JUN. 28 1976

Docket Nos.: 50-280
and 50-281

Virginia Electric and Power Company
ATTN: Mr. W. L. Proffitt
Senior Vice President - Power
P.O. Box 26666
Richmond, Virginia 23261

Gentlemen:

The Commission has issued the enclosed Amendments No. 21 to Facility Operating Licenses Nos. DPR-32 and DPR-37 for the Surry Power Station Units Nos. 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated May 10, 1976.

These amendments relate to a change in the temperature limitations for condenser cooling water discharge permitted during normal operation or partial shutdown of a condenser or the circulating water system.

Since these amendments apply only to environmental matters, they do not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. They do not involve a significant increase in the probability or consequences of an accident, do not involve a significant decrease in a safety margin, and therefore donnot 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.

Copies of the Environmental Impact Appraisal and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures and cc: See next page

OFFICE ➤						
SURNAME ➤						
DATE ➤						

Enclosures:
1. Amendment No. 21 to DPR-32
2. Amendment No. to DPR-37
3. Environmental Impact Appraisal
4. Federal Register Notice

cc w/enclosures: See next page

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TBAbernathy
JRBuchanan
RWReid

I am advised that there is no violation of Va NPDES - State used old II(a) & Va. has no temperature limitation, we ought to begin phasing out restriction, EPA may change late with 316A hearing

OFFICE	DOR:ORB#4 MBJ	OELD	DOR:ORB#4		
SURNAME	MFairtile	KARMAN	RWReid		
DATE	6/24/76	6/25/76	6/25/76		

cc w/enclosures:
Michael W. Maupin, Esquire
Hunton, Williams, Gay & Gibson
P. O. Box 1535
Richmond, Virginia 23213

Swem Library
College of William & Mary
Williamsburg, Virginia 23185

Mr. Sherlock Holmes
Chairman
Board of Supervisors of Surry County
Surry County Courthouse
Surry, Virginia 23683

cc w/enclosures & incoming:
Ms. Susan T. Wilburn
Commonwealth of Virginia
Council on the Environment
P. O.Box 790
Richmond, Virginia 23206

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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 21
License No. DPR-32

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

   A. The application for amendment by Virginia Electric and Power Company (the Licensee) dated May 10, 1976, 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 regulation 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.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the
Technical Specifications

Date of Issuance: June 25, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 21

FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

Replace pages 4.14-1, 4.14-2, 4.14-3 and 4.14-4 of the Technical Specifications with the attached revised pages bearing the same numbers. The changed area on each page is shown by a marginal line.

4.14 TEMPERATURE LIMITATIONS ON CONDENSER COOLING WATER DISCHARGE

Applicability

These limitations apply to heat added to the water passing through the turbine steam condensers and to the river by the heated water discharged from the condensers.

Objective

The purpose of this specification is to limit thermal stress to the aquatic ecosystem in the James River from the station's thermal discharge.

Specifications

A. 1. The condenser cooling water discharge temperature shall not exceed 103°F, as measured continuously at the control structure in the discharge canal and without flow augmentation for the sole purpose of meeting the 103°F criterion, for more than 3 hours each day.

2. The difference (ΔT) between the river water ambient temperature measured at the station high level intake and cooling water at the discharge control structure shall not exceed 15°F, except for brief fluctuations during changes in power levels.

3. Normal plant operations shall be controlled such that changes in cooling water temperature at the discharge control structure do not exceed an average rate of change of 3°F per hour. This limitation is expected to restrict temperature changes in the river to less than 2°F per hour within a short distance from the discharge control structure.

B. 1. The foregoing thermal discharge limits shall not be exceeded except as necessary for safe shutdown of a reactor, or to meet emergency or exceptional load demands upon the licensee's power supply system. An emergency or exceptional demand shall be considered to exist if the system is unlikely to meet the demand after the licensee has attempted to satisfy its requirements bv all other available means, such as use of spinning reserves, standby generation, and purchase from other utilities.

2. Specification 4.14.A.1 may be modified to permit full power operation during inspections or periods of maintenance and repairs to the condenser or circulating water system. In those instances where a condenser or portions of the circulating water system are partially shutdown the discharge temperature shall not exceed 105.5°F.

Specification 4.14.A.2 may be modified to permit full power operation during inspections or periods of maintenance and repair to the condenser or circulating water system. In those instances where a condenser or portions of the circulating water system are partially shutdown: (1) for a 24 hour period the temperature difference across the affected condenser or the station may exceed 17.5°F but shall not exceed 23°F; and (2) for a period not to exceed 14 days (including the 24 hours in Section 4.14.B.2) the temperature difference may exceed 15°F but shall not exceed 17.5°F.

C. 1. In all instances where thermal discharge limits stated in Specification 4.14.A are exceeded, except as allowed under 4.14.B, these shall be reported as follows: (1) to the Director, Region II, Directorate of Regulatory Operations, via telephone or telegraph within 24 hours of the time of occurrence; and (2) to the Director of Licensing by letter within 15 days, stating the reason or reasons such limits were exceeded, when the incident occurred, its duration, any evidence of adverse environmental impact, and what actions are being taken to prevent recurrence.

2. In all instances where thermal discharge limits are exceeded, including those allowed under 4.14.B, appropriate notations shall be included in the Annual Operating Report to the Director of Licensing. In addition, if there is evidence of significant adverse environmental impact, such as fish killed in the James River, from exceeding the thermal discharge limits as allowed under 4.14.B, this shall be reported to the Director, Region II, Directorate of Regulatory Operations, by telephone or telegraph within 24 hours.

Basis

The condensers are designed to add a maximum of 15°F to the circulating cooling water when the units are operating under normal full-load conditions. Limiting the maximum temperature of the discharge to 103°F during normal operation and 105.5°F during limited periods of maintenance on the circulating water system is not expected to violate State Water Quality Standards. The fish in the area will be able to avoid temperatures in excess of 95°F, a temperature level which approaches lethality for long-term exposures of some species.

Larval fish and eggs which are exposed to temperatures above 95°F for 30 minutes or longer as they pass through the condensers, the discharge canal and the thermal plume will suffer mortality. However, the 103°F maximum normal operational total temperature limit at the discharge control structure will not significantly increase circulating water entrainment mortality, and the plume entrainment mortality will be confined to a relatively small area offshore from the discharge. The James River in the vicinity of the discharge is not utilized as a spawning area for commercial or recreationally important species of fish. During the summer months when maximum temperatures could possibly occur, the only fish species possibly vulnerable to plume entrainment are the eggs and larvae of ubiquitous forage species.

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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 21
License No. DPR-37

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

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 10, 1976, 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.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the
Technical Specifications

Date of Issuance: June 25, 1976

ATTACHMENT TO LICENSE AMENDENT NO. 21

FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NO. 50-281

Replace pages 4.14-1, 4.14-2, 4.14-3, and 4.14-4 of the Technical Specifications with the attached revised pages bearing the same numbers. The changed area on each page is shown by a marginal line.

4.14 TEMPERATURE LIMITATIONS ON CONDENSER COOLING WATER DISCHARGE

Applicability

These limitations apply to heat added to the water passing through the turbine steam condensers and to the river by the heated water discharged from the condensers.

Objective

The purpose of this specification is to limit thermal stress to the aquatic ecosystem in the James River from the station's thermal discharge.

Specifications

A. 1. The condenser cooling water discharge temperature shall not exceed 103°F, as measured continuously at the control structure in the discharge canal and without flow augmentation for the sole purpose of meeting the 103°F criterion, for more than 3 hours each day.

2. The difference (ΔT) between the river water ambient temperature measured at the station high level intake and cooling water at the discharge control structure shall not exceed 15°F, except for brief fluctuations during changes in power levels.

3. Normal plant operations shall be controlled such that changes in cooling water temperature at the discharge control structure do not exceed an average rate of change of 3°F per hour. This limitation is expected to restrict temperature changes in the river to less than 2°F per hour within a short distance from the discharge control structure.

B. 1. The foregoing thermal discharge limits shall not be exceeded except as necessary for safe shutdown of a reactor, or to meet emergency or exceptional load demands upon the licensee's power supply system. An emergency or exceptional demand shall be considered to exist if the system is unlikely to meet the demand after the licensee has attempted to satisfy its requirements bv all other available means, such as use of spinning reserves, standby generation, and purchase from other utilities.

2. Specification 4.14.A.1 may be modified to permit full power operation during inspections or periods of maintenance and repairs to the condenser or circulating water system. In those instances where a condenser or portions of the circulating water system are partially shutdown the discharge temperature shall not exceed 105.5°F.

Specification 4.14.A.2 may be modified to permit full power operation during inspections or periods of maintenance and repair to the condenser or circulating water system. In those instances where a condenser or portions of the circulating water system are partially shutdown: (1) for a 24 hour period the temperature difference across the affected condenser or the station may exceed 17.5°F but shall not exceed 23°F; and (2) for a period not to exceed 14 days (including the 24 hours in Section 4.14.B.2) the temperature difference may exceed 15°F but shall not exceed 17.5°F.

C. 1. In all instances where thermal discharge limits stated in Specification 4.14.A are exceeded, except as allowed under 4.14.B, these shall be reported as follows: (1) to the Director, Region II, Directorate of Regulatory Operations, via telephone or telegraph within 24 hours of the time of occurrence; and (2) to the Director of Licensing by letter within 15 days, stating the reason or reasons such limits were exceeded, when the incident occurred, its duration, any evidence of adverse environmental impact, and what actions are being taken to prevent recurrence.

2. In all instances where thermal discharge limits are exceeded, including those allowed under 4.14.B, appropriate notations shall be included in the Annual Operating Report to the Director of Licensing. In addition, if there is evidence of significant adverse environmental impact, such as fish killed in the James River, from exceeding the thermal discharge limits as allowed under 4.14.B, this shall be reported to the Director, Region II, Directorate of Regulatory Operations, by telephone or telegraph within 24 hours.

Basis

The condensers are designed to add a maximum of 15°F to the circulating cooling water when the units are operating under normal full-load conditions. Limiting the maximum temperature of the discharge to 103°F during normal operation and 105.5°F during limited periods of maintenance on the circulating water system is not expected to violate State Water Quality Standards. The fish in the area will be able to avoid temperatures in excess of 95°F, a temperature level which approaches lethality for long-term exposures of some species.

Larval fish and eggs which are exposed to temperatures above 95°F for 30 minutes or longer as they pass through the condensers, the discharge canal and the thermal plume will suffer mortality. However, the 103°F maximum normal operational total temperature limit at the discharge control structure will not significantly increase circulating water entrainment mortality, and the plume entrainment mortality will be confined to a relatively small area offshore from the discharge. The James River in the vicinity of the discharge is not utilized as a spawning area for commercial or recreationally important species of fish. During the summer months when maximum temperatures could possibly occur, the only fish species possibly vulnerable to plume entrainment are the eggs and larvae of ubiquitous forage species.

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

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNITS NOS. 1 AND 2

Introduction

By letter dated May 10, 1976, the Virginia Electric and Power Company (the licensee) requested a change to the Technical Specifications appended to Facility Operating Licenses Nos. DPR-32 and DPR-37 for the Surry Power Station, Units Nos. 1 and 2. The proposed change would permit an increase in cooling water discharge temperature during both normal operation and periods of maintenance and inspection to the circulating water system.

Discussion

Surry Power Station Technical Specification TS 4.14.A.1 requires that the condenser cooling water discharge temperature shall not exceed 98°F for more than 3 hours each day. Three hours each day above 98°F was allowed based on the available temperature records which indicated that ambient water temperatures in excess of 83°F occurred only occasionally during the summer. An additional technical specification (T.S. 4.14.A.2) requires that the temperature rise across the condensers under normal operation cannot exceed 15°F.

Part of the bases for establishing the 98°F limit was that the 5°F isotherm would be restricted to less than half the width of the James River. Thus, the fish in the area would be able to avoid temperatures in excess of 90°F. We also considered the effect on larval fish and eggs which would pass through the condensers and be entrained in the thermal plume as it dissipates in the river. The 98°F temperature limit at the discharge control structure would result in limiting damage to biota entrained by the plume to those within a relatively small area offshore from the discharge.

At the time the technical specifications were written it was not clearly established which species would be inhabiting the river during the summer months. A technical specification (T.S. 4.13-5.B) was, therefore , added that the licensee shall determine the density and distribution of fish eggs, larvae and juveniles passing through the condensers, entrained into the plume, and residing in the discharge area.

As a result of higher than expected ambient water temperatures in the James River during the summer months, the licensee has had to curtail station output to remain within the present 98°F limit. On August 11, 1975, the licensee requested relief from the 98°F limit through September 20, 1975, and supplied supporting information. The relief was granted based on: (1) preliminary intake temperature data for the years 1972 - 1975, which indicated that the intake temperature frequently exceeded 83°F for more than 3 hours per day during the months of July - September, (2) preliminary thermal plume measurements which showed isotherms much smaller than those predicted in the Surry FES, and (3) preliminary information for three days in August 1974 which indicated the absence of important species of fish eggs and larvae which would be entrained in the plant or into the plume.

The licensee has submitted, in addition to the material already submitted as the basis for the relief of August 11, 1975, the six-month operating reports for 1975.

Evaluation

In its six-month operating reports for 1975, the licensee has provided data from hydrological and biological studies conducted at the station and in the receiving water of the James River. Review of these data and the data submitted in August 1975 supports and extends the basis for the previously approved license amendments as follows:

(a) The daily maximum intake water temperatures exceeded 83°F from June 17 through June 27, 1975. The August 1975 monthly mean of the daily high temperature was 86°F, and the monthly mean of the daily mean was 84°F. The temperature data records for the years 1972-1975 clearly support the licensee's contention that the maximum expected intake temperature is above 83°F. The ambient river temperature of 88°F proposed by licensee is reasonable as temperatures as high as 87°F have been recorded. The extra 1°F will allow for short-term peaks in the ambient river water and for instrument error.

(b) Thermal plume measurements by the licensee for the years 1974 and 1975 indicate that the high velocity plume causes more rapid mixing with the river water than predicted by the model studies used in the FES. Thermal plume studies conducted independently by the Virginia Institute of Marine Science, although not final, corroborate the findings of the licensee. We agree that the perliminary results show that the resulting isotherms are much smaller; and, therefore, fewer organisms could be exposed to the high temperatures in the plume.

(c) Ichthyoplankton studies to identify and enumerate the organisms passing through the plant and into the plume have been conducted since April 1975. Data are available through October 1975 which cover the period when the maximum discharge temperature is reached. These data support the licensee's contention that eggs and larvae of commercially important fish species are not present in significant numbers during the summer months. Species present, anchovies and gobies, are an abundant forage species. These species are found throughout the estuary, and the relatively small rate of flow utilized for cooling as compared to the flushing rate in the tidal segment would not cause a level of entrainment mortality sufficient to significantly reduce forage fish populations.

Therefore, the staff concludes, based on the data provided in the 1975 six-month operating reports, that the ambient water temperature is higher than the temperature used in the FES and that operation of the Surry Power Station at a higher maximum discharge temperature of 103°F will not cause significant adverse effects to important species in the James River.

Conclusion and Basis for Negative Declaration

We have reviewed the proposed increase in the maximum discharge temperature and the licensee's justification and supportive data. We have determined that this change to the Technical Specifications will not significantly affect the quality of the human environment, that there will be no environmental impact attributable to the proposed action other than has already been predicted and described in the Commission's FES for Surry Nuclear Power Station, and that a negative declaration is warranted.

Date: June 25, 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-280 AND 50-281

VIRGINIA ELECTRIC AND POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

AND NEGATIVE DECLARATION

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendments No. 21 to Facility Operating Licenses Nos. DPR-32 and DPR-37 issued to the Virginia Electric and Power Company which revised Technical Specifications for operation of the Surry Power Station, Units Nos. 1 and 2, located in Surry County, Virginia. The amendments are effective as of the date of issuance.

The amendments change the temperature limitations for condenser cooling water discharge permitted during normal operation or partial shutdown of a condenser or the circulating water system.

The application for the amendments 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 amendments.

The Commission has prepared an environmental impact appraisal for the revised Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there will be no environmental impact attributable to the action other than that

which is already been predicted and described in the Commission's Final Environmental Statements for Surry Power Station, Units Nos. 1 and 2 published May and June 1972 and that a negative declaration to this effect is appropriate.

For further details with respect to this action, see (1) the application for amendments dated May 10, 1976, (2) Amendments No. 21 to Licenses Nos. DPR-32 and DPR-37, and (3) the Commission's Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C., and at the Swem Library, College of William and Mary, Williamsburg, Virginia.

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 Operating Reactors.

Dated at Bethesda, Maryland, this 25th day of June, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors