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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Hope Creek Generating Station
Facility Operating License No. NPF-57
NRC Docket Nos. 50-354

Subject: **Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems"**

References:
1. NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems", dated January 11, 2008
2. PSEG LR-N08-0073, "Three-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems", dated April 10, 2008
3. NRC letter from R. Ennis to W. Levis, "Hope Creek Generating Station and Salem Nuclear Generating Station, Unit Nos. 1 and 2 - Re: Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, And Containment Spray Systems, Proposed Alternative Course Of Action", dated September 8, 2008
4. PSEG LR N08-0225, Nine-Month Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems", dated October 13, 2008

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The Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01 (Reference 1) to request that each licensee evaluate the licensing basis, design, testing, and Corrective Action Programs (CAP) for the Emergency Core Cooling Systems (ECCS), Decay Heat Removal (DHR) system, and Containment Spray system, to ensure that gas accumulation is maintained less than the amount that challenges operability of these systems, and that appropriate action is taken when conditions adverse to quality are identified.

PSEG Nuclear has submitted the initial nine month response (Reference 4). As committed in Reference 2, and approved by the NRC in Reference 3, Hope Creek Generating Station completed its confirmatory assessments of those inaccessible portions of these systems/functions during the past refueling outage RF15.

All evaluations entered into the CAP as described in the enclosure of Reference 4 have been completed. **(CM-HC-2008-96)**

In summary, with the completion of the RF15 outage walkdowns, PSEG Nuclear has confirmed that the subject systems/functions at the Hope Creek Generating Station are operable and are currently in compliance with Appendix B to 10 CFR 50, Criterion III, V, XI, XVI and XVII, with respect to the concerns outlined in GL 2008-01 regarding gas accumulation in these systems/functions.

The enclosure to this letter contains the Hope Creek Generating Station nine-month supplemental (post-outage) response to NRC GL 2008-01.

This letter contains no new NRC commitments.

If there are any questions regarding this response, please contact Lee Marabella at (856) 339-1208.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 7/30/09

Sincerely,

George P. Barnes

George P. Barnes
Site Vice President – Hope Creek

Enclosure: Hope Creek Generating Station - Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems".

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Hope Creek Generating Station - Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems

This enclosure contains the Hope Creek Generating Station (HCGS) nine-month supplemental (post-outage) response to NRC Generic Letter (GL) 2008-01 relating to actions deferred until the next refueling outage as allowed by the NRC in Reference 3.

PSEG Nuclear has submitted the initial nine-month response in Reference 4.

The following information is provided in this enclosure:

(a) A description of the results of evaluations that were performed pursuant to the requested actions GL 2008-01 on the previously incomplete activities, such as system piping walkdowns, at HCGS (See Section A of this enclosure)

(b) A description of any additional corrective actions determined necessary to assure system operability and compliance with the quality assurance criteria in Sections III, V, XI, XVI, and XVII of Appendix B to 10 CFR Part 50 and the licensing basis and operating license with respect to the subject systems, including a schedule and a basis for that schedule (See Section B.1 of this Attachment)

(c) A summary of any changes or updates to previous corrective actions, including any schedule change and the basis for the change (See Section B.2 of this enclosure), and

(d) A summary of completed corrective actions (See Section B.3 of this enclosure)

The following systems are in the scope of GL 2008-01 for HCGS:

- Residual Heat Removal (RHR) System - Low Pressure Coolant Injection (LPCI), Containment Spray, and Torus Spray
- High Pressure Coolant Injection (HPCI) System
- Core Spray System

Hope Creek Generating Station - Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems

A. EVALUATION RESULTS

Design Evaluation

As committed in Reference 2, and approved by the NRC in Reference 3, HCGS completed its assessments of inaccessible portions of systems/functions during refueling outage RF15 and is providing a supplement to the nine-month response (Reference 4) in this enclosure.

RF15 Confirmatory Walkdowns

HCGS has completed its assessments of inaccessible portions (inside the Reactor Building Steam Tunnel and Reactor Building Pipe Chase room 4402B) of the HPCI and RHR systems during refueling outage RF15. No inaccessible portions of the Core Spray system exist at HCGS, as discussed in Reference 4.

Piping slopes were calculated by taking relative piping elevation measurements over each continuous horizontal segments of piping using an industry recognized elevation-measuring device known as a ZipLevel®.

Below are the results of HCGS refueling outage RF15 confirmatory walkdowns:

No pipe segments measured during RF15 were found to slope in an improper direction. All piping was either measured level (sloped below one-half a degree) or sloped in the proper direction (i.e., towards a system vent connection).

Note the walkdowns for the Core Spray System were completed prior to the RF15 outage and results were submitted in Reference 4.

During the RHR system walkdown, vent valves were confirmed to be installed in the design locations as shown on plant drawings. No modifications to existing vent valves or additional utilization of existing vent valves were identified as necessary for operability as a result of the walkdown.

Hope Creek Generating Station - Nine-Month Supplemental (Post-Outage) Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems

B. DESCRIPTION OF NECESSARY CORRECTIVE ACTIONS

1. Additional Corrective Actions

No additional corrective actions were identified as a result of HCGS refueling outage RF15 walkdowns and the subsequent system evaluations.

2. Corrective Actions Updates

The seven (7) potential new vent locations, identified in Reference 4, to enhance fill and vent operations, have been evaluated in the Corrective Actions Program (CAP).

RHR suction piping

Two (2) of the seven (7) potential new vent locations are located on the RHR suction piping. Reference 4 identified that the 'C' and 'D' RHR cross-tie piping downstream of Isolation Valves V133 and V043 respectively contained voids (air).

A Root Cause Analysis concluded that the corrective action to prevent reoccurrence was to revise the system operating procedure to open the cross-tie isolation valves during initial filling/venting of the system, or following system drain down. This will displace a sufficient volume of air to the Shutdown Cooling (SDC) Header. Following this activity the SDC header is filled and vented. This procedure revision has been implemented. The water level in the cross-tie piping will be confirmed by ultrasonic testing.

Because the RHR suction piping has a direct connection to the torus, and water in the line would correspond to torus water level, the design of the cross tie piping is such that, in its laid up condition, the water level would match the level in the torus. As a result, a new design calculation confirmed the acceptable level of water in the 'C' and 'D' RHR cross-tie suction piping, as described.

Therefore, based on the evaluations performed and the associated procedure change, no new vent connections are required for RHR suction cross tie piping.

RHR discharge piping

Five (5) of the seven (7) potential new vent locations are located on the RHR discharge piping. These five (5) locations will have valves installed during Hope Creek's refuel outage 16 (RF16) to enhance the RHR discharge piping fill and vent operations. These locations were all ultrasonically tested, as described in Reference 4. No voiding was found at these locations.

3. Completed Corrective Actions

As committed in Reference 2, and approved by the NRC in Reference 3, HCGS completed its confirmatory assessments of inaccessible portions of systems/functions during HCGS refueling outage RF15. The following corrective actions committed to be completed 90 days after the end of RF15 in Reference 4 (CM-HC-2008-96) have been completed:

All HPCI system piping (suction and discharge) from the Torus and from the Condensate Storage Tank (CST) to the Core Spray injection isolation valve and Feedwater system injection isolation valve which is required to be water-filled to perform its design basis function has been completely walked down.

Six (6) existing venting locations were identified during drawing and walkdown reviews for consideration to enhance filling and venting operations and surveillance procedures (Reference 4). All six (6) venting locations have been evaluated in CAP.

RHR venting locations

Four (4) of the six (6) existing venting locations described above are in the RHR discharge piping.

Two (2) of these venting locations have been added to the RHR system initial fill and vent procedure (these locations already exist in the monthly fill and vent procedure).

One (1) venting location has been added to the RHR monthly fill and vent procedure (this location already exists in the initial fill and vent procedure).

One (1) venting location was determined to be an unnecessary enhancement. Adding this location to the RHR monthly fill and vent procedure would present an unnecessary ALARA concern. This location already exists in the initial fill and vent procedure.

This line was ultrasonically tested for the GL 2008-01 nine-month response and confirmed to be water solid.

HPCI venting locations

Two (2) of the six (6) existing venting locations described are part of the HPCI system: one (1) in the discharge and one (1) in the suction piping.

The one (1) venting location in the HPCI discharge piping has been added to both the HPCI system initial and monthly fill and vent procedures.

The one (1) venting location in the HPCI suction piping was determined to be an unnecessary enhancement to the HPCI system fill and vent procedures. However, this location will be used for fill and vent if the HPCI system, Reactor Core Isolation Cooling (RCIC) system, and Core Spray system common CST suction line is drained. Work Clearance Documentation (WCD) has been updated to ensure the common CST suction line is vented through the valve if this line is drained.

Six (6) existing system isolation valves were identified during drawing and walkdown reviews for consideration to be added to enhance initial system fill and vent procedures (Reference 4). All six (6) system isolation valves have been evaluated in CAP.

Core Spray isolation valves

Four (4) of the six (6) system isolation valves locations described above are on the Core Spray suction piping.

The addition of the four (4) system isolation valves in the Core Spray suction piping to the initial fill and vent procedure was determined to be undesirable. Use of these valves in the initial fill and vent could potentially transport voids to the suction of other ECCS systems. This operating flow path is only used in Emergency Operating Procedures and Abnormal Operating Procedures. During initial GL 2008-01 evaluation ultrasonic testing verified these areas water solid.

RHR isolation valves

Two (2) of the six (6) system isolation valves locations described above are on the RHR suction piping. These two valves have been added to the RHR system initial fill and vent procedure.

As an enhancement, venting termination guidance has been added to the RHR, Core Spray and HPCI system monthly fill and vent procedures.

RHR, Core Spray and HPCI system initial fill and vent procedures have been revised to include backfilling of any instrumentation affected by system drain down.

HCGS has a proven reliable keep-fill system and gas accumulation is unlikely. Gas quantification during the performance of fill and vent procedures was determined to be an unnecessary enhancement.

Steps to fill and vent the ECCS jockey pumps have been added to the RHR and HPCI initial fill and vent procedures.

The isolation valve leakage test procedure, identified in Reference 4, has been revised to require the Core Spray system to be filled and vented. A second isolation valve leakage test procedure was identified and revised to include the Core Spray system fill and vent.

The RHR, HPCI, and Core Spray monthly fill and vent procedures have been revised to provide direction to Operators to generate a notification (enter into CAP) if air is found during monthly fill and vent operations. The notification is to document the vent valve number, approximate position of vent valve and length of time for which air was vented.

CONCLUSION

All corrective actions for HCGS identified in References 2 and 4 have been addressed.

PSEG Nuclear has evaluated previously unevaluated portions of the HCGS applicable systems that perform the functions described in GL 2008-01 and has confirmed that these systems are operable.