

January 17, 2002

Mr. Harold W. Keiser  
Chief Nuclear Officer & President  
PSEG Nuclear LLC-X04  
Post Office Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - ISSUANCE OF AMENDMENT  
RE: RELOCATION OF TECHNICAL SPECIFICATIONS RELATED TO  
REFUELING OPERATIONS (TAC NO. MB1601)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment No. 137 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station (HCGS). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 2, 2001.

This amendment relocates TS Sections 3/4.9.4, "Refueling Operations, Decay Time;" 3/4.9.5, "Refueling Operations, Communications;" 3/4.9.6, "Refueling Operations, Refueling Platform;" and 3/4.9.7, "Refueling Operations, Crane Travel - Spent Fuel Storage Pool" and the associated TS Bases to the HCGS Updated Final Safety Analysis Report.

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, Sr. Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures: 1. Amendment No. 137 to  
License No. NPF-57  
2. Safety Evaluation

cc w/encls: See next page

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Hope Creek Generating Station

cc:

Jeffrie J. Keenan, Esquire  
PSEG Nuclear - N21  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Hope Creek Resident Inspector  
U.S. Nuclear Regulatory Commission  
Drawer 0509  
Hancocks Bridge, NJ 08038

Mr. Mark B. Bezilla  
Vice President - Technical Support  
PSEG Nuclear - X10  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Mr. David F. Garchow  
Vice President - Operations  
PSEG Nuclear - X10  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Mr. Gabor Salamon  
Manager - Licensing  
PSEG Nuclear - N21  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Dr. Jill Lipoti, Asst. Director  
Radiation Protection Programs  
NJ Department of Environmental  
Protection and Energy  
CN 415  
Trenton, NJ 08625-0415

Richard Hartung  
Electric Service Evaluation  
Board of Regulatory Commissioners  
2 Gateway Center, Tenth Floor  
Newark, NJ 07102

Lower Alloways Creek Township  
c/o Mary O. Henderson, Clerk  
Municipal Building, P.O. Box 157  
Hancocks Bridge, NJ 08038

Mr. Elbert Simpson  
Senior Vice President &  
Chief Administrative Officer  
PSEG Nuclear - N19  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Ms. R. A. Kankus  
Joint Owner Affairs  
PECO Energy Company  
Nuclear Group Headquarters KSA1-E  
200 Exelon Way  
Kennett Square, PA 19348

Mr. Carter Kresge  
External Operations - Nuclear  
Conectiv  
P.O. Box 6066  
Newark, DE 19714-6066

PSEG NUCLEAR LLC

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 137

License No. NPF-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by the PSEG Nuclear LLC dated April 2, 2001, 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. 137, 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 60 days, including the relocation to the Updated Final Safety Analysis Report as specified in the licensee's application dated April 2, 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: January 17, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 137

FACILITY OPERATING LICENSE NO. NPF-57

DOCKET NO. 50-354

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

xiv  
xx  
3/4 9-6  
3/4 9-7  
3/4 9-8  
3/4 9-10  
B 3/4 9-1  
B 3/4 9-2

Insert

xiv  
xx  
3/4 9-6  
3/4 9-7  
3/4 9-8  
3/4 9-10  
B 3/4 9-1  
B 3/4 9-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 137 TO FACILITY OPERATING LICENSE NO. NPF-57

PSEG NUCLEAR LLC

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

## 1.0 INTRODUCTION

By letter dated April 2, 2001, the PSEG Nuclear LLC (the licensee) submitted a request for changes to the Hope Creek Generating Station (HCGS) Technical Specification (TSs). The requested changes would relocate TS Sections 3/4.9.4, "Refueling Operations, Decay Time;" 3/4.9.5, "Refueling Operations, Communications;" 3/4.9.6, "Refueling Operations, Refueling Platform;" and 3/4.9.7, "Refueling Operations, Crane Travel - Spent Fuel Storage Pool" and the associated TS Bases to the HCGS Updated Final Safety Analysis Report (UFSAR).

## 2.0 BACKGROUND

Section 182a of the Atomic Energy Act of 1954, as amended (the Act) requires applicants for nuclear power plant operating licenses to include the TSs as part of the license. The Commission's regulatory requirements related to the content of TSs are set forth in Section 50.36 of Title 10 of the Code of Federal Regulations (10 CFR). The regulation requires that the TSs include items in specific categories, including: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements; (4) design features; and (5) administrative controls. The regulation does not specify the particular requirements to be included in the TSs.

The four criteria defined by 10 CFR 50.36(c)(2)(ii) for determining whether particular items are required to be included in the TS LCOs, are as follows:

- (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
- (2) a process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;

- (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
- (4) a structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Existing TS LCOs which fall within or satisfy any of the above criteria must be retained in the TSs; those which do not fall within or satisfy these criteria may be relocated to other licensee-controlled documents.

The licensee's submittal stated that the LCOs proposed for relocation do not meet any of the above criteria in 10 CFR 50.36 and that their relocation to the HCGS UFSAR, which is controlled under the requirements of 10 CFR 50.59, would provide additional operational flexibility during refueling outages. The submittal also stated that the proposed changes are consistent with NUREG 1433, "Standard Technical Specifications, General Electric Plants, BWR/4," Revision 1, dated April 1995.

### 3.0 EVALUATION

#### 3.1 TS 3/4.9.4 Refueling Operations, Decay Time

TS 3/4.9.4 provides the minimum time requirement (24 hours) for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor pressure vessel. The TS Bases state that this requirement ensures that sufficient time has elapsed before moving fuel to allow the radioactive decay of short-lived fission products, consistent with the assumptions used in the accident analyses.

Preparing to move fuel requires operations including, but not limited to, reactor coolant system cooldown and depressurization, containment entry, removal of the drywell head, removal of the reactor vessel head, and removal of vessel internals. As discussed in HCGS UFSAR Section 15.7.4.9, the accident analysis for a fuel handling accident assumes a 24-hour decay time because it is not expected that fuel handling can begin within 24 hours following initiation of a reactor shutdown. In addition, the licensee's submittal stated that procedural controls, for operations required before moving irradiated fuel in the reactor pressure vessel, ensure that the 24-hour decay time following subcriticality will continue to be met during a refueling outage. Based on the time needed to complete the operational steps prior to moving fuel in the reactor vessel, the 24-hour decay time will always be met, and relocation of this requirement will have no impact on plant safety.

The NRC staff has reviewed the licensee's submittal and agrees with the licensee's conclusion that the Decay Time LCO does not meet the criteria in 10 CFR 50.36(c)(2)(ii) requiring inclusion of this item as a TS LCO. Based on this review and the preceding evaluation, the staff finds it acceptable to relocate TS 3/4.9.4 to the HCGS UFSAR. Any changes to these requirements after relocation to the UFSAR will require a 10 CFR 50.59 evaluation. Under 10 CFR 50.59, sufficient regulatory controls exist to ensure continued protection of public health and safety.

### 3.2 TS 3/4.9.5 Refueling Operations, Communications

TS 3/4.9.5 requires maintaining direct communication between the control room and refueling floor personnel. The TS Bases state that this requirement is to ensure that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.

Communications between the control room and refueling floor personnel are necessary for coordinating activities such as the insertion of control rods prior to loading fuel. However, as stated in the licensee's submittal, these communications are not credited for refueling system design accident or transient response.

The NRC staff has reviewed the licensee's submittal and agrees with the licensee's conclusion that the Communications LCO does not meet the criteria in 10 CFR 50.36(c)(2)(ii) requiring inclusion of this item as a TS LCO. Based on this review and the preceding evaluation, the staff finds it acceptable to relocate TS 3/4.9.5 to the HCGS UFSAR. Any changes to these requirements after relocation to the UFSAR will require a 10 CFR 50.59 evaluation. Under 10 CFR 50.59, sufficient regulatory controls exist to ensure continued protection of public health and safety.

### 3.3 TS 3/4.9.6 Refueling Operations, Refueling Platform

TS 3/4.9.6 defines the operability requirements for the refueling platform which includes the main hoist used for handling fuel assemblies or control rods within the reactor pressure vessel and the frame-mounted or monorail-mounted auxiliary hoists used for handling control rods within the reactor pressure vessel. The TS Bases state that the operability requirements ensure that: (1) the refueling platform will be used for handling fuel assemblies and control rods, with limits placed upon auxiliary hoists' usage, within the reactor pressure vessel; (2) each crane and hoist has sufficient load capacity for handling the loads within its permitted usage; (3) the core internals are protected from excessive lifting force in the event that they are inadvertently engaged during lifting operations; (4) the core internals are protected from a fuel bundle or control rod drop with more impact energy than that assumed in the accident analyses; and (5) refueling interlocks and rod blocks are initiated to prevent conditions that could result in criticality during refueling operations.

The licensee's submittal stated that the interlocks, designed to provide the above capabilities, can prevent damage to the refueling platform equipment and core internals. However, they are not assumed to function to mitigate the consequences of a design-basis accident. In addition, the TS limits on reactor mode switch position (TS 3/4.9.1) will remain in place to reinforce refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals or fuel assemblies, and exposure of personnel to excessive radiation.

The NRC staff has reviewed the licensee's submittal and agrees with the licensee's conclusion that the Refueling Platform LCO does not meet the criteria in 10 CFR 50.36(c)(2)(ii) requiring inclusion of this item as a TS LCO. Based on this review and the preceding evaluation, the staff finds it acceptable to relocate TS 3/4.9.6 to the HCGS UFSAR. Any changes to these requirements after relocation to the UFSAR will require a 10 CFR 50.59 evaluation. Under 10 CFR 50.59, sufficient regulatory controls exist to ensure continued protection of public health and safety.

### 3.4 TS 3/4.9.7, Refueling Operations, Crane Travel - Spent Fuel Storage Pool

TS 3/4.9.7 prohibits loads in excess of 1,200 pounds from travel over fuel assemblies in the spent fuel storage pool racks unless handled by a single failure-proof handling system. The TS Bases state that the restriction on movement of loads in excess of the nominal weight of a fuel assembly over other fuel assemblies in the storage pool ensures that in the event this load is dropped: (1) the activity release will be limited to that contained in a single fuel assembly; and (2) any possible distortion of fuel in the storage racks will not result in a critical array. The crane travel requirements are implemented by a combination of crane interlocks and administrative controls on the handling of heavy loads.

This potential dropping of a single fuel assembly is consistent with the assumptions associated with the maximum radiological consequences in the HCGS design-basis analysis for a fuel handling accident. This LCO appears to satisfy 10 CFR 50.36(c)(2)(ii) Criterion 2 since the crane interlocks are design features, the administrative controls and the 1,200-pound load limit are operational restrictions, and the LCO supports the design-basis accident analysis. However, Criterion 2 requires that the design features or operating restrictions to be initial conditions of the design-basis accident. The initial condition of the design-basis fuel handling accident is the dropping of a single fuel assembly. The crane interlocks are design features that are in place to prevent exceeding the initial condition (i.e., damage to more than one fuel assembly), not an initial condition in and of itself. Similarly, the administrative controls are operating restrictions that are in place to prevent exceeding the initial condition. Therefore, the crane interlocks and administrative controls are provided to prevent operation in a condition that could lead to an unanalyzed load drop accident. As discussed in UFSAR Section 9.1.5.2, the 1,200-pound load limit is the weight at which a load is designated a heavy load for HCGS. The heavy load limit consists of the assumed weights for a fuel assembly (650 pounds), a fuel assembly channel (100 pounds), and the refueling platform grapple (450 pounds). The heavy load limit is not an initial condition of any of the HCGS Chapter 15 accident analyses.

The NRC staff has reviewed the licensee's submittal and agrees with the licensee's conclusion that the Crane Travel - Spent Fuel Storage Pool LCO does not meet the criteria in 10 CFR 50.36(c)(2)(ii) requiring inclusion of this item as a TS LCO. Based on this review and the preceding evaluation, the staff finds it acceptable to relocate TS 3/4.9.7 to the HCGS UFSAR. Any changes to these requirements after relocation to the UFSAR will require a 10 CFR 50.59 evaluation. Under 10 CFR 50.59, sufficient regulatory controls exist to ensure continued protection of public health and safety.

### 3.5 Index and Bases Pages

The licensee's proposed changes to the TS Index and Bases pages are consistent with the proposed relocation of TS Sections 3/4.9.4, 3/4.9.5, 3/4.9.6, and 3/4.9.7.

## 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 and changes surveillance requirements. 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 (66 FR 27177). 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. Bloom  
R. Ennis

Date: January 17, 2002