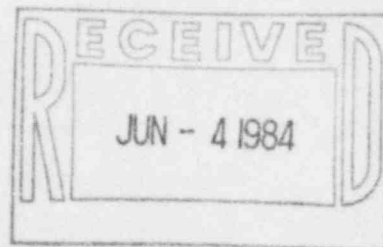


# The Light company

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

June 1, 1984  
ST-HL-AE-1098  
File No.: G12.190

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



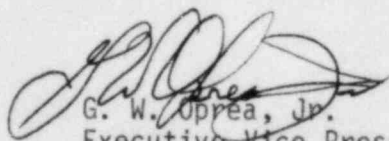
Dear Mr. Collins:

South Texas Project  
Units 1 & 2  
Docket Nos. STN 50-498, STN 50-499  
Control Room Habitability - Hazardous  
Chemical Release

On March 2, 1984, Houston Lighting & Power Company (HL&P) identified the subject as a Reportable Deficiency pursuant to the requirements of 10CFR50.55(e). Please find attached the final report on this item.

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

Very truly yours,

  
G. W. Oprea, Jr.  
Executive Vice President

SMH/mpg

Attachment: Final Report Concerning the Deficiency on Main Control Room  
Habitability - Hazardous Chemical Release

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PDR ADOCK 05000498  
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W2/NRC1/a

IE-27

cc:

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South Texas Project  
Units 1 & 2  
Final Report Concerning the Deficiency on Main  
Control Room Habitability - Hazardous Chemical Release

I. Summary

The design of the Control Room Envelope HVAC system is such that, in the event of a loss of offsite power (LOOP), the normal intake system is isolated and the makeup intake system started. Although this is the required mode for a radiation release, in the event of a hazardous chemical release concurrent with a loss of offsite power the control room habitability requirements are not met for several hazardous chemicals.

II. Description

In conjunction with the implementation of corrective action associated with a related deficiency reported to NRC July 6, 1982 regarding the use of fail open dampers in the HVAC design, the hazardous chemical analysis for the Control Room habitability envelope was updated and the design basis for the detection of hazardous chemicals and isolation of outside air intakes was reviewed. As a result of this review, it was determined that fail closed, safety grade, outside air intake dampers with electrohydraulic actuators were required. See ST-HL-AE-897 for a complete description.

Subsequently, during the design review process, it was determined that the logic design of the Control Room Envelope HVAC system as issued for construction utilized the LOOP signal to effect automatic isolation of the control room normal intake subsystem and start of the makeup intake subsystem. This results in a flow of 3000 CFM of filtered outside air (all 3 trains operating) into the control room envelope following a LOOP. During normal operation if a hazardous chemical is detected by the instruments in the intake duct the control room normal intake system is isolated and the makeup intake subsystem is not started. However, a subsequent LOOP would result in a realignment of the system, as described above, that defeats the required control room envelope isolation.

III. Corrective Action

The design has been revised to delete the function of automatically starting the makeup intake subsystem fans following LOOP. Since the current design calls for the supply dampers in the normal intake system to isolate on a toxic gas signal, this will preclude induction of significant amounts of toxic gas (if present) into the control room. The FSAR will be revised to reflect the design change.

IV. Recurrence Control

The safety-related HVAC systems have been reviewed by a project review team to verify correct implementation of the design bases.

Established procedures require design review and design verification. These design reviews provide assurance that the design requirements have been appropriately factored into the design. This deficiency was found as a result of such a design review.

V. Safety Analysis

Although it is highly unlikely that a design basis toxic gas release would occur, and even more unlikely that this event would occur concurrent with a LOOP, the following consequences have been determined based on the design basis event:

Following a LOOP, toxic levels from design basis releases of vinyl acetate, ammonia, ammonium hydroxide and hydrazine could have been reached before sufficient reaction time passed to take credit for operator actions in isolating the control room envelope. The habitability requirements of GDC 19 of Appendix A of 10CFR50 would have not been met for these releases.

With incorporation of the design change, the habitability requirements of GDC 19 are satisfied.

Toxic gas analyses have been performed assuming 1) toxic gas inleakage with all dampers closed and 2) a worst case single failure in one train such that one makeup discharge intake subsystem damper is open and all dampers in the other two trains are closed. The Regulatory Guide 1.78 position concerning two minutes warning time for operator action (donning breathing apparatus) is satisfied for all toxic gases of concern.