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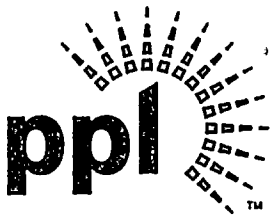

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SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
GENERIC LETTER 95-07 PROGRAM
PLA-5095

Docket Nos. 50-387
and 50-388

Reference: Letter from USNRC to Mr. R. G. Byram, PP&L, Inc. titled "Request for Additional Information: Generic Letter 95-07, "Pressure-Locking and Thermal-Binding of Safety-Related Power-Operated Gate Valves,"" dated May 26, 1999.

This letter provides PP&L, Inc.'s (PP&L) response to the NRC Staff's request (dated May 26, 1999) for additional information regarding the Generic Letter (GL) 95-07 program (Pressure-Locking and Thermal-Binding of Safety-Related Power-Operated Gate Valves) at Susquehanna SES.

The subject NRC Request For Additional Information (RAI) poses two questions related to the nonsafety-related classification of the Reactor Core Isolation Cooling (RCIC) system identified in the previous PP&L submittals regarding Generic Letter (GL) 95-07. It is specifically noted that PP&L's 180-day response to GL 95-07 indicates that the RCIC HV-1(2)49F031 Suppression Pool Suction valves were not included in the scope of GL 95-07, since operation of the RCIC system is not classified as safety-related. The first question requests PP&L to discuss the basis used to justify this classification. The response is to include any impacts to commitments, system reliability, Technical Specification testing, and inservice testing, as well as, compliance with relevant standards to ensure RCIC functionality. If the first question concludes that the valves can continue to be excluded from the scope of GL 95-07, then the second question requests PP&L to assess the impact to overall plant risk resulting from pressure locking and thermal binding of the RCIC HV-1(2)49F031 valves.

The RAI notes that the subject valves are included in PP&L's Inservice Inspection Test Program with an open safety position, and also in the GL 89-10 "Safety-Related Motor Operated Valve Testing and Surveillance" Program. It is further noted that the NRC staff considers the criteria for identifying valves within the scope of GL 95-07 to be consistent with the scope for GL 89-10,

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and that GL 95-07 states that licensees may need to evaluate potential pressure locking or thermal binding for other valves outside the scope of the GL based on previous licensing commitments.

In summary, this RAI questions PP&L's exclusion of the RCIC Suppression Pool Suction valves from the scope of GL 95-07 solely on the basis of the RCIC system not performing a safety-related function. It identifies that there may be other reasons within the licensing bases for assuring reliable RCIC system operation and identifying any impacts which may effect its continued reliable operation.

NRC QUESTION NO. 1:

GL 95-07 states that licensees may need to evaluate potential pressure locking or thermal binding for other valves outside the scope of the GL based on previous licensing commitments. Discuss any commitments that were made to the NRC when justifying the classification of the RCIC system as nonsafety-related. This discussion should include the following items:

a. Compliance with relevant standards which should assure the continuing ability of the RCIC system to function as required.

b. How reliability of the RCIC system is affected by the nonsafety-related classification and if a high level of confidence is required for the RCIC system to fulfill its design requirements.

c. If technical specification and inservice testing operability requirements are effected by the nonsafety-related classification.

PP&L'S RESPONSE:

PP&L has re-reviewed the design and licensing basis for the RCIC system. While it is clear that RCIC is not credited in mitigating the consequences of accidents, it is equally clear within the licensing basis that it does perform a safety function in terms of aiding in the cooldown of the reactor during various isolation scenarios. Consistent with this point, the RCIC system is classified as Safety Class 2 in FSAR Table 3.2-1. Consequently, the system components are designed as ASME Section III, Seismic Category I, Class 1E, contained within the scope of the Environmental Qualification program, and subject to operability requirements under Technical Specifications. Furthermore, the RCIC system components, including the HV-1(2)49F031 valves, are classified as safety-related under PP&L's Nuclear Quality Assurance program. Therefore, PP&L will now include the RCIC system gate valves within the scope of GL 95-07. Our evaluation of these valves in accordance with our GL 95-07 program is presented below.

There are only two gate valves within the RCIC system that have safety functions to open (i.e., within the scope of GL 95-07), the HV-1(2)49F031 RCIC Suppression Pool Suction Valve and the HV-1(2)49F013 RCIC Injection Valve. However, no further evaluation of the RCIC Injection Valve is necessary, since it was previously modified to prevent pressure locking by drilling a hole in one of the disks. As noted in PLA-4479, dated 7/11/96, this was done based upon the similarity between the HPCI and RCIC Injection valves. Furthermore, as with the HPCI Injection valve, the manner in which the RCIC system is operated will preclude the RCIC Injection valve from experiencing thermal binding scenarios. Thus, only the RCIC Suppression Pool Suction valve will be discussed further with regard to its potential for pressure locking or thermal binding.

In order to evaluate the potential for pressure locking or thermal binding of the RCIC Suppression Pool Suction valve, it is necessary to assess the design and operation of the RCIC system at Susquehanna. The RCIC system was designed to assure that sufficient reactor water inventory is maintained in the reactor vessel to prevent reactor fuel overheating for the following conditions:

- A reactor vessel isolation, with the vessel maintained in a hot standby condition.
- A reactor vessel isolation accompanied by a loss of coolant flow from the Feedwater system.
- A reactor vessel isolation accompanied by a loss of coolant flow from the Feedwater system until the reactor is depressurized to a point where the shutdown cooling mode of the Residual Heat Removal (RHR) system can be placed into operation.

It is also credited with operation for the following licensing basis conditions:

- Provide make-up to the reactor vessel during an Appendix R fire. This make-up capability exists for both the fire unit and non-fire unit.
- Provide make-up to the reactor vessel during an Anticipated Transient Without Scram (ATWS) event.
- Provide make-up to the reactor vessel during a Station Blackout (SBO) event. The SBO event coping time is 4 hours.

In its standby condition, the RCIC pump suction is normally aligned to the Condensate Storage Tank (CST), meaning that the RCIC Suppression Pool Suction valve is normally closed. Although the CST is non-Seismic Category I, it is the preferred suction source for RCIC so as to avoid inadvertently injecting relatively poor quality suppression pool water to the reactor vessel. The CST has a total capacity of 300,000 gallons of water, with 135,000 gallons reserved for use

by RCIC and HPCI only. The suction source for the RCIC pump will automatically swap over to the suppression pool upon receipt of a low CST level signal. Thus, in the event that the CST would fail due to a seismic event, RCIC would still be able to provide reactor vessel make-up. Contrary to HPCI, there is no automatic high suppression pool level transfer for the RCIC Suppression Pool Suction valve.

When responding to a design basis event, i.e., a reactor isolation, RCIC would automatically initiate on low reactor water level, with suction from the CST. If the CST were unavailable at this time, such as due to a seismic event, the suction would automatically swap to the suppression pool on low CST level. Once RCIC initiates, the control room operators would take manual control of the system to ensure that it does not trip on high reactor water level. Once in manual control, the RCIC system would remain in service until the reactor vessel is depressurized to the point where low pressure Emergency Core Cooling system (ECCS) and/or Shutdown Cooling can be placed into service. While RCIC is in operation, the Residual Heat Removal system would be in service providing cooling to the suppression pool. The reserve volume in the CST is of sufficient size that it will not be necessary for the operators to swap to the suppression pool in order to bring the reactor to a safe shutdown condition. Thus, for performing RCIC's safety-related functions, it is not necessary for the RCIC Suppression Pool Suction valve to open unless the CST were unavailable at the start of the initiating event. In either case, the RCIC Suppression Pool Suction valve is not susceptible to thermally induced pressure locking or thermal binding since it would either be open prior to heat-up, or would not be required to open following suppression pool heat-up.

A similar situation exists with regard to the response of the RCIC system to an Appendix R fire, ATWS and Station Blackout (SBO). For these accidents, a seismic event is not assumed to occur concurrently, and thus the CST would be available as a suction source for RCIC. For an Appendix R fire, the "non-fire" unit would operate RCIC from the CST. Again, as with the "design basis response" for RCIC, ample water inventory exists (approximately 8 hours of operation) to perform this function and bring the plant to a cold shutdown condition with the assistance of the RHR system. For the "fire" unit, RCIC is also intended to be operated from the CST. However, for certain prolonged fires, the potential exists that the RCIC system may need to be swapped to the suppression pool. Under these circumstances, PP&L's Appendix R program already accounts for the potential that RCIC may not be able to take suction from the suppression pool due to pool temperature exceeding 140°F. For this situation, the plant would be depressurized via the main steam relief valves and low pressure ECCS would be utilized. Swapping to the suppression pool at this point in time could also result in a condition where the Suppression Pool Suction valve may not open due to pressure locking and/or thermal binding. However, since the Appendix R program already accounts for the potential for RCIC to not be able to take suction from the suppression pool, it is not necessary to take actions to modify the RCIC Suppression Pool Suction valve for an Appendix R fire.

For SBO, RCIC is maintained with suction from the CST, and the swapover to the suppression pool on low CST level is defeated. This is done since the suppression pool will heat up quickly and exceed the RCIC suction water maximum temperature of 140°F. The CST has ample water to assure RCIC operation for the 4 hour SBO coping time. Thus, pressure locking and thermal binding of the RCIC Suppression Pool Suction valve will not impact the ability of RCIC to respond to an SBO event. Lastly, the computer model used for PP&L's ATWS evaluation shows that RCIC suction will not be required to be transferred from the CST to the suppression pool for the reactor to be safely shutdown.

Thus, for all events which credit RCIC operation to assist in achieving safe shutdown of the reactor, the RCIC Suppression Pool Suction valve will either be opened at the start of the event, or will not be required to be opened as the suppression pool heats up. Therefore, by virtue of operating procedure guidance, the RCIC Suppression Pool Suction valve is not susceptible to pressure locking or thermal binding.

Based upon the evaluation summarized above, no corrective actions are required under GL 95-07 to mitigate the consequences of pressure locking or thermal binding of the RCIC Suppression Pool Suction valve. Sufficient procedural guidance currently exists to ensure that the RCIC will be able to perform its safety function as defined in its design bases. Should any change to this conclusion occur as the result of future evaluations, PP&L will take measures under our corrective action program to ensure that the RCIC Suppression Pool Suction valve continues to meet the requirements of GL 95-07.

NRC QUESTION NO. 2:

If the RCIC suppression pool valves will not be included in the scope of GL 95-07, discuss how pressure-locking and thermal-binding of these valves affect overall risk to the plant. If applicable, discuss any short-term corrective action to ensure operability if long-term corrective action is not complete.

PP&L RESPONSE:

This question is not applicable since PP&L has placed the RCIC valves in the GL 95-07 program at Susquehanna SES. See the response to Question No. 1 for the re-evaluation of these valves.

If you have any question, please contact Mr. C. T. Coddington at (610) 774-4019.

Sincerely,

R. G. Byram

Attachment: Affidavit

copy: NRC Region I
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. V. Nerses, NRC Sr. Project Manager

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA)
: SS
COUNTY OF LEHIGH)

I, ROBERT G. BYRAM, being duly sworn according to law, state that I am Senior Vice President - Generation and Chief Nuclear Officer of PP&L, Inc. and that the facts set forth on the attached request for additional information regarding Generic Letter 95-07 program, are true and correct to the best of my knowledge, information and belief.

Robert G. Byram
Senior Vice President
Generation and Chief Nuclear Officer

Sworn to and subscribed
before me this 7th day
of September, 1999.

Janice M. Reese
Notary Public

NOTARIAL SEAL
JANICE M. REESE, Notary Public
City of Allentown, Lehigh County, PA
My Commission Expires June 11, 2001