



**ENTERGY**

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**James J. Fisicaro**  
Director  
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November 16, 1995

U. S. Nuclear Regulatory Commission  
Mail Station P1-37  
Washington, DC 20555

Attention: Document Control Desk

Subject: River Bend Station  
Docket No. 50-458  
License No. NPF-47  
Response to NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat  
Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling  
Mode

RBF1-95-0272  
RBG-42171

Gentlemen:

This submittal provides the River Bend Station (RBS) response to NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode." RBS believes that suppression pool cleanliness is important to reliable ECCS operation and has already performed many of the requested actions in response to similar events that occurred at the Barseback and Perry Nuclear Stations. River Bend intends to fully comply with the five requested actions of the Bulletin, with a response to each requested action provided as Attachment 1.

This information is being submitted under oath and affirmation in accordance with 10CFR50.54(f). Please contact T. W. Gates at (504) 381-4866 should you have any questions or require additional information regarding this matter.

Sincerely,

JJF/jr

attachment: Response to NRC Bulletin 95-02

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Response to NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump  
Strainer While Operating in Suppression Pool Cooling Mode"

November 15, 1995

RBF1-95-0272

RBG-42171

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cc: U. S. Nuclear Regulatory Commission  
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BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

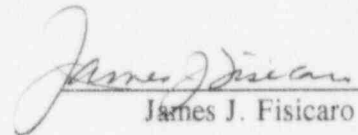
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LICENSE NO. NPF-47  
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DOCKET NO. 50-458  
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IN THE MATTER OF  
  
GULF STATES UTILITIES COMPANY  
  
CAJUN ELECTRIC POWER COOPERATIVE AND  
  
ENTERGY OPERATIONS, INC.

\_\_\_\_\_  
AFFIRMATION

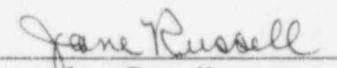
I, James J. Fisicaro, state that I am Director of Nuclear Safety of Entergy Operations, Inc., at River Bend Station; that on behalf of Entergy Operations, Inc., I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this Response to NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode;" 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, Notary Public, commissioned in the Parish of East Baton Rouge and qualified in and for the Parish and State above named, this 16<sup>th</sup> day of November, 1995.

(SEAL)

  
\_\_\_\_\_  
Jane Russell  
Notary Public

My Commission expires with life.

### Requested Actions

To ensure that unacceptable buildup of debris that could clog strainers does not occur during normal operation, all addressees were requested to take the actions identified below. The River Bend Station (RBS) response is described after each requested action.

*1) Verify the operability of all pumps which draw suction from the suppression pool when performing their safety functions (e.g., ECCS, containment spray, etc.), based on an evaluation of suppression pool and suction strainer cleanliness conditions. This evaluation should be based on the pool and strainer conditions during the last inspection or cleaning and an assessment of the potential for the introduction of debris or other materials that could clog the strainers since the pool was last cleaned.*

**RBS Response:** RBS has taken a number of steps to ensure that the operability of the ECCS systems is not affected by material in the suppression pool. The suppression pool was drained, cleaned and desludged in RF4 (mid-1992). As discussed in the response to NRC Bulletin 93-02 and Supplement 1, the suppression pool was also cleaned (by filtering) and inspected during RF5 (mid-1994). The strainers were also inspected by a diver and underwater camera equipment during an outage in October 1994 and again found to be clean. During each of these inspections of the strainers, the pool bottom was also inspected and any large pieces of debris were removed. An additional cleaning is included in the upcoming refueling outage. As discussed in item 4 below, RBS has developed an FME program and continues to review the effectiveness of this program.

RBS does not currently have a suppression pool clean up system which inhibits a visual inspection during extended periods of operation. A system to provide this function is being designed and this installation is scheduled for completion during the next fuel cycle. As an alternate RBS uses testing and monitoring of system performance to supplement pool inspections to verify ECCS system operability. The use of pump testing is consistent with the BWROG guidance on demonstrating pool cleanliness and pump operability. The testing of ECCS pumps at RBS is discussed further under item 5 below.

In response to NRC Information Notice 95-47, samples of the suppression pool bottom were taken by the Chemistry Department and analyzed for the presence of fibrous material. This action was completed on October 12, 1995 and no evidence of fibers was found. This sampling was after approximately 300 days of continuous operation. Taken together, the series of pool and strainer inspections, the ECCS pump testing and the chemistry sampling provide a high degree of confidence that all pumps which draw suction from the suppression pool are operable.

*2) The operability evaluation requested in action 1 above should be confirmed through appropriate test(s) and strainer inspections within 120 days of this bulletin.*

**RBS Response:** Cleaning and filtration of the suppression pool will be performed during RF6, currently scheduled to begin on January 6, 1996. An inspection of the ECCS suction strainers will be performed in conjunction with this effort which is scheduled within the 120 day period. Annual 6 hour runs of each low pressure ECCS system are currently proceduralized as a part of the IST program. The operability of the low pressure ECCS systems has been confirmed by testing. On October 10, 1995, a 6 hour run of the RHR 'A' system was performed. A 6 hour run of the LPCS system was performed on October 12, 1995. Pump suction pressure was monitored periodically during each test and remained essentially constant throughout the runs thus confirming that no strainer blockage had occurred. A duration of 6 hours was selected as a reasonably conservative period of time by which evidence of strainer blockage would be noted based on the events at Limerick and Perry.

The RCIC and HPCS quarterly pump surveillances are normally performed using the Condensate Storage Tank as the pump suction flow path. Therefore, the potential for strainer clogging of these systems is minimized.

*3) Schedule a suppression pool cleaning. The schedule for cleaning the pool should be consistent with the findings in requested action 1 above. In addition, a program for cleaning the suppression pool should be established, including procedures for the cleaning of the pool, criteria for determining the appropriate cleaning frequency, and criteria for evaluating the adequacy of the pool cleanliness.*

**RBS Response:** A suppression pool cleaning will be performed during RF6 currently scheduled to begin on January 6, 1996. Additionally, a modification to install a suppression pool cleanup system is scheduled for completion in cycle 7. This will provide the capability for on-line cleaning of the suppression pool. In order to ensure periodic cleaning of the suppression pool, a Preventive Maintenance task will be initiated and planned prior to RF7. This PM task will incorporate the appropriate procedural steps, controls and acceptance criteria required to perform a suppression pool cleaning. The frequency for pool cleaning will initially be established as every refueling outage. This will be modified as appropriate by specific engineering evaluation performed in conjunction with recommendations developed by the BWR Owners Group ECCS Suction Strainer Committee. Additionally, RBS currently inspects all ECCS suction strainers during each cold shutdown of sufficient duration. In the long term, the appropriate frequency and acceptance criteria will be based on the assumptions used in the final RBS resolution to the LOCA generated debris blockage issue.

*4) Review FME procedures and their implementation to determine whether adequate control of materials in the drywell, suppression pool, and systems that interface with the suppression pool exists. This review should determine if comprehensive FME controls have been established to prevent materials that could potentially impact ECCS operation from being introduced into the suppression pool, and that workers are sufficiently aware of their responsibilities regarding FME. Any identified weaknesses should be corrected. In addition, the effectiveness of the FME controls since the last time the suppression pool was cleaned and the ECCS strainers inspected, and the impact that any weaknesses noted may have on the operability of the ECCS should be assessed.*

**RBS Response:** RBS has implemented a number of controls in the area of Foreign Material Exclusion (FME). ADM-0081, "Cleanliness Control," provides procedural guidance for Foreign Material Exclusion control. Operations Policy #17 was written to augment the ADM-0081 controls over materials taken into containment during power operations and to provide a mechanism to remind individuals of their responsibilities regarding suppression pool cleanliness. ADM-0081 is currently under revision to incorporate many of the Operations Policy #17 requirements and is in the review cycle at this time. ADM-0081 is scheduled to be issued by RF6. Work below the 141 elevation of containment (i.e. the lower two elevations), designated Zone III housekeeping, requires a written record of personnel and material, minimizing the amount of unnecessary material taken into these areas. Signs are posted at each entrance point to containment for this same purpose. The elevations of the containment below elevation 141' are subject to the affects of suppression pool swell during some accident conditions and warrant additional measures to prevent intrusion or transport of materials to the suppression pool. The RBS containment design does not include spray systems or other transport mechanisms for moving material above these elevations into the suppression pool.

Additional measures to make personnel aware of the issues associated with FME include a Foreign Material Exclusion video, currently being shown to in-house maintenance personnel and contractors coming on site for RF6. Daily walkdowns of the suppression pool area are also conducted to identify and remove materials which are not in accordance with the above specified requirements. ADM-0015, "Surveillance Test Procedures," has also been revised to include a note about suction strainer blockage potential during the performance of work in the containment.



A practice was implemented by Radiation Protection to minimize the amount of material left below the 141' elevation of the containment. Anyone doing work in a contaminated area on elevations 114' or 95' during power operations must bag and remove their contaminated clothing rather than leaving it in the containment. This action further minimizes any material which can be transferred to the suppression pool.

Based on these controls, RBS believes the current FME controls are adequate to prevent the introduction of materials into the suppression pool which could clog the strainers. RBS will continue to evaluate FME controls to identify areas for potential improvement. We will conduct an assessment to determine the overall effectiveness of the program and to identify areas for possible improvement. This assessment will be performed prior to the completion of RF6.

***5) Consider additional measures such as suppression pool water sampling and trending of pump suction pressure to detect clogging of ECCS suction strainers.***

**RBS Response:** Samples of suppression pool sludge were taken by the Chemistry Department and analyzed for the presence of fibrous material. This action was completed on October 12, 1995 and no evidence of fibers was found. The suppression pool bottom will be sampled and analyzed for fibrous material on a periodic basis. Initially sampling will be conducted semi-annually and be evaluated based on the findings.

As noted in the response to item 2 above, a 6 hour run of the RHR 'A' and LPCS system was performed in October 1995. Suction pressure was monitored periodically during each test and remained essentially constant throughout the runs. Annual 6 hour runs of each low pressure ECCS system are currently proceduralized as a part of the IST program. Notification of Engineering is required by the procedure if indications of suction pressure degradation are detected. Suction pressure data is also recorded during performance of all quarterly IST tests (i.e. including those that are not run for 6 hours). The 6 hour run for each of the low pressure ECCS pumps is performed during the last quarter of the year with the RHR B and C pumps scheduled for late November 1995.