

June 21, 1990

Docket No. 50-354

Mr. Steven E. Miltenberger
Vice President and Chief Nuclear
Officer
Public Service Electric & Gas Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

Dear Mr. Miltenberger:

SUBJECT: INCREASE TECHNICAL SPECIFICATION FUEL STORAGE CAPACITY LIMITATION IN
THE DESIGN FEATURES SECTION TO 4006 FUEL ASSEMBLIES, HOPE CREEK
GENERATING STATION (TAC NO. 75096)

The Commission has issued the enclosed Amendment No. 38 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 October 11, 1989.

This amendment request revises Technical Specification 5.6.3, Spent Fuel
Storage Capacity, to permit the installation of the necessary rack capacity
for storage of 4006 spent fuel assemblies.

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

Sincerely,

/S/

Clyde Shiraki, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 38 to
License No. NPF-57
2. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION w/enclosures:

Docket File	MO'Brien (2)	Wanda Jones	SVarga
NRC PDR	OGC	JCalvo	BBoger
Local PDR	DHagan	RGoel	JDyer
PDI-2 Reading	EJordan	ACRS (10)	RBlough
WButler	GPA/PA	CShiraki(3)	SBrown
GHill (4)	Rita Jacques, ARM/LFMB		PSwetland

[75096 AM]

PDI-2/PM
CShiraki:mj

5/24/90

PDI-2/D
WButler
6/16/90

OGC
6/14/90

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

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This amendment request revises Technical Specification 5.6.3, Spent Fuel Storage Capacity, to permit the installation of the necessary rack capacity for storage of 4006 spent fuel assemblies.

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 dark ink, appearing to read "C. Shiraki", is written over the typed name.

Clyde Shiraki, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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License No. NPF-57
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Steven E. Miltenberger
Public Service Electric & Gas Co.

Hope Creek Generating Station

cc:

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38
License No. NPF-57

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by the Public Service Electric & Gas Company (PSE&G) dated October 11, 1989 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:

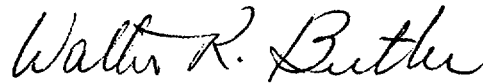
(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 38, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PSE&G shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 21, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 38

FACILITY OPERATING LICENSE NO. NPF-57

DOCKET NO. 50-354

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised page is identified by Amendment number and contains vertical lines indicating the area of change. Overleaf page provided to maintain document completeness.*

Remove

5-5
5-6

Insert

5-5
5-6*

DESIGN FEATURES

5.6 FUEL STORAGE

CRITICALITY

- 5.6.1 The spent fuel storage racks are designed and shall be maintained with:
- A k_{eff} equivalent to less than or equal to 0.95 when flooded with unborated water, including all calculational uncertainties and biases as described in Section 9.1.2 of the FSAR.
 - A nominal 6.308 inch center-to-center distance between fuel assemblies placed in the storage racks.
- 5.6.1.2 The k_{eff} for new fuel for the first core loading stored dry in the spent fuel storage racks shall not exceed 0.98 when aqueous foam moderation is assumed.

DRAINAGE

- 5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 199' 4".

CAPACITY

- 5.6.3 The spent fuel storage pool shall be limited to a storage capacity of no more than 4006 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

- 5.7.1 The components identified in Table 5.7.1-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7.1-1.

TABLE 5.7.1-1COMPONENT CYCLIC OR TRANSIENT LIMITS

<u>COMPONENT</u>	<u>CYCLIC OR TRANSIENT LIMIT</u>	<u>DESIGN CYCLE OR TRANSIENT</u>
Reactor	120 heatup and cooldown cycles	70°F to 546°F to 70°F
	80 step change cycles ;	Loss of feedwater heaters
	180 reactor trip cycles	100% to 0% of RATED THERMAL POWER
	130 hydrostatic pressure and leak tests	Pressurized to <u>></u> 930 and <u><</u> 1250 psig



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO.38 TO FACILITY OPERATING LICENSE NO. NPF-57

PUBLIC SERVICE ELECTRIC & GAS COMPANY

ATLANTIC CITY ELECTRIC COMPANY

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated October 11, 1989, Public Service Electric & Gas Company (PSE&G), the licensee for Hope Creek Nuclear Station, Unit 1 proposed to change the Technical Specifications (TS) Section 5.6.3 to increase the installed spent fuel storage capacity from 1290 fuel assemblies to the full plant design storage capacity of 4006 assemblies as described in FSAR Section 9.1.2.2.2. The expansion consists of placing additional original design storage racks thereby not resulting in a K_{eff} of the pool exceeding 0.95. After the proposed expansion, the spent fuel pool will be able to store fuel from thirteen outages and a full core offload. The staff reviewed the spent fuel pool cooling and heavy load handling aspects of the proposed expansion from 1290 fuel assemblies in the following evaluation.

2.0 PREVIOUS ANALYSES

The analyses of the FSAR were performed for a spent fuel pool with the capacity for 4006 spent fuel elements. The new fuel racks are of the same design and construction as those originally installed. Therefore, the analyses for criticality, seismic, structural, and thermal/hydraulic considerations remain bounded by the assumptions and calculations used in the FSAR and need not be repeated for this amendment request.

3.0 EVALUATION

3.1 Spent Fuel Pool Cooling

No modifications to the spent fuel pool cooling system are proposed from the design reviewed in the Hope Creek Safety Evaluation Report NUREG-1048 except that the licensee has increased the design heat removal capability of the spent fuel pool heat exchangers from 16.1 million BTU/Hr to 19.0 million BTU/Hr by adding additional cooling plates in the heat exchanger. Therefore, the spent fuel pool cooling system was only reviewed against the requirements of General Design Criterion (GDC) 44 for decay heat removal and GDC 2 for make-up during loss of all cooling as defined in

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Standard Review Plan (SRP), Section 9.1.3 for storage of 4006 fuel assemblies. The cooling system was originally reviewed for storage of 3668 fuel assemblies in the spent fuel pool.

Decay Heat Removal - The licensee indicated that the decay heat loads based on proposed storage capacity of 4006 spent fuel assemblies are calculated to be 16.1 million BTU/Hr after 16 refueling (design or maximum normal) and 34.2 million BTU/Hr after 13 refueling and full core off-load (maximum or maximum abnormal). These heat load calculations are based on Branch Technical Position ASB 9-2 as delineated in SRP and fuel discharge per FSAR Table 9.1.2. The licensee indicated that the spent fuel pool cooling and RHR systems are designed to remove normal decay heat loads of 19.0 million BTU/Hr and maximum abnormal decay heat loads greater than 45 million BTU/Hr against the requirements of 16.1 million BTU/Hr and 34.2 million BTU/Hr respectively. The above heat removal capability is designed to maintain the spent fuel pool temperature at a maximum of 135°F during maximum normal heat loads and at or below 150°F during maximum abnormal heat loads which are more conservative than the SRP requirements.

As a result of its review of the heat loads, the staff finds that the spent fuel pool cooling system meets the requirements of GDC 44 for storage of 4006 fuel assemblies with respect to providing adequate cooling.

Loss of Cooling - The licensee calculated that assuming loss of all cooling and the spent fuel pool filled to the design storage capacity, boiling would occur after 17.2 hours for the maximum normal heat load (16.1 million BTU/Hr) and 8.03 hours for a maximum abnormal heat load (34.2 million BTU/Hr) and would result in a boil-off rate of 34.4 and 73.5 gpm respectively. This provides reasonable time to initiate make-up to the spent fuel pool from Seismic Category I Station Service Water system or fire-hose fill station or the condensate storage tank. The above information is provided in the FSAR. Because the seismic category I make-up source is more than adequate to provide water for the higher boil-off rate, the design meets the requirements of GDC 2, Design Bases for Protection against Natural Phenomena.

3.2 Heavy Load Handling

The spent fuel storage rack is considered to be a heavy load as it weighs more than a spent fuel assembly and its handling tool.

The licensee stated that lifting and installing the spent fuel rack will be performed using a single failure proof reactor building polar crane, auxiliary hoist and the rack lifting fixture. These equipment are designed and inspected/tested to single failure criteria in accordance with NUREG-0544, NUREG-0612 and ANSI 14.6 requirements. All load handling will follow clearly established safe load handling paths as indicated in FSAR Section 9.1.5 and evaluated in the Hope Creek Safety

Evaluation Report, NUREG-1048, Supplement 1. Polar crane administrative controls will ensure that a heavy load is not accidentally carried over the spent fuel areas.

As a result of its review, the staff finds that the heavy load handling will be performed in accordance with the guidelines of NUREG-0612 as evaluated in the Hope Creek Safety Evaluation Report, NUREG-1048, Section 9.1.5 to ensure against an unacceptable release of radioactivity or criticality accident as a result of a heavy load drop, and is therefore, acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact have been prepared and published (55 FR 25185) in the Federal Register on June 20, 1990. Based upon the environmental assessment, the Commission has determined that the issuance of this amendment will not have a significant effect on the quality of the human environment.

5.0 CONCLUSION

The Commission published a Notice of Consideration of Issuance of Amendment to Facility Operating License and Opportunity for Hearing in the Federal Register on November 22, 1989 (54 FR 48340). No petition to intervene or request for hearing has been filed on this action. The state of New Jersey did not have any comments.

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: June 21, 1990

Principal Contributor:

R. Goel

UNITED STATES NUCLEAR REGULATORY COMMISSIONPUBLIC SERVICE ELECTRIC AND GAS COMPANYDOCKET NO. 50-354NOTICE OF ISSUANCE OF AMENDMENTS TOFACILITY OPERATING LICENSES

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 38 to Facility Operating License No. NPF-57 issued to the Public Service Electric and Gas Company (the licensee), which revised the Technical Specifications for operation of the Hope Creek Generating Station, located in Salem County, New Jersey. The amendments were effective as of the date of issuance and will be implemented within 60 days of its date of issuance.

The amendments revised Technical Specifications to 5.6.3, Spent Fuel Storage Capacity, to permit the installation of the necessary rack capacity for storage of 4006 spent fuel assemblies.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment to Facility Operating License and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on November 22, 1989 (54 FR 48340). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of this amendment will not have a significant effect on the quality of the human environment.

For further details with respect to the action see (1) the application for amendment dated October 11, 1989, (2) Amendment No. 38 to License No. NPF-57, and (3) the Commission's related Safety Evaluation and Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street NW, Washington, D.C. 20555 and at the Pennsville Public Library, 190 S. Broadway, Pennsville, New Jersey 08070. A copy of items (2), and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Projects I/II.

Dated at Rockville, Maryland this 21st day of June 1990.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation