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GULF STATES UTILITIES COMPANY
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AREA CODE 713 838-6631

November 19, 1984
RBG-19487
File Nos. G9.5, G9.33.1

Mr. Robert D. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV, Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Martin:

River Bend Station Unit 1
Docket No. 50-458

Gulf States Utilities (GSU) is in receipt of NRC I&E Bulletin 84-03 (Refueling Cavity Water Seal). The bulletin requires GSU to evaluate the potential for and consequences of a refueling cavity water seal failure. This evaluation should include consideration of; gross seal failure, maximum leak rate due to failure of active components such as inflated seals, makeup capacity, time to cladding damage without operator action, potential effect on stored fuel and fuel in transfer, and emergency operating procedures.

Please find attached GSU's interim response to these items. Additional information addressing items 4 and 6 will be provided in an interim or final report by February 1, 1985. A summary of GSU's evaluation will be provided in the final report. Should you have any questions please contact Mr. Brit Hey of my staff at (409) 838-6631 ext. 2923.

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/WJR/BEH/lp

cc: U. S. NRC Document Control Desk

NRC Resident Inspector-Site

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ATTACHMENT

November 19, 1984
RBG-19487

GSU Partial Response to NRC I&E
Bulletin 84-03

1. Gross Seal Failure

The seal assembly was designed and manufactured by Pathway Bellows, Inc. Unlike the Haddam Neck Plant's pneumatic seal design, the River Bend Station (RBS) design consists of a stainless steel bellows assembly which is permanently welded to its support structure.

In addition to the difference between the seal materials, the RBS design incorporates a secondary seal. It consists of a self-energizing spring seal located in the area between the metal bellows and a backing plate. The spring seal is designed to provide a tight fit to the backing plate to limit the water loss through the refueling seal assembly in the unlikely event of a bellows rupture.

In order to confirm the integrity of the design and the installation, two tests were performed on the seal assembly. One, a hydrostatic test, was performed with satisfactory results by the vendor. The test pressure of 17.6 psig was 1 1/2 times the operating pressure. A second test, performed by the Preliminary Test Organization (PTO) at the site, was the flooding of the refueling cavity to the high water level height for a period of 12 hours. No leakage was observed.

2. Maximum Leak Rate Because of Seal Failure

The maximum leak rate was based on a complete seal rupture, where flooding would occur during operational condition 5 refueling. Both the drywell and containment would flood to an elevation of approximately 100.5 ft. Equipment in the containment is qualified for safe shutdown and decay heat removal to a submergence elevation of 109 ft. Equipment in the drywell is qualified to 105 ft. Since the flood level of 100.5 ft is enveloped by both of these levels, the required safety-related equipment would not be affected.

3. Makeup Water Capacity

Adequate makeup capacity is available from the condensate storage tank. An additional backup source is available from the standby service water system by means of the reactor plant component cooling water system.

4. Time to Cladding Damage Without Operator Action

This evaluation is not yet complete. Completion is expected by February 1, 1985.

5. Potential Effect on Stored Fuel and Fuel in Transfer

In the event of a seal failure and the subsequent release of the refueling cavity's water volume, the fuel storage pool water level elevation would change from approximately 185 ft to 162 ft. However, since the fuel storage pool floor elevation is at 142 ft, the fuel would not be uncovered and there would be no offsite dose consequences.

If the seal failed during a fuel transfer, the operator would be required to return the fuel to the core or to the fuel storage pool rack before any major change in the water level occurred. Note that there are no interlocks restricting fuel transfer that are based on pool level.

6. Emergency Operating Procedures

This evaluation is not yet complete. Completion is expected by February 1, 1985.

7. Other Consequences

The seal is protected from damage resulting from dropped objects. A guard ring attached to the inner circumference of the bellows serves as a protective barrier against small dropped objects such as hand tools. A portable radiation shield straddles the gap between the reactor pressure vessel and the drywell wall and thus protects the seal from a dropped fuel assembly.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

STATE OF TEXAS	§	
COUNTY OF JEFFERSON	§	
In the Matter of	§	Docket Nos. 50-458
GULF STATES UTILITIES COMPANY	§	
(River Bend Station, Unit 1)		

AFFIDAVIT

J. E. Booker, being duly sworn, states that he is Manager-Engineering Nuclear Fuels, and Licensing; that this position requires him to submit documents to the Nuclear Regulatory Commission in behalf of Gulf States Utilities; that the documents attached hereto are true and correct to the best of his knowledge, information and belief.

J E Booker
J. E. Booker

Subscribed and sworn to before me, a Notary Public in and for the State and County above named, this 21 day of NOVEMBER, 1984.

Martha C. Fabrocini
Notary Public in and for
Jefferson County, Texas

My Commission Expires:

1-11-86