

Public Service  
Electric and Gas  
Company

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Public Service Electric and Gas Company P.O. Box 236, Harcocks Bridge, NJ 08038 609 339-4800

May 7, 1986

NLR-N86061

U. S. Nuclear Regulatory Commission  
Region 1  
631 Park Avenue  
King of Prussia, PA 19406

ATTN: Stewart D. Ebnetter, Director  
Division of Reactor Safety

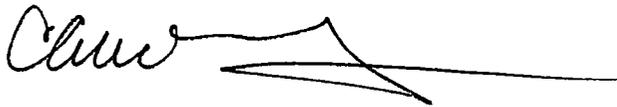
Gentlemen:

NRC INSPECTION 50-272/86-07 AND 50-311/86-07  
SALEM GENERATING STATION  
UNIT NOS. 1 AND 2  
DOCKET NOS. 50-272 AND 50-311

Public Service Electric and Gas Company (PSE&G) is in receipt of your letter dated April 7, 1986, which transmitted a Notice of Violation regarding procedures used for calculating anchor bolt loads in response to IE Bulletin 79-02.

Pursuant to the provisions of 10CFR 2.201, our response to the Notice of Violation is provided in Attachment 1.

Sincerely,



Attachment

C Mr. Donald C. Fischer  
Licensing Project Manager

Mr. Thomas J. Kenny  
Senior Resident Inspector

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Q PDR

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ATTACHMENT 1

10CFR 2.201 INFORMATION  
PUBLIC SERVICE ELECTRIC AND GAS  
SALEM GENERATING STATION  
RESPONSE TO NOTICE OF VIOLATION

Your letter dated April 7, 1986, identified a Violation of 10CFR50, Appendix B, Criterion III and of our Quality Assurance Program. As stated therein, PSE&G's procedure, "Criteria for Calculating Expansion Bolt Loads with Flat Plate Supports," and Associated Technologies, Inc., procedure, "Pipe Support Base Plate Flexibility Evaluation" describe the design approaches to be used to account for base plate flexibility and concrete anchor bolt loads in response to IE Bulletin 79-02. However, these procedures did not correctly translate the design bases in that: the procedure used by Associated Technologies, Inc., utilized a design approach in the AISC Manual of Steel Construction which did not account for base plate flexibility in the calculation of anchor bolt loads; and the procedure used by PSE&G underestimated anchor bolt loads such that appropriate factors of safety as derived from more accurate analytical techniques, such as finite element analysis, were not provided.

1. PUBLIC SERVICE ELECTRIC AND GAS COMPANY DOES NOT DISPUTE THE VIOLATION.
2. THIS VIOLATION IS ATTRIBUTABLE TO A FAILURE BY PSE&G TO PROPERLY IMPLEMENT SECTION 17.2.3 OF THE QUALITY ASSURANCE PROGRAM IN THAT WE FAILED TO ADEQUATELY VERIFY CALCULATION PROCEDURES.
3. IMMEDIATE CORRECTIVE ACTIONS:
  - a) PSE&G implemented procedure GM8-EMP-006, "Design Verification," which requires verification of all engineering inputs. This procedure has been in place since June 1985, and its implementation will preclude similar occurrences in the future.
  - b) The PSE&G and ATI procedures referenced are no longer in use. PSE&G presently performs calculations using a computer program called BASEPLATE II. This program has been verified correct and is quality controlled by its developer Control Data Corporation.
  - c) Of the 404 baseplates analyzed by the PSE&G or ATI procedures for IE Bulletin 79-02, PSE&G has determined that 402 are acceptable as designed.

Two baseplates in the RHR system did not satisfy the original design criteria, but have a safety factor greater than two on the bolt loads. A review of the conservatism in design inputs, using a seismic event or an accident condition, shows that the thermal loads on these baseplates resulted from design temperatures well in excess of expected conditions. Using the reduced temperatures, these two baseplates also satisfy design criteria.

4. LONG-TERM CORRECTIVE ACTIONS:

Modifications will be made to the two (2) RHR baseplates at the next Unit No. 2 outage (Sept-Oct. 1986) in order that the original Salem design criteria is satisfied.

5. FULL COMPLIANCE WILL BE ACHIEVED BY NOVEMBER 1, 1986.

6. ADDITIONAL INFORMATION

NRC IE Bulletin 79-02 Revision No. 1 (Supplement No. 1) established the following criteria for the evaluation of interim acceptability of plant operation with less than the design factors of safety for piping supports;

- a. For the support as a unit, the factor of safety compared to ultimate strengths is less than the original design but equal to or greater than two.
- b. For the anchor bolts, the factor of safety is equal to or greater than two and for the support steel the original design factor of safety compared to ultimate strengths is met.

The two baseplates requiring modification do have a factor of safety of greater than two in accordance with (b) above and therefore continued operation of Salem Unit 2 until the next outage is acceptable and in accordance with the 79-02 criteria.