provide assurance that RBS systems/components will provide the necessary core cooling following a postulated loss of coolant accident.