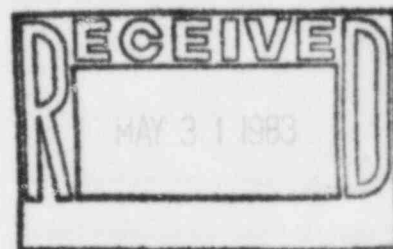


# The Light company

Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

May 25, 1983  
ST-HL-AE-963  
File No.: G12.146

Mr. John T. Collins  
Regional Administrator, Region IV  
Nuclear Regulatory Commission  
611 Ryan Plaza Dr., Suite 1000  
Arlington, Texas 76012



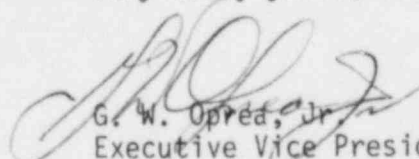
Dear Mr. Collins:

South Texas Project  
Units 1 & 2  
Docket Nos. STN 50-498, STN 50-499  
Final Report Concerning the  
Reactor Containment Fan Cooler Design

On April 29, 1983, pursuant to 10CFR50.55(e), Houston Lighting & Power Company (HL&P) notified your office of an item concerning the duct layout of the Reactor Containment Fan Cooler (RCFC) system. Attached is the final report concerning this item.

If you should have any questions concerning this matter, please contact Mr. Michael E. Powell at (713) 877-3281.

Very truly yours,

  
G. W. Oprea, Jr.  
Executive Vice President

MEP/kr  
Attachment

Houston Lighting & Power Company

May 25, 1983

cc: G. W. Oprea, Jr.

ST-HL-AE-963

J. H. Goldberg

File Number: G12.146

J. G. Dewease

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Director, Office of Inspection & Enforcement

Nuclear Regulatory Commission

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Washington, D. C. 20555

Revision Date 04-29-83

## FINAL REPORT CONCERNING THE REACTOR CONTAINMENT FAN COOLER DEFICIENCY

### I. Summary

The present layout of the Reactor Containment Fan Cooler (RCFC) system ductwork allows collection of water after initiation of the Containment Spray System (CSS). The RCFC ductwork could become flooded and system performance could be degraded, resulting in reduced heat removal capacity following a Design Basis Event (DBE). The corrective action will preclude such a condition.

### II. Description of the Deficiency

On April 29, 1983, pursuant to 10CFR50.55(e), Houston Lighting & Power (HL&P) notified the NRC-Region IV of an item concerning the design of the RCFC system. The potential exists for CSS water to flood the RCFC system discharge air ducts which could degrade the RCFC system performance. This was identified by Bechtel when they were reviewing the CSS spray coverage calculations.

Two of six RCFC discharge ducts are in the direct path of the containment spray. These ducts could flood and block the fan discharge. The design basis for the RCFC system is that three (3) of six (6) RCFC units function during a LOCA with a loss of offsite power. The limiting single failure which is assumed for the RCFC system is loss of a diesel generator, thus disabling two (2) of the six (6) RCFC units. However, the CSS will also be functioning during this event and the layout of the RCFC discharge air ducts is such that two (2) units could be flooded by the CSS, thus disabling the two (2) subject RCFC units. If the flooded RCFC units are different than the ones disabled by a diesel generator failure, then only two (2) RCFC units remain operational. Therefore, the potential exists for the RCFC system not to be able to perform its intended safety function.

### III. Corrective Actions

The water spray into the discharge ducts will be prevented by modifying the design of the discharge ducts. The previous ductwork layout discharged air directly upwards. The addition of a bend (an extension of the duct so the discharge of air will be horizontal) will prevent entry of the spray water into the duct.

### IV. Recurrence Control

The deficiency resulted from a failure to consider the effects of simultaneous operation of the RCFC and the CSS post-accident. Bechtel procedures for interdisciplinary and intradisciplinary design review minimize recurrence of such deficiencies by requiring that systems be designed with due consideration for operating conditions and system interfaces.

### V. Safety Analysis

The safety implication is that reduced RCFC capacity would result in decreased ability to maintain post accident pressures as described in the

STP FSAR. The minimum RCFC capacity assumed in the safety analysis is three units. In the current design two of the six RCFC fan discharge ducts are assumed to be flooded with spray water. Assuming a single failure of one train, two other RCFC fans would be unavailable. Therefore, the remaining two fans would not reduce the containment pressure as predicted and would not provide proper mixing of the air volumes inside containment.