

July 5, 2011

MEMORANDUM TO: Harold K. Chernoff, Chief  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

FROM: Richard B. Ennis, Senior Project Manager */ra/*  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: HOPE CREEK GENERATING STATION, DRAFT REQUEST FOR  
ADDITIONAL INFORMATION (TAC NO. ME5748)

The attached draft request for additional information (RAI) was transmitted on July 5, 2011, to Mr. Paul Duke of PSEG Nuclear LLC (the licensee). This information was transmitted to facilitate an upcoming conference call in order to clarify the licensee's amendment request for Hope Creek Generating Station (HCGS) dated February 28, 2011. The proposed amendment would modify the HCGS Technical Specifications (TSs) to revise the existing TS for the Control Room Emergency Filtration (CREF) system and to add a new TS for the Control Room Air Conditioning (AC) system. The proposed amendment is based, in part, on Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Standard TS (STS) Change Traveler TSTF-477, Revision 3, "Adding an Action Statement for Two Inoperable Control Room Air Conditioning Subsystems." Plant-specific deviations from TSTF-477 are proposed to accommodate differences between the HCGS TSs and the STSs originally used to develop TSTF-477.

This memorandum and the attachment do not convey or represent an NRC staff position regarding the licensee's request.

Docket No. 50-354

Attachment: Draft RAI

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DRAFT REQUEST FOR ADDITIONAL INFORMATION  
REGARDING PROPOSED LICENSE AMENDMENT  
ADD ACTION FOR TWO INOPERABLE  
CONTROL ROOM AIR CONDITIONING SUBSYSTEMS  
HOPE CREEK GENERATING STATION  
DOCKET NO. 50-354

By application dated February 28, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110590636), PSEG Nuclear LLC (PSEG, the licensee) submitted a license amendment request for the Hope Creek Generating Station (HCGS). The proposed amendment would modify the HCGS Technical Specifications (TSs) to revise the existing TS for the Control Room Emergency Filtration (CREF) system and to add a new TS for the Control Room Air Conditioning (AC) system. The proposed amendment is based, in part, on Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Standard TS (STS) Change Traveler TSTF-477, Revision 3, "Adding an Action Statement for Two Inoperable Control Room Air Conditioning Subsystems." Plant-specific deviations from TSTF-477 are proposed to accommodate differences between the HCGS TSs and the STSs originally used to develop TSTF-477.

The NRC staff has reviewed the information the licensee provided that supports the proposed amendment and would like to discuss the following issues to clarify the submittal.

Background

As stated in Section 1.0, "Description," of the Traveler for TSTF-477, Revision 3, "[t]he Actions of the [Control Room AC] System Technical Specification are revised to provide a new Action for both [control room AC] subsystems inoperable. The new Action allows a finite time to restore one [control room AC] subsystem to operable status and requires verification that control room temperature is maintained < [90] F once every 4 hours. The BWR/6 (NUREG-1436) Completion Time is 7 days. The BWR/4 (NUREG-1433) Completion Time is 72 hours."

As stated in Section 3.0, "Background," of the Traveler for TSTF-477, Revision 3, "[t]he [Control Room AC] System provides temperature control for the control room following isolation of the control room. The [Control Room AC] System consists of two independent, redundant subsystems that provide cooling and heating of recirculated control room air. Each subsystem consists of heating coils, cooling coils, fans, chillers, compressors, ductwork, dampers, and instrumentation and controls to provide for control room temperature control." PSEG's application stated that the proposed changes are consistent with TSTF-477, Revision 3, and that the information in the TSTF, as well as the safety evaluation prepared by the NRC staff for the TSTF is applicable to HCGS. Therefore, the licensee should provide information demonstrating that the HCGS Control Room AC system is consistent with the system described in TSTF-477.

On page 1 of Attachment 1 to the licensee's application dated February 28, 2011, PSEG states that :

Hope Creek TS do not currently contain specific requirements for OPERABILITY of the Control Room AC system. When a Control Room AC subsystem is not capable of performing its required function, PSEG's current practice is to conservatively consider the Control Room Emergency Filtration (CREF) subsystem associated with the affected control room supply HVAC unit to be inoperable.

Section 9.4.1.2.3 of HCGS Updated Final Safety Analysis Report (UFSAR) states that each CREF train operates in series with one control room supply (CRS) unit. Section 9.4.1.1.1 of the UFSAR states that the main CRS system is safety-related, and is designed to accomplish the following objectives during normal plant operation, as well as during abnormal conditions:

1. Maintain the space at a normal relative humidity between 20 percent and 60 percent for personnel comfort and equipment performance.
2. Maintain the space temperature at a normal  $72^{\circ}\text{F} \pm 6^{\circ}\text{F}$  for personnel comfort and equipment performance.
3. Provide redundancy for active and passive components to meet the single failure criteria.
4. Operate the redundant active components from separate Class 1E power sources.
5. Maintain pressure above that of the adjacent areas to inhibit air leakage into the control room, except when the CRS and the CREF systems are in the total recirculation mode, in accordance with the mode switch position.
6. Monitor radiation levels at the outside air intakes and automatically filter any contaminated fresh air through the emergency charcoal filters upon detection of high radiation, in accordance with the mode switch position.
7. Provide missile protection for the equipment, ducts, and accessories.
8. Meet Seismic Category I requirements.
9. Provide tornado protection for separate fresh air intakes that penetrate to the outdoors.
10. Operate during normal, shutdown, and accident conditions without loss of function.

Section 9.4.1.1.3 of the UFSAR states that the CREF system is safety-related and is designed to maintain control room habitability by providing filtration of fresh air and recirculated air during any accident that may release high radioactivity. Section 9.4.1.1.3 of the UFSAR also states that the CREF system is designed to accomplish the following objectives:

1. Automatically maintain filtered outside air supply to the main control room areas upon detection of high radiation in the intake air supply if the mode switch is in the outdoor air position.
2. Maintain room pressure above that of the adjacent areas to inhibit air leakage into the main control room except when the system is selected for the 100 percent recirculation mode.
3. Operate during and after an accident condition without loss of function.
4. Provide redundancy for active and passive components to meet the single failure criteria.
5. Operate the redundant active components from separate class 1E power sources.
6. Provide tornado protection for fresh air intake ducts.
7. Provide missile protection for the equipment, ducts, and accessories.
8. Meet Seismic Category I requirements.
9. Provide capability in the 100 percent recirculation mode to permit ten people to inhabit the main control room for 100 hours without exceeding the maximum allowable concentration of 1 percent of CO<sub>2</sub> by volume.

Containment and Ventilation Branch Request for Additional Information (RAI) Questions

Based on the descriptions of these systems (CRS and CREF) as outlined above, please respond to the following questions.

1. In accordance with the amendment request, the licensee is proposing to establish a separate Limiting Condition for Operation (LCO) for the Control Room AC portion of the Control Room Heating, Ventilation, and Air Conditioning (HVAC) System. Are the CRS and the HVAC the same system?
2. If the CRS and the HVAC are different systems, please provide a discussion describing the difference between the two systems and the function of each system.
3. If the HVAC system is inoperable will the CREF also be inoperable?
4. If the CRS is inoperable will the CREF also be inoperable?
5. Can the CREF perform its design functions with the associated CRS unit inoperable?
6. With the proposed change, will the CREF continue to operate in series with the CRS?
7. With the proposed change, will the CREF operate in series with the HVAC?

8. What will be the impact of increased humidity levels on control room operators and control room instrumentation with both trains of CRS and/or HVAC out of service for 72 hours?
9. If proposed TS 3.7.2.2 Action a.2.b is not met, has an evaluation been conducted demonstrating the control room temperature will not exceed the limits of any required instrumentation before the unit is in cold shutdown?
10. With the proposed change, has an analysis been conducted to show that the CREF accident mitigation functions will be met when the CRS/HVAC is out of service? If not, why not? If an analysis has been conducted, has the results been included in the licensing basis analyses of DBA consequences?

#### Technical Specification Branch RAI Questions

1. 10 CFR 50.36 contains regulatory requirements for TSs. The amendment request did not discuss the regulatory requirements of 10 CFR 50.36 as they pertain to the proposed new LCO. Please state how or if the proposed TS 3.7.2.2 LCO and surveillance requirements meet the requirements of 10 CFR 50.36.
2. Section 2.0 of Attachment 1 of the amendment request and “Bases Insert 2” of Attachment 4 of the amendment request contain a description of the Control Room AC system. Neither section stated whether or not the AC system components are safety-related. Please describe the Control Room AC System components in further detail, specifically discussing whether or not components are safety-related and how the quality of the components is maintained.
3. Section 2.0 of Attachment 1 of the amendment request stated that a CREF subsystem is considered inoperable when the associated Control Room AC subsystem is inoperable. How will an inoperable AC system impact the operability of the filtration function once a new LCO is placed in the TSs?