

August 13, 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:
USE OF EXISTING PRESSURE-TEMPERATURE CURVES THROUGH CYCLE
12 (TAC NO. MB4685)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment No. 139 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station in response to your application dated March 29, 2002.

This amendment consists of changes to the Technical Specifications (TSs) which allow the use of the current pressure-temperature (P-T) limit curves through Cycle 12. The amendment also removes notes from the TSs that state that the P-T curves are valid for 32 effective full power years.

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/

George F. Wunder, 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. 139 to
License No. NPF-57
2. Safety Evaluation

cc w/encls: See next page

August 13, 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:
USE OF EXISTING PRESSURE-TEMPERATURE CURVES THROUGH CYCLE
12 (TAC NO. MB4685)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment No. 139 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station in response to your application dated March 29, 2002.

This amendment consists of changes to the Technical Specifications (TSs) which allow the use of the current pressure-temperature (P-T) limit curves through Cycle 12. The amendment also removes notes from the TSs that state that the P-T curves are valid for 32 effective full power years.

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/

George F. Wunder, 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. 139 to
License No. NPF-57
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION

JZimmerman
PUBLIC
TLClark
JWermiel

OGC
GWunder
RDennig

GMeyer, RGN-I
ACRS
GHill (2)

WBateman
PDI-2 R/F
SRichards

Package: ML022270365
Accession No.: ML021500150

TSs: ML022260680
*See previous concurrence

OFFICE	PDI-2/PM	PDI-2/LA	SRXB/SC*	EMCB/SC*	OGC*	PDI-2/SC(A)
NAME	GWunder	TClark	JWermiel	SCoffin	SBrock	JZimmerman
DATE	8/13/02	8/13/02	7/17/02	7/23/02	7/10/02	8/13/02

OFFICIAL RECORD COPY

PSEG NUCLEAR LLC

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 139
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 March 29, 2002, 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. 139, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Jacob I. Zimmerman, Acting 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: August 13, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 139

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

3/4 4-23
3/4 4-23a
3/4 4-23b

Insert

3/4 4-23
3/4 4-23a
3/4 4-23b

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 139 TO FACILITY OPERATING LICENSE NO. NPF-57
PSEG NUCLEAR LLC
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated March 29, 2002, PSEG Nuclear LLC (PSEG, or the licensee) submitted a request for changes to the Hope Creek Generating Station (HCGS) Technical Specification (TSs). The requested changes would allow the use of the current pressure-temperature (P-T) limit curves through Cycle 12. The amendment would also remove notes from the TSs that state that the P-T curves are valid for 32 effective full power years (EFPY).

2.0 BACKGROUND

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix G is the regulatory basis for P-T curves for light water reactors. Appendix G specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests, to which the pressure boundary may be subjected over its service lifetime. Appendix G also requires that the reference temperature and Charpy upper-shelf energy for reactor vessel beltline materials account for the embrittlement caused by neutron fluence over the life of the vessel. Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," dated March 2001 contains the U.S. Nuclear Regulatory Commission (NRC) staff's guidance on how to determine neutron fluence. The staff's guidance on translating neutron fluence into changes in reference temperature and Charpy upper-shelf energy is contained in RG 1.99, "Radiation Embrittlement of Reactor Vessel Materials." On July 30, 2001, the staff issued Amendment No. 131 to the TSs for HCGS. This Amendment allowed a 1.4% power uprate for HCGS. As a part of the amendment, the licensee submitted revised P-T limit curves. At the time Amendment No. 131 was issued, the staff had not approved a methodology for fluence calculation.

The P-T curves approved in Amendment No. 131 were developed using the methodology specified in American Society of Mechanical Engineers (ASME) Code Cases N-588 and N-640, as well as the 1989 ASME Code, ASME Section XI, Appendix G, and 10 CFR Part 50, Appendix G. The use of the code cases was approved by an exemption to NRC regulations dated July 12, 2001. Pressure and temperature instrument uncertainties were included in the revised curves. Adjusted reference temperatures at the nil ductility transition values were developed for the reactor pressure vessel materials in accordance with RG 1.99,

Revision 2, based on projected fluence values which were increased in proportion to the increase in rated power.

In the Safety Evaluation for Amendment No. 131 the staff concluded that there was ample margin to allow use of the revised P-T curves through Cycle 11. The staff also determined that the revised P-T curves could not be approved for the 32 EFPY for which they were intended until the licensee had recalculated the fluence values using the guidance of RG 1.190. Following approval of Amendment No. 131, the licensee decided that they would apply for an extended power uprate for HCGS at the end of Cycle 12. Because this will require the licensee to perform fluence calculations at the increased power level, PSEG has requested that the P-T limit curves submitted for Amendment No. 131 be approved for use through the end of Cycle 12.

3.0 EVALUATION

3.1 Fluence Value at the End of Cycle 12

The licensee based the existing fast neutron fluence values for HCGS on fluence evaluations performed in conjunction with surveillance capsule measurement and testing. The current P-T curves are based on a fluence value of 5.24×10^{17} n/cm² for 32 EFPYs, which corresponds to the end of the current license (EOL). The licensee's estimated value at the end of Cycle 11 is about 42 percent of the EOL value. Based on the duration of Cycle 12, the staff has independently estimated that at the end of Cycle 12 the fluence value will represent only 46.7 percent of the EOL value, or 2.45×10^{17} n/cm². This offers a better than 50 percent margin of safety for the requested period of operation. The staff considers 50 percent to be a large margin and, therefore, finds that there is reasonable assurance of safety for the extension of the P-T curves for HCGS to the end of Cycle 12. While there are no specific numerical criteria for "a large margin," the staff considers 50 percent to be well above the fluence uncertainty limit.

For operation after the power uprate and to account for the increased neutron leakage, the licensee will need to recalculate the vessel fluence and consequently may need to revise the P-T curves for the contemplated uprated power level for 32 EFPYs. Neutron leakage will increase because of the increased core power, but to a greater degree because of power redistribution to the lower part of the outer assemblies. As previously agreed, the licensee will reevaluate the fluence for the P-T curves using a methodology that follows the guidance in RG 1.190.

3.2 Technical Specification Changes

Figures 3.4.6.1-1, -2, and -3 represent the hydrostatic pressure and leak test P-T limits, the non-nuclear heatup and cooldown P-T limits and the core critical heatup and cooldown P-T limits respectively. The titles have been changed to indicate that the TSs are valid through Cycle 12. In addition, the licensee has removed any indication from the Figures that they are valid for 32 EFPYs. The staff finds that the licensee correctly represented the requested extension in the TSs and concludes that the proposed change to the TSs is acceptable.

4.0 SUMMARY

The licensee requested a one-cycle extension of the applicability of the current P-T curves for HCGS. The staff independently estimated that the fluence conservatism at the end of Cycle 12 will be better than 50 percent; therefore, it is sufficiently conservative to be acceptable. The licensee restated its earlier commitment that the fluence calculation will be performed at the end of Cycle 12 in the context of an extended power uprate using the guidance in RG 1.190. The proposed TS changes correctly reflect the proposed extension in the validity of the P-T curves for an additional cycle.

5.0 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.

6.0 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 (67 FR 34491). 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.

7.0 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 Contributor: L. Lois

Date: August 13, 2002

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 - N10
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 - Nuclear Safety and 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