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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Units 1 & 2
Docket No. STN 50-498/499
Response to NRC Bulletin 88-008, Supplement 1, and Supplement 2:
"Thermal Stresses in Piping Connected to Reactor Coolant Systems"

Houston Lighting & Power Company (HL&P) has evaluated the subject bulletin and its supplements and submits the attached response for Units 1 & 2 of the South Texas Project Electric Generating Station.

If you should have any questions on this matter, please contact Mr. M. A. McBurnett at (512) 972-8530.

J. H. Goldberg
Group Vice President, Nuclear

JHG/WPE/nl

Attachment: Response to NRC Bulletin 88-008,
Supplement 1, and Supplement 2.

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1/1

cc:

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Houston Lighting & Power	)	Docket Nos. 50-498
Company, et al.,	)	50-499
	)	
South Texas Project	)	
Units 1 and 2	)	

AFFIDAVIT

J. H. Goldberg being duly sworn, hereby deposes and says that he is Group Vice President, Nuclear of Houston Lighting & Power Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached proposed exemption to 10CFR50.54(w); is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.

J. H. Goldberg
Group Vice President, Nuclear

Subscribed and sworn to before me, a Notary Public in and for The State of Texas this 28th day of Sept., 1988.

Mazie D. Hill
Notary Public in and for the
State of Texas

MAZIE D. HILL
Notary Public, State of Texas
My Commission Expires 2-3-89

NL.88.193.03

NRC Bulletin 88-008, Supplements 1 & 2
Thermal Stresses in Piping Connected to Reactor Coolant Systems (RCS)

Action Item 1

Review systems connected to the RCS to determine whether unisolable sections of piping connected to the RCS can be subjected to stresses from temperature stratification or temperature oscillations that could be induced by leaking valves and that were not evaluated in the design analysis of the piping. For those addressees who determine that there are no unisolable sections of piping that can be subjected to such stresses, no additional actions are requested except for the report required below.

Response

Systems connected to the RCS were reviewed to determine if any unisolable sections of piping connected to the RCS could be subjected to thermal stresses resulting from valve leakage. The results of this review are described below.

Separate pumps are provided at STP for charging and high head safety injection. Charging is provided by either the normal charging line or the alternate charging line. These lines are not cross-connected to the safety injection lines. Given appropriate valve line-ups, either charging line could be used to provide full charging.

When the Chemical and Volume Control System (CV) is lined up to use the normal charging line, the alternate charging line is isolated. Leakage can occur through the isolation valve as well as through a 3/4" bypass line around the isolation valve. The 3/4" bypass contains a spring loaded check valve instead of an isolation valve that is provided for thermal relief of the Regenerative Heat Exchanger. If the CV is lined up to use the alternate charging line, the normal charging line is isolated and leakage can occur through the isolation valve. There is no bypass around the normal charging line isolation valve. Depending on system line up, the leakage flow described above could potentially result in a condition where thermal stresses occur in the unisolable portions of the normal and alternate charging lines.

The RCS auxiliary spray line is connected to the RC pressurizer spray line between the normally closed isolation valves and the pressurizer. There is a 3/4" line with a flow restricting orifice around the RCS pressurizer spray isolation valves which maintains the RCS pressurizer spray line at temperature. Leakage flow past the auxiliary spray isolation valve from the CV normal charging line could potentially result in a condition where thermal stresses occur in the unisolable portion of the RCS auxiliary spray line.

Response (Cont.)

During normal plant operation, the RC pressure is greater than that of the high head and low head safety injection and residual heat removal pumps shut off head and accumulator pressure. Therefore, since the pressure upstream of the block valve cannot be higher than the normal RCS pressure, leakage of cooler fluid into the RCS cannot occur.

Action Item 2

For any unisolable sections of piping connected to the RCS that may have been subjected to excessive thermal stresses, examine nondestructively the welds, heat affected zones and high stress locations, including geometric discontinuities, in that piping to provide assurance that there are no existing flaws.

Response

The unisolable portion of the RCS auxiliary spray line and the CV alternate and normal charging lines will be nondestructively examined to provide assurance that there are no existing flaws. The schedule for performing the examination is as follows:

Unit 1 - prior to end of the first refueling outage.

Unit 2 - prior to achieving initial criticality.

Action Item 3

Plan and implement a program to provide continuing assurance that unisolable sections of all piping connected to the RCS will not be subjected to combined cyclic and static thermal and other stresses that could cause fatigue failure during the remaining life of the unit. This assurance may be provided by (1) redesigning and modifying these sections of piping to withstand combined stresses caused by various loads including temporal and spatial distributions of temperature resulting from leakage across valve seats, (2) instrumenting this piping to detect adverse temperature distributions and establishing appropriate limits on temperature distributions, or (3) providing means for ensuring that pressure upstream from block valves which might leak is monitored and does not exceed RCS pressure.

Response

A program will be developed and implemented to provide continuing assurance that the unisolable portion of the RCS auxiliary spray line and the CV normal and alternate charging lines will not be subjected to combined cyclic and static thermal and other stresses that could cause fatigue failure during the remaining life of the units. The program will be developed and issued by December 1, 1988. The schedule for implementing this program is as follows:

Unit 1 - prior to end of the first refueling outage.

Unit 2 - prior to achieving initial criticality.