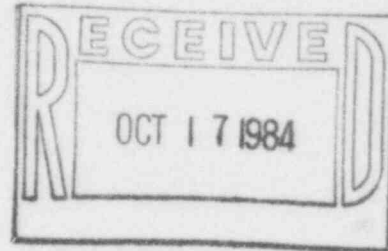


# The Light company

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

October 15, 1984  
ST-HL-AE-1123  
File Number: G12.127

Mr. Robert D. Martin  
Regional Administrator, Region IV  
Nuclear Regulatory Commission  
611 Ryan Plaza Dr., Suite 1000  
Arlington, Texas 76012



Dear Mr. Martin:

South Texas Project  
Units 1 & 2  
Docket Nos. STN 50-498, STN 50-499  
Revision to the Report Concerning the  
Design of the Auxiliary Feedwater System

On July 27, 1982, pursuant to 10CFR50.55(e), Houston Lighting & Power Company (HL&P), notified the NRC Region IV of an item involving the design of the Auxiliary Feedwater System (AFWS). The concern was comprised of several items involving improper classification of components and piping, and one unique item involving overpressurization of the AFWS discharge piping. By letter date August 25, 1982 (reference ST-HL-AE-876), HL&P provided a final report on one of the items which involved the condensate storage tank vacuum breaker. Since the final report was submitted, the condensate storage tank has been renamed the auxiliary feedwater storage tank. The purpose of this letter is to provide notification of a change to the corrective action described in the August 25, 1982 letter. Attached is a revision to that report which includes the revised corrective action.

If you should have any questions concerning this item, please contact Mr. Michael E. Powell at (713) 993-1328.

Very truly yours,

*G. W. Oprea, Jr.*  
G. W. Oprea, Jr.  
Executive Vice President

MEP/mg

Attachment: Final Report on the Auxiliary Feedwater  
Storage Tank Vacuum Breaker

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PDR ADOCK 05000498  
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IE-27.11

cc:

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Washington, DC 20555

South Texas Project  
Units 1 & 2  
Final Report On The Auxiliary Feedwater  
Storage Tank Vacuum Breaker

DER 82-008

I. SUMMARY

Only one nonsafety class vacuum breaker was provided to protect the Seismic Category I, Safety Class 3 Auxiliary Feedwater Storage Tank (AFST) (Note: Previously the AFST was named the Condensate Storage Tank). If the condition were to have remained uncorrected, the failure of the single vacuum breaker could result in an excessive vacuum condition in the AFST. The auxiliary feedwater pumps would not have sufficient NPSH, thus disabling the auxiliary feedwater system (AFWS). Furthermore, the excessive vacuum could result in damage to the AFST. The AFST will be provided with a loop seal, fabricated from Safety Class 3 piping, and redundant nonsafety class vacuum breakers.

II. DESCRIPTION OF THE DEFICIENCY

A nonsafety class vacuum breaker was provided to protect the AFST from excessive vacuum. The AFST is a Seismic Category I, Safety Class 3 tank which provides water storage for the auxiliary feedwater system. The nonsafety class vacuum breaker was a backup to the nitrogen gas system, which is also a nonsafety class system and therefore is assumed not to function during accident conditions. If the single vacuum breaker is stuck closed, excessive vacuum could be created in the AFST. Under the vacuum condition, the auxiliary feedwater pumps would not have sufficient NPSH to deliver water to the steam generators. The excessive vacuum in the AFST could result in damage to the tank and loss of some or all of the auxiliary feedwater.

III. CORRECTIVE ACTION

To protect the AFST from vacuum we have changed the design and will now utilize a safety class water loop seal in lieu of our previous decision to provide two (2) safety class vacuum breakers. The new design will also have two non-safety vacuum breakers. The attached figure provides a schematic representation of the new configuration.

IV. RECURRENCE CONTROL

This deficiency is an isolated item. No recurrence control is necessary.

V. SAFETY ANALYSIS

The AFST provides sufficient water storage for the auxiliary feedwater system to remove reactor shutdown decay heat during any incident causing loss of main feedwater.

The AFST, which is a Seismic Category I, Safety Class 3 concrete structure with stainless steel liner, is an atmospheric tank. The original design called for the AFST to be protected by a single nonsafety class vacuum breaker. If this deficiency were to have remained uncorrected and the single vacuum breaker were to stick in the closed position, a vacuum would be created in the tank when water is pumped out of the tank. The available NPSH for the auxiliary feedwater pumps would be less than the required pump NPSH and degrade the ability of the auxiliary feedwater pumps to deliver water to the steam generators. The AFST concrete structure is designed for a 3 psi differential pressure to withstand an atmospheric pressure drop due to a tornado. The excessive vacuum caused by the failure of the single vacuum breaker could result in damage to the concrete structure and loss of auxiliary feedwater inventory.

Therefore, if left uncorrected failure of a single vacuum breaker when the AFWS is in operation could disable the AFWS, preventing it from performing its intended safety function. This is considered a significant deficiency in final design as approved and released for construction, and is reportable under 10CFR50.55(e).

