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

March 7, 1985
ST-HL-AE-1206
File No.: G12.220

Mr. Robert D. Martin
Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Second Interim Report Concerning Failure
of Fire Dampers to Close

Dear Mr. Martin:

On December 11, 1985, Houston Lighting & Power Company notified the Nuclear Regulatory Commission that an item regarding the failure of Ruskin fire dampers to close was potentially reportable pursuant to 10CFR50.55(e). Attached is our second Interim Report on this item. Our next report will be submitted to your office by May 15, 1985.

If you should have any questions on this matter please contact Mr. M. E. Powell at (713) 993-1328.

Very truly yours,

J. T. Westermeier for
J. H. Goldberg
Group Vice President, Nuclear

JSP/yd

Attachment: Second Interim Report Concerning
Failure of Fire Dampers to Close

85-20

W2/NRC2/r

1/1 IE-27

cc:

Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

N. Prasad Kadambi, Project Manager
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, MD 20814

Claude E. Johnson
Senior Resident Inspector/STP
c/o U.S. Nuclear Regulatory Commission
P. O. Box 910
Bay City, TX 77414

Dan Carpenter
Resident Inspector/South Texas Project
c/o U.S. Nuclear Regulatory Commission
P. O. Box 2010
Bay City, TX 77414

M. D. Schwarz, Jr., Esquire
Baker & Botts
One Shell Plaza
Houston, TX 77002

J. R. Newman, Esquire
Newman & Holtzinger, P.C.
1615 L Street N.W.
Washington, DC 20036

Director, Office of Inspection
and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

E. R. Brooks/R. L. Range
Central Power & Light Company
P. O. Box 2121
Corpus Christi, TX 78403

H. L. Peterson/G. Pokorny
City of Austin
P. O. Box 1088
Austin, TX 78767

J. B. Poston/A. vonRosenberg
City Public Service Board
P. O. Box 1771
San Antonio, TX 78296

Brian E. Berwick, Esquire
Assistant Attorney General for
the State of Texas
P. O. Box 12548, Capitol Station
Austin, TX 78711

Lanny A. Sinkin
3022 Porter Street, N.W. #304
Washington, D.C. 20008

Oreste R. Pirfo, Esquire
Hearing Attorney
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Charles Bechhoefer, Esquire
Chairman, Atomic Safety & Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dr. James C. Lamb, III
313 Woodhaven Road
Chapel Hill, NC 27514

Judge Ernest E. Hill
Hill Associates
210 Montego Drive
Danville, CA 94526

Mr. Ray Goldstein, Esquire
1001 Vaughn Building
807 Brazos
Austin, TX 78701

Citizens for Equitable Utilities, Inc.
c/o Ms. Peggy Buchorn
Route 1, Box 1684
Brazoria, TX 77422

Docketing & Service Section
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Second Interim Report Concerning
Failure of Fire Dampers to Close

I. Summary

Ruskin filed a 10CFR21 on November 6, 1984, and informed customers using Ruskin fire dampers that a deficiency exists that results in dampers failing to close under normal duct air flow. Ruskin fire dampers were tested in accordance with AMCA500 (Test Method for Louvers, Dampers, and Shutters) test figure 5.5.

Actual installed conditions in the ductwork differ from the as-tested AMCA test configuration. In addition, initial tests indicate that the furnished standard construction dampers generally do not meet the specification requirements. A series of tests were conducted by Ruskin during January and February 1985 with emphasis on air flow velocity as a primary factor in determining successful operation. Ruskin is presently evaluating test data to establish if performance correction factors, which are necessary for prediction of performance under actual operating conditions, can be deduced from available data.

A safety analysis will be performed after this data becomes available.

II. Description of the Deficiency

The dampers that failed to close are Ruskin model N1BD-23. Though the damper sizes and duct connection shapes (round or rectangular) may differ, a significant difference between dampers is the installation position. Dampers mounted in the floor are defined as horizontal dampers and those mounted in a wall are defined as vertical dampers. The primary difference in design of the two types of dampers is that closure of the vertical dampers is gravity assisted; closure of the horizontal dampers is not gravity-assisted. Both damper types are spring loaded while horizontal dampers are equipped with locking mechanisms. All the Ruskin fire dampers are automatically activated by the melting of a fusible link on the damper in the presence of a fire.

Successful operation of the fire dampers appears to be impacted by several parameters including some not previously identified. These include pressure, duct configuration, air flow direction, number of damper sections, size of damper sections, size and performance of springs, and friction considerations.

Additionally, testing of dampers under high pressures appears to cause permanent progressive degradation in the condition of the dampers following each actuation.

The following problems are known to date:

1) Failure of the shutters to close above certain air flow velocities in horizontal and vertical dampers.

2) Failure of the locking mechanism to lock properly for horizontal dampers.

III. Corrective Action

Tests have been performed by Ruskin for STP. The tests utilize generic conditions which must be extrapolated to account for individual damper operating conditions. Ruskin is presently evaluating whether test data available to date is sufficient to determine necessary correction factors. Specific future plans for corrective action can only be made after completion of Ruskin's evaluation.

Ruskin has already revised the design of the locking mechanism of horizontal dampers.

IV. Recurrence Control

All fire dampers on STP are being reviewed for applicability of the problem. All applicable parameters will be identified on a master fire damper list. Correction factors will be applied to Ruskin's generic test velocities in order to determine if the dampers will perform successfully under actual operating conditions.

V. Safety Analysis

A safety analysis will be provided in the Final Report.