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Docket No. 50-272

Public Service Electric & Gas Company
ATTN: Mr. F. P. Librizzi
General Manager - Electric Production
80 Park Place
Newark, New Jersey 07101

Gentlemen:

The Commission has issued the enclosed Amendment No. 7 to Facility Operating License No. DPR-70 for the Salem Nuclear Generating Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your letter dated April 6, 1977, as supplemented by letters dated May 25 and August 9, 1977.

This amendment revised the provisions in the Technical Specifications related to the allowable pH levels for discharged effluents, the intake impingement monitoring program, and the circulating water entrainment monitoring program.

We have evaluated the potential for environmental impact of plant operation in accordance with the enclosed amendment. The pH level changes were a result of modified discharge limits set by the NPDES permit which extended the allowable limits by ±0.5 pH units. This extended pH limit will not result in a significant effluent change, since the extremes of this allowable range are not likely to be realized due to the large volume and buffering action of the circulating water system (FES, pages 3-19 and 5-12). The changes in the intake impingement monitoring program reflected the addition of a fish return system located at the station's circulating water intake pump house. The circulating water entrainment monitoring program was modified to incorporate state-of-the-art sampling techniques. We have determined that these changes to the Technical Specifications will not result in a significant change in the effluent types or amounts, or significantly increase the authorized power level, or significantly affect the quality of the human environment. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

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SURNAME➤						
DATE➤						

Since the amendment applies only to a change in allowable pH levels for discharged effluents, and to the impingement and entrainment monitoring programs, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility, It does not involve a significant increase in the probability or consequences of an accident, does not involve a significant decrease in a safety margin, and therefore does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the related Federal Register Notice is also enclosed.

Sincerely,

George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Enclosures:
1. Amendment No. 7 to DPR-70
2. Federal Register Notice

cc w/enclosures: See next page

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DATE ➤	8/31/77	8/31/77	8/31/77	9/1/77	9/7/77	

cc:

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Honorable Samuel Donolson
Mayor, Lower Alloways Creek Township
Salem County, New Jersey 08079

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ATTN: Deputy Attorney General
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Attorney General
Department of Law & Public Safety
State House Annex
Trenton, New Jersey 08625

Richard B. McGlynn, Commissioner
Department of Public Utilities,
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Public Service Electric & Gas Company
ATTN: Herbert J. Heller
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Chief, Energy Systems Analysis Br. (AW-459)
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26 Federal Plaza
New York, New York 10007

Salem Free Library
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Salem, New Jersey 08079

Public Service Electric & Gas Co.
ATTN: R. L. Mittl
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
PHILADELPHIA ELECTRIC COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 7
License No. DPR-70

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Public Service Electric and Gas Company, et al (the licensee) dated April 6, 1977, as supplemented by letters dated May 25 and August 9, 1977, 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;

   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. DPR-70 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 7 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

George Lear

George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 8, 1977

Attachment to License Amendment No. 7

Facility Operating License No. DPR-70

Docket No. 50-272

Replace the existing pages of the Appendix B Technical Specifications listed below with the attached revised pages. Changes of these pages are shown by marginal lines.

Remove Pages:	Insert Pages:
2.2-5	2.2-5
2.2-6	2.2-6
3.1-15	3.1-15
3.1-16	3.1-16
3.1-17	3.1-16a
3.1-18	3.1-16b
3.1-19	3.1-16c
3.1-20	3.1-17
3.1-21	3.1-18
	3.1-19
	3.1-20
	3.1-21

The filtration/gravimetric method is the preferred means recognized by EPA for the measurement of suspended solids. However, Proposed Water Quality Information, Vol. II, October 1973, by EPA, page 88, states that "accuracy data on actual samples cannot be obtained at this time."

2.2.3 pH

Objective

To insure that the pH of the effluent released from the Non-Radioactive Chemical Waste Disposal System is controlled and will not have an adverse effect on the natural aquatic environment of the receiving waters.

Specification

The pH of the Non-Radioactive Chemical Liquid Waste Disposal System effluent shall be within the range of 6.0 to 9.0 pH units after mixing with the circulating water discharge stream. If this specification is exceeded, the discharge shall be terminated until the pH is corrected to within specification.

Monitoring Requirement

The pH of effluents released from the collecting basin shall be monitored continuously at the pump discharge using an in-line pH probe with an accuracy of ± 2%. This will be compared with the pH measurements made at the circulating water discharge to the receiving water.

Bases

The New Jersey Department of Environmental Protection Water Quality Criteria and the Delaware River Basin Commission Effluent Quality Requirements impose stream quality limitations on the effluents entering the receiving waters. These agencies consider the mixing of waste streams to bring one or more of these streams within pH limits as acceptable. Prior decisions by the United States Environmental Protection Agency have indicated that waste streams could be combined with cooling water for the sole purpose of pH neutralization, as long as the final discharge was in the pH range of 6.0 to 9.0, as required by the Salem Station NPDES Discharge Permit.

No significant change in the background pH of the river water is expected due to the operation of the Salem Station.

Reporting Requirement

Reporting levels shall be developed after one year of full power operation of Unit 2. Post-operational data will be related to preoperational norms from which report levels will be established.

Bases

All biological parameters sampled will provide background data for determining the environmental effects of station operation. Results of the operational studies will be compared with preoperational studies by statistical methods. The various sampling locations were selected on the basis of their representative distribution throughout the region. As the data from these sites are analyzed, it will be determined whether additional sites are needed or old sites can be eliminated. The frequency of sampling has been established in much the same manner.

3.1.2.2 Impingement of Organisms

Objective

The principal objectives of the impingement study are to: (1) determine the species composition and (2) quantify the numbers of finfishes and blue crabs which become impinged on the circulating and service water intake screens; as well as (3) quantify survival rates of finfishes and blue crabs impinged on the circulating water intake screens.

Amendment No.: 7

Specification

The impingement monitoring described in this specification shall be initiated prior to achieving commerical operation at 100% electrical output. Changes in sampling frequency may be proposed at any time but shall be submitted for review and approval by the NRC Staff prior to implementation.

Service Water

Fishes and blue crab impinged on the service water intake screens shall be sampled for three, 24-hour periods per week. The total weight of the 24-hour sample collected in the trash basket shall be determined. All finfishes shall be identified to lowest practical taxonomic level. The number of blue crabs and the number of each species of finfish shall be recorded. If the total of fish and crab sample is greater than 100 lbs, random subsamples of no less than 100 lbs total shall be taken from that sample; otherwise the total sample shall be processed. Within each sample or subsample total weight of all specimens shall be used to determine the total weight by species for each 24-hour sample. Within each sample or subsample, if more than 100 specimens per species are collected, at least 100 specimens per species will be used to compute the length and weight range per species for the 24-hour period. Estimates or actual counts of the total number of each species impinged per 24-hour sampling period shall be determined.

Circulating Water - Continuous Screen Operation

Finfishes and blue crabs impinged on the circulating water intake screens shall be sampled during three, 24-hour periods per week. During continuous screen operation within each 24-hour period, sampling shall be conducted at approximately six-hour intervals. Each sample shall be taken by diverting a minimum of three minutes flow of screen wash water to the holding chamber. All finfishes and blue crabs collected for each sample shall be identified to the lowest practical taxonomic level and the number of specimens recorded for each species. Condition shall be determined based on the following criteria:

Live: Swimming vigorously, no apparent orientation problems, behavior normal.

Damaged: Struggling or swimming on side. Indication of severe abrasion or laceration.

Dead: No vital life signs, no body or opercular movement, no response to gentle probing.

The following shall be reported by species: total number, catch weight, and percent survival. All organisms of a given species shall be used to compute the length and weight range.

If more than 100 specimens of a given species are collected, a random subsample of at least 100 organisms from that sample shall be used to compute the length and weight range per species for the sampling interval.

Estimates of the total number of each species impinged per 24-hour sampling period shall be determined.

Circulating Water-Intermittent Screen Operation

Finfishes and blue crabs impinged on the circulating water intake screens shall be sampled during three, 24-hour periods per week. Within each 24-hour period, sampling shall be conducted at approximately six-hour intervals. If, during any portion of the six-hour interval immediately preceeding sampling, all or some of the circulating water intake screens are operated intermittently (tripped by differential pressure across the screens) two samples shall be collected. Each of the two samples shall be taken by diverting a minimum of three minutes flow of screen wash water to the holding chamber. All finfishes and blue crabs collected for each sample shall be identified to the lowest practical taxonomic level and the number of specimens recorded for each species. Condition shall be determined from the first sample based on the following criteria:

Live: Swimming vigorously, no apparent orientation problems, behavior normal.

Damaged: Struggling or swimming on side. Indication of severe abrasion or laceration.

Dead: No vital life signs, no body or opercular movement, no response to gentle probing.

Survival by species shall be calculated from the first sample. Screens shall be rotated and cleaned prior to collection of the second sample. Number and catch weight by species shall be determined from the second sample and used to estimate total number and total weight by species impinged per 24 hours. All organisms of a given species collected in both samples shall be used to compute the length and weight range. If more than 100 specimens of a given species are collected in both samples at the circulating system, a random subsample of at least 100 organisms from both samples combined shall be used to compute the length and weight ranges per species for the sampling interval.

Reporting Requirement

Monthly results from both the circulating water and service water studies shall be submitted to the NRC within 20 days after the end of the month. Report of each sample period shall contain: (1) date of sample, (2) sample collection location, (3) counting pool water temperature at the beginning of sampling, (4) mode of screen operation, either intermittent or continuous during the six-hour period preceeding sampling (circulating water system sampling only), (5) the number of each species collected in collecting pool, (6) an estimate by species of the number and weight impinged per 24 hours, (7) percent survival by species, (8) the minimum and max length in 5mm increments and minimum and maximum weight, and (9) number of pumps in operation at the time of sampling.

A summary of the impingement study shall be included in the annual report. After one year of data collection, a report shall be submitted describing the program, results, and providing an interpretive analysis of environmental impacts.

Bases

This survey and subsequent data analysis will aid in verification of the effectiveness of the intake design in minimizing impingement and maximizing the survival of those organisms which do become impinged.

3.1.2.3 Entrainment of Plankton Organisms

Objective

The objective of the entrainment study is to estimate the number and percent survival of planktonic organisms which pass through the circulating water system.

Specifications

In order to obtain estimates of numbers of organisms passing through the CWS, a sampling program shall be implemented during August 1977 and performed monthly thereafter, weather permitting. The program shall consist of sampling planktonic organisms before and after passage through the CWS during plant operation. Additional sampling shall also be performed, when possible, during periods when ambient water is circulated through the system's components without the addition of heat. Mortalities due solely to mechanical damage and pressure may be assessed.

CWS intake samples will be collected with either a high capacity pump sampler or plankton nets. Samples will be integrated with depth from either just before the trash bars or just behind the traveling screens.

Discharge samples will be collected from a port located above the CWS discharge pipe, with a high capacity pump sampler. Samples from the same water mass shall be obtained from the intake and discharge by coordinating their collection with CWS passage time. Whenever possible, entrainment sampling will be coordinated with the collection of river samples on the transect extending westward from the station. All samples shall be collected monthly during one 24-hour period at approximately 4-hour intervals unless otherwise specified. Physiochemical parameters to be monitored during sample collection will include water temperature, dissolved oxygen, salinity and pH.

Changes in sampling frequency may be proposed at any time but shall be submitted for review and approval by the NRC Staff prior to implementation.

Microzooplankton Studies

Intake and discharge samples shall be collected with a high capacity pump sampler or as specified in Section 3.1.2.1.1.c.

Samples will be immediately stained upon collection. This will enable separation of live and dead zooplankton. Dead and live organism counts and specimen identification to the lowest practical taxon shall be done in the laboratory. Samples shall be collected, stained and maintained in a water bath in ambient river temperature. These samples shall be periodically monitored over a 12-hour period to determine latent mortality.

Ichthyoplankton and Macrozooplankton Studies

Ichthyoplankton shall be sampled at the intake and discharge semi-monthly to monthly, weather permitting. Samples shall be taken semi-monthly, June through August, and monthly, September through May. Samples shall be collected as described above, over 24-hour periods at approximately 4-hour intervals. Replicate samples shall be collected with a high capacity pump sampler from an area behind the traveling screens or metered plankton nets fished at surface, mid-depth, and near bottom in front of the intake structure. Samples of discharge water shall be taken through sampling ports.

Specimens collected shall be identified to the lowest possible taxonomic level, and densitites shall be calculated. Immediate mortality shall be determined for intake and discharge samples based on the following criteria:

Live: Swimming vigorously, no apparent orientation problems, behavior normal.

Stunned: Swimming erratically, struggling and swimming on side, some twitching but motile.

Dead: No vital life signs, body or opercular movement, no response to gentle probing.

Specimens determined to be alive or stunned shall be held separately for 12- to 24-hour periods at ambient river temperature to determine latent mortality.

Reporting Requirement

Summary of entrainment study data shall be included in the annual report. After one year of data collection, a report shall be submitted describing the program, results and providing an interpretative analysis of environmental impacts. Results reported shall contain information including but not limited to: sampling date, number of replicates, gear used for collection at intake and discharge, species or taxon, life stage, percent survival on passage, volume filtered, and mean concentration at the intake per day for each species.

Amendment No.: 7

Bases

This study and subsequent data analyses will aid in determining whether passage through the Circulating Water System will have a deleterious effect on planktonic organisms.

3.1.2.4 - References

1. Lorenzen, C. J. 1967. Determination of chlorophyll and phaeo-pigments spectrophotometric equations. Limnol. and Oceanogr. 12:343-346.

2. Deleted.

3. Strickland, J. D. H., and T. R. Parsons. 1968. A practical handbook of seawater analysis. Bull. 167, Fish. Res. Bd. Canada. 311 p.

4. American Public Health Association, et al. 1974 Standard Methods for the Examination of Water and Waste Water. American Public Health Association. 874 pp.

5. Icanberry, J. W., and R. W. Richardson. 1973. Quantitative sampling of live zooplankton with a filter-pump system. Limnol. and Oceanogr. 18(2):333-335.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-272

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY

OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 7 to Facility Operating License No. DPR-70, issued to Public Service Electric and Gas Company, et al (the licensee), which revised Technical Specifications for operation of the Salem Nuclear Generating Station, Unit No. 1, located in Salem County, New Jersey. The amendment is effective as of its date of issuance.

This amendment revised the provisions in the Technical Specifications related to the allowable pH levels for discharged effluents, the intake impingement monitoring program, and the circulating water entrainment monitoring program.

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. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this Amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated April 6, 1977, as supplemented by letters dated May 25 and August 9, 1977, (2) Amendment No. to License No. DPR-70 and (3) the Commissions letter dated September 8, 1977. Both of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Salem Free Public Library, 112 West Broadway, Salem, New Jersey 08079.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, ATTN: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 8 day of September 1977.

FOR THE NUCLEAR REGULATORY COMMISSION

George Lear

George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors