

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: ISSUANCE OF EMERGENCY DIESEL GENERATOR (EDG) FUEL OIL STORAGE AND
DAY TANK LEVELS AMENDMENT, HOPE CREEK GENERATING STATION (TAC NO.
M85264)

The Commission has issued the enclosed Amendment No. 59 to Facility Operating
License No. NPF-57 for the Hope Creek Generating Station. This amendment
consists of changes to the Updated Final Safety Analysis Report (UFSAR) in
response to your application dated November 19, 1992 and supplemented
December 29, 1992, May 28, 1993, and September 3, 1993.

The amendment revises your commitments in two UFSAR sections. Specifically,
the amendment relieves you from your commitment to fully comply with the EDG
fuel oil storage recommendations in Regulatory Guide 1.137, Revision 1 and
Standard Review Plan Section 9.5.4, Paragraph I.1.d.

This amendment is being issued pursuant to the requirements of 10 CFR 50.59(c)
because your review identified the changes as unreviewed safety questions. No
changes to the Technical Specifications are required by this amendment.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be
included in the Commission's biweekly Federal Register notice. You are
requested to inform the NRC, in writing, when this amendment has been
implemented.

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PDR ADOCK 05000354
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Sincerely,

/s/

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

Enclosures:

- 1. Amendment No. 59 to License No. NPF-57
- 2. Safety Evaluation

cc w/enclosures:

See next page

DISTRIBUTION w/enclosures:

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

November 22, 1993

Docket No. 50-354

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

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Stephen Dembek, Project Manager
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Division of Reactor Projects - I/II
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2. Safety Evaluation

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See next page

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

Hope Creek Generating Station

cc:

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U.S. Nuclear Regulatory Commission
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Hancocks Bridge, NJ 08038

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

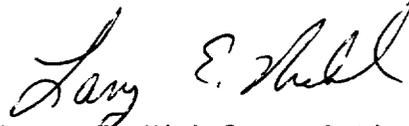
Amendment No. 59
License No. NPF-57

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 November 19, 1992, and supplemented December 29, 1992, May 28, 1993, and September 3, 1993, 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, by Amendment No. 59, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by Public Service Electric and Gas Company (PSE&G) dated November 19, 1992 and supplemented December 29, 1992, May 28, 1993, and September 3, 1993. PSE&G shall update the UFSAR to reflect the revised description authorized by this amendment in accordance with 10 CFR 50.71(e).

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P PDR

3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Larry E. Nicholson, Acting Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: November 22, 1993



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 59 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 November 19, 1992 and supplemented December 29, 1992, May 28, 1993, and September 3, 1993, the Public Service Electric and Gas Company (PSE&G, the licensee) requested changes to the Updated Final Safety Analysis Report (UFSAR) for the Hope Creek Generating Station (HCGS). The changes would revise the licensee's UFSAR commitments for the emergency diesel generator (EDG) fuel oil transfer pump start level and fuel oil storage tank capacity. The amendment request was made pursuant to the requirements of 10 CFR 50.59(c) because an evaluation by PSE&G identified the changes as unreviewed safety questions. The May 28, 1993, and September 3, 1993, letters provided additional information that did not change the initial proposed no significant hazards determination.

2.0 BACKGROUND

On May 28, 1992, the U.S. Nuclear Regulatory Commission (NRC) issued Inspection Report (IR) Number 50-354/92-80, "Electrical Distribution System Functional Inspection of Hope Creek Generating Station." Appendix A of this inspection report transmitted the following notices of deviation:

Deviation 1 (Deviation 2 and Item Number 92-80-06 in IR 50-354/92-80)

"Hope Creek UFSAR, paragraphs 9.5.4.2 and 1.8.1.137 indicate that the EDG fuel oil storage system is sized in accordance with the requirements of Regulatory Guide 1.137, Revision 1, which in turn refers to [American National Standards Institute] ANSI Standard N195-1976. This standard requires the day tank capacity for each EDG to be sufficient to maintain at least 60 minutes of EDG operation at the level where fuel oil is automatically added. This capacity is to be based on the fuel consumption at a load of 100% of the continuous rating of the diesel plus a minimum margin of 10%.

Contrary to the above, on February 14, 1992, there was no evidence that the EDG day tank capacities meet the above commitment. The licensee estimated the day tank capacities to be about 47 minutes."

Deviation 2 (Deviation 3 and Item Number 92-80-05 in IR 50-354/92-80)

"Hope Creek UFSAR, paragraph 9.5.4, states that 'each set of storage tanks can store a quantity of diesel fuel oil that is sufficient for 7 days of continuous operation of one EDG unit under [...] full operating loads as described in EDG loading tables 8.3-2 through 8.3-6.'

Contrary to the above, calculation JE-0014 dated January 27, 1992, indicates insufficient fuel oil reserves for 7 days (a combined shortage of 5579 gallons) of continuous worst case EDG loading based on the basis of segregated channel storage."

By letter dated July 10, 1992, PSE&G responded to the above deviations. In response to Deviation 1, PSE&G stated that they would modify the start setpoint of the EDG fuel oil transfer pumps to comply with their UFSAR commitment. In response to Deviation 2, PSE&G stated that they would review and revise their UFSAR load tables by October 1, 1992. PSE&G believed that the revised load tables would demonstrate that there is sufficient fuel oil to power the engineered safety feature loads for 7 days following a loss of offsite power concurrent with a design basis accident (DBA).

By letter dated November 19, 1992, the licensee revised its response to the above deviations by requesting relief from the recommendations of Regulatory Guide (RG) 1.137, Revision 1, and Standard Review Plan (SRP), Section 9.5.4, paragraph I.1.d, as committed to in the UFSAR. The licensee revised its response to Deviation 1 because they believed that fully complying with the RG 1.137, Revision 1 recommendations would result in excessive cycling of the fuel oil transfer pumps which would increase the degradation of the associated switches and cabling beyond the benefit gained from raising the pump start level. The licensee revised its response to Deviation 2 because it believed that revising their UFSAR load tables would limit the operators' ability to load non-safety related loads on the EDGs in accordance with the current Emergency Operating Procedures.

By letter dated December 29, 1992, the licensee clarified its intent by requesting a license amendment to effect the changes described in its November 19, 1992, letter. A license amendment is required because the requested changes involve unreviewed safety questions.

By letter dated April 23, 1993, the staff issued a Request for Additional Information (RAI). The licensee responded to the RAI in a letter dated May 28, 1993. On August 3, 1993, the staff issued another RAI. The licensee responded to the second RAI in a letter dated September 3, 1993.

3.0 EVALUATION

Regarding PSE&G's response to Deviation 1, the staff reviewed the licensee's request against the recommendations and guidance listed in RG 1.137, Revision 1 and ANSI N195-1976, and against the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50 (GDC 17).

The HCGS utilizes two separate fuel oil storage tanks to supply the fuel oil for each individual EDG. There are two fuel oil transfer pumps to supply the single day tank for each EDG. The fuel oil transfer pump logic is designed to alternate the starting of the transfer pumps when filling the EDG day tanks. The transfer pump logic also provides a start signal to the alternate transfer pump upon receipt of the EDG day tank low level alarm in the event that the designated transfer pump fails to start. Therefore, the licensee's system for transferring fuel oil between the storage tanks and the day tanks provides a redundancy not discussed in ANSI N195-1976. Based on the staff's review of the additional information provided by the licensee in their May 28, 1993, and September 3, 1993 letters along with the information in the licensee's UFSAR, the staff believes that there is sufficient redundancy in the licensee's fuel oil delivery system to minimize the simultaneous loss of both fuel oil transfer pumps.

Additionally, in its September 3, 1993 letter, the licensee proposed to set the fuel oil transfer pump start point at a level that provides for approximately 55-60 minutes of EDG operation at full load, and to revise the Technical Specification requirement related to day tank level to be consistent with the assumptions used in the EDG load calculations. This letter and the licensee's May 28, 1993 letter, also explained the controls that have been established to ensure that operators will readily recognize when a fuel oil transfer pump failure has occurred. The minimum level of approximately 55 minutes, along with the established controls, and the partial system redundancy discussed above, provides equivalent measures to those stated in ANSI N195-1976.

Based on the above review, the staff finds that the licensee's proposed resolution of this deviation provides an acceptable alternative to the guidance and recommendations contained in ANSI N195-1976 and RG 1.137, Revision 1, and complies with the requirements of GDC 17. Therefore, the licensee's proposed resolution of this issue is acceptable.

Regarding PSE&G's response to Deviation 2, the staff reviewed the licensee's request against the recommendations and guidance listed in RG 1.137, ANSI N195-1976 and IEEE Standard 308-1974, and against the requirements in GDCs 5 and 17. The intent of the applicable guidance is to ensure that there is an adequate onsite supply of fuel oil for the EDGs. That is, the licensee must not be dependent on offsite fuel oil supplies to operate the EDGs for the 7 days following a loss of offsite power and limiting DBA.

The licensee's November 19, 1992 submittal did not provide enough information for the staff to determine the adequacy of: 1) the licensee's onsite fuel oil supply, and 2) the licensee's ability to transfer fuel oil between the fuel oil storage tanks. In its May 28, 1993, and September 3, 1993, responses to the staff's RAI's, the licensee: 1) clarified the amount of time the EDGs could operate, with and without transferring fuel between the EDGs' fuel oil storage tanks, and 2) discussed the contingency plans for transferring fuel oil between the EDGs' storage tanks under postulated degraded conditions.

Each EDG fuel oil storage tank pair contains an unusable volume of about 4,000 gallons (2,000 gallons per tank). In its September 3, 1993 letter, the licensee stated that the Technical Specification minimum level alarm takes into account the unusable fuel oil volume contained in the bottom of each fuel oil storage tank such that the minimum required usable fuel oil volume of 48,800 gallons is ensured.

Based on load calculations, the licensee has determined that the most limiting EDG can operate for approximately 6 days and 13 hours if fuel oil is not transferred between the storage tanks for the four EDGs. For the condition where fuel oil is allowed to be transferred between the storage tanks of the three operating EDGs (a single failure of one EDG is assumed), the most limiting EDG can operate for about 6 days and 16 hours. However, if the fuel oil from the two storage tanks for the inoperable EDG is also credited, the most limiting EDG can operate for greater than 7 days which satisfies the intent of the staff's review criteria contained in SRP 9.5.4, Section I.1.d. Since the fuel oil cross-tie lines are designated as non-seismic Category I, Quality Group D, the licensee proposed to pre-stage equipment necessary to maintain the fuel oil transfer capability should the fuel oil cross-tie lines not be available following an accident. The licensee is completing a system walkdown to identify any equipment that will be needed in this regard. Procedure changes have also been implemented to address this vulnerability, and existing procedures are in place for transferring fuel between fuel oil storage tanks when the cross-tie lines are intact.

Based on the information provided by the licensee, it is the staff's view that there is an adequate on-site supply of fuel oil to support at least 7 days of continuous EDG operation following an accident condition. The staff's determination in this regard is based upon the licensee's commitment (in its September 3, 1993 letter) to establish and maintain the capability to transfer fuel between the EDG fuel oil storage tanks within a 6-day period assuming that the fuel oil cross-tie lines are not intact and power is not available to the fuel oil transfer pumps associated with the inoperable EDG. Given this commitment, the staff finds that the licensee's proposed resolution of this deviation satisfies the intent of SRP Section 9.5.4, Section I.1.d, and meets the requirements stated by GDC 5 and GDC 17, and is therefore 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 (58 FR 8779). 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. Dembek
J. Tatum

Date: November 22, 1993