





Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101 • 215/770-5151

OCT 19 1988

Harold W. Keiser  
Senior Vice President-Nuclear  
215/770-4194

Mr. James Lieberman, Director  
Office of Enforcement  
U.S. Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
RESPONSE TO ENFORCEMENT ACTION 88-143  
PLA-3095                      FILES R41-2/R41-1C

Docket Nos. 50-387  
and 50-388

Dear Mr. Lieberman:

Pursuant to 10CFR2.201, Pennsylvania Power & Light Company hereby provides the attached response to Enforcement Action 88-143. Payment in the amount of \$50,000 is enclosed.

PP&L has responded to all violations identified in your letter dated September 19, 1988. Four of the five are addressed as a "Reply to a Notice of Violation; one is addressed as an "Answer to a Notice of Violation."

We trust the Commission will find our response acceptable.

Very truly yours,

H. W. Keiser

Attachment  
Affidavit

cc: NRC Document Control Desk (original)  
Mr. William T. Russell, Regional Administrator, Region I  
Mr. F. I. Young, NRC Sr. Resident Inspector  
Mr. M. C. Thadani, NRC Project Manager

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RESPONSE TO ENFORCEMENT ACTION 88-143  
(Reply To A Notice of Violation)

VIOLATION I

10 CFR 50.49 (f), and (j), respectively, require that, in part, (1) each item of electric equipment important to safety shall be qualified by testing of identical or similar equipment with supporting analysis where appropriate to show that the equipment to be qualified is acceptable; and (2) a record of the qualification shall be maintained in an auditable form to permit verification that each item of electrical equipment important to safety is qualified and that the equipment meets the specified performance requirements under postulated environmental conditions.

Contrary to the above, prior to November 30, 1985, the following items were not demonstrated to be environmentally qualified:

1. The qualification of the three Marathon 300 and 6000 series terminal blocks in limitorque valve operators at each of the two units was not established under certain environmental conditions in that the accident temperature profile was not bounded by the tested temperature profile, nor did analysis of the test data show that these terminal blocks were acceptable. This condition was identified on June 17, 1986.
2. The qualification of four Raychem splices in each unit, used in Main Steam Isolation Valve solenoid pigtail leads, had not been established under certain environmental conditions in that no qualification data existed to support qualification of the small heat shrink sleeving as used in the bolted splices. This condition was identified in August 1986.

Response

I.1. Marathon Terminal Blocks Used in Limitorque Operators  
(387/86-21-02; 387/86-22-02)

I.1.(1) Admission of the Violation

PP&L admits that on November 30, 1985, unqualified Marathon 6000 series terminal blocks were installed in three Limitorque operators in each unit. Subsequent to the Enforcement Conference of June 30, 1988, PP&L established that no Marathon 300 series terminal blocks were ever installed at Susquehanna SES in the three Limitorque operators in each unit involved in this violation.

I.1.(2) Reason for the Violation

This violation occurred as a result of a series of conditions over an extended period of time. First, the

Limitorque operators installed in Susquehanna SES were purchased prior to recognition of the rigor and attention to detail required by equipment qualification which began in 1979. Consequently, PP&L's qualification of Limitorque operators was backfitted to existing equipment. Secondly, neither Limitorque nor PP&L identified exactly what terminal blocks were installed in any given operator. Therefore, plant personnel did not have information to tell them that only certain types of terminal blocks were acceptable and the existence of others should be identified as a non-conformance.

**I.1.(3) Corrective Steps Taken and Results Achieved**

The immediate problem of unqualified terminal blocks was corrected by replacing unqualified Marathon terminal blocks with qualified splices. This was completed on October 15, 1986.

**I.1.(4) Corrective Steps Taken to Avoid Further Violations**

PP&L is an active participant in the Nuclear Utility Group on Environmental Qualification and is involved in the group's effort to establish a mutual understanding of all possible variations in design features of Limitorque operators and the qualification status of each configuration. As this process identifies additional items of potential concern, those items will be reviewed for applicability to Susquehanna SES and appropriate action taken.

In May of 1987, Specification C-1065 was issued to document the qualified configurations for Limitorque operators for Susquehanna SES, and incorporated into maintenance procedure MT-GM-50. These documents convey the acceptable configuration details for qualified Limitorque operators to determine what configurations exist in the plant. When maintenance work is done on Limitorque operators, or if a new operator is added, the operator is inspected to these requirements to assure it has an acceptable configuration.

**I.1.(5) Date of Full Compliance**

Unqualified Marathon terminal blocks were replaced with qualified splices. Full compliance was achieved on October 15, 1986.

I.2 MSIV Solenoid Valve Lead Splices (387/86-25-06, 388/86-28-08)

I.2.(1) Admission of the Violation

PP&L admits that the qualification for four Raychem splices in each unit, used in Main Steam Isolation Valve solenoid pigtail leads, had not been established under certain environmental conditions in that no qualification data existed to support qualification of the small heat shrink sleeving as used in the bolted splices.

I.2.(2) Reason for the Violation

This violation occurred because of an inadequate understanding involved in determining the details of the installation. The original instructions used to install these splices used the Raychem instructions verbatim. Installers found it difficult to follow the instructions exactly using the existing conductors and junction box. They, therefore requested an approval for a variation, which was granted. Neither the installation engineers, nor the engineers involved in granting the exception, were well enough acquainted with equipment qualification requirements to recognize that, engineering judgment alone, regardless of the soundness of that judgement, is insufficient to achieve compliance with the equipment qualification rule.

I.2.(3) Corrective Steps Taken and Results Achieved

The splices were replaced with qualified configurations. This was completed by October 9, 1986, for Unit 2 and by October 23, 1987, for Unit 1.

I.2.(4) Corrective Steps Taken to Avoid Further Violations

Appropriate personnel were trained by Raychem in August of 1986. Further, training on the correct use of Raychem splice material was made a part of our cable termination training in December, 1987. In addition, a dedicated equipment qualification group was established by PP&L at the end of December, 1986. Procedural requirements are in place which result in the dedicated EQ group reviewing evaluations assessing the potential impact on environmentally qualified equipment resulting from a modification. Finally, Specification C-1082, issued on May 24, 1988, details Raychem splice configurations which are qualified for use at Susquehanna SES. Compliance with the specification is assured by plant and engineering procedures and our QA program.

I.2.(5) Date of Full Compliance

Full compliance was achieved on October 23, 1987.

VIOLATION II.A:

10 CFR 50.49 (f) requires that qualification of each item of electrical equipment important to safety shall be qualified by testing of identical or similar equipment with supporting analysis where appropriate to show that the equipment to be qualified is acceptable.

Contrary to the above, prior to an NRC inspection on November 17, 1986,

1. the qualification of Valcor high temperature wires was not established. The qualification was based on questionable test data (unrealistically high insulation resistance measurements during simulated LOCA test). Subsequently, interim qualification of these wires was established before the end of the inspection using additional data.

Response:

II.A.1 Valcor High Temperature Wire (387/86-25-03; 388/86-28-03)

II.A.1.(1) Admission of the Violation

PP&L admits that the qualification of the Valcor high temperature wire was not established prior to the November, 1986 NRC inspection.

II.A.1.(2) Reason for the Violation

This violation occurred as a result of insufficient knowledge on the part of PP&L and the Wyle Laboratory in that there was a failure to recognize that the insulation resistance measurements observed during testing were atypical.

II.A.1.(3) Corrective Steps Taken and the Results Achieved

This condition was corrected during the November, 1986 inspection by utilizing another test report to demonstrate qualification of the wire for seven years for conditions at Susquehanna SES. Further, we had Wyle Laboratories conduct new testing (Wyle Test Report 48875-01) intended to establish qualification for 40 years for Susquehanna SES conditions. A qualification file based on new test data will be completed prior to the end of the qualified life established by the current qualification, which occurs in 1991.

II.A.1.(4) Corrective Steps Taken to Avoid Further Violations

To prevent further violations of this kind, a dedicated equipment qualification group was established by PP&L at the end of December, 1986. This action serves to concentrate training and experience in environmental qualification within a group which is responsible to assure qualification completeness and correctness.

II.A.1.(5) Date of Full Compliance

Full compliance was achieved on November 20, 1986 when the qualification based on the alternate report was approved and issued.

VIOLATION II.B:

10 CFR 50, Appendix B, Criterion V states, in part, that activities affecting quality shall be accomplished in accordance with instructions and procedures.

Procedure DC 151.0 and Memorandum SS-2129k, dated March 20, 1986, specify instructions for accomplishing activities affecting quality and require that Replacement Item Equivalency Evaluations (RIEE) be incorporated into applicable EQ binders via a Binder Change Notice (BCN).

Contrary to the above, as of November 17, 1986 the completed RIEE had not been incorporated into the applicable EQ binders, via BCN, to reflect that the installed Rosemount model 1153 transmitters were equivalent to the specified Rosemount 1151 transmitters.

Response:

II.B Rosemount Transmitters (387/86-25-07; 388/86-28-07)

II.B.(1) Admission of the Violation

PP&L admits that as of November 17, 1986, the completed RIEE had not been incorporated into the applicable EQ binder, via BCN, to reflect that the installed Rosemount Model 1153 transmitters were equivalent to the specified Rosemount 1151 transmitter.

II.B.(2) Reason for the Violation

The violation occurred because the instruction to add the RIEE to the EQ binder by way of the BCN was in the EQ procedure for binder changes (DC 151.0; now EPM-QA-224), not in the instructions for handling RIEE's.



II.B.(3) Corrective Steps Taken and Results Achieved

The RIEE was added to EQ binder EQDF-39 by BCN 5 and to EQEL-48 by BCN 1. Both BCNs were issued November 24, 1986.

II.B.(4) Corrective Steps Taken to Avoid Further Violations

The engineering procedure for handling RIEEs, EPM-QA-221, issued March 24, 1987 includes the requirement to add the RIEE by way of a BCN to the EQ binder in cases where the RIEE involves environmentally qualified equipment.

II.B.(5) Date of Full Compliance

PP&L was in full compliance on November 24, 1986.

Answer To A Notice of Violation

VIOLATION II.A.2:

10 CFR 50.49(f) requires that qualification of each item of electrical equipment important to safety shall be qualified by testing of identical or similar equipment with supporting analysis where appropriate to show that the equipment to be qualified is acceptable.

Contrary to the above, prior to an NRC inspection on November 17, 1986,

2. the qualification of Target Rock Solenoid valves was not established in that a difference existed between the valves tested and the valves installed, and there was not supporting similarity analysis in the qualification file provided. An adequate similarity analysis was provided before completion of the inspection.

Response:

II.A.2 Target Rock Solenoid Valves (387/86-25-05; 388/86-28-05)

PP&L does not agree that the qualification of Target Rock Solenoid Valves was not established by our qualification file. Comments, resolutions, and qualification checklist notes dating back to 1982 show that the difference between the tested and installed models was recognized and addressed. Additionally, a 1984 letter from the vendor establishes that the design differences between the two models involved are not significant to the qualification. However, to better clarify the difference between models a similarity analysis was added to the qualification file which confirmed our previous conclusions.

Therefore, PP&L concludes that Target Rock Solenoid Valves were qualified on November 30, 1985 and no violation exists.