March 5, 2002

MEMORANDUM TO: Joel T. Munday, Acting Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Travis L. Tate, Project Manager, Section 2 ***/RA/***
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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

Attached is a list of questions received by e-mail from the technical review staff regarding the Nuclear Regulatory Commission staff's review of the licensee's application dated June 1, 2001. The attached questions were faxed to the licensee on February 12, 2002, in order to provide clarification and to determine whether the questions relate to information that has been previously placed on the docket. The questions were discussed in a conference call with the licensee on February 14, 2002. This memo documents the questions faxed to the licensee prior to the staff initiating a formal request for additional information.

Docket Nos. 50-387 and 50-388

Attachment: As stated

CONTACT: Timothy G. Colburn, NRR
(301) 415-1402

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DATE	3/4/02	3/4/02	3/4/02	3/5/02

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REQUEST FOR ADDITIONAL INFORMATION

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

RESIDUAL HEAT REMOVAL SERVICE WATER SYSTEM AND ULTIMATE HEAT SINK

TECHNICAL SPECIFICATIONS MODIFICATIONS

1. The description of the residual heat removal service water (RHRSW) subsystems does not match the simplified schematic provided in Figure 1 nor the apparent arrangement in P&ID M-112 for the RHRSW system in that the discussion on page 2 states that each subsystem contains a return header, along with other components. 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. On page 4, third paragraph in Attachment 1 to PLA-5319, you state that "Operation and alignment of the RHRSW system is considered completely manual and does not involve any automatic actions." However, immediately preceding that statement you discuss automatic alignment of an ESW and RHRSW discharge path by (1) automatic opening of the (normally open) loop spray pond bypass valve upon a start of either an ESW or RHRSW in the associated loop; and (2) automatic closure of the large spray array valve and opening of the bypass valve following shut-off of the last ESW or RHRSW pump in the associated loop. Please confirm our understanding of the apparent inconsistency that these automatic actions are included in the system design and that any other alignment of the system/operation of the RHRSW system are manual (e.g. - no pump start signals).

4. The staff Safety Evaluation (NUREG 0776, Supplement 4) noted that the design of the 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 the current design has returned the normal position of this valve to open?

5. Please provide additional information regarding why the current application is explicitly removing the small spray bypass arrays from the Technical Specifications. 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 for the small spray array valves, and determined that the such an LCO posed an undue risk of a dual unit shutdown with no increase in overall safety.

   A. As described, it appears that SSES has reanalyzed the UHS 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 staff SER for SSES, NUREG 0776, April 1981 indicates that the original analyses of the spray pond,

and independent staff calculations of the UHS, 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 analyses (or provide the analyses) 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 (new basis insert I).

B. Address whether the current analyses 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 separate analyses 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 allowed than those proposed in certain limiting conditions proposed in the technical specifications. For example in Table 1 of 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 Technical Specification 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 following a technical specification to require 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 72 hour completion time with the availability of both small spray arrays.

It is likely you would request the NRC to provide an exemption for these conditions which could have been addressed in advance through this application.

6. 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 analyses and those typically obtained from flow balances.

7. You propose adding Technical Specification 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 technical specification? 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 SR 3.7.1.4 basis 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."

8. Proposed Technical Specification 3.7.1.B appears to be missing an 8-hour completion time for the condition of one Unit 1 RHRSW subsystem inoperable from the discovery of both Unit 2 RHRSW systems inoperable (similar omission for Unit 2 Technical Specifications). Please address omission of this completion time which is discussed in your application and one of the matrix completion times provided in application Table 1. (Under such conditions Unit 2 would be in proposed Technical Specification 3.7.1.C and subject to an 8 hour completion time).

9. Clarify the 8 hour completion time associated with proposed Technical Specification 3.7.1.A. For example, if one of the loop B valves in 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 required to complete within 8 hours?

10. Basis insert G for Unit 2 appears to be improperly formulated (not appropriately revised from the Unit 1 basis insert G). Please provide appropriate change.