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Nuclear Business Unit

AUG 18 1995

LR-N95127

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

Gentlemen:

**RESPONSE TO NRC NOTICE OF VIOLATION  
INSPECTION REPORT 50-272/95-12, 50-311/95-12  
SALEM GENERATING STATION  
UNIT NOS. 1 AND 2  
DOCKET NOS. 50-272 AND 50-311**

NRC Safety Inspection Report Nos. 50-272/95-12 and 50-311/95-12 for Salem Nuclear Generating Station Units Nos. 1 and 2 was transmitted to Public Service Electric & Gas Company (PSE&G) on July 19, 1995. Within the scope of this report, a violation of NRC requirements was cited. Pursuant to the provisions of 10CFR2.201, PSE&G submits its response to the aforementioned violation in Attachment 1 to this letter.

Should there be any questions regarding this submittal, please do not hesitate to contact us.

Sincerely,

L. F. Storz  
Senior Vice President -  
Nuclear Operations

Attachment

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They were in our hands

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PSE & G 05000272

AUG 18 1995

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**ATTACHMENT 1**

**NOTICE OF VIOLATION**

Public Service Electric and Gas (PSE&G)  
Dockets Nos: 50-272/50-311  
Salem Units 1 and 2  
License Nos: DPR-70/DPR-75

During an NRC inspection conducted from May 15 - June 8, 1995, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (60 FR 34381; June 30, 1995) the violation is listed below:

Criterion XVI, "Corrective Action," of Appendix B to 10 CFR 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires that, "In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition."

Contrary to the above, corrective actions were not taken to preclude repetition of significant conditions adverse to quality in that, between December 4, 1989, and March 29, 1995, 13 failures of safety-related circuit breakers occurred due to hardened grease and/or dirt in the breaker operating mechanism. PSE&G did not determine the cause of the condition and repetitive failures occurred.

**REASON FOR THE VIOLATION**

PSE&G does not dispute the Violation.

The root cause of this Violation is attributed to acceptance of longstanding equipment problems as demonstrated by ineffective corrective actions and the failure to perform a timely root cause determination for the repetitive failure of these breakers. PSE&G recognizes that opportunities existed between 1989 and 1995 to identify and correct repetitive conditions adverse to quality.

A similar finding concerning this issue was identified by the Salem Quality Assurance (QA) Department as part of its audit of the Salem Electrical Maintenance and Controls Department. This audit was conducted from April 3, 1995 through May 4, 1995.

**DISCUSSION OF CIRCUMSTANCES**

On March 21, 1989, a Part 21 report from D.C. Cook regarding mechanism binding due to hardened grease resulted in the breaker manufacturer (ABB Service Inc.) issuing a letter to all known affected purchasers. This letter contained clarifying information with respect to lubrication and contact adjustment on model HK and K-Line circuit breakers. On July 25, 1990, a revision to the Salem breaker maintenance procedure was issued. The revision incorporated only the vendor's recommendation for contact adjustment on the K-1600 circuit breakers (HK not used at Salem).

In 1991, ABB Service Inc. issued a revision to its vendor manual that called for periodic (10 year) cleaning and relubrication of the operating mechanism, and warned that old (or unidentified) grease should be completely removed before relubricating. A comparison of the vendor's recommendations with PSE&G's program indicated that: a) the PSE&G frequency for cleaning and relubrication of these breakers was 5 years; and b) PSE&G's breaker maintenance procedure required breaker disassembly (cleaning and relubrication) upon discovery of grease degradation on visual inspection.

In 1992, the Procedure Upgrade Program revised the breaker maintenance procedure to provide improved guidance on breaker lubrication. The revision specified requirements for mechanism roller disassembly, clean-up, and reassembly.

Prior to 1995, breaker slow closures were treated as isolated events. In early 1995, following the Unit 2 restart from its 8th refueling outage, three breakers exhibiting slow closure resulted in the generation of an Incident Report (IR). On February 13, 1995, an Action Tracking System (ATS) item was assigned to the System Engineer to determine the cause of the slow closure.

On April 21, 1995, the NRC issued Information Notice (IE) 95-22 "Hardened or Contaminated Lubricants Cause Metal - Clad Breaker Failures." An additional ATS item was assigned to the System Engineer to determine the adequacy of the preventive maintenance procedure with a due date of August 14, 1995. On May 2, 1995, the System Engineer initiated a purchase order to the circuit breaker manufacturer to assist in determining the reason for the slow closure and to address the adequacy of the maintenance procedure.

On June 2, 1995, Salem QA issued Audit Report 95-141, "Salem Electrical Maintenance and Control Audit." This audit was conducted from April 3, 1995 through May 4, 1995. As a part of the audit, an action request was issued to Maintenance Controls on May 4, 1995, to evaluate inadequate Root Cause Determinations on various IRs, including the one written in early 1995 on the three breakers exhibiting slow closure. The audit also identified two additional instances of slow breaker closure in the ten months prior to the audit.

In June 1995, maintenance and engineering personnel in cooperation with the vendor, determined that breaker slow closure primarily resulted from inadequate maintenance practices. PSE&G'S investigation, as confirmed by the manufacturer's representative, concluded that the close latch roller must be removed from its spindle to permit thorough cleaning and re-lubrication of the roller assembly. Prior to this time, the roller was incorrectly believed to be inaccessible and therefore unremovable. The vendor manual for breaker disassembly does not specifically indicate or show the removal of this roller. A more detailed examination of the assembly by NBU maintenance and engineering personnel determined that the roller could be accessed and removed. Previous attempts to resolve this issue had failed to identify that the close latch roller was removable.

#### **CORRECTIVE ACTIONS THAT HAVE BEEN TAKEN**

On May 23, and May 30, 1995, PSE&G issued Engineering Memoranda (EM) 95-150 and 95-150 Rev 1. These Engineering Memoranda advised the Operations Department management of the potential for ITE/ABB K-Line 480V breakers to slow close, and included a list of the potentially affected safety related breakers.

On May 26, 1995, an Operability Determination was performed using the guidance of Generic Letter (GL) 91-18, "Operable/Operability: Ensuring the Functional Capability of a System or Component." The breakers were determined to be operable on the basis of operating experience, including periodic breaker cycling, combined with an assessment of the specific application(s) of the affected breakers.

To address the issue of maintenance practices, the maintenance procedure SC.MD-ST.230-0003(Q) "230&460 Volt ITE K-Series Breaker Preventive Maintenance" has been revised to include instruction for removal of the roller assembly from its spindle and to include "as-found" and "as-left" breaker bench timing. The revised procedure was issued on August 15, 1995.

Following appropriate training of the electrical technicians, affected K-Line 480V electrically operated safety related breakers will be inspected, disassembled, and relubricated using the revised SC.MD-ST.230-0003(Q) procedure. The Salem Units 1 and 2 affected breaker overhauls will be completed prior to the respective units entering Mode 4.

The existing Preventive Maintenance (PM) program will be modified to perform time response testing on selected electrically operated K-Line 480V safety related breakers. This data will be used to evaluate the program's adequacy, effectiveness and frequency. PSE&G's Salem Station utilizes the affected breakers in its 460/230V system. Slow breaker closure has occurred only in this 460/230V system.

Until the affected K-Line electrically operated safety related breakers are overhauled, breaker operability is being assured by the following action: (This action was established as part of the original Operability Determination.)

On May 30, 1995, the Operations Department revised procedure SC.OP-DD.ZZ-OD32(Q) "Log Supplement" (OD-32) to require monthly cycling & (stop-watch) timing of all required breakers (as per the EM). This data is being periodically evaluated to detect and promptly correct performance deterioration. To date, only one additional safety related breaker has exhibited a slow closure event. This breaker has been successfully lubricated/overhauled and retested.

The Nuclear Training Center will evaluate the revision to the maintenance procedure for incorporation into the maintenance electrical training program.

#### **CORRECTIVE ACTIONS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS**

The corrective actions discussed above address the specific equipment performance issues associated with this Violation. However, the NBU recognizes the broader implications associated with the lack of effective corrective actions to be the overriding concern of the citation. This matter was discussed at length during the July 28, 1995, Enforcement Conference where NBU management described actions that had been taken to address corrective action program deficiencies.

As we discussed at the enforcement conference, the NBU made an important decision in June of 1995 to keep both Salem Units shutdown. This decision was based in large part on a recognition of past poor performance in the area of corrective action. Following this decision, the NBU committed to the development of a comprehensive restart readiness review process as a means of providing the necessary assurance that the Salem units can be operated safely and reliably in the future. The overall objective of this review is to ensure that the equipment, processes and people supporting plant operation have been assessed and are ready to support unit restart.

To meet these objectives, a new senior management team has been assembled to lead the organization. Personnel who were selected have the demonstrated leadership capability and the high standards required to develop a quality organization. In most cases, these individuals have come from other nuclear units where successful performance turn-around has been accomplished. Assessment of existing managers is also being conducted to evaluate their ability to demonstrate the necessary skills required for performance improvement.

To ensure timely problem identification and resolution, the NBU has developed and implemented a new Corrective Action Program (CAP). The program is described in procedure NC.NA-AP.ZZ-0006(Q), "Corrective Action Program" (NAP-6). As part of the development of the CAP, the NBU benchmarked several other successful Utility's CAPs and conducted an organizational self-assessment utilizing a multidiscipline team composed of industry peer personnel (Utility and INPO).

The CAP has consolidated and improved previously existing programs within the NBU. The program establishes a low threshold for reporting problems, provides for aggressive problem assessment and root cause determination, and management controls on completion schedules for specified corrective actions. The CAP includes a graded approach to root cause determination based on significance level. The CAP also requires timely (30 days) completion of root cause determination.

Accountability for CAP implementation rests with station line management. As such, station managers will review completed root cause evaluations for completeness and adequacy. The Director - Quality Assurance/Nuclear Safety Review has oversight responsibility for the CAP. He has established dedicated resources under the Manager - Corrective Action and Quality Services, to fulfill that responsibility. Measures have been established to monitor the performance of the corrective action process.

In conclusion, changes to the processes and management oversight practices have been and will continue to be made to improve and further assure appropriate levels of Corrective Action Program performance.

**DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED**

In June 1995, PSE&G achieved full compliance when the root cause for slow breaker closure was determined and appropriate corrective actions were taken. Proper implementation of the longer term corrective actions will ensure continued compliance.