

August 1, 1995

Mr. Leon R. Eliason
Chief Nuclear Officer & President-
Nuclear Business Unit
Public Service Electric & Gas
Company
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION (TAC NO. M90040)

Dear Mr. Eliason:

The Commission has issued the enclosed Amendment No. 75 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 27, 1994 as supplemented May 26, July 10, and July 25, 1995.

This amendment revises the Allowed Out-of-Service Times (AOTs) for: inoperable Station Service Water System (SSWS) pumps, inoperable Safety Auxiliaries Cooling System (SACS) pumps, and inoperable Emergency Diesel Generators (EDG). In addition, this amendment also allows online maintenance of EDGs C and D with allowable outage times at 14 days.

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. This requirement affects nine or fewer respondents and, therefore, is not subject to the Office of Management and Budget review under P.L. 96-511.

Sincerely,
/s/

David H. Moran, Acting Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-354

- Enclosures: 1. Amendment No. 75 to License No. NPF-57
2. Safety Evaluation

cc w/encls: See next page

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

August 1, 1995

Mr. Leon R. Eliason
Chief Nuclear Officer & President-
Nuclear Business Unit
Public Service Electric & Gas
Company
Post Office Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION (TAC NO. M90040)

Dear Mr. Eliason:

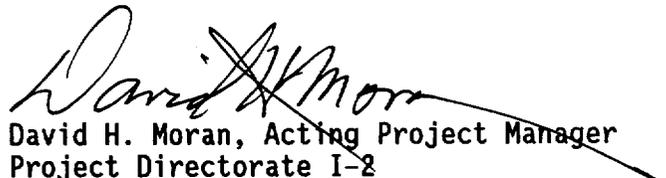
The Commission has issued the enclosed Amendment No. ⁷⁵ to Facility Operating License No. NPF-57 for the Hope Creek Generating Station. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated July 27, 1994 as supplemented May 26, July 10, and July 25, 1995.

This amendment revises the Allowed Out-of-Service Times (AOTs) for: inoperable Station Service Water System (SSWS) pumps, inoperable Safety Auxiliaries Cooling System (SACS) pumps, and inoperable Emergency Diesel Generators (EDG). In addition, this amendment also allows online maintenance of EDGs C and D with allowable outage times at 14 days.

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David H. Moran, Acting Project Manager
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Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures: 1. Amendment No. ⁷⁵ to
License No. NPF-57
2. Safety Evaluation

cc w/encls: See next page

Mr. Leon R. Eliason
Public Service Electric & Gas
Company

Hope Creek Generating Station

cc:

M. J. Wetterhahn, Esquire
Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005-3502

Ms. P. J. Curham
MGR. Joint Generation Department
Atlantic Electric Company
Post Office Box 1500
6801 Black Horse Pike
Pleasantville, New Jersey 08232

R. Fryling, Jr., Esquire
Law Department - Tower 5E
80 Park Place
Newark, New Jersey 07101

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

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

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

Mr. J. Hagan
Vice President - Nuclear Operations
Nuclear Department
P.O. Box 236
Hancocks Bridge, New Jersey 08038

Mr. S. LaBruna
Vice President - Nuclear Engineering
Nuclear Department
P.O. Box 236
Hancocks Bridge, New Jersey 08038

Mr. R. Hovey
General Manager - Hope Creek Operations
Hope Creek Generating Station
P.O. Box 236
Hancocks Bridge, New Jersey 08038

Mr. Frank X. Thomson, Jr., Manager
Licensing and Regulation
Nuclear Department
P.O. Box 236
Hancocks Bridge, New Jersey 08038

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

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



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. 75
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 July 27, 1994 as supplemented May 26, July 10, and July 25, 1995, 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:

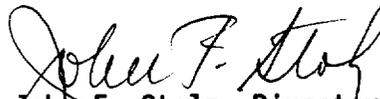
(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 75, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into the license. PSE&G shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



John E. Stolz, Director
Project Directorate 1-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: August 1, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 75

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 pages are identified by Amendment number and contain vertical lines indicating the area of change.

<u>Remove</u>	<u>Insert</u>
3/4 7-1	3/4 7-1
-----	3/4 7-1a
-----	3/4 7-1b
3/4 7-2	3/4 7-2
3/4 7-3	3/4 7-3
3/4 7-4	3/4 7-4
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2
3/4 8-3	3/4 8-3
B 3/4 8-1	B 3/4 8-1

3/4.7 PLANT SYSTEMS

3/4.7.1 SERVICE WATER SYSTEMS

SAFETY AUXILIARIES COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

=====

3.7.1.1 At least the following independent safety auxiliaries cooling system (SACS) subsystems, with each subsystem comprised of:

- a. Two OPERABLE SACS pumps, and
- b. An OPERABLE flow path consisting of a closed loop through the SACS heat exchangers and SACS pumps and to associated safety related equipment

shall be OPERABLE:

- a. In OPERATIONAL CONDITION 1, 2 and 3, two subsystems.
- b. In OPERATIONAL CONDITION 4, 5, and ** the subsystems associated with systems and components required OPERABLE by Specification 3.4.9.2, 3.5.2, 3.8.1.2, 3.9.11.1 and 3.9.11.2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and **.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
 - 1. a. With one SACS pump inoperable, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.*** If the condition specified by *** can not be met, be in at least HOT SHUTDOWN within the next 72 hours and in COLD SHUTDOWN within the following 24 hours.
 - b. With one SACS heat exchanger inoperable, restore the heat exchanger to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN with the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- 2. With one SACS subsystem otherwise inoperable, realign at least one of the affected diesel generators to the OPERABLE SACS subsystem within 2 hours, and restore the inoperable subsystem to OPERABLE status with at least one OPERABLE pump and heat exchanger within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.***

** When handling irradiated fuel in the secondary containment.

*** Two diesel generators and two service water pumps associated with the unaffected SACS loop must be OPERABLE.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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ACTION: (Continued)

3. a. With one SACS pump in each subsystem inoperable, restore at least one inoperable pump to OPERABLE status within 72 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 SACS heat exchanger in each subsystem inoperable, immediately initiate measures to place the unit in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 4. With both SACS subsystems otherwise inoperable, immediately initiate measures to place the unit in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN* in the following 24 hours.
- b. In OPERATIONAL CONDITION 3 or 4 with the SACS subsystem, which is associated with an RHR loop required OPERABLE by Specification 3.4.9.1 or 3.4.9.2, having two SACS pumps or one heat exchanger inoperable, declare the associated RHR loop inoperable and take the ACTION required by Specification 3.4.9.1 or 3.4.9.2, as applicable.

* Whenever both SACS subsystems are inoperable, if unable to attain COLD SHUTDOWN as required by this ACTION, maintain reactor coolant temperature as low as practical by use of alternate heat removal methods.

*** Two diesel generators and service water pumps associated with the required OPERABLE SACS pumps must be OPERABLE.

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PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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ACTION: (Continued)

- c. In OPERATIONAL CONDITION 4 or 5 with the SACS subsystem, which is associated with safety related equipment required OPERABLE by Specification 3.5.2, having two SACS pumps or one heat exchanger inoperable, declare the associated safety related equipment inoperable and take the ACTION required by Specification 3.5.2.
- d. In OPERATIONAL CONDITION 5 with the SACS subsystem, which is associated with an RHR loop required OPERABLE by Specification 3.9.11.1 or 3.9.11.2, having two SACS pumps or one heat exchanger inoperable, declare the associated RHR system inoperable and take the ACTION required by Specification 3.9.11.1 or 3.9.11.2, as applicable.
- e. In OPERATIONAL CONDITION 4, 5, or **, with one SACS subsystem, which is associated with safety related equipment required OPERABLE by Specification 3.8.1.2, inoperable, realign the associated diesel generators within 2 hours to the OPERABLE SACS subsystem, or declare the associated diesel generators inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.
- f. In OPERATIONAL CONDITION 4, 5, or **, with only one SACS pump and heat exchanger and its associated flowpath OPERABLE, restore at least two pumps and two heat exchangers and associated flowpaths to OPERABLE status within 72 hours or, declare the associated safety related equipment inoperable and take the associated ACTION requirements.

SURVEILLANCE REQUIREMENTS

=====

4.7.1.1 At least the above required safety auxiliaries cooling system subsystems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.
- b. At least once per 18 months during shutdown by verifying that: 1) Each automatic valve servicing safety-related equipment actuates to its correct position on the appropriate test signal(s), and 2) Each pump starts automatically when its associated diesel generator automatically starts.

PLANT SYSTEMS

STATION SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

=====

3.7.1.2 At least the following independent station service water system loops, with each loop comprised of:

- a. Two OPERABLE station service water pumps, and
- b. An OPERABLE flow path capable of taking suction from the Delaware River (ultimate heat sink) and transferring the water to the SACS heat exchangers,

shall be OPERABLE:

- a. In OPERATIONAL CONDITION 1, 2 and 3, two loops.
- b. In OPERATIONAL CONDITION 4, 5 and *, one loop.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5 and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
 1. With one station service water pump inoperable, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.** If the condition specified by ** can not be met, be in at least HOT SHUTDOWN within the next 72 hours and in COLD SHUTDOWN within the following 24 hours.
 2. With one station service water pump in each loop inoperable, restore at least one inoperable pump to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.***
 3. With one station service water system loop otherwise inoperable, restore the inoperable station service water system loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.**

* When handling irradiated fuel in the secondary containment.

** Two diesel generators and two SACS pumps associated with the unaffected service water loop must be OPERABLE.

*** Two diesel generators and SACS pumps associated with the required OPERABLE service water pumps must be OPERABLE.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- b. In OPERATIONAL CONDITION 4 or 5:

With only one station service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated SACS subsystem inoperable and take the ACTION required by Specification 3.7.1.1.

- c. In OPERATIONAL CONDITION *:

With only one station service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated SACS subsystem inoperable and take the ACTION required by Specification 3.7.1.1. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.2 At least the above required station service water system loops shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic), servicing safety related equipment that is not locked, sealed or otherwise secured in position, is in its correct position.
- b. At least once per 18 months during shutdown, by verifying that:
 - 1. Each automatic valve servicing non-safety related equipment actuates to its isolation position on an isolation test signal.
 - 2. Each pump starts automatically when its associated diesel generator automatically starts.

* When handling irradiated fuel in the secondary containment.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

A.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

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3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Four separate and independent diesel generators, each with:
 - 1. A separate fuel oil day tank containing a minimum of 200 gallons of fuel,
 - 2. A separate fuel storage system consisting of two storage tanks containing a minimum of 48,800 gallons of fuel**, and
 - 3. A separate fuel transfer pump for each storage tank.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore the inoperable offsite circuit to OPERABLE status within 72 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 diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the above required A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than an inoperable support system, an independently testable component, or preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 separately for each diesel generator within 16 hours* unless the absence of any potential common mode failure for the remaining diesel generators is demonstrated. Restore the inoperable diesel generator to OPERABLE status within 72 hours for diesel generators A or B, or within 14 days for diesel generators C or D, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

* This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

** With the fuel storage system of one or more diesel generators containing less than 48,800 gallons of fuel, but greater than 44,709 gallons, the associated diesel generator is considered operable for up to 48 hours to allow for fuel replenishment

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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ACTION: (Continued)

- c. With one offsite circuit of the above required A.C. sources and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If a diesel generator became inoperable due to any causes other than an inoperable support system, an independently testable component, or preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators separately for each diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 16 hours unless the absence of any potential common mode failure for the remaining diesel generators is demonstrated*. Restore at least two offsite circuits and all four of the above required diesel generators to OPERABLE status within 72 hours from time of the initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION Statement b.

- d. With both of the above required offsite circuits inoperable, restore at least one of the above required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION statement a.

- e. With two diesel generators of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the above required A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 separately for each diesel generator within 8 hours.* Restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

* This test is required to be completed regardless of when the inoperable diesel generator is restored, to OPERABILITY.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

A successful test(s) of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION Statements a and b.

- f. With two diesel generators of the above required A.C. electrical power sources inoperable, in addition to ACTION e., above, verify within 2 hours that all required systems, subsystems, trains, components, and devices that depend on the remaining diesel generators as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- g. With one offsite circuit and two diesel generators of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 separately for each diesel generator within 8 hours.* Restore at least one of the above required inoperable A.C. sources to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore the inoperable offsite circuit and both of the inoperable diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

- h. With the buried fuel oil transfer piping's cathodic protection system inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the system to OPERABLE status.

*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

=====

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. or D.C. source.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources", December 1974 as modified by plant specific analysis and diesel generator manufacturer recommendations. When two diesel generators are inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generators as a source of emergency power, are also OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period two or more of the diesel generators are inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component. The primary intent of the extended AOT is that the extended EDG AOT from 72 hours to 14 days may be needed to perform preplanned EDG maintenance such as teardowns and modifications that would otherwise extend beyond the original 72 hour AOT.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977 and Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators", Revision 1, October 1979 as modified by plant specific analysis and diesel generator manufacturer's recommendations.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 75 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 July 27, 1994, as supplemented May 26, July 10, and July 25, 1995, the Public Service Electric & Gas Company (PSE&G), the licensee, submitted a request for changes to the Hope Creek Generating Station, Technical Specification (TS). The July 10, 1995 letter submitted revised, re-typed Technical Specification pages. The revised, re-typed Technical Specification pages reflect proposed changes to those Technical Specification pages which were transmitted via PSE&G's original submittal on July 27, 1994 and in response to a request for additional information dated May 26, 1995. In addition, the revised, re-typed pages reflect proposed changes which were discussed between PSE&G, the NRR Hope Creek Project Manager, and NRR technical reviewers at a May 5, 1995 meeting at NRR Headquarters and during subsequent teleconferences. The supplemental letters did not change the original no significant hazards consideration determination nor the original Federal Register notice. The changes requested in the July 27, 1994 submittal, as supplemented May 26, July 10, and July 25, 1995, would revise:

- A. 1) TS 3.7.1.1 to establish following ACTION and Allowed Out-of-Service times (AOTs) for inoperable Safety Auxiliaries cooling System (SACS) pumps:
- a. 30 days for one SACS pump;
 - b. With one entire SACS subsystem inoperable, realign at least one (instead of both as currently required) of the affected diesel generators to the OPERABLE SACS subsystem. (Note: The 72-hour time period to restore the inoperable subsystem to OPERABLE status with at least one OPERABLE pump and heat exchanger to remain the same); and
 - c. 72 hours for one SACS pump in each subsystem inoperable.
- 2) TS 3.7.1.1 by deleting a reference to Specification 3.4.9.1.

- 3) TS 3.7.1.1 ACTION Statements b, c and d to specify that two inoperable SACS pumps in the SACS subsystem make the associated RHR loop or associated safety system inoperable. TS 3.7.1.2 to establish a 30-day AOT for one inoperable Station Service Water System (SSWS) pump.
- B. 1) TS 3.8.1.1 to establish the following AOTs for inoperable onsite AC electrical power sources 14 days for either C or D Emergency Diesel Generator (EDG) inoperable.
- C. 1) TS Surveillance Requirement 4.8.1.1.2.h to permit online maintenance and inspection of the C and D EDGs.

2.0 EVALUATION

A. Extended Outage Times for Cooling Water Systems

The SSWS provides cooling water from the ultimate heat sink (UHS) to the SACS heat exchangers and the reactor auxiliaries cooling system (RACS) heat exchangers during normal operation and during a loss of offsite power. Following a loss of coolant accident (LOCA) or other design basis accident, cooling is supplied only to the SACS heat exchangers. The SSWS consists of two loops (Loop A and Loop B) with two motor-driven pumps per loop. Each SSWS loop cools a separate SACS loop (via two parallel SACS heat exchangers per SSWS loop), and either SSWS loop can provide cooling for the RACS heat exchangers. SSWS Loop A supplies cooling water to SACS heat exchangers A1 and A2, while SSWS loop B supplies SACS heat exchangers B1 and B2. Motor-operated cross-tie valves provide a flow path to the RACS heat exchangers during normal operation and provide a means of cross-connecting the SSWS loops for SACS heat exchanger supply. The only essential SSWS cooling water loads required for safe shutdown are the SACS heat exchangers. In the event of a LOCA, the SSWS cross-tie valves automatically close isolating the loops from each other and from the RACS heat exchangers.

The current AOT for one inoperable SSWS pump is 7 days. However, based on engineering evaluations, with one SSWS pump inoperable, the SSWS is still capable of performing all of its design basis safety functions with any additional single active failure. Under these conditions the additional failure of another pump or its associated EDG would result in either two SSWS pumps in one loop, or one SSWS pump in each loop. Therefore, since the SSWS can still meet its safety design basis with one inoperable pump, the licensee proposed to revise TS 3.7.1.2 to provide an AOT of 30 days for one pump inoperable. The 30 days is acceptable based on engineering judgment and operating experience plus the staff's approval of 30-day AOTs for other safety-related systems having redundancy beyond that which is required to meet the single active failure criterion. The 30 days is also consistent with the AOT for similar cooling water systems in NUREG-1433, the General Electric BWR/4 Standard Technical Specification (STS). Based on these considerations, the staff concludes that the proposed change to 30 days is acceptable.

The SACS is one of two subsystems of the safety and turbine auxiliaries cooling system (STACS); both of which use the SACS pumps during normal operation. The other subsystem is the turbine auxiliaries cooling system (TACS) which is supplied by a common header from either loop of the SACS. The TACS has no pumps of its own and uses the SACS pumps when it is in operation. The SACS, like the SSWS, is designed to operate under normal, shutdown, and design basis accident conditions. During all conditions, the SACS provides cooling water to the engineered safety features (ESF) equipment, including the residual heat removal (RHR) heat exchangers, diesel generator coolers, and RHR pump seal and bearing coolers. On receipt of a LOCA signal, loss of power, or a low-low-low expansion tank level, the TACS is automatically isolated from the SACS loops via redundant isolation systems.

The SACS is divided into two closed loops, Loop A and Loop B (Corresponding to Loops A and B of the SSWS, respectively), with two pumps, two heat exchangers, and one expansion tank in each loop. The two SACS loops normally operate independently with the TACS being supplied by only one of the SACS loops. The SACS loops can be cross-connected by the TACS isolation valves. There are two TACS isolation valves per SACS loop, for a total of four. Normally, two of the valves from one loop are open while the two from the other loop are maintained closed making the SACS loops independent of each other.

The current TS 3.7.1.1 for the SACS, has a 72-hour AOT for one inoperable SACS pump or one inoperable heat exchanger. The proposed changes would provide an AOT of 30 days for an inoperable SACS pump and maintain 72 hours for an inoperable heat exchanger. The licensee's justification for increasing the AOT from 72 hours to 30 days for an inoperable pump is based, in part, on the capability of the SACS to still meet the single active failure criterion with any one SACS pump inoperable. This is basically the same technical justification as was used for the SSWS. The 30 days is an acceptable outage duration for the same reasons identified above for the SSWS pump regarding operating experience and other similar safety systems. Based on the SACS's capability to meet its safety design basis with only three operable SACS pumps, the staff concludes that the proposed change is acceptable.

The current TS 3.7.1.1 also requires immediate measures to shutdown the plant in the event that one SACS pump or one heat exchanger in each loop becomes inoperable. The licensee has proposed a 72-hour AOT in the event of one inoperable pump in each loop. As proposed, the AOT for one inoperable heat exchanger in each loop would remain the same. With one SACS pump in each loop operable, the SACS can still meet all of its safety design bases assuming there are no other single failures. The 72-hour AOT is consistent with AOTs for other engineered safety features (ESF) systems at Hope Creek and other light water reactor plants where the system can still meet all of its safety design bases, assuming no further single failures. Immediate shutdown is usually required via TS 3.0.3 when a system can no longer meet its safety design basis for a design basis accident. The proposed AOT is also consistent with the AOTs in NUREG-1433 for systems with similar capability. Therefore, based on the low probability of a design basis accident coupled with a single failure during the 72 hours that the plant would be allowed to continue operation, the staff concludes that the proposed AOT is acceptable.

In order to avoid unacceptable overlapping outages among the SACS, SSWS and the EDGs, the licensee added footnotes to TSs 3.7.1.1 and 3.7.1.2, that will ensure at least two associated EDGs, SACS pumps, and SSWS pumps will always be available. These footnotes, as clarified in the licensee's May 26, 1995 submittal, are acceptable because they ensure at least the minimum combination of pumps and emergency power supplies will be available to provide adequate heat removal for all design basis events, including a LOCA coincident with a loss of offsite power.

The present Action a.2 of TS 3.7.1.1, specifies that with one SACS loop inoperable, realign the affected EDGs to the operable SACS loop within 2 hours. The proposed changes would specify to realign at least one of the affected EDGs to the operable SACS loop. Thus, if one of the EDGs cannot be realigned for one reason or another, it would be declared inoperable and the appropriate EDG inoperable action statement would be entered. This is how the current TS wording is interpreted and the staff believes it is the correct interpretation. Therefore, the proposed change is not considered a change, but a clarification of the existing TS and is, therefore, acceptable.

Current TS 3.7.1.1, Actions b (Mode 3 or 4), c (Modes 4 or 5), and d (Mode 5), specify that the associated RHR loop, and/or associated safety-related equipment (depending on the operating Mode) of an inoperable SACS loop should be declared inoperable. The proposed changes clarify that a SACS loop may be considered operable if it has one operable SACS pump and two SACS heat exchangers. Thus, with only one inoperable SACS pump in a loop, the associated RHR and/or safety-related equipment does not have to be declared inoperable. The proposed changes are acceptable as they are supported by the plant safety analysis, whereby a SACS loop is capable of performing its safety design basis with one SACS pump and two SACS heat exchangers operable.

In support of the proposed changes the licensee performed probabilistic safety assessment (PSA) analyses to determine the increase in risk associated with the TS changes proposed for the SACS and the SSWS. For that assessment, risk increases of $\leq 1E-6$ were considered by the licensee to be insignificant and were used as a criterion to determine if an AOT extension was acceptable. As a result of the PSA, the licensee concluded that the proposed changes do not pose any significant increase in overall plant risk. The staff reviewed the results of the licensee's analyses, including the methodology used, and concurs with the licensee's conclusions relative to the increased risk associated with the proposed TS changes for the SACS and SSWS.

B. Revise AOT for EDGs and Provide for EDG On-line Maintenance

1). EDG AOT Extension for One EDG Inoperable

In the submittal dated July 27, 1994, the licensee requested that the 72-hour AOT for one EDG inoperable be extended to 30 days. The licensee used PRA to show that the onsite power system retains full capability to effect a safe shutdown and to mitigate the effects of a design-basis accident. The results of the PRA indicated that establishing a 30-day AOT for one

inoperable EDG yielded an overall risk increase in core damage frequency of $7.23 \text{ E-}7$. The licensee stated that the reason for the change in the EDG AOT is to obtain operational flexibility and reduce the chance of plant shutdown. Additionally, the licensee stated that the extended AOT would improve maintenance quality through the alleviation of the constraints of completing work in a short 72-hour time interval. Although the PRA analysis submitted by the licensee appears to support a 30-day AOT extension, the staff is of the opinion that PRA alone should not be used as a basis for granting an AOT extension. The staff agrees that PRA is a useful analytical tool, however it needs to be used in conjunction with other technical considerations and good engineering judgment.

The staff believes that if an EDG was allowed to be out for 30 days, it might not get the attention that is required to maintain its reliability and availability to respond to emergencies and that 14 days is sufficient time to perform most maintenance activities. This length of time is based on industry experience (13.5 days considering two shifts working 8 hours a shift for a total of 216 hours). Therefore, the staff has determined that 14 days should be considered as the maximum AOT on a permanent basis and an EDG AOT extension beyond 14 days should be considered only on a one-time basis.

At Hope Creek Generating Station, the Class-1E AC power supply system is divided into four independent power supply channels. Each of these four channels supplies loads in its own load group and has a dedicated EDG (EDG A, B, C, and D). All Class-1E loads are assigned to these channels so that any combination of three-out-of-four load groups has the capability to supply the minimum required safety loads to safely shut down the unit and mitigate the consequences of a design-basis accident. Under loss of offsite power (LOOP) conditions, either EDG A or B and any other diesel generator would be required to mitigate the consequences of a LOOP. This is because residual heat removal (RHR) pumps A (powered from EDGA) or B (powered from EDGB) would be required to facilitate desired residual heat removal during a LOOP.

Because of the greater importance of EDGs A and B, the staff is concerned with extending the AOT for these EDGs. As a result, the staff informed the licensee that a maximum of 14 days (rather than 30 days) AOT will be allowed for EDGs C and D only, provided certain conditions are met. EDGs A and B will continue to have a 72-hour AOT. Subsequently, in a letter dated July 10, 1995, the licensee revised its proposal to extend the AOT to 14 days for EDGs C and D only.

The conclusion to grant the 14-day AOT extension for EDG C and D is based on the licensee satisfying the following conditions:

- a. The licensee should verify through TS, procedures, or detailed analysis that the required systems, subsystems, trains, components, and devices that are required to mitigate the consequences of an accident are available and operable before removing an EDG for

extended preventive maintenance (PM). In addition, positive measures should be provided to preclude subsequent testing or maintenance activities on these systems, subsystems, trains, components, and devices while the EDG is inoperable.

- b. When EDG C or D is removed from service for an extended 14-day AOT, any two of the remaining EDGs must be capable, operable, and available to mitigate the consequences of a LOOP condition.
- c. The removal from service of safety systems and important non-safety equipment, including offsite power sources, should be minimized during the extended 14-day AOT.
- d. Entry into this 14-day LCO action statement should not be abused by repeated voluntary entry into and exit from the LCO. To clarify the use of the extended AOT the licensee will add the following insert to the Hope Creek TS bases: "The primary intent of the extending EDG AOT is that the extended EDG AOT from 72 hours to 14 days may be needed to perform preplanned EDG maintenance such as teardowns and modifications that would otherwise extend beyond the original 72 hour AOT."
- e. Voluntary entry into this LCO action statement should not be scheduled if adverse weather conditions are expected.
- f. The overall unavailability of the EDG should not exceed the value that was used in the PRA supporting the proposed AOT.
- g. Any component testing or maintenance that increases the likelihood of a plant transient should be avoided. Plant operation should be stable during the extended 14-day AOT.

In a letter dated July 25, 1995, the licensee supplemented its application and agreed to revise the TS Bases to include the above conditions.

2) EDG AOT Extension for Two EDGs Inoperable

In the submittal dated July 27, 1994, the licensee also requested an extension of the AOT for two inoperable EDGs from 2 hours to 72 hours. The result of the PRA analysis by the licensee established an overall risk increase in core damage frequency of 4.32 E-7 for the AOT of 72 hours for two EDGs inoperable. Although the PRA number was found to be acceptable, the staff feels that 72 hours AOT in this configuration is too long due to the inability of the remaining EDGs at Hope Creek Generating Station to mitigate the consequences of an accident.

At Hope Creek, three out of four EDGs are required to mitigate the consequences of an accident. If Hope Creek was allowed to remove two EDGs from service for 72 hours, the remaining EDGs would not have the capacity to mitigate the consequences of an accident during this extended AOT. Although, the PRA support this extension of the EDG AOT of 72 hours for two inoperable EDGs, the staff feels that prudent engineering judgment cannot allow the extension of this EDG AOT beyond the current 2 hours. Therefore, the staff finds the licensee's July 27, 1994, proposal to change the AOT for two EDGs inoperable from 2 hours to 72 hours unacceptable. The licensee's Jul 10, 1995, letter supplemented its application and transmitted revised TS change pages to reflect maintaining the AOT at 2 hours.

3) EDG On-line Maintenance

At Hope Creek, the existing TS Surveillance Requirement (SR) 4.8.1.1.2.h.1 stipulates that the EDG must have an inspection in accordance with the manufacturer's recommendations every 18 months "during shutdown." This surveillance has recently been removed from the Hope Creek TS (License Amendment No. 74, dated June 29, 1995) and relocated to the Hope Creek Preventative Maintenance Program, where it will be controlled by the 10 CFR 50.59 process. The licensee has proposed to perform this inspection at power and remove the word "during shutdown" from this surveillance. The licensee feels that this would allow more time to perform maintenance that must be performed at shutdown. The licensee states that performing EDG on-line maintenance will provide significant operational benefits and will be performed in a manner that does not degrade net safety. Additionally, the licensee states that the 18-month teardown and inspection can be performed on-line within system configurations and administrative guidelines, can be completed within a single LCO entry, and will improve the reliability of the diesel generators.

The NRC staff has been considering the extensions of the EDG AOTs on a plant-specific basis if the primary intent of the extending EDG AOT is to perform 18 months of manufacturer-recommended inspections such as teardowns and modifications that would otherwise extend beyond the original AOT. As stated in Section I of this evaluation, the staff has found it acceptable, based on the Hope Creek EDG configuration and certain conditions, to extend the AOT for EDGs C & D from 72 hours to 14 days. The licensee's July 10, 1995, letter supplemented its application and transmitted revised TS change pages to reflect a 14-day AOT for the C and D EDGs only.

TS Page B 3/4 8-1, Bases-Electrical Power Systems, transmitted by the licensee on July 10, 1995, was found to have omitted a reference to Regulatory Guide 1.108. The licensee furnished a corrected page for this administrative error. This correction was found to be acceptable by the staff.

3.0 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.

4.0 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 (59 FR 45033). 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.

5.0 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: M. Pratt
W. LeFave

Date: August 1, 1995