



**Pennsylvania Power & Light Company**

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U.S. Nuclear Regulatory Commission  
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**SUSQUEHANNA STEAM ELECTRIC STATION**  
**REPLY TO NOTICE OF VIOLATION**  
**DATED FEBRUARY 22, 1991**  
**PLA-3548** **FILE R41-2**

Docket Nos. 50-387  
and 50-388

Attached is Pennsylvania Power & Light Company's response to the Notice of Violation dated 2/22/91 resulting from Inspection Nos. 50-387/90-81 and 50-388/90-81. Pennsylvania Power & Light Company is accepting all five violations.

The notice required submittal of a written reply within thirty (30) days of the date of the letter. However, as discussed with Mr. J. R. White of Region I on March 12, 1991, PP&L has been authorized to delay the response until March 28, 1991. We trust that the Commission will find the attached response acceptable.

If you have any questions, please contact Mr. W.W. Williams at (215) 774-7910.

Very truly yours,

H. W. Keiser

Attachment

cc: NRC Region I - Regional Administrator  
Mr. J.J. Raleigh, NRC Project Manager (OWFN)  
Mr. G.S. Barber, NRC Sr. Resident Inspector (SSES)



## REPLY TO NOTICE OF VIOLATION

### 1. VIOLATION

10CFR50.59 requires that the licensee shall maintain records of changes in the facility and that these records must include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question.

10CFR50, Appendix B, criterion XVII, "Quality Assurance Records", requires that sufficient records shall be maintained to furnish evidence of activities affecting quality.

Susquehanna Operational Quality Assurance Manual, OPS-9, Revision 2, paragraph 5.1.1, requires that modifications shall be proposed by established procedures which assure a documented, controlled process, and paragraph 5.1.2 requires that, prior to installation, Modifications shall be subjected to a safety evaluation in accordance with the requirements of 10CFR50.59, and paragraph 5.1.3 requires that Modifications and the related safety evaluations shall be reviewed by the Plant Operation Review Committee (PORC) and the Susquehanna Review Committee (SRC):

Contrary to the above, the following are examples where modifications were made without the required written safety evaluations:

- a. "Temporary" general area lighting has remained installed near the Unit 2 Control Rod Drive hydraulic control units since on or before March 26, 1984, without a written safety evaluation.
- b. On October 9, 1990, the Unit 2 Standby Liquid Control Accumulator (2T207B) charging connection cap was modified to accommodate a replacement valve. Since the replacement valve is of a different design from the original valve, a hole was drilled in the accumulator cap. This modification was installed without a written safety evaluation.
- c. On October 10, 1990, a "temporary" structure was found attached to the Unit 2 Main Steam Flow Panel (2C041) and containment wall mounted instrument tubing supports. This structure had been installed without any documented design modification or written safety evaluation.



- d. On October 13, 1990, a Unit 1 Reactor Protection System panel (1C611) was found modified by the installation of banana jacks. This modification was installed under a work authorization without a documented design modification or written safety evaluation.

## RESPONSE

### 1. REASON FOR VIOLATION

Pennsylvania Power & Light Company agrees with the violation in that modifications were made to the plant without the required written safety evaluations. Our past handling of temporary modifications did not consistently address the requirements of 10CFR50.59. A discussion of each of the examples is provided below:

- a. "Temporary" general area lighting was installed by way of a work authorization in 1984. Nonconformance Report (NCR) 84-526 determined that temporary lighting did not place the plant outside of its design basis nor did it alone prevent any safety functions from operating. However, the installation was made without a safety evaluation being performed in accordance with the requirements of 10CFR50.59 and this installation remained "temporary" with no permanent corrective actions until recently.
- b. The Standby Liquid Control Accumulator charging connection caps were modified without a safety evaluation in accordance with the requirements of 10CFR50.59 having been performed.
- c. A temporary structure was attached to the Unit 2 Main Steam Flow Instrument Panel without a safety evaluation in accordance with the requirements of 10CFR50.59 having been performed.
- d. Banana jacks were installed as corrective actions for LER 83-142/03L-0. Safety concerns were considered in arriving at a "not-a-modification" determination in each specific installation of banana jacks, however, since modifications were not deemed to be required, safety evaluations and 10CFR50.59 criteria considerations were not formalized in specific documentation.

It should be noted that in statement of the violation it is indicated that paragraph 5.1.3 of OPS-9 requires that modifications and the related safety evaluations shall be reviewed by the Plant Operational Review Committee and the Susquehanna Review Committee. OPS-9 further states in paragraph 5.1.3 that these reviews will be accomplished "in accordance with the requirements established in Section 6.0, Administrative Control, of the SSES Technical Specifications." The statement as written in the Notice of Violation incorrectly implies that the Susquehanna Review Committee reviews all modification, which is not the requirement nor our practice.

## 2. CORRECTIVE ACTIONS TAKEN

- a. Temporary lighting has been removed. Modifications PMR 89-9135 and PMR 89-9134, including the required written safety evaluation were completed on both Unit 1 and Unit 2 installing permanent area lighting near the Control Rod Drive Hydraulic Control Units.
- b. NCR's 90-0343 and 90-0344 were issued and prompt Operability/Reportability determinations were made. No operability concerns were found. A 50.59 evaluation is being prepared for the existing configuration. This evaluation will be completed prior to startup from the U2-4RIO.
- c. NCR 90-0342 was issued and a prompt Operability/Reportability determination was made. No operability concerns were found. WA-V00641 was issued to remove the temporary structure and that work has been completed.
- d. Engineering evaluations concluded that installation of banana jacks does not constitute a change to the facility or a modification to the circuits.

Dedication Criteria Document EDU-ADB-0001 was issued by Nuclear Plant Engineering on April 7, 1989 providing engineering analysis supporting installation of the jacks for surveillance and component testing purposes. Engineering evaluation EWR M90107 provided authorization to use the jacks in "harsh environment" areas.



3. CORRECTIVE STEPS TO AVOID FUTURE VIOLATIONS

AD-QA-502, Rev. 16, Work Authorization System, requires that work involving plant modifications shall not proceed without an approved modification document which, by procedure, must include a written safety evaluation in accordance with 10CFR50.59. Our past handling of temporary modifications has not consistently addressed the requirements of 10CFR50.59. We are in the process of correcting those shortcomings as reflected by our current program to reduce bypasses and other temporary installations. All of the examples cited are older and we believe are not reflective of our current practices. Our documentation and procedures for handling modifications have undergone changes which were supported by training.

To address the concern of timely resolution relative to example a) the installation of temporary lighting and the NCR generated in 1984, AD-QA-120, "Nonconformance Reports - Control and Processing", has been revised to specify time limits for assessing safety significance and an evaluation to determine if the condition constitutes an unauthorized modification to the station. If it is determined that an unauthorized modification exists, the condition shall be corrected within seven working days of NCR validation, or a Safety Evaluation in accordance with the requirements of 10CFR50.59 shall be prepared and approved within seven working days of the NCR validation.

With respect to the installation of banana jacks, Nuclear Plant Engineering is developing a comprehensive, controlled specification for the installation of banana jacks for testing purposes. An evaluation pursuant to 10CFR50.59 will be included as part of this specification. Estimated completion of this activity is June 30, 1991.

4. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

PP&L will be in full compliance by June 30, 1991.





2. VIOLATION

10CFR50.49 requires that licensees shall establish a program for qualifying safety-related electrical equipment relied upon to remain functional during and following design basis events. Additionally, a record of the qualification must be maintained to permit verification that each item of electric equipment important to safety covered by this section is qualified for its application and meets its specified performance requirements when it is subjected to the conditions predicted to be present when it must perform its safety function up to the end of its qualified life.

Susquehanna Operational Quality Assurance Manual, OPS-13, Revision 3, paragraph 5.1.3, requires that maintenance and modifications must be evaluated for their impact on environmental qualifications. Appropriate actions shall be taken to maintain existing qualifications, and qualification binders shall be updated to reflect the qualification status upon completion of the maintenance or modifications.

Contrary to the above, on October 11, 1990, a Unit 1 environmentally-qualified Reactor Core Isolation Cooling Pump Rosemount discharge flow transmitter (FT-E51-1N003) cover cap was found loose. The cap was found to be torqued to 65 inch-pounds. This torque value is less than the 200 inch-pound specification which indicates that appropriate actions had not been taken to maintain existing environmental qualifications.

RESPONSE

1. REASON FOR VIOLATION

Pennsylvania Power & Light Company agrees with this violation, in that it cannot be determined how the instrument came to have its cover torqued to 65 in-lbs. While the reduced torque value may have been caused by maintenance on the instrument, it may also have been caused through normal seating or deformation of the sealing 0-ring.

Rosemount recommends that EQ transmitter covers be torqued to 200 in-lbs, +/- 12 in-lbs. An 0-ring is used at the sealing surface and the torque value of the cover may change due to deformation or seating of this ring. Rosemount clarified the qualification requirements of the transmitters in a November 8, 1990 letter. Specifically, Rosemount states "Over time, the 0-ring may begin to seat or deform slightly thus reducing the torque value



applied. This will not impact the qualification of the unit." Rosemount cautions against over torquing the covers.

2. CORRECTIVE ACTIONS TAKEN

Work Authorizations S07717 (U1), V06857 (U2) and V06865 (U2) were issued to check, clean and reseal all 1153 Rosemount transmitters per the vendor recommendations. These transmitters are used in EQ and 'Q' applications. All transmitters were torqued and verified to 200 in-lbs. +/- 12 in-lbs.

The Instrument and Controls group generated work instruction IC-IE-05, Rev. 0 (Maintenance of Equipment Qualification). This instruction lists all necessary requirements to maintain EQ. The requirements for 1153B Rosemounts are documented on form IC-IE-05-1. This form has been made a part of the instrument data sheet for each of the affected instruments.

Significant Operating Occurrence Report (SOOR 2-90-131) was written to evaluate the condition and determine the corrective actions. The SOOR was evaluated and closed out with the implementation of the WAS and the development of the new work instruction.

3. CORRECTIVE STEPS TO AVOID FUTURE VIOLATIONS

Work Instruction IC-IE-05 will be used each time maintenance is performed which requires removal of the cover.

4. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

PP&L is in full compliance.



3. VIOLATION

Technical Specification 6.8.1 states: "Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978."

Regulatory Guide 1.33 states "comply with the 'requirements' of ANSI N18.7-1976/ANS-3.2."

ANSI N18-7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," paragraph 5.2.15, requires that plant procedures shall be reviewed by an individual knowledgeable in the area affected by the procedure no less frequently than every two years to determine if changes are necessary or desirable. Paragraph 3.2 requires persons or organizations performing functions of assuring that the administrative controls and quality assurance program is established and implemented or of assuring that an activity has been correctly performed shall have sufficient authority and organizational freedom to identify quality problems. Additionally, it requires that the verification of conformance to established program requirements is accomplished by a qualified person who does not have responsibility for performing or directly supervising the work.

Contrary to the above, during the period October 1988 to October 1990, required procedural reviews and verification of approximately 2,000 Unit 1 and 2 procedures, including safety related maintenance procedures, surveillance procedures and checklists were conducted, but were not accomplished with independent personnel not having responsibility for performing or directly supervising the procedure.

RESPONSE

1. REASON FOR VIOLATION

Pennsylvania Power & Light Company chooses not to contest this violation. However, it is our intention to investigate this issue further. The results of that investigation may lead us to further discussions with the NRC staff in the future. We agree that procedural reviews and verification of plant procedures were conducted, but were not accomplished with independent personnel not having responsibility for performing or

directly supervising the procedure. PP&L did perform procedure verifications for affected procedures following plant modifications, referenced procedure revisions, technical specification changes or instances where the procedure contributed to the cause of an incident.

ANSI N18.7-1976, which the SSES FSAR commits to, requires that plant procedure verification be performed by a qualified person who does not have responsibility for performing or directly supervising the work. However, in the case of procedures waived from verification reviews because a step-by-step validation was performed, the reviews were performed by PP&L personnel responsible for performing or supervising the procedure rather than by personnel not directly involved in the activity.

2. CORRECTIVE ACTIONS TAKEN

AD-QA-101, "Procedure Program", was revised to require a verification review of procedures by qualified personnel not performing or directly supervising the performance of the procedure at least once every two years.

3. CORRECTIVE ACTIONS TO BE TAKEN

See item 2. above.

4. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

PP&L is in full compliance.





4. VIOLATION

10CFR50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions and procedures of a type appropriate to the circumstances which shall include appropriate quantitative or qualitative acceptance criteria necessary for determining that important activities have been satisfactorily accomplished.

ANSI N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," paragraph 5.2.7, requires that maintenance or modifications of equipment shall be preplanned and performed in accordance with written procedures, documented instructions or drawings appropriate to the circumstances, and paragraph 5.3.5 requires the procedures to contain enough detail to permit the maintenance work to be performed correctly and safely.

Contrary to the above, two examples of inadequately preplanned work were observed:

- a. On October 10, 1990 inadequately preplanned work was performed during the initial stages of the Unit 1 High Pressure Coolant Injection (HPCI) turbine six-year inspection. The preplanned work package procedure was not detailed enough or appropriate to the complexity of the work for removal of the throttle trip valve, throttle valve, glands, and upper case. The performing work crew had no previous experience doing the work or observing the work resulting in inadequate performance, for example, work stoppages and lack of control over work.
- b. On October 11, 1990, inadequately preplanned maintenance work and testing sequencing was evident by activities associated with work to replace Unit 1 service water system butterfly valve, Work Authorization (WA) No. S03509. After installation, but before torquing the flange bolts, the emergency service water pumps were restarted to perform testing for another work activity. This resulted in leakage out of the flange. It is indicative of inadequate preplanning.



RESPONSE

1. REASON FOR VIOLATION

Pennsylvania Power & Light Company agrees with the violation in that inadequately preplanned work was performed during the HPCI turbine six year inspection. Specific responses for each of the examples are provided below:

- a. The Unit 1 HPCI turbine six-year overhaul (performed in accordance with maintenance procedure MT-052-002) was the first performance of this evolution at Susquehanna SES. We agree that given the complexity of the job and the low direct experience level of the workers involved, the work package and procedures should have been more comprehensive and training should have been more task oriented. Although this job was undertaken using the manufacturer's instruction/operating manual and with a vendor representative present on site, our level of performance did not satisfy our standards and improvements in our procedures and training would have mitigated the problems observed.
- b. PP&L does not agree that the example cited is an indication of inadequate work preplanning. The incident cited occurred during the performance of work under System Permit 1-90-1033 which covered both the service water and emergency service water systems.

At the time of the work, the service water and emergency service water systems were cross connected and isolation between the two systems was provided by butterfly valve HV-11024B1. System Permit No. 1-90-1033 relied on the butterfly valve for blocking and the work was conducted within the requirements of this permit. During the work planning process it was recognized that there was a potential for some leakage by the butterfly valve. Work, however, proceeded for three reasons: 1) the valve in question was the only valve available for use in blocking, 2) leakage, if it occurred, would be into a non-safety system, and 3) butterfly valves had been used in the past for blocking where leakage, if it occurred, was considered



inconsequential. The emergency service water pump was started under the system permit. The blocking valve did leak by and leakage occurred at the service water valve flange. This leakage did not pose a personnel or equipment safety concern.

**2. CORRECTIVE ACTIONS TAKEN**

- a. During and following performance of the HPCI turbine overhaul, the production group tailboarded the activities and provided input to Maintenance Engineering to be used in upgrading the procedure, MT-052-002, for future use. MT-052-002 was revised to incorporate lessons learned.
- b. We believe adequate pre-planning existed for this example in that the conditions of the blocking were known and considered. The leakage posed no threat and was dealt with when it occurred. No further action on this item is planned.

**3. CORRECTIVE STEPS TO AVOID FUTURE VIOLATIONS**

See item 2a. above. Additionally, to the extent practical, the same work group supervisors will be used on large maintenance jobs in order to take advantage of work experience from previous evolutions.

**4. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED**

PP&L is in full compliance.



5. VIOLATION

Technical Specification Section 6.8.1 requires that procedures shall be implemented, covering the activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

Susquehanna administrative procedure, AD-QA-502, "Work Authorization System," paragraph 6.5.3 requires Work Instructions for all modification WAs and for all work on "Quality" equipment, and that Work Instructions shall be included on the WA as part of Section III.B, "Work Plan." Paragraph 6.7 requires that work shall be performed in accordance with all Work Instructions and reference procedures.

Contrary to the above, three examples were found where procedures were not followed and work was performed outside the scope of approved procedures.

- a. On October 13, 1990, while performing work in Unit 1 under WA No. P02214, workers failed to follow instructions of Radiation Work Permit (RWP) No. 90-583. The RWP required constant health physics (HP) coverage to breach the system. Workers failed to follow procedures and breached the system by opening flanges in the contaminated system without an HP technician being present.
- b. On October 11, 1990, while working in Unit 1 under WA No. S06850 for the removal of vibration transducers and thermocouples on the HPCI turbine, technicians failed to follow procedures. The technicians performed work outside of the scope and authorization of the WA by removing speed sensor connections, limit switches, position transformers, and pressure sensing lines.
- c. On October 11, 1990, while performing work in Unit 1 on the Reactor Recirculation System Motor Generator Set under WA No. P94140, a worker failed to follow the procedure. The worker went beyond the scope and authorization of the WA by testing the insulation resistance of the generator.

## RESPONSE

### 1. REASON FOR VIOLATION

Pennsylvania Power & Light Company agrees with the violation in that procedures were not followed and work was performed outside the scope of approved procedures. Responses to specific examples are provided below:

- a. RWP-90-583, HPCI/RCIC turbine work, was the controlling radiation work permit for the work cited in the example. This RWP indicated constant HP coverage was "required for contaminated system breach." At Susquehanna SES, a system is considered breached after it is initially opened. The technician covering the job made decisions based on his knowledge of past practices. The RWP should have been better written in that it should have specifically identified the condition of "initial system breach" requiring coverage rather than allowing for interpretation.
- b. The level of detail in the work plan and/or procedure was inadequate for the task in that specific instruments were not identified in the work plan or procedure.
- c. The worker involved did exceed the scope of Preventive Maintenance Work Authorization (PMWA P94140). The PM Activity (E0611) includes eight steps calling for the cleaning and inspection of generator and exciter, and insulation testing the motor. Although technically correct, the PM Activity can be misinterpreted. The PM Activity is primarily associated with the generator and exciter. The last step of the PM deals with the motor, but only references the motor by its equipment number. The blocking for the activity is correct for isolation of the motor.

### 2. CORRECTIVE ACTIONS TAKEN

- a. To ensure the intent of the RWP is clear in the future, the RWP wording will be changed when appropriate to indicate that constant HP coverage is required for initial contaminated system breaches. HP coverage requirements for opening a system subsequent to the initial breach will be based on radiological conditions established during



the initial breach. The requirements for opening a system subsequent to initial breach will be stated on the RWP or delineated by the HP technician during the radiological briefing prior to work.

- b. The assistant foreman responsible for the work plan was counseled on the requirements of the planning process. Other work packages were reviewed to determine if the level of planning was lacking. It was found that this work package was not indicative of typical work plans prepared by the Instrumentation and Control Group.
- c. Workers involved in the task were counseled on following the exact work scope and the work was completed as intended. The work plans for the Unit 2 PMs (P94141 and P94142) have been manually revised to clarify the work scope for the upcoming maintenance on the M/G Set Motors (2S134A&B).

### 3. CORRECTIVE STEPS TO AVOID FUTURE VIOLATIONS

- a. See item 2a. above.
- b. The Instrumentation and Control Group is developing a work planning guideline which will be used by planners to structure the development of work plans. The guideline will address the level of detail to be included in the plans, as well as addressing items like post maintenance testing requirements, tagging, EQ, etc. The Instrumentation and Control Group is also in the process of standardizing their work planning process. This standardization will create established work plans. These plans will be revised and reissued on an ongoing basis, thus maintaining the quality of work plans and the level of detail included.
- c. The Unit 1 PM Activities (E0611-01 & 02) will be revised to clarify the motor work scope. In addition, the activities associated with Unit 2 (E0611-51 & 52) will also be revised.



4. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Instrumentation and Control Group work planning guideline is planned for issuance for September, 1991. Work plan standardization is scheduled for completion in 1992. Issuance of the work planning guidelines satisfies compliance requirements.

The Unit 1 PM Activities (E0611-01 & 02) will be revised by May 31, 1991.

Based on the above, PP&L considers full compliance being achieved with the issuance of the Instrumentation and Control Group work planning guideline in September, 1991.



AFFIDAVIT

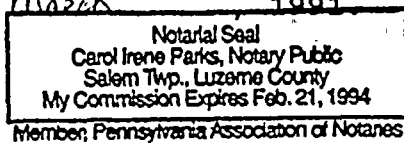
COMMONWEALTH OF PENNSYLVANIA) :  
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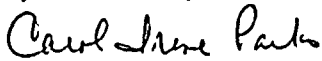
I, HAROLD W. KEISER, being duly sworn according to law, state that I am Sr. Vice President - Nuclear of Pennsylvania Power & Light Company and that the facts set forth on the attached response to Notice of Violation to NRC Combined Inspection Report Nos. 50-387; 388/90-81 are true and correct to the best of my knowledge, information and belief.



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Harold W. Keiser  
Sr. Vice President - Nuclear

Sworn to and subscribed  
before me this 28 day,  
of March 1991



  
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Notary Public

