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RECIP. NAME RECIPIENT AFFILIATION
HODGES, M.W. Region 1 (Post 820201)

SUBJECT: Responds to NRC 930210 ltr re violations noted in insp. repts 50-287/93-23 & 50-388/93-23. C/As: surveillance procedures will be revised to address types of fire barrier matl to be inspected to provide acceptance criteria for fire barrier.

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Pennsylvania Power & Light Company

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MAR 19 1993

Mr. Marvin W. Hodges, Director
Division of Reactor Safety
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
REPLY TO NOTICE OF VIOLATION (EA 92-234)
(387/92-23 & 388/92-23)
PLA-3933 FILE R41-2

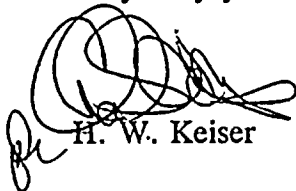
Docket Nos. 50-387
50-388

Dear Mr. Hodges:

This letter provides Pennsylvania Power & Light Company's response to the Notice of Violation (EA 92-234) for NRC Combined Inspection Report 50-387/92-23 and 50-388/92-23. The Notice of Violation was dated February 10, 1993.

The notice required submittal of a written reply within thirty (30) days of the date of the letter. However, as discussed with Mr. John R. White of NRC Region I on February 19, 1993, PP&L has been authorized to delay the response until March 19, 1993. We trust that the commission will find the attached response acceptable.

Very truly yours,


H. W. Keiser

250026

Attachment

cc: NRC Document Control Desk (original)
Mr. G. S. Barber, NRC Sr. Resident Inspector
Mr. R. J. Clark, NRC Sr. Project Manager
Region I - Regional Administrator

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G PDR

Handwritten initials/signature

REPLY TO A NOTICE OF VIOLATION

A. Violation A (387/92-23-07; 388/92-23-07)

Technical Specification 3.7.7 states:

"All fire rated assemblies, including walls, floor/ceilings, cable tray enclosures and other fire barriers separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area, and all sealing devices in fire rated assembly penetrations, including fire doors, fire windows, fire dampers, cable and piping penetrations, seals and ventilation seals shall be OPERABLE."

Technical Specification 4.7.7.1. states:

"Each of the above required rated assemblies and sealing devices shall be verified OPERABLE at least once per 18 months by performing a visual inspection of:

- a. The exposed surfaces of each fire rated assembly."

Contrary to the above, between December 1989 and September 4, 1992, the exposed surfaces of each fire rated assembly constructed of Kaowool and the gypsum board enclosures in Fire Zones 0-28A and 0-28B had not been verified operable.

Response

See LER 50-387/92-015-01 for additional details.

1. Reason for the Violation

Surveillance of the exposed surfaces of Kaowool for station common areas was not adequately performed between July 1990 and December 1992, and gypsum board enclosures in Fire Zones 0-28A and 0-28B were not surveilled between December 1989 and September 4, 1992 due to inadequacies in surveillance procedure SM-013-013. This procedure, which was revised in 1990, did not specifically identify Kaowool and gypsum board as being fire barrier material. Consequently, personnel performing the surveillance were not cognizant that Kaowool and gypsum board enclosure barrier materials were to be surveilled. The procedural weaknesses (contributing factors) in the 1990 revision were:

- Deletion of specific raceways required to be surveilled. The raceway designations were replaced with a reference to incorrect C-1700 series drawings that identified raceway locations. (see Violation B)

- A lack of a description of fire barrier material to be inspected, and

2. Corrective Steps Which Have Been Taken and the Results Achieved:

- a. Kaowool fire barrier material was surveilled in common plant areas in December 1992. Gypsum board enclosures in Fire Zones 0-28A and 0-28B were declared inoperable on January 5, 1993 and subsequently have been redesigned and are currently being reinstalled to approved UL design.
- b. Additional training and engineering overview were provided to personnel performing the December 1992 and January 1993 surveillances.

3. Corrective Steps Which Will Be Taken to Avoid Further Violations:

- a. Surveillance procedures SM-013/113/213-013 will be revised to address the types of fire barrier material to be inspected and to provide appropriate acceptance criteria for each type of fire barrier. These procedures will be revised by April 30, 1993.
- b. Surveillances required by SM-013/113/213-013 will be reperformed beginning in May 1993 and will be completed no later than the start up following the Unit 2 sixth refueling and inspection outage currently scheduled to end on May 20, 1994. Individuals performing these surveillances will receive training on the revised surveillance procedures prior to performing the surveillances.

4. Date of Full Compliance:

Based on (2a) above, PP&L is in full compliance.

B. Violation B (387/92-23-08)

Technical Specification 6.8.1 states, in part, that written procedures shall be implemented for the Fire Protection Program.

Procedure NDI-QA-15.3.1, Revision 3, Fire Protection Program, states, in part:

"This NDI outlines the unique responsibilities and interfaces required to implement the Fire Protection Program."

Attachment 1, "Fire Protection Features And Activities Requiring Quality," of NDI-QA-15.3.1 specified, in part, that:

"Quality requirements shall be applied to the fire protection features in the following areas:

- a. Unit 1 Reactor Building; ...
- d. Control Structure; ...
- j. Fire barrier wrapping identified as being wrapped to meet Appendix R (10 CFR 50) in Drawings E 294 and E 295;
- k. Fire-rated walls, fire-rated floors, ... fire-rated penetration seals within and enclosing the above areas (as specified on engineering drawings)
- ..."

Contrary to the above, as of September 4, 1992, the following are examples found where procedures had not been properly implemented and, therefore, adequate quality was not applied to two series of design drawings for required fire protection features in the Unit 1 Reactor Building and Control Structure.

- Drawing E-294 did not show Kaowool as fire barrier wrap material on conduits A1P105, C1P107, and A1P071 in Fire Zone 0-28H located in the Control Structure.
- One of the C-1700 series of drawings, Drawing C-1754, failed to show correctly the conduit run for conduits E1P353 and C1P077 in Fire Zone 0-28B-I located in the Control Structure.
- Drawing C-1721, Sheet No. 2, Revision 1, and E-294 omitted showing that conduits E1K586 and E1K758 were wrapped with Thermo-Lag where they entered Fire Zone 1-2D located in the Control Structure.
- Drawing E-294, had no designation in the title block indicating the quality level of the drawing, and the C- Series drawings were incorrectly labelled in the title block "NONQUALITY-RELATED."

- Additional examples where quality was inadequately applied to these two series of Fire Protection design drawings are identified in Section 5.1 and Attachment 3 of Region I Inspection Report 50-387 and 388/92-23 and are considered part of this violation.

Response

1. Reason for the Violation

The errors in the Reactor Buildings and Control Structure E-294/295 and C-1700 series drawings, utilized for fire protection activities, resulted from inadequate drawing verifications when the drawings were originally developed. Following initial installation of fire barriers (installed under a nonquality-related program), PP&L requested that our A/E develop drawings to identify the location of the installed fire barriers. These drawings, E-294/295, were never field verified as to fire barrier locations or type of material utilized. The C-1700 series drawings which identify raceway layouts were subsequently developed utilizing the E-294/295 drawings. No field verifications were performed on the C-1700 series drawings except for plant modification work activities that utilize these drawings. These drawing errors were then propagated in surveillance procedures (see Violation A), engineering studies and calculations that utilized inputs from these drawings. Plant modifications were field verified prior to installation. See Violation "C" for additional deficiencies identified from this walkdown.

2. Corrective Steps Which Have Been Taken and the Results

When the drawing errors were identified, PP&L initiated a comprehensive walkdown of plant areas that contained fire rated raceway wrap. All accessible raceways have been inspected. Drawing errors have been corrected. Additionally, Drawing Change Notices have been attached to drawings to identify the actual fire barrier material installed if mischaracterized on the drawings. Further, engineering studies and calculations which utilized these drawings have been reviewed and corrected, where necessary.

3. Corrective Steps Which Will Be Taken to Avoid Further Violations:

- a. The appropriate classification of the E-294/295 and C-1700 series drawings are being dispositioned and will be maintained as "as-built" drawings. Additionally, by revision or attachment, the notation "Quality-F" will be added to the title block of these drawings. The estimated completion date for these activities is April 30, 1993.
- b. Inaccessible area walkdowns will be completed no later than the start up following the Unit 2 sixth refueling and inspection outage currently scheduled to end on May 20, 1994.

4. *Date of Full Compliance:*

PP&L will be in full compliance no later than the start up following the Unit 2 sixth refueling and inspection outage currently scheduled to end on May 20, 1994.



C. Violation C (387/92-23-06)

The Susquehanna Steam Electric Station Unit 1 Facility Operating License, NPF-14, was amended on March 27, 1990, by Amendment 95 to revise License Condition 2.C.(6), which states, in part:

"Pennsylvania Power & Light Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Fire Protection Review Report for the facility and as approved in the NRC Safety Evaluation dated August 9, 1989...."

Table 5.0-1, part C.4, "Inspection," of the Fire Protection Review Report under the heading of "Susquehanna SES Compliance" states, in part, that field personnel witnessed the fire protection installation and verified conformance with design drawings.

Bechtel Specification 8856-E-61, Revision 1, "Technical Specification for Electrical Raceway Fire Insulation Barrier Materials for the Susquehanna Steam Electric Station Units 1 and 2 of the Pennsylvania Power & Light Company, Allentown, Pennsylvania," was Susquehanna Steam Electric Station's (SSES) design specification for installing safe shutdown cable raceway fire barriers during construction. Drawing A-107, Revision 21, "Control Structure Upper Cable Sprdng Rm - El 744'-0" Battery Room - El 771'-0"," describes construction features and details of gypsum board enclosures used to provide Appendix R protection for redundant safe shutdown electrical circuits and circuit breakers.

1. Bechtel Specification 8856-E-61, paragraph 6.4.6, states that Zetex shall have a minimum 3 inch overlap.

Contrary to the above, on August 27, 1992, in Fire Zone 0-28H, the Cold Instrument Shop, an approximately 20 square inches triangular section of Kaowool was not covered with Zetex and the Zetex did not have the specified 3 inch overlap.

2. Bechtel Specification 8856-E-61, paragraph 6.4.11, states that where the raceway penetrates a fire barrier wall the juncture will then be sealed with mastic coating to not less than 1/4 inch thickness and shall not extend less than 8 inches onto the exterior of the blanket and surface of the fire barrier and wall.

Contrary to the above, on September 1, 1992, in Fire Zone 1-4A-N, a conduit D1P008 fire barrier wrap junction at a fire rated wall was observed not to be sealed with mastic coating to the specified not less than 1/4 inch thickness and to not less than 8 inches onto the exterior of the blanket and surface of the fire barrier and wall.

3. Drawing A-107, Detail 4, Elev., provides details of a one hour gypsum fire barrier enclosure with an air gap between the inner and outer gypsum board.

Contrary to the above, as of September 4, 1992, in Fire Zone 0-28B-II, a one-hour rated electrical breaker enclosure fabricated with gypsum board did not have the air gap between the inner and outer gypsum board making up the fire barrier enclosure as specified by the installation drawing, A-107, in drawing detail number 4.

4. Additional examples where SSES's required fire protection quality assurance inspections failed to identify installation deficiencies that were not in conformance to the design specifications are detailed in Section 4.3.4 and Attachment 3 of Region I Inspection Report 50-387 & 388/92-23 and are considered part of this violation.

Response

1. Reason for the Violation

This violation incorporates noncompliances associated with inadequate surveillance procedure acceptance criteria and discrepancies with initial construction design documents. Inadequate surveillance procedure acceptance criteria (see Violation A) resulted in the following nonconformances going undetected:

- torn Zetex in Fire Zone 0-28H, and
- the interface between the raceway wrap and the wall was not sealed.

The gypsum board construction deficiency in Fire Zone 0-28B-II would only have been identified and dispositioned at the time of construction. Initial construction of fire barriers at the Susquehanna SES were not quality-related activities and inspections of work activities were determined by responsible field engineers. No requirement existed stating that all activities be inspected. Additionally, documentation associated with construction of non-quality inspection activities was only required to be maintained until system turnover to PP&L. No documentation on the gypsum board deviation was located, therefore the reason for this violation cannot be determined. In any case this deficiency would not have been identified through normal surveillance activities.

2. Corrective Steps Which Have Been Taken and the Results Achieved:

A comprehensive walkdown of fire rated raceway wrap in accessible areas was conducted (see Violation B). Results of these walkdowns identified three raceways with incorrect materials, approximately a dozen minor discrepancies, approximately twenty minor maintenance concerns (wear and tear items), and various drawing discrepancies. The completion date of the actions associated with these deficiencies is estimated to be April 30, 1993.

3. Corrective Steps Which Will Be Taken to Avoid Further Violations:

- a. Enhanced surveillance procedures will identify the type of issues noted in this violation; therefore, additional actions are not required.
- b. The improperly installed gypsum board enclosure in Fire Zone 0-28B-II is being redesigned. This new design is scheduled to be installed by April 30, 1993.
- c. Actions associated with the drawing walkdown deficiencies are scheduled to be completed by April 30, 1993. Any deficiencies identified in inaccessible areas by the performance of the revised surveillance will be dispositioned and resolved through currently established processes.

4. Date of Full Compliance:

PP&L will be in full compliance upon installation of the redesign gypsum board enclosure in Fire Zone 0-28B-II and the repair of other discrepancies noted in (3) above. The identified activities are scheduled to be completed by April 30, 1993.

C. Violation D (387/92-23-04)

The Facility Operating License, NPF-14, was issued on July 17, 1982, for Susquehanna Steam Electric Station Unit 1 and contained a condition, 2.C.(7), Battery Room Area [Section 9.5.4, Safety Evaluation Report (SER), Supplemental Safety Evaluation Report SSER#1 and SSER#3] stated that:

"Prior to exceeding five percent of full power and subject to NRC review and approval, PP&L shall either conduct at an approved testing laboratory an ASTM E-119 test of the as-installed one-hour cable wrap configuration or install an automatic fire extinguishing system."

The Facility Operating License, NPF-14 was amended on March 27, 1990, by Amendment 95 to revise License Condition 2.C.(6), which states in part:

"Pennsylvania Power & Light Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the fire Protection Review Report for the facility and as approved in the Safety Evaluation dated August 9, 1989 ..."

Contrary to the above, as of September 4, 1992, Susquehanna Steam Electric Station was found to have a Kaowool wrap fire barrier installed in Fire Zone 0-28H. PP&L did not subject this Kaowool cable wrap to an ASTM E-119 test at an approved testing laboratory and PP&L did not submit this Kaowool cable wrap configuration to the NRC for review and approval for use in Unit 1 Battery Room Area, Fire Zone 0-28H, at the Susquehanna Steam Electric Station. There is no automatic fire extinguishing system installed in Unit 1 Battery Room Area, Fire Zone 0-28H.

Additional examples of how SSES's use of Kaowool in Fire Zone 0-28H do not meet the requirements of Deviation Request 8 or 17 of the Susquehanna Steam Electric Station Fire Protection Review Report are documented in Region I Inspection Report 50-387/92-23 and are considered part of this violation.

Response

1. Reason for the Violation

Deviation Request No. 17 of the Susquehanna Steam Electric Station Fire Protection Review Report requested a deviation from the requirements of 10 CFR 50, Appendix R, Section III.G.2.c to permit the use of Kaowool as a one-hour fire barrier in plant areas where Kaowool was already installed. This deviation request was a conservative action intended to document the plant configuration. Kaowool was accepted by the NRC as an

adequate one hour fire barrier in Generic Letter 86-10 which was issued prior to requesting this deviation. The deviation request listed the affected fire areas/zones where Kaowool is installed. The deviation request stated that fire zones that contained Kaowool also had automatic fire detection and suppression installed. PP&L did not recognize that Kaowool was installed in Fire Zone 0-28H in Deviation Request No. 17 because of incorrect drawings used to develop the Request (see Violation B).

Deviation Request No. 8 of the Susquehanna Steam Electric Station Fire Protection Review Report requested a deviation from the requirements of 10CFR50, Appendix R, Section III,G.2.a to permit the use of a one-hour fire barrier to separate redundant safe shutdown equipment/cables in Fire Zone 0-28B-I, 0-28B-II, 1-2D, and 0-28H when automatic suppression is not present. In responding to Deviation Request No. 8, NRC implemented License Condition 2.C.7 in Operating License NPF-14 for Susquehanna Unit 1 which required PP&L to either conduct " at an approved testing laboratory an ASTM E-119 test of the as-installed one-hour cable wrap configuration or install an automatic fire extinguishing system." Since PP&L did not recognize that Kaowool was installed in Fire Zone 0-28H, we did not provide an ASTM E-119 test as required by this License Condition.

2. *Corrective Steps Which Have Been Taken and the Results Achieved:*

The Kaowool fire barriers in 0-28H were replaced with pre-formed Thermo-Lag fire barrier material.

3. *Corrective Steps Which Will Be Taken to Avoid Further Violations:*

Kaowool fire barrier material will not be utilized for new fire barrier installations. Existing Kaowool fire barriers in use at Susquehanna SES are being maintained.

4. *Date of Full Compliance:*

By taking the actions required by Bulletin 92-01 and Supplement 1, PP&L is in full compliance with Thermo-Lag fire barrier material requirements.