Public Service
Electric and Gas
Company

Steven E. Miltenberger

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United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

RESPONSE TO NRC BULLETIN 88-08
SALEM AND HOPE CREEK GENERATING STATIONS
DOCKET NOS. 50-272, 50-311 AND 50-354

Public Service Electric and Gas Company (PSE&G) has received the subject NRC Bulletin regarding thermal stresses in piping connected to reactor coolant systems. The information requested by this bulletin for the Salem and Hope Creek Generating Stations is provided in the enclosure to this letter.

Should you have any questions with regard to this transmittal, please do not hesitate to contact us.

Sincerely,

Steven E Miltenberger

Enclosure

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C Mr. J. C. Stone
Licensing Project Manager - Salem

Mr. R. W. Borchardt
Senior Resident Inspector - Salem

Mr. G. W. Rivenbark
Licensing Project Manager - Hope Creek

Mr. G. W. Meyer
Senior Resident Inspector - Hope Creek

Mr. W. T. Russell, Administrator
Region I

Mr. D. M. Scott, Chief
Bureau of Nuclear Engineering
Department of Environmental Protection
380 Scotch Road
Trenton, NJ 08628

REF: NRC BULLETIN 88-08

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

Steven E. Miltenberger, being duly sworn according to law deposes and says:

I am Vice President and Chief Nuclear Officer of Public Service Electric and Gas Company, and as such, I find the matters set forth in our letter dated SEP 23 1988, concerning Salem and Hope Creek Generating Stations, are true to the best of my knowledge, information and belief.

Steven E. Miltenberger

Subscribed and Sworn to before me
this 23rd day of September, 1988

Laraine Y. Beard
Notary Public of New Jersey

LARAINE Y. BEARD
Notary Public of New Jersey
My Commission Expires May 1, 1991

My Commission expires on

ENCLOSURE

RESPONSE TO NRC BULLETIN 88-08
SALEM AND HOPE CREEK GENERATING STATIONS
DOCKET NOS. 50-272, 50-311 AND 50-354

The purpose of this bulletin was to request that Licensees review their reactor coolant systems (RCSs) to identify any connected, unisolable piping that could be subjected to temperature distributions due to valve leakage which would result in thermal stresses not evaluated in the design analysis of the piping. The bulletin addressed both fatigue cracking induced by thermal cycling and piping distortion caused by thermal stratification.

The written response requested by Bulletin 88-08 is presented below.

I. HOPE CREEK

We have reviewed the Hope Creek piping systems in light of the concerns identified by the bulletin and conclude that there are no unisolable sections of piping connected to the RCS that can be subjected to stresses from temperature stratification or temperature oscillations due to valve leakage.

The systems identified below are connected to the RCS and contain relatively cooler water. However, during normal operation of the plant, these systems are not pressurized and they are isolated from the RCS via isolation valves.

(1) High Pressure Injection (HPCI) System
(2) Reactor Core Isolation Cooling (RCIC) System
(3) Standby Liquid Control (SLC) System

Periodically during surveillance testing, these systems are operated and the system pressure may be higher than the RCS pressure. However, the duration and frequency of the testing are so low that no thermal cycling fatigue is anticipated even if the isolation valves were to leak. The SLC system is isolated from the RCS boundary by positive isolation squib valves and no leakage is expected through these valves.

The feedwater system is normally in operation and continuously injects cooler water into the RCS during normal operation. The feedwater header and the connected RCS piping are specifically designed for this operation.

Based on the results of this review, no further actions in response to the bulletin are planned to be taken at Hope Creek Generating Station.

II. SALEM UNIT NOS. 1 AND 2

A. Action 1 - REVIEW RESULTS

1. We have identified a total of six potential locations at the Salem units where thermal cycling as described in the bulletin could occur due to valve leakage. The three Unit No. 1 locations are identified below. The three Unit No. 2 locations are equivalent.

   1) downstream from 11-14SJ17 check valves due to 1SJ71, 1SJ12 or 1SJ13 leakage

   2) downstream from 1CV75 Auxiliary Pressurizer Spray piping

   3) downstream from 1CV79 Auxiliary Charging to 14 cold leg

2. Deformation of the pressurizer surge line at the Trojan Station has been attributed to thermal stratification. This large diameter piping is susceptible to thermal stratification during heat up. When a bubble is drawn in the pressurizer during heat up, hot pressurizer water enters the cooler RCS. The cooler, heavier water collects along the bottom of the piping, while the hotter, less dense water will be at the top. This uneven temperature distribution can cause thermal expansion that is outside of the original design movements. The new thermal growth may impinge upon High Energy Break Analysis (HEBA) restraints and cause additional reactive loads on supports. Eventually, the piping may undergo an elastic shakedown and conform to a new permanent set. This condition was identified by a field walkdown at the Trojan Station during verification of support and HEBA restraint clearances.

   Salem does not draw a bubble in the pressurizer under the same operating conditions as Trojan. At Salem, the temperature differential between the pressurizer and the RCS is not as extreme as at Trojan. Consequently, we conclude that pressurizer surge line distortion due to thermal stratification is less likely to occur at Salem.

B. ACTION 2 - EXAMINATION

1. The six locations identified in paragraph II A.1, above, will be nondestructively examined during the next scheduled refueling outage for that unit (i.e., 8th refueling outage and 4th refueling outage for Units 1 and 2, respectively). A test spool has been prepared and sent to Southwest Research for development of ultrasonic testing procedures on the socket weld fittings.

2. The pressurizer surge line welds will also be nondestructively examined on both units during the next refueling outages. In addition, a field walkdown will be performed to verify support and HEBA restraint clearances.

C. ACTION 3 - PROGRAM FOR ASSURANCE

Locations 2 and 3 have the potential for leakage into the pressurizer or directly into the RCS cold leg. However, the temperature differential at the check valve will be low. The high pressure side of the CV75 or CV79 valve is the regenerative heat exchanger. The regenerative heat exchanger is required for charging. If the heat exchanger is lost, the charging system is taken out of service, and the high pressure source for leakage is removed. If excess letdown is in service to supply the RCP seals and normal charging is isolated, the CV68 and CV69 valves are closed to provide double isolation of charging pressure to the CV75 and CV79 valves. These two locations will not require further action aside from an NDE inspection of the welds.

The potential for future leakage past the SJ71 valve will be eliminated by removing the valve and capping the piping. This work will be performed in conjunction with the BIT removal DCR on Unit 2. A separate DCR (1SM-0686) will be issued for Unit 1 for the next (eighth) refueling outage to delete the SJ71 valve.

Quarterly surveillance PI/S-SJ-3, performed during modes 1-3, will detect any leakage past the SJ12 or SJ13 valves.

PSE&G will perform the inspections/walkdowns identified above for a minimum of two consecutive outages on each unit to provide continuing assurance of system integrity. Our NDE activities will encompass the considerations addressed in Supplement No. 2 to Bulletin 88-08.

In accordance with bulletin paragraph No. 2 under "Reporting Requirements", confirmatory letters will be provided within 30 days of completion of the outages describing the NDE results and all actions taken.