



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 18, 2008

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear
P.O. Box 236, N09
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE:
TECHNICAL SPECIFICATION REQUIREMENTS FOR INOPERABLE
INVERTERS (TAC NO. MD9355)

Dear Mr. Joyce:

The Commission has issued the enclosed Amendment No. 175 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated July 30, 2008, as supplemented by letters dated September 29, and October 20, 2008. The amendment revises TS 3.8.3, "Onsite Power Distribution Systems," to establish a separate TS Action statement for inoperable inverters associated with the 120 volt alternating current distribution panels. The amendment extends the allowed outage time for inoperable inverters from 8 hours to 24 hours.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read "R. B. Ennis".

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

Docket No. 50-354

Enclosures:

1. Amendment No. 175 to License No. NPF-57
2. Safety Evaluation

cc w/encls: Distribution via ListServ



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PSEG NUCLEAR LLC

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 175
License No. NPF-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC dated July 30, 2008, as supplemented by letters dated September 29, and October 20, 2008, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-57 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 175, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into the license. PSEG Nuclear LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment: Changes to the License
and Technical Specifications

Date of Issuance: December 18, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 175

FACILITY OPERATING LICENSE NO. NPF-57

DOCKET NO. 50-354

Replace the following page of the Facility Operating License with the revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove
Page 3

Insert
Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove
3/4 8-18
3/4 8-19
3/4 8-20

Insert
3/4 8-18
3/4 8-19
3/4 8-20

- (4) PSEG Nuclear LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) PSEG Nuclear LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) PSEG Nuclear LLC, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

PSEG Nuclear LLC is authorized to operate the facility at reactor core power levels not in excess of 3339 megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 175, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into the license. PSEG Nuclear LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Inservice Testing of Pumps and Valves (Section 3.9.6, SSER No. 4)*

This License Condition was satisfied as documented in the letter from W. R. Butler (NRC) to C. A. McNeill, Jr. (PSE&G) dated December 7, 1987. Accordingly, this condition has been deleted.

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following power distribution system channels shall be energized:

a. A.C. power distribution:

1. Channel A, consisting of:
 - a) 4160 volt A.C. switchgear bus 10A401
 - b) 480 volt A.C. load centers 10B410
10B450
 - c) 480 volt A.C. MCCs 10B212
10B411
10B451
10B553
 - d) 208/120 volt A.C. distribution panels 10Y401 (source:10B411)
10Y411 (source:10B451)
10Y501 (source:10B553)
 - e) 120 volt A.C. distribution panels 1AJ481 and inverter AD481
1YF401 (source: 1AJ481)
1AJ482 and inverter AD482

2. Channel B, consisting of:
 - a) 4160 volt A.C. switchgear bus 10A402
 - b) 480 volt A.C. load centers 10B420
10B460
 - c) 480 volt A.C. MCCs 10B222
10B421
10B461
10B563
 - d) 208/120 volt A.C. distribution panels 10Y402 (source:10B421)
10Y412 (source:10B461)
10Y502 (source:10B563)
 - e) 120 volt A.C. distribution panels 1BJ481 and inverter BD481
1YF402 (source:1BJ481)
1BJ482 and inverter BD482

3. Channel C, consisting of:
 - a) 4160 volt A.C. switchgear bus 10A403
 - b) 480 volt A.C. load centers 10B430
10B470
 - c) 480 volt A.C. MCCs 10B232
10B431
10B471
10B573
 - d) 208/120 volt A.C. distribution panels 10Y403 (source:10B431)
10Y413 (source:10B471)
10Y503 (source:10B573)

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

e)	120 volt A.C. distribution panels	1CJ481 and inverter CD481 1YF403 (source:1CJ481) 1CJ482 and inverter CD482
4.	Channel D, consisting of:	
a)	4160 volt A.C. switchgear bus	10A404
b)	480 volt A.C. load centers	10B440 10B480
c)	480 volt A.C. MCCs	10B242 10B441 10B481 10B583
d)	208/120 volt A.C. distribution panels	10Y404 (source:10B441) 10Y414 (source:10B481) 10Y504 (source:10B583)
e)	120 volt A.C. distribution panels	1DJ481 and inverter DD481 1YF404 (source:1DJ481) 1DJ482 and inverter DD482
b.	D.C. power distribution:	
1.	Channel A, consisting of:	
a)	125 volt D.C. switchgear	10D410
b)	125 volt D.C. fuse box	1AD412
c)	125 volt D.C. distribution panel	1AD417
d)	250 volt D.C. switchgear	10D450
e)	250 volt D.C. fuse box	10D422
f)	250 volt D.C. MCC	10D251
2.	Channel B, consisting of:	
a)	125 volt D.C. switchgear	10D420
b)	125 volt D.C. fuse box	1BD412
c)	125 volt D.C. distribution panel	1BD417
d)	250 volt D.C. switchgear	10D460
e)	250 volt D.C. fuse boxes	10D432
f)	250 volt D.C. MCC	10D261
3.	Channel C, consisting of:	
a)	125 volt D.C. switchgear	10D430 10D436
b)	125 volt D.C. fuse box	1CD412 1CD448
c)	125 volt D.C. distribution panel	1CD417
4.	Channel D, consisting of:	
a)	125 volt D.C. switchgear	10D440 10D446
b)	125 volt D.C. fuse boxes	1DD412 1DD448
c)	125 volt D.C. distribution panel	1DD417

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

- a. With one of the above required A.C. distribution system channels not energized, re-energize the channel within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With one of the above required 125 volt D.C. distribution system channels not energized, re-energize the division within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With any one of the above required 250 volt D.C. distribution systems not energized, declare the associated HPCI or RCIC system inoperable and apply the appropriate ACTION required by the applicable Specifications.
- d. With one or both inverters in one channel inoperable, energize the associated 120 volt A.C. distribution panel(s) within 8 hours, and restore the inverter(s) to OPERABLE status within 24 hours; or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 Each of the above required power distribution system channels shall be determined energized at least once per 7 days by verifying correct breaker/switch alignment and voltage on the busses/MCCs/panels.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 175 TO FACILITY OPERATING LICENSE NO. NPF-57

PSEG NUCLEAR LLC

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 INTRODUCTION

By application dated July 30, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082200314), as supplemented by letters dated September 29, and October 20, 2008 (ADAMS Accession Nos. ML082830133 and ML083030179, respectively), PSEG Nuclear LLC (PSEG or the licensee) submitted a license amendment request for the Hope Creek Generating Station (HCGS). The proposed amendment would revise Technical Specification (TS) 3.8.3, "Onsite Power Distribution Systems," to establish a separate TS Action statement for inoperable inverters associated with the 120 volt alternating current (VAC) distribution panels. The intent of the proposed amendment is to extend the allowed outage time (AOT) for inoperable inverters from 8 hours to 24 hours.

The supplements dated September 29, and October 20, 2008, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards determination as published in the *Federal Register* on September 9, 2008 (73 FR 52421).

2.0 REGULATORY EVALUATION

The licensee addressed the regulatory requirements applicable to the proposed amendment in Section 5.2 of Attachment 1 to the application dated July 30, 2008. The regulatory requirements, criteria, and guidance which the NRC staff applied in its review are discussed below.

General Design Criterion (GDC) 17, "Electric power systems," of Appendix A to Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) requires, in part, that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The offsite power system is required to be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of

Enclosure

their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

GDC 18, "Inspection and testing of electric power systems," requires, in part, that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires, in part, that licensees ensure that the objective of preventing failures of structures, systems, and components through maintenance is appropriately balanced against the objective of minimizing unavailability of structures, systems, and components due to monitoring or preventive maintenance.

Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications," states, in Regulatory Position C.1.1.3, that a TS change may be requested to reduce the unnecessary burdens in complying with current TS requirements, based on the operating history of the plant or industry in general.

3.0 TECHNICAL EVALUATION

3.1 Description of HCGS Onsite Power Distribution System

The licensee provided a description of the HCGS onsite power distribution system in Section 3.0 of Attachment 1 of its application dated July 30, 2008. The following discussion is based on the information provided by the licensee.

The HCGS Class 1E power system consists of four independent channels, each of which provides power to its respective load group. Any combination of three out of four load channels has the capability to supply the minimum required safety loads to shutdown the unit and mitigate the consequences of an accident.

Each channel has two 120 VAC uninterruptible power supplies (UPSs). The UPS panels feed loads including the diesel generator control panels, remote shutdown panels, 4.16 kilovolt (kV) switchgear, and the instrumentation and controls for emergency core cooling system (ECCS) and reactor core isolation cooling (RCIC) system initiation. Each UPS includes a regulated rectifier, a static inverter, a static transfer switch, and a regulated 120 VAC power supply. The static inverter converts 125 volt direct current (VDC) power to a single phase, 60 Hertz, 120 VAC supply. The static switch monitors the output of the static inverter. When there is a loss of an inverter, the static switch will transfer to the backup power supply. The backup power supply is voltage regulator fed through a Class 1E 480 VAC motor control center (MCC) different than the one powering the static rectifier.

Currently, during Operational Conditions 1, 2, and 3, TS Limiting Condition for Operation (LCO) 3.8.3.1 requires each of the four channels to be energized. As discussed in the licensee's application dated July 30, 2008, for the purposes of defining operability of the 120 VAC distribution panels, "energized" is interpreted as "capable of carrying loads, including the

automatic supply of power from an operable DC bus through the inverter, in the event of a Loss of Power (LOP) or loss of AC feed to the inverter." Thus, with an inoperable inverter, TS LCO 3.8.3.1 would not be met and the required action is to re-energize the associated distribution panel within 8 hours (i.e., restore the inverter to operable status) or be in hot shutdown within the next 12 hours and in cold shutdown within 24 hours.

3.2 Evaluation of Proposed Changes

The licensee's application states that an 8 hour AOT for an inoperable inverter is not sufficient time to perform troubleshooting, corrective maintenance and post-maintenance testing and furthermore, creates an operational risk associated with an unnecessary plant shutdown. Therefore, the licensee proposed to add the following as TS Action 3.8.3.1.d:

With one or both inverters in one channel inoperable, energize the associated 120 volt A.C. distributions panel(s) within 8 hours, and restore the inverter(s) to OPERABLE status within 24 hours; or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

The proposed amendment would also revise LCO 3.8.3.1 to list the specific inverters associated with each of the four 120 VAC distribution panel channels.

In response to an NRC staff request for additional information (RAI), the licensee stated in its September 29, 2008, letter that the 24-hour AOT would support online maintenance. The licensee further stated that many of the inverter components could not be replaced and retested within the current 8-hour AOT. In reviewing past operating experience, the licensee found there have been six instances at HCGS in the last 5 years when an inverter was declared inoperable due to an emergent issue, typically as a direct result of a blown main power fuse. The licensee stated that, in these cases, the associated 120 VAC distribution panel remained energized or was energized from the backup Class 1E AC power supply until the inverter was restored to operable status. In addition, the licensee found that there were three occurrences of a regulating transformer failing in the last 5 years but in each case, the inverter continued to supply its associated 120 VAC distribution panel without any interruption. Based on review of the information provided by the licensee, concerning the above operating experience, the NRC staff finds that there is reasonable assurance that the AC instrument bus will remain energized when an instrument bus inverter is taken out-of-service.

In response to an NRC staff RAI, the licensee stated in its September 29, 2008, letter that there is minimal safety consequence and very small risk changes associated with increasing the inverter AOT to 24 hours due to the available defense-in-depth from redundant plant equipment and the relatively short period of time during which one or both inverters in a single channel would be permitted to be inoperable. The licensee provided the following information regarding redundancy and defense-in-depth to support its position:

Backup Class 1E 120 VAC Distribution Panel Power Supplies

The 120 VAC distribution panels have multiple power supplies. These supplies include the following:

- Inverter normally powered by a Class 1E 480 VAC MCC with a secondary power source from a Class 1E 125 VDC Bus
- Given loss of output from the inverter, a static switch automatically switches to a backup power supply from another Class 1E 480 VAC MCC

Unavailability of a Class 1E inverter due to random failure or a scheduled maintenance outage does not fail power to the 120 VAC distribution panel itself. If a loss of inverter output is indicated, a static switch automatically shifts to a backup power supply that is supplied by a Class 1E 480 VAC MCC different than the one normally supplying power to the inverter, but in the same Class 1E channel.

The defense-in-depth for the Class 1E 120 VAC distribution panel power supplies helps minimize the safety significance of unavailability of a Class 1E inverter.

Effect on HPCI [High Pressure Coolant Injection] and RCIC

The High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems are supported by 120 VAC distribution panels in separate channels. Thus, inoperability of one or both inverters in a single channel would not cause the loss of both HPCI and RCIC in the event of a LOOP [loss of offsite power].

Multiple Emergency Diesel Generators

Hope Creek has four (4) emergency diesel generators (EDGs) that support four (4) separate channels of AC power during Loss of Offsite Power (LOOP) events. Unavailability of power from a Class 1E 120 VAC distribution panel can result in unavailability of the respective EDG. However, three (3) EDGs remain available to support mitigation equipment during LOOP events.

The safety significance of unavailability of a single EDG is minimized due to the level of redundancy in the onsite AC power system.

Offsite AC Power Reliability

Given that unavailability of a Class 1E 120 VAC distribution panel can impact the availability of the respective EDG, the reliability of offsite AC power is significant for preventing LOOP scenarios where the EDGs are required to support mitigation equipment. Offsite power grid-stability and availability is maximized because Hope Creek is part of the Pennsylvania-New Jersey-Maryland (PJM) interconnected network. There are three 500-kV sources to the HCGS switchyard, all of which are physically independent sources of offsite power to the HCGS unit.

The safety significance of unavailability of a 120 VAC distribution panel leading to unavailability of a single EDG is minimized due to the level of redundancy in the offsite AC power system.

Based on review of the above information provided by the licensee, the NRC staff finds that, with one or both inverters inoperable in a single channel, sufficient redundancy and defense-in-depth exists such that there is reasonable assurance that the required safety functions will be able to be performed during the 24 hour AOT.

Based on review of Updated Final Safety Analysis Report (UFSAR) Figure 8.3-11, which shows that the 120 VAC distribution panels provide power to radiation monitoring instrumentation, the NRC staff requested additional information regarding the impact of the proposed amendment on radiation monitoring systems. In its September 29, 2008, letter, the licensee described the effect on radiation monitoring systems, specifically in the drywell, refueling floor, reactor building, and control room. The licensee stated that in each of the radiation monitoring systems for these areas, redundant instrument channels are available and would not be expected to be inoperable simultaneously. Based on the availability of redundant instrumentation, the NRC staff finds that there would be no adverse impact due to the increased inverter AOT on the radiation monitoring systems.

The licensee, in its letter dated September 29, 2008, provided the following information regarding the impact of the proposed amendment on HCGS fire protection requirements:

As part of the power distribution system, inverters 1AD481, 1BD481, 1CD481, 1DD481, 1AD482, 1BD482, 1CD482, 1DD482, and the associated distribution panels function to support the HCGS safe shutdown during and following a postulated fire event. These components are identified in HCGS UFSAR Tables 9A-2 (Shutdown Component List by System) and 9A-3 (Shutdown Component List by Fire Area).

The HCGS safe shutdown analysis as documented in UFSAR Appendix 9A demonstrates the plant capability to achieve and maintain safe shutdown during and following a postulated fire event. The safe shutdown systems consist of two divisions of mechanical equipment (Division I and II). The two mechanical divisions are supported by four electrically independent channels (A, B, C, and D). The electrical channels A and C supply Division I, and B and D, supply Division II. Safe shutdown is achieved by either Shutdown Method I or II as follows:

- Method I (Mechanical Division I) - Division I electrical channels A and C (1AD481, 1AD482, 1CD481, 1CD482)
- Method II (Mechanical Division II) - Division II electrical channels B and D (1BD481, 1BD482, 1DD481, 1 DD482)

One division of electrical distribution system including the inverters would remain free of fire damage during and following a postulated fire event at HCGS.

Consistent with Branch Technical Position CMEB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," Revision 2, HCGS assumptions in the safe shutdown analysis as documented in Appendix 9A of the UFSAR (Appendix R Comparison) include the following:

There will be no random single failures (other than a single fire and its effects). All equipment not affected by a fire and LOP [loss of power] are assumed to be working normally.

The HCGS fire protection program is designed to prevent fire from starting by using noncombustible and fire resistant materials where practicable in the plant. In the unlikely event that a fire were to occur, the HCGS fire protection program provides for prompt detection and suppression to protect equipment and assure the performance of necessary safe shutdown functions. The rooms containing the inverters and the associated distribution panels are equipped with detection. Manual fire suppression is available in the vicinity of these rooms as well. All the rooms are protected by fire barriers that protect equipment of the redundant division. The combustible loading in these areas is considered low and maintained in accordance with administrative controls. This along with inherent electrical separation and demonstrated separation for Appendix R provides defense in depth to minimize the potential for a fire event that could affect one channel of 120 VAC electrical distribution system.

Based on review of the above information provided by the licensee, the NRC agrees with the licensee's conclusion that the proposed change in the AOT for the inverters does not affect the current assumptions or strategy for achieving and maintaining safe shutdown during and following a fire event at HCGS.

The NRC staff requested additional information regarding the impact of a 24 hour inverter AOT on post-accident monitoring instrumentation. In its September 29, 2008, letter, the licensee stated that the HCGS post-accident monitoring instrumentation meets the intent of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following An Accident," Revision 2. The licensee also stated that each Type A, Category 1 instrument loop is provided with a redundant indicating loop that is energized by a different Class 1E channel. Based on the availability of redundant instrumentation, the NRC staff finds that the increased AOT will not impact post-accident monitoring instrumentation.

When an inverter is taken out of service, the inverter is bypassed and the static switch of the UPS output is aligned to a maintenance power supply, which includes an AC voltage line regulator. The voltage regulator ensures that all the connected loads will be able to operate properly. The NRC staff requested additional information regarding the impact of the extended inverter AOT if a voltage transient occurs on the plant electrical system when the instrument bus is fed by the maintenance power supply. The licensee stated in its September 29, 2008, letter that the UPS loads would be unaffected by voltage transients within the specified input range, due to the regulator in the circuit. If the voltage transient is outside acceptable range, then the redundant channel will be available to power the UPS loads. The NRC staff finds that there is reasonable assurance that the maintenance power supply will be able to power the instrument bus due to system design (i.e., voltage regulator and redundancy).

The proposed amendment would change the HCGS TSs such that when one or both of the inverters in a channel is inoperable, the associated 120 VAC distribution panel(s) are to be energized within 8 hours and the inverter(s) restored to operable status within 24 hours.

NUREG-1433, "Standard Technical Specifications (STS) General Electric Plants, BWR/4", STS LCO 3.8.7, "Inverters - Operating," indicates that the inverter should be restored to operable status in 24 hours (i.e., consistent with the proposed change) and requires entering STS LCO 3.8.9, "Distribution Systems - Operating" with any AC vital bus de-energized. STS LCO 3.8.9 B requires that the AC vital bus distribution subsystem(s) be restored within 2 hours. The NRC staff requested the licensee provide justification for the proposed 8 hour timeframe to restore the 120 VAC distribution panel(s) versus the 2 hour timeframe shown in the STS. The licensee stated in its October 20, 2008, letter that the requirement to re-energize the 120 VAC distribution bus within 8 hours is consistent with current HCGS TS requirements. With one of the required AC distribution system channels (including 120 VAC distribution panels) not energized, current HCGS TS Action statement 3.8.1.3.a requires that the channel be re-energized within 8 hours. The licensee also stated that, when one or both 120 VAC distribution panels in one channel are de-energized, there is a loss of redundancy, but not a loss in function since the remaining operable 120 VAC distribution panels are capable of supporting the minimum safety functions. Based on the above considerations, the NRC staff finds that the 8 hour AOT for the 120 VAC distribution panels is acceptable.

3.3 Technical Evaluation Conclusion

Based on the NRC staff findings, as discussed above in Section 3.2, the NRC staff concludes that there is reasonable assurance that the proposed 24 hour AOT will not adversely affect the capability of the 120 VAC power distribution system to supply the required safety loads to shutdown the unit and mitigate the consequences of a postulated design basis accident. The staff also concludes that the proposed TS changes do not affect HCGS's compliance with the requirements of GDC 17 and 18. Therefore, the staff concludes that the proposed amendment is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State Official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (73 FR 52421). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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.

Principal Contributors: S. Ray
R. Ennis

Date: December 18, 2008

December 18, 2008

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear
P.O. Box 236, N09
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE:
TECHNICAL SPECIFICATION REQUIREMENTS FOR INOPERABLE
INVERTERS (TAC NO. MD9355)

Dear Mr. Joyce:

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A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/ra/

Richard B. Ennis, Senior Project Manager
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Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures:

1. Amendment No. 175 to License No. NPF-57
2. Safety Evaluation

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