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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS
CONTROL ROOM EMERGENCY FILTRATION SYSTEM
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

Pursuant to 10 CFR 50.90, PSEG Nuclear LLC (PSEG) hereby requests a revision to the Technical Specifications (TS) for Hope Creek Generating Station. In accordance with 10CFR50.91(b)(1), a copy of this submittal has been sent to the State of New Jersey.

The proposed amendment would revise TS 3.7.2, CONTROL ROOM EMERGENCY FILTRATION SYSTEM ACTION a. to allow one system to be inoperable due to an inoperable chiller for a period of 30 days. This increase in the allowable outage time (AOT) will allow for maintenance to increase the overall reliability of the control room emergency filtration system.

PSEG Nuclear LLC has evaluated the proposed changes in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c) and has determined that this request involves no significant hazards considerations. An evaluation of the requested changes is provided in Attachment 1 to this letter. In addition, there is no significant increase in the amounts or types of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Consequently, the proposed amendment satisfies the criteria of 10CFR51.22(c)(9) for categorical exclusion from the requirement for an environmental assessment. The marked up Technical Specification pages affected by the proposed changes are provided in Attachment 2.

A001

In April 2003, the station identified the "A" Control Area Chiller (AK400) had begun to exhibit unacceptable fluctuations in oil reservoir level. At the present time, PSEG attributes the changes in reservoir level to compressor and motor labyrinth seal degradation. The worn seals inhibit the process by which oil returns to the reservoir during the machine's freon cycle under decreased cooling load conditions and has recently resulted in rapid return of oil as cooling load increased. At this time the problem is manageable and the chiller is operable. Although the chiller is operable, these fluctuations represent an undesirable condition and PSEG has taken action to plan a maintenance window to overhaul the compressor, currently scheduled to commence on September 15, 2003. Execution of required repairs will require complete disassembly of the compressor as well as the removal of the outboard motor bearing assembly. Although the overhaul may be completed in 7 days, PSEG desires to perform other required maintenance to the component during the maintenance outage. Approval of this proposed change is, therefore, being requested by September 10, 2003 to support planned maintenance of the "A" Control Area Chiller scheduled for September 15, 2003.

If you have any questions or require additional information, please contact Mr. Michael Mosier at (856) 339-5434.

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

Executed on 9 JULY 2003

Sincerely,

John Carlin
Vice President - Engineering

Attachments (2)

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HOPE CREEK GENERATING STATION
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REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS
CONTROL ROOM EMERGENCY FILTRATION SYSTEM

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REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS CONTROL ROOM EMERGENCY FILTRATION SYSTEM

1. DESCRIPTION

This letter is a request to amend Facility Operating License NPF-57 for the Hope Creek Generating Station (HCGS). The proposed change would revise Technical Specification (TS) 3.7.2 ACTION a. to allow one control room emergency filtration subsystem to be inoperable due to an inoperable chiller for 30 days. This is consistent with Revision 2 to NUREG-1433 Vol. 1, Rev. 2, Standard Technical Specifications, General Electric Plants. Increasing the allowable outage time (AOT) will allow for extensive maintenance and increase the overall availability of the control room chillers. This provides additional assurance that a chiller will be operable on at least one train of the control room emergency filtration (CREF) system.

2. PROPOSED CHANGE

The proposed changes to the TS are included in Attachment 2 of this submittal. In summary, it is requested that:

- **Limiting Condition for Operation 3.7.2 (PAGE 3/4 7-6) under ACTION a. currently states:**

  "In OPERATIONAL CONDITION 1, 2 or 3 with one control room emergency filtration subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours."

  is revised to read:

  "In OPERATIONAL CONDITION 1, 2 or 3:

  1. With one control room emergency filtration subsystem inoperable **due to an inoperable chiller unit, restore the inoperable subsystem to OPERABLE status within 30 days** or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. **With one control room emergency filtration subsystem inoperable for reasons other than an inoperable chiller unit, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours."**

3. BACKGROUND

The AK400 Control Area Chiller has begun to exhibit unacceptable fluctuations in oil reservoir level. Changes in reservoir level are attributable to compressor and motor labyrinth seals. The degraded seals inhibit the process by which oil returns to the reservoir during the machine's freon cycle under decreased cooling load conditions and, has recently resulted in rapid return of oil as cooling load increased. The condition has been evaluated and concluded that the problem is manageable and the chiller operable. PSEG has also determined that these fluctuations represent an undesirable condition and have taken action to plan a maintenance window to overhaul the compressor just prior to the onset of winter, at which time fluctuations will most assuredly increase in frequency. Execution of required repairs will require complete disassembly of the compressor as well as the removal of the outboard motor bearing assembly.

NUREG-1433 Vol. 1, Rev. 2, Standard Technical Specifications, General Electric Plants, 3.7.5 allows one control room air-conditioning system to be inoperable for up to 30 days. With one control room AC subsystem inoperable, the inoperable control room AC subsystem must be restored to OPERABLE status within 30 days. With the unit in this condition, the remaining OPERABLE control room AC subsystem is adequate to perform the control room air conditioning function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of the control room air conditioning function. The 30 day Completion Time is based on the low probability of an event occurring requiring control room isolation, the consideration that the remaining subsystem can provide the required protection, and the availability of alternate safety and non-safety cooling methods.

4. TECHNICAL ANALYSIS

4.1. Analysis

Control Room Emergency Filtration

The control room emergency filtration (CREF) system is designed to maintain control room habitability by providing filtration of fresh air and recirculated air during any accident that may release high radioactivity.

The CREF system is safety-related and is designed to accomplish the following objectives:

- 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.
- Maintain pressure above that of the adjacent areas to inhibit air in-leakage into the main control room, except when the system is selected for the 100 percent recirculation mode.
- Operate during and after an accident condition without loss of function.
- Provide redundancy for active and passive components to meet the single failure criteria.
- Operate the redundant active components from separate Class 1E power sources.
- Provide tornado protection for fresh air intake ducts.
- Provide missile protection for the equipment, ducts, and accessories.
- Meet Seismic Category I requirements.
- 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_2 by volume.

Under normal plant conditions, the CREF system is not in operation: however, when high radiation is detected at the outside air intake, the main control room outside air supply is automatically diverted through the CREF system.

When the CREF system is in operation, the volume of air flowing through it is continuously indicated on a local panel. Low flow or loss of airflow in the CREF automatically trips and isolates the operating CREF train and alarms in the main control room.

The control room supply (CRS) system maintains design conditions in the main control room and associated adjacent rooms. It is comprised of two 100 percent air handling units, each supplied by a separate Class 1E power source. Each unit is equipped with outside air intake, outside radiation monitors, outside air smoke detectors, motorized isolation dampers, pre-filters, after-filters, humidifiers, chilled water coil, electric heating coil, and supply fan. A fixed amount of outside air is provided to satisfy ventilation, exhaust, and pressurization requirements. Each unit is connected to a common Seismic Category 1 supply and return duct system. Air is delivered to the CRS unit via the control room return air (CRRA) fan. Excess ventilation air is exhausted to the outdoors by the control air exhaust (CAE) system.

The chilled water for the cooling coils in each unit are supplied by a Seismic Category 1, independent chilled water system. The chilled water system pump (AP400) is interlocked with the supply air fan so that the A Control Area chiller (AK400) cannot operate without the CRS fan (AVH403) being energized.

Control Area Chilled Water System

The Control Area Chilled Water System consists of two subsystems: The Control Room Chilled Water System and the Safety-Related Panel Room Chilled Water System. The chilled water systems provide chilled water to maintain satisfactory ambient air temperatures for different portions of the Auxiliary Building. Each of the two subsystems has two independent, 100 percent capacity chilled water loops. Each water chiller includes a motor driven centrifugal compressor, water-cooled condenser, evaporator, pump out unit, oil pump, oil heater, refrigerant piping, controls, and instrumentation.

The Control Room Chilled Water System serves the following areas:

- Main control room
- Auxiliary equipment rooms, including the computer room and battery rooms
- Emergency switchgear rooms
- Safety Auxiliaries Cooling System (SACS) pump rooms (Reactor Building)

The design bases for the control area CWS are as follows:

- The control area CWS is safety-related and is designed to Seismic Category I and redundancy requirements to remain functional following a LOCA or design basis accident (DBA).

- Chilled water from the control room chillers is supplied (at 50 degrees F) by the control area CWS to maintain the design ambient air temperatures in the areas served.

- Single failure of any active or passive component, coincident with a LOP, will not result in the loss of chilled water supply.

Control Room Chilled Water System

The Control Room Chilled Water (CRCW) System provides a means of cooling the air supply to parts of the Auxiliary Building Control Area to maintain satisfactory ambient air temperature. The CRCW system has two full capacity, separate closed loops. Each loop consists of one packaged, electrically driven, centrifugal water chiller (A(B)K400), one head tank (A(B)T410), one recirculation pump (A(B)P400), and one chemical feed

tank (A)(B)T401). It is a redundant system having two independent and separate 100 percent chilled water loops, either of which is capable of performing the system safety function necessary for achieving safe shutdown following a loss of coolant accident (LOCA) or design basis accident given a single active failure or passive failure. The CRCW electrically operated components are environmentally qualified. SACS provides cooling water for the chiller condensers. The SACS pumps are supplied with Class 1E power.

The CRCW System supplies chilled water to the air-handling units in the Auxiliary Building and Reactor Building. The units served by the CRCW A and B loops include:

- Control Room Supply System (CRS) Unit A/BVH403
- Control Equipment Room Supply System (CERS) Unit A/BVH407
- Switchgear Room Cooling (SRC) Units A-D401 coils A/B
- SACS Room Cooling Units A-DVH214

One loop is normally operating and the other is on standby. The operating chiller is powered from the same Class 1E power bus as the chilled water pump, control room air supply (CRS), control room emergency filter (CREF), and control equipment room supply (CERS) fans. The same is true for the standby chiller. Control actuation, indications, and alarms for the chillers are located in the main control room and also in the local panels, one panel per chiller. The B loops of the systems are capable of being controlled from the RSP. On loss of offsite power (LOP) or LOCA, the operating chilled water system is tripped and sequenced on to power from the emergency diesel generators after a time delay by the LOCA sequencer—the chiller auto starting at 60 seconds and the pump at 65 seconds. The loop that was in service remains in service. Single failure of any active or passive component, coincident with a LOP, will not result in the loss of the chilled water supply. On detection of low chilled water flow in the operating loop, a control room alarm sounds and the system automatically re-aligns to the standby units. On a high or low chilled water supply temperature, a control room alarm sounds and the system automatically shuts off the operating units and changes to the standby units.

The CRCW system is safety-related and must meet the following safety-function requirements:

- Supply chilled water at 50 degrees F from the chillers to each cooling coil at the required flow rate to maintain the design area temperatures in the areas served

- Operate during normal, shutdown, and accident conditions without loss of function

5. REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration Determination

PSEG Nuclear LLC (PSEG) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10CFR50.92, "Issuance of amendment," as discussed below:

1. **Does the change involve a significant increase in the probability or consequences of an accident previously analyzed?**

   Response: No.

   The proposed TS change does not affect the design, operational characteristics, function or reliability of the control room emergency filtration (CREF) system. The CREF is not an initiator of any previously evaluated accident. The proposed change will increase the allowed outage time (AOT) for the chiller from seven days to 30 days for the chiller in OPERATIONAL CONDITIONS 1, 2, AND 3. The 30-day AOT is based on the low probability of an event requiring control room isolation concurrent with failure of the redundant train. Therefore, one train will always be available to remove the normal and accident heat loads and provide control room isolation.

   Increasing the AOT will allow for completion of maintenance activities requiring extended down time to perform and result in significant improvements to the overall reliability of control room chillers. Improving reliability will provide additional assurance that chillers will be capable of performing their design basis accident function.

   Therefore, this proposed amendment does not involve a significant increase in the probability of occurrence or radiological consequences of an accident previously analyzed.

2. **Does the change create the possibility of a new or different kind of accident from any accident previously analyzed?**

   Response: No

   The proposed change will increase the AOT for the control room chiller from seven to thirty days in modes 1 through 3. During the time one chiller is inoperable, the redundant train is capable of handling the heat loads during normal operation and accident conditions. The proposed change does not involve a change in the design, configuration, or method of operation of the plant

that could create the possibility of a new or different kind of accident. The proposed change would not introduce new failure modes or effects and would not, in the absence of other unrelated failures, create a new or different accident from any accidents previously evaluated.

Therefore, the proposed changes would not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the change involve a significant reduction in the margin of safety?**

Response: No

The basis for technical specification 3/4.7.2 is to ensure that the temperature in the control room does not exceed the maximum allowable for the equipment and instrumentation located therein. The system also limits radiation exposure to control room personnel following an accident to below GDC-19 limits. Either of the two redundant trains can perform these functions. Although one chiller may be inoperable for longer than seven days, the redundant train can perform all normal and accident functions. The length of time for the chiller AOT is sufficiently short to assure that an event requiring control room isolation concurrent with the failure of the redundant train is not credible.

Therefore, these changes do not involve a significant reduction in margin of safety.

Based on the above, PSEG concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10CFR50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

The proposed change would revise Technical Specification (TS) 3.7.2 ACTION a. to allow one control room emergency filtration subsystem to be inoperable due to an inoperable chiller for 30 days. This is consistent with Revision 2 to NUREG-1433 Vol. 1, Rev. 2, Standard Technical Specifications, General Electric Plants.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6. ENVIRONMENTAL IMPACT EVALUATION

PSEG has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7. REFERENCES

7.1. Letter LR-N02-0002, Request For Change To Technical Specifications Relaxation Of Secondary Containment Operability Requirements And Elimination Of FRVS Recirculation Charcoal Filters, dated June 28, 2002

HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354
REVISIONS TO THE TECHNICAL SPECIFICATIONS (TS)

TECHNICAL SPECIFICATION PAGE WITH PROPOSED CHANGE

The following Technical Specification for Facility Operating License NPF-57 are affected by this change request:

Technical Specification	Page
3/4.7.2	3/4 7-6
3/4.7.2	3/4 7-7

PLANT SYSTEMS

3/4.7.2 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 Two independent control room emergency filtration system subsystems shall be OPERABLE with each subsystem consisting of:

a) One control room supply unit,
b) One filter train, and
c) One control room return air fan.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4 and *.

ACTION:

a. In OPERATIONAL CONDITION 1, 2 or 3:

1. With one control room emergency filtration subsystem inoperable due to an inoperable chiller unit, restore the inoperable subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With one control room emergency filtration subsystem inoperable for reasons other than an inoperable chiller unit, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 4 or *:

1. With one control room emergency filtration subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE subsystem in the pressurization/recirculation mode of operation.

2. With both control room emergency filtration subsystems inoperable, suspend handling of recently irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

c. The provisions of Specification 3.0.3 are not applicable in Operational Condition *.

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency filtration subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 85°F#.

*When recently irradiated fuel is being handled in the secondary containment.

#This does not require starting the non-running control emergency filtration subsystem.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, the control area chilled water pump, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates for at least 10 hours with the heaters on in order to reduce the buildup of moisture on the carbon adsorbers and HEPA filters.

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem filter train by:

1. Verifying that the subsystem satisfies the in-place penetration testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system filter train flow rate is 4000 cfm ± 10%.

2. Verifying within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity 70%.

3. Verifying a subsystem filter train flow rate of 4000 cfm ± 10% during subsystem operation when tested in accordance with ANSI N510-1980.

d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal from the Control Room Emergency Filtration units that a laboratory analysis of a representative carbon sample, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows a methyl iodide penetration less than 0.5% when tested in accordance with ATSM D3803 -1989 at a temperature of 30°C and a relative humidity of 70%.

e. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.5 inches Water Gauge while operating the filter train subsystem at a flow rate of 4000 cfm ± 10%.

2. Verifying with the control room hand switch in the recirculation mode that on each of the below recirculation mode actuation test signals, the subsystem automatically switches to the isolation mode of operation and the isolation dampers close within 5 seconds: