

Public Service
Electric and Gas
Company

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Vice President and Chief Nuclear Officer

NLR-N94155

SEP 15 1994

Regional Administrator
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Mr. Martin,

**FOLLOW-UP TO JULY 28, 1994 ENFORCEMENT CONFERENCE
SALEM GENERATING STATION
UNIT NO. 1
DOCKET NO. 50-272**

A written follow-up was requested on two specific items identified during the July 28, 1994 Enforcement Conference. This enforcement conference was called to address the NRC's findings relating to the April 7, 1994 reactor trip and Safety Injection (SI) event which occurred at Salem Unit No. 1. The items to be addressed are; 1) a summary of the changes which were made to Salem's operating procedures based on lessons learned from the April 7, 1994 event, and 2) the extent to which past industry operating experiences may have presented an opportunity to resolve Salem's operational problems with the Atmospheric Relief Valves (ARV) and to what extent we had communicated our solution to the reset-windup problem to the industry.

Attachment 1 to this letter provides a summary of the changes to the Salem Operating Procedures. These revisions provided Turbine/Reactor Trip criteria and RCS temperature control guidance based on our review of the lessons learned from the April 7 event. Salem Unit No.1 procedures are referenced. Identical revisions have been made to all Salem Unit No. 2 procedures as well.

Relative to the second item, Public Service Electric and Gas (PSE&G) had conducted a review of nuclear industry operating experience data in support of the Significant Event Response Team's effort following the event. The purpose of this review was to determine whether similar operational concerns as those experienced with the Salem ARV's had been identified elsewhere. There was information reported regarding premature ARV actuation, however, the cause of those events was unrelated to controller response. No other plant experience similar to Salem's (i.e., 1977 premature actuation, misoperation due to reset-windup and/or Steam Generator Safety Valve failure to reseal due to ARV misoperation) was identified.

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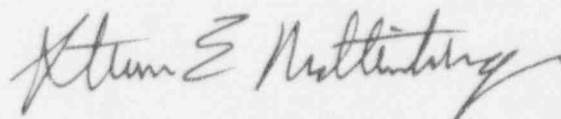
Mr. T. T. Martin
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During the detailed ARV control system design review which followed the April 7 event, PSE&G surveyed plants with similar ARV control systems in order to understand their experience with ARV operation. The survey identified that, while other plants had experienced premature ARV actuation problems similar to those encountered by PSE&G in 1977, none had removed the drain circuit from the controller. As a result, no other plants were experiencing reset-windup problems with ARV control (this also accounts for the lack of industry feedback data previously described). The survey also identified that some plant specific variability exists relative to the mode of operation (i.e. manual vs. automatic) of the ARV's during plant startup. This and other information obtained from the survey, was evaluated for potential impact on the proposed Salem ARV control system design changes. Westinghouse was also contacted and updated on the efforts and the results of the design team. Any Westinghouse recommendation was carefully considered and incorporated into our design effort where necessary. The final design changes implemented at Salem Unit's 1 and 2 address both the reset-windup problem and the original problem with premature actuation of the ARV's. The post-modification ARV control system operating experience gained by PSE&G has been shared with the industry through the Nuclear Network.

If there are any questions regarding this information, please feel free to contact me directly.

Sincerely,



DWD/pfr
Attachment

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

Mr. J. C. Stone, Licensing Project Manager - Salem
U. S. Nuclear Regulatory Commission

Mr. C. Marschall (S09)
USNRC Senior Resident Inspector

Mr. K. Tosch, Manager, IV
NJ Department of Environmental Protection
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ATTACHMENT 1

PROCEDURE REVISION SUMMARY

Procedure S1.OP-AB.CW-0001(Q) Circulating Water System Malfunctions

Revised procedure to direct tripping of the turbine or the reactor as appropriate based on condenser backpressure limits and reactor power level.

Revised procedure to direct entry into S1.OP-IO.ZZ-0004(Q), Power Operation, Attachment 2 if RCS temperature drops below 543°F. Attachment 2 directs the operator to trip the reactor if RCS temperature is $\leq 535^{\circ}\text{F}$ or $\geq 581^{\circ}\text{F}$. This procedure also provides guidance on restoring RCS temperature if the previously identified limits have not been exceeded.

Procedure S1.OP-AB.COND-0001(Q) Loss Of Condenser Vacuum

Revised procedure to direct tripping of the turbine or the reactor as appropriate based on condenser backpressure limits and reactor power level.

Procedure S1.OP-IO.ZZ-0004(Q)

Revised Power Reduction Section 5.3 to include a NOTE directing operator to Attachment 2 if RCS temperature is $\leq 543^{\circ}\text{F}$.

Revised power reduction section to incorporate rapid power reduction guidance. This section differs from the normal power reduction method in that transfer of the 4kV group busses is not required.

Attachment 2, Maintaining Minimum Temperature for Criticality, was added and directs the operator to trip the reactor if RCS temperature is $\leq 535^{\circ}\text{F}$ or $\geq 581^{\circ}\text{F}$. This procedure also provides guidance on restoring RCS temperature if the previously identified limits have not been exceeded.

Procedure 1-EOP-TRIP-1, Reactor Trip Or Safety Injection

SI Actuation Verification steps have been revised to require manual SI initiation if SI has actuated or an actuation is demanded.

ATTACHMENT 1 (continued)

Procedure S1.OP-AB.LOAD-0001(Q), Rapid Load Reduction

This procedure provides guidance for rapid load reductions for conditions not addressed by other Abnormal Operating Procedures. Operating guidance is provided for power reduction rates between 5 and 15%. The operator is directed to trip the reactor for load reductions exceeding 15%/minute. The most notable difference between this procedure and S1.OP-IO.ZZ-0004(Q), Power Operation, is the absence of a procedural requirement to transfer the group busses manually prior to taking the turbine off-line. Attachment 1 to this procedure is identical to S1.OP-IO.ZZ-0004(Q) Attachment 2, and provides guidance on restoring RCS temperature.