

March 19, 2002

Mr. Robert G. Byram  
Senior Vice President  
and Chief Nuclear Officer  
PPL Susquehanna, LLC  
2 North Ninth Street  
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - REQUEST  
FOR ADDITIONAL INFORMATION RE: RESIDUAL HEAT REMOVAL SERVICE  
WATER SYSTEM AND ULTIMATE HEAT SINK TECHNICAL SPECIFICATIONS  
MODIFICATIONS (TAC NOS. MB2119 AND MB2120)

Dear Mr. Byram:

By letter dated June 1, 2001, PPL Susquehanna, LLC (the licensee), proposed an amendment to modify the Susquehanna Steam Electric Station, Units 1 and 2, Technical Specifications Surveillance Requirement 3.7.1 to add operability and surveillance requirements for the ultimate heat sink spray bypass valves and large array valves. The proposed changes also reduce the allowed completion times for the conditions applicable to the residual heat removal service water system. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's request and has determined that additional information is required in order to complete our review. The additional information required is described in the enclosure.

This information request has been discussed with members of your staff and they have indicated that you would provide your response to the enclosed request within 45 days from the date of receipt. You also requested a meeting to discuss your response with the NRC staff prior to your formal submittal. We request you contact us to facilitate that meeting.

If you have any questions regarding this correspondence, please contact me at (301) 415-1402.

Sincerely,

**/RA/**

Timothy G. Colburn, Project Manager, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure: Request for Additional  
Information

cc w/encl: See next page

Susquehanna Steam Electric Station,  
Units 1 & 2

Bryan A. Snapp, Esq  
Assoc. General Counsel  
PPL Services Corporation  
2 North Ninth Street GENTW3  
Allentown, PA 18101-1179

Rocco R. Sgarro  
Supervisor-Nuclear Licensing  
PPL Susquehanna, LLC  
2 North Ninth Street GENA61  
Allentown, PA 18101-1179

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 35, NUCSA4  
Berwick, PA 18603-0035

Director-Bureau of Radiation Protection  
Pennsylvania Department of  
Environmental Protection  
P.O. Box 8469  
Harrisburg, PA 17105-8469

PPL Susquehanna, LLC  
Nuclear Records  
Attn: G. DallaPalu  
2 North Ninth Street GENA62  
Allentown, PA 18101-1179

Richard W. Osborne  
Allegheny Electric Cooperative, Inc.  
212 Locust Street  
P.O. Box 1266  
Harrisburg, PA 17108-1266

Regional Administrator, Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Bryce L. Shriver  
Vice President-Nuclear Site Operations  
Susquehanna Steam Electric Station  
PPL Susquehanna, LLC  
Box 467, NUCSA4  
Berwick, PA 18603-0035

Herbert D. Woodeshick  
Special Office of the President  
PPL Susquehanna, LLC  
Rural Route 1, Box 1797  
Berwick, PA 18603-0035

George T. Jones  
Vice President-Nuclear  
Engineering & Support  
PPL Susquehanna, LLC  
2 North Ninth Street, GENA61  
Allentown, PA 18101-1179

Dr. Judith Johnsrud  
National Energy Committee  
Sierra Club  
443 Orlando Avenue  
State College, PA 16803

Board of Supervisors  
Salem Township  
P.O. Box 405  
Berwick, PA 18603-0035

Allen M. Male  
Manager - Quality Assurance  
PPL Susquehanna, LLC  
Two North Ninth Street, GENA92  
Allentown, PA 18101-1179

Terry L. Harpster  
Manager - Nuclear Regulatory Affairs  
PPL Susquehanna, LLC  
Two North Ninth Street, GENA61  
Allentown, PA 18101-1179

Richard L. Anderson  
General Manager - SSES  
Susquehanna Steam Electric Station  
PPL Susquehanna, LLC  
Box 467, NUCSB3  
Berwick, PA 18603-0035

Ronald L. Ceravolo  
General Manager - Plant Support  
Susquehanna Steam Electric Station  
PPL Susquehanna Steam Electric Station  
Box 467, NUCSA4  
Berwick, PA 18603-0035

REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO REQUEST FOR RESIDUAL HEAT REMOVAL SERVICE WATER SYSTEM  
AND ULTIMATE HEAT SINK TECHNICAL SPECIFICATION MODIFICATIONS

PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 50-388

1. The description of the residual heat removal service water (RHRSW) subsystems provided on page 2 of Attachment 1 to your application does not match the simplified schematic provided in Figure 1 of Attachment 1, nor the apparent arrangement in P&ID M-112 for the RHRSW system. The description states that each subsystem contains a return header along with other components. However, the drawings and schematic indicate that there is only one return header per loop. Please clarify.
2. On P&ID M-112 for the RHRSW system, what water is being returned at coordinates E-9 and G-9?
3. The Nuclear Regulatory Commission (NRC) staff Safety Evaluation Report (SER), NUREG-0776, Supplement 4, noted that the design of the emergency service water (ESW) system was modified to prevent water hammer in the event of an automatic pump start by changing the normal position of the spray bypass valves to closed. How has the water hammer issue been addressed considering that the current design has returned the normal position of this valve to open?
4. Please provide additional information regarding why the current application is explicitly removing the small spray bypass arrays from the Technical Specifications (TSs). As you note, each small array is subject to the same single failure (of a spray array bypass valve) that can make the same division's large spray array inoperable. Appendix A to your application indicates that you considered adding a 30-day limiting condition for operation (LCO) for the small spray array valves, and determined that such an LCO posed an undue risk of a dual-unit shutdown with no increase in overall safety.
  - a. As described in your application, it appears that PPL Susquehanna, LLC, has reanalyzed the ultimate heat sink (UHS) for Susquehanna Steam Electric Station (SSES), Units 1 and 2, such that there are three 100-percent spray arrays for design-basis accident conditions; two large arrays and the combination of the two small arrays. The NRC staff SER, NUREG-0776, dated April 1981, indicates that the original analysis of the spray pond, and independent NRC staff analysis of the UHS

Enclosure

design were performed assuming a single failure such that one spray pond cooling loop (one division/spray network, including both the large and the small arrays in the division) was available. Please provide further details of the analysis (or provide the analysis) which demonstrate the adequacy of the spray pond using only one large spray array. Also, please provide the details of the design-basis calculations which address the statement that the RHRSW/UHS requirements bound the ESW return path and UHS spray capacity requirement as discussed in the proposed Bases, Insert I to your application.

- b. Address whether the current analysis considered both thermal efficiency (maintain temperature of pond below design) and maximum water loss due to drift, etc., for the 30-day duration. These two aspects were discussed as based on a separate analysis in NUREG-0776. Specifically, address the effect of using only a single large spray; which will increase spray nozzle differential pressure that was analyzed and confirmed by spray pond testing during initial licensing.
  - c. If the small arrays were credited in some scenarios with other degraded or inoperable components, then it would appear that less severe allowed outage times would be more appropriate than those in certain LCOs proposed in the TSs. For example, in Table 1 of Attachment 1 to the application, the condition with two large spray arrays out of service indicates that this condition represents an inoperable UHS and would require entry into TS 3.0.3 for both units. If both small arrays were operable under these conditions, then the plant would have full UHS capacity for design-basis conditions (as stated in your application), yet be required to follow a TS action requiring simultaneous shutdown of both units. Other proposed LCO's (e.g. 3.7.1.A) with 8-hour completion times based on insufficient RHRSW capacity remaining with a large spray array valve inoperable would appear to be justified for a 72-hour completion time with the availability of both small spray arrays.
- 5. The application states that the UHS analysis did not specifically address valve leakage; however, the flow values used for the RHRSW and ESW systems contain considerable margin from the actual flow values obtained from flow balances. Please provide the flow values used in the analysis and those typically obtained from flow balances.
  - 6. In your application, you propose adding TS Surveillance Requirement (SR) 3.7.1.4 to verify that the spray loop bypass valves close upon receipt of a closing signal. Why is the automatic opening of these valves not similarly being added to the TSs? As stated in your application, these valves receive such a signal to ensure an adequate path exists for avoiding dead-headed conditions upon automatic starting of an associated RHRSW or ESW pump. Also, in this context, provide additional information explaining the proposed SR 3.7.1.4 Bases statement that "The failure of the spray bypass valve to open on demand is not limiting and, therefore, would not cause the loop to be inoperable."
  - 7. As proposed in your application for the condition of one inoperable Unit 1 RHRSW subsystem, TS 3.7.1.B appears to be missing a completion time requirement of 8 hours from the discovery of both Unit 2 RHRSW systems inoperable (similar omission for Unit 2 TSs). Please address omission of this completion time which is discussed in your application and as one of the matrix completion times provided in Table 1 of Attachment 1

to the application (the similar Unit 2 requirement would be expected in proposed TS 3.7.1.C and subject to an 8-hour completion time).

8. Clarify the 8-hour completion time associated with proposed TS 3.7.1.A. For example, if one of the loop B valves in TS Table 3.7.1-1 is inoperable, thereby placing both Units in LCO 3.7.1, and the Unit 1 loop A RHRSW subsystem is subsequently discovered to be inoperable, are both Units 1 and 2 actions required to be complete within 8 hours?
9. The proposed Unit 2 Bases, Insert G of the application, appears to be improperly formulated (not appropriately revised from the Unit 1 Bases, Insert G). Please provide the appropriate change.
10. Actions Note 2 proposed in your application for separate condition entry is unclear. The NRC staff recommends individual notes, as needed, in Actions A and B. Notes are not needed for Actions C and D. Action A is on a valve or loop basis and Action B is on an RHRSW subsystem basis.

March 19, 2002

Mr. Robert G. Byram  
Senior Vice President  
and Chief Nuclear Officer  
PPL Susquehanna, LLC  
2 North Ninth Street  
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - REQUEST  
FOR ADDITIONAL INFORMATION RE: RESIDUAL HEAT REMOVAL SERVICE  
WATER SYSTEM AND ULTIMATE HEAT SINK TECHNICAL SPECIFICATIONS  
MODIFICATIONS (TAC NOS. MB2119 AND MB2120)

Dear Mr. Byram:

By letter dated June 1, 2001, PPL Susquehanna, LLC (the licensee), proposed an amendment to modify the Susquehanna Steam Electric Station, Units 1 and 2, Technical Specifications Surveillance Requirement 3.7.1 to add operability and surveillance requirements for the ultimate heat sink spray bypass valves and large array valves. The proposed changes also reduce the allowed completion times for the conditions applicable to the residual heat removal service water system. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's request and has determined that additional information is required in order to complete our review. The additional information required is described in the enclosure.

This information request has been discussed with members of your staff and they have indicated that you would provide your response to the enclosed request within 45 days from the date of receipt. You also requested a meeting to discuss your response with the NRC staff prior to your formal submittal. We request you contact us to facilitate that meeting.

If you have any questions regarding this correspondence, please contact me at (301) 415-1402.

Sincerely,

**/RA/**

Timothy G. Colburn, Project Manager, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure: Request for Additional  
Information

cc w/encl: See next page

**DISTRIBUTION**

PUBLIC	MO'Brien	OGC	BPlatchek, RI
PDI-1 Reading	TTate	ACRS	BThomas
EAdensam	TColburn	RArchizel	
JMunday	MShanbaky, RI	RDennig	

**ACCESSION NO. ML020610003**

**NRR-088**

OFFICE	PDI-1/PM	PDI-2/LA	RORP/TSS	SPLB(A)SC	PDI-1/(A)SC
NAME	TColburn	MO'Brien	RDennig	BThomas	JMunday
DATE	03/12/02	03/12/02	03/13/02	03/12/02	03/13/02

OFFICIAL RECORD COPY