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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
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Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
FIRE PROTECTION CORRECTIVE ACTIONS
CONFIRMATION LETTER
PLA-5278

Docket Nos. 50-387
and 50-388

References:

1. *PLA-4921, R. G. Byram to USNRC, "Consent to Confirmatory Order Modifying License", dated June 3, 1998.*
2. *Letter, Victor Nerses to R. G. Byram, "Confirmatory Order Modifying Licenses, Susquehanna Steam Electric Station (SSES), Units 1 and 2", dated July 2, 1998.*
3. *Letter, R. A. Capra to R. G. Byram, "Fire Protection Functional Inspection of Susquehanna Steam Electric Station Units 1 and 2 (NRC Inspection Report Nos. 50-387/97-201 and 50-388/97-201)", dated May 13, 1998.*
4. *PLA-4945, R. G. Byram to USNRC, "Response to NRC Fire Protection Functional Inspection (NRC Inspection Report Nos. 50-387/97-201 & 50/388-97-201)", dated July 20, 1998.*
5. *Letter, W. H. Ruland to R. G. Byram, "NRC Special Inspection Report Nos. 50-387 and 50-388/98-09", dated September 4, 1998.*
6. *PLA-5074, R. G. Byram to USNRC, "Follow Up Response to NRC Fire Protection Functional Inspection (NRC Inspection Report Nos. 50-387/98-09 & 50-388/98-09)", dated June 23, 1999.*
7. *Letter, J. T. Wiggins to R. G. Byram, "Notice of Violation and NRC Special Inspection Reports Nos. 50-387/98-09 and 50-388/98-09", dated October 19, 1998.*
8. *PLA-5172, R. G. Byram to USNRC, "Status of Fire Protection Corrective Actions", dated April 28, 2000.*
9. *Letter, S. A. Richards to J. M. Kenny, Chairman BWROG, "BWR Owners Group Appendix R Fire Protection Committee Position on SRVs + Low Pressure Systems used as 'Redundant' Shutdown Systems Under Appendix R (Topical Report GE-NE-T43-0002-00-03-R01)", dated December 12, 2000.*

This letter provides the status of PPL's actions in response to the NRC Confirmatory Order regarding fire barriers at Susquehanna Steam Electric Station (Reference 2). The NRC Confirmatory Order is a result of the combination of PPL's responses to Generic

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Letter 92-08. In addition, this letter provides the status of Unresolved Items (URI) identified during the Susquehanna Steam Electric Station (SSES) Fire Protection Functional Inspection (FPFI) (References 3 through 6). Attachment 1 to this letter provides updated information on PPL's actions taken relevant to URIs 97-201-03, and 97-201-05, since the issuance of Reference 8. The remaining URIs were closed at the time Reference 8 was issued.

I. Status of Thermo-Lag Fire Barrier Confirmatory Order:

In PLA-4921, dated June 3, 1998, PPL agreed to a confirmatory order for Susquehanna Steam Electric Station Units 1 and 2 which stated the following:

> "Pennsylvania Power and Light Company shall complete final implementation of Thermo-Lag 330-1 fire barrier corrective actions at SSES, Units 1 and 2, described in Pennsylvania Power and Light Company's submittal to the NRC dated April 15, 1993, February 3 and December 22, 1994, August 2, 1995, February 4, 1997, January 6 and May 4, 1998, by completion of the April 2000 refueling outage for SSES, Unit 1. Overall work package closeout will be completed by the end of December 2000."

As stated previously in Reference 8, PPL had completed final implementation of Thermo-Lag 330-1 fire barrier corrective actions at SSES, Units 1 and 2 including the closure of all work packages associated with the physical work prior to the startup following the Unit 1 11th RIO. Licensing document change packages to update and verify the consistency of our Licensing documents related to the Thermo-Lag Issue have been completed prior to the end of December 2000 as committed in Reference 8.

II. Status of FPFI URIs that remained open after Reference 8:

The following table provides the current status of the URIs:

NRC FPFI URI	URI Description	Status
97-201-03	Adequacy of the SSES shutdown methodology (Concern with the ability to maintain reactor water level above the top of active fuel)	Open. The NRC has recently accepted the BWROG's position on the use of SRVs and Low Pressure Systems in support of post-fire safe shutdown (See Reference 9).
97-201-05	Adequacy of the design and installation of fire protection systems	Closed, corrective actions related to the NRC's NOV were completed to startup from Unit 1 11th RIO. For the other actions see Attachment 1 for closure details.

In conclusion, all physical work, work package closure and licensing document changes associated with the NRC Confirmatory Order on Thermo-lag fire barriers have been completed as required by the NRC Confirmatory Order. The Licensing document change packages associated with updating and verifying the consistency of our Licensing documents related to the Thermo-Lag Issue were completed by the end of December 2000.

In addition, all physical work associated with URI 97-201-05, Adequacy of the design and installation of Fire Protection Systems were completed by the end of December 2000.

This completes all work associated with the NRC Confirmatory Order on Thermo-Lag fire barriers and resolves all Unresolved Items from the SSES Fire Protection Function Inspection with the exception of URI 97-201-03, Adequacy of SSES shutdown methodology.

With respect to URI 97-201-03, the NRC has recently ruled on the adequacy of using SRVs and Low Pressure Systems for post-fire safe shutdown under the requirements of Appendix R Section III.G.2. In Reference 9, NRC provided their review of the BWROG's position paper on the use of safety relief valves and low pressure systems as redundant safe shutdown paths. The NRC concluded that the September 1, 1999, BWROG SRV/LPS position, as revised, establishes that SRV/LPS meets the requirements of a redundant means of post-fire safe shutdown under Section III.G.2 of 10 CFR Part 50, Appendix R.

To resolve URI 97-201-03, PPL will submit a revised response to the violation stating that we are in compliance with the BWROG's position on the use of SRVs and low pressure systems as a redundant means of post fire shutdown in accordance with Section III.G.2 of 10 CFR Part 50, Appendix R.

If you have any questions, please contact Mr. Rocco R. Sgarro, Supervisor – Nuclear Licensing, at 610-774-7552.

Sincerely,

R. G. Byram

Copy: Regional Administrator - Region I
Mr. S. L. Hansell, NRC Sr. Resident Inspector
Mr. R. G. Schaaf, NRC Sr. Project Manager

Attachment 1
Update on open FPFI Commitments

NRC Unresolved Item URI 50-387, 388/97-201-03 – Use of ADS/CS

In PLA-5016, dated December 30, 1998, PPL provided the following information:

"PP&L will perform a study to determine the efficacy of revising the minimum water level for operator initiation of ADS such that downcomer water level remains above TAF. Upon confirmation that the revised minimum water level meets all pertinent requirements, PP&L will initiate appropriate revisions to plant procedures, engineering documentation, and licensing documentation, and will implement the requisite operator training."

"PP&L will complete the study described above and inform the NRC Sr. Resident Inspector of the results by July 1, 1999. At that time, based on the study results, PP&L will provide the Inspector with our schedule for either completion of the follow-up actions described above, or with an alternate course of action to achieve full compliance."

PPL Action Status:

In Reference 6, PPL provided a follow-up response to the violation cited above. This follow-up information stated that PPL had completed its commitment to perform a study to determine the efficacy of revising the minimum water level for operator initiation of ADS such that downcomer water level remains above TAF. PPL also stated that the BWROG had submitted a position paper on the use of safety relief valves and low pressure systems as redundant safe shutdown paths for NRC review. As stated in Reference 6, PPL is not implementing procedure changes until the generic issue is resolved.

In Reference 9, NRC provided their review of the BWROG's position paper on the use of safety relief valves and low pressure systems as redundant safe shutdown paths. The NRC concluded that the September 1, 1999, BWROG SRV/LPS position, as revised, establishes that SRV/LPS meets the requirements of a redundant means of post-fire safe shutdown under Section III.G.2 of 10 CFR Part 50, Appendix R.

PPL will submit a revised response to the violation stating that we are in compliance with the BWROG's position on the use of SRVs and low pressure systems as a redundant means of post fire shutdown in accordance with Section III.G.2 of 10 CFR Part 50, Appendix R.

NRC Unresolved Item URI 50-387, 388/97-201-05 –
Fire Detection and Suppression Systems

A. Item on Sprinkler and Detector Systems

In PLA-4945, dated July 20, 1998, PPL provided the following information:

"Any areas requiring additional detector or sprinkler coverage will be identified through this process and corrected through our plant modification process under the corrective action program."

PPL Action Status:

All areas not meeting the criteria described in PLA-4945 have been identified. As described in Reference 8, these areas were included into the corrective action program. All engineering design for these areas was completed prior to the startup from Unit 1 11th RIO. Except as described below, all physical work related to these areas was completed by the end of December 2000.

For the seven (7) Items specifically identified in Reference 7 and described below, all physical work was completed prior to startup following Unit 1 11th RIO.

Described below is the NRC statement on each issue identified in Reference 7 and the actions taken by PPL to address each issue.

1. NRC Statement:

As of November 7, 1997, smoke detectors 1I-222 and 1I-219 were suspended more than one foot below the ceiling of the 670'-0" elevation of the Unit 1 Reactor Building, contrary to NFPA 72E, Section 4-3, "Location and Spacing," which requires that spot detectors be mounted on the ceiling.

PPL Action Status:

Detectors 1I-219 and 1I-222 have been relocated to the ceiling for purposes of code compliance.

2. NRC Statement:

As of November 7, 1997, room 406 and 407 on the 719'-0" elevation each had one of the two installed smoke detectors located within one foot of a fresh air supply diffuser, with the diffuser discharge directed across the detector, contrary to NFPA 72E, Section 4-4, Heating, Ventilation and Air Conditioning," which prohibits placing detectors where air from supply diffusers would dilute the smoke before it reaches the detector.

PPL Action Status:

These smoke detectors have been relocated for purposes of code compliance.

3. NRC Statement:

As of November 7, 1997, heat detectors needed to actuate the water spray system which protects the Unit 1 HPCI pump were located in a dead air pocket along structural steel members, contrary to NFPA 72E, Section 3-4, which requires spot type heat detectors to be placed on the ceiling not less than 4 inches from side walls, or on side walls between 4 and 12 inches from the ceiling.

PPL Action Status:

This item is considered closed as described in Reference 8.

4. NRC Statement:

As of July 31, 1998, the upright sprinkler head located outside door 1-109 was mounted at a 45 degree angle and had sprayed on fire barrier material on its deflector and fusible link, contrary to the 1974 edition of NFPA 13, Section 4-2.4.7 which requires sprinkler deflectors to be parallel to ceilings and/or roofs: and Section 3-16 which prohibits the application of any type of coating to sprinklers after they have left the place of manufacture.

PPL Action Status:

This item is considered closed as described in Reference 8.

5. NRC Statement:

As of November 7, 1997, a sprinkler head above the Unit 1 HPCI pump was located in a beam pocket such that its spray pattern is obstructed on all sides, contrary to NFPA 13, Section 4-2.4, which requires that sprinklers in bays be at sufficient distances from the beams to avoid obstruction of the sprinkler discharge pattern.

PPL Action Status:

A plant walkdown confirmed that this sprinkler head is located on elevation 670' in Fire Zone 1-2B, which is the floor elevation above the HPCI pump.

The safety significance of having this sprinkler head blocked is low since an evaluation showed that a postulated fire in the immediate area of the blocked head would not spread to other plant areas since the remaining heads in the area would activate and suppress the fire.

The subject sprinkler head has been relocated for purposes of code compliance.

6. NRC Statement:

As of November 7, 1997, an upright sprinkler head above the Unit 1 HPCI pump was mounted on a 1/2" x 4" pipe nipple, contrary to NFPA 13, Section 7-1, which prohibits the use of ferrous piping smaller than one-inch nominal size.

PPL Action Status:

This item is considered closed as described in Reference 8.

7. NRC Statement:

As of November 7, 1997, on the 719'-0" elevation of the Unit 2 Reactor Building, outside door 406 to the Unit 2 traversing incore probe room, there were numerous obstructions below the sprinkler heads including light fixtures, beams and electrical junction boxes: the control rod drive pump area on the 719'-0" elevation of the Unit 2 Reactor Building had multiple overhead obstructions including lighting fixtures, beams and electrical components which inhibit the sprinkler from delivering an effective spray pattern to the floor within

the protected area: and, on the 749'-0" elevation of the Unit 2 Reactor Building, near column-line T30.5, the ceiling level sprinklers were obstructed by an HVAC duct which is greater than four feet in width. These configurations were contrary to NFPA 13, Chapter 4, which requires minimizing the interference to discharge patterns from beams, braces, girders, trusses, piping, lighting fixtures and air conditioning ducts.

PPL Action Status:

As stated in Reference 8, an evaluation of the TIP room and CRD areas on elevation 719'-0" determined that automatic suppression systems are adequate.

For the sprinkler system obstructions near column T30.5 located on the 719' elevation below the 749' steel framing elevation, the existing suppression system has been extended to install additional sprinkler heads below the ventilation duct to eliminate the obstructions.

B. Item on Hose Stations

In PLA-4945, dated July 20, 1998, PPL provided the following information:

"Standpipe systems not meeting their required coverage area determined by the code are being re-evaluated under Calculation EC-013-0012. Preliminary results from the calculation indicate it will be acceptable to resolve this issue by staging additional fire hose at the hose station."

PPL Action Status:

This item is considered closed by the staging of additional hose in fire brigade sheds as described in Reference 8.