



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. 45
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 16, 1977, as supplemented February 6, April 17, May 18, and August 18, 1978, 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.

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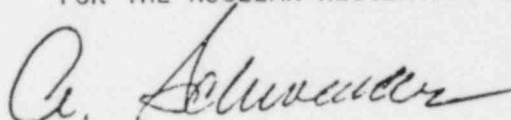
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

"B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 45, 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



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 6, 1978

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 45 TO FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 45 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove

TS 4.13-1
TS 4.13-2
TS 4.13-3
TS 4.13-4
TS 4.13-5
TS 4.13-6
TS 4.13-7
TS 4.13-8

Fig. 4.13-1
Fig. 4.13-2

Replace

TS 4.13-1
TS 4.13-2
TS 4.13-3
TS 4.13-4
TS 4.13-5
TS 4.13-6

Fig. 4.13-1
Fig. 4.13-2

4.13 NONRADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Applicability

The nonradiological environmental monitoring program applies to the monitoring of the temperature-salinity distribution and the biological variables in the 10-mile segment of the James River Estuary centered at Hog Island.

Objective

The objectives of the program are: (1) to further confirm the relationship between thermal discharge and the physical-chemical characteristics of the water mass within the 10-mile tidal segment of the James River; (2) to further verify the continued efficacy of the Ristroph Traveling Fish Screens; and (3) to monitor the fish populations in the James River utilizing the data collected from the screens.

Specification

A. A monitoring program shall be conducted to determine the relationship between the thermal discharge and the physical-chemical characteristics of the water mass within the 10-mile tidal segment centered at Hog Island.

1. The monitoring program shall encompass the segment of the James River Estuary which extends from below the intake of the Surry Power Station upstream to the southern shore of Jamestown Island as shown on TS Figure 4.13-1.

2. The horizontal and vertical temperature-salinity structure of the tidal segment shall be determined at monthly intervals as follows: Cruises shall be conducted at slack before flood tide. A four (4) station transect shall be established between the intake structure and Skiffes Creek just before low slack water. Temperature and salinity data shall be collected at two (2) meter intervals from surface to bottom. The cruise shall continue up the channel with same slack stations established at approximately two (2) mile intervals in the middle of the river. The final transect shall be made between Jamestown Island and Crouches Creek.
3. Mid-depth temperature shall be continuously monitored and recorded at the high level intake of the Surry Power Station.
4. Mid-depth temperature shall be continuously monitored and recorded in the discharge canal.
5. If chlorine is used in the condenser-cooling system, chlorine demand in the intake canal shall be monitored. The chlorination schedule shall be based on plant operating data rather than on a fixed time basis. During chlorination, chlorine shall be monitored at the end of the discharge groin by use of analytical methods that are sensitive to chlorine at concentrations much less than the concentration required for control and that will differentiate among the various chlorine containing compounds which constitute the residual chlorine. The concentration of residual chlorine at the point of discharge to the James River shall not be greater than 0.1 mg/liter.

6. Records shall be kept of chemical releases to the cooling water system and a summary of this data shall be reported as described in 4.13 D.

B. A fish sampling program in the vicinity of the intake structure shall be conducted. Monthly trawls and seine hauls will be taken at stations identified in TS Figure 4.13-2. Concurrent temperature and salinity measurements shall be made with the trawls and seine hauls.

These samples shall be taken daily when survival of impinged fishes drops below 75% on any given sample day, and continue until survival once again exceeds 75%.

These samples shall also be taken weekly in the event of malfunction or breakdown of the low-level screens, and continue until such time as low-level screen operation returns to normal.

C. The programs described in Specifications 4.13 A and 4.13 B shall commence on the day Unit No. 1 is licensed to operate. Where installation of monitoring stations and/or purchase of equipment is necessary and/or involves authorization by other agencies, the affected portion of the program shall be implemented at the earliest practicable time, but not later than December 31, 1972.

D. The data obtained from the programs defined in Specifications 4.13 A and 4.13 B shall be analyzed as they are collected and shall be compared

with model and analytical predictions and with preoperational data. A report of the results of this evaluation shall be forwarded to the Office of Nuclear Reactor Regulation (NRR). Such reports are due within 60 days after the end of each reporting period and shall be submitted with the Annual Operating Report described in Technical Specification 6.6. A final report summarizing the results of the program shall be submitted sixty (60) days following the third anniversary of the date Unit No. 2 is licensed to operate. If on the basis of such annual and final reports it is established that no major adverse environmental impact has resulted or is likely to result from continued operation of Unit Nos. 1 and 2 then the program shall be terminated upon NRC approval. Otherwise, it shall continue until an annual report does establish that no impact has resulted or is likely to result. If on the basis of any annual report or the final report it is established that the results of the monitoring program are inconclusive, either whole or in part, the licensee shall propose reasonable changes to the program designed to yield conclusive results and implement such changes when they are approved by NRR.

- E. A low-level screen monitoring program consisting of one impingement sample per week (two duplicate five-minute samples) shall be conducted. Samples shall be taken on Tuesdays, Wednesdays, or Thursdays. Fishes collected shall be measured and weighed and numbers shall be projected to estimate live and dead totals for the week.

If the survival rate of all impinged fishes falls below 75% on any given sample day, a sampling program which consists of two duplicate five-minute samples daily shall be conducted until the survival rate once again exceeds 75%. If survival of impinged fishes falls below 75%, the daily program of seine and trawl samples outlined in Specification 4.13B shall be instituted. This program shall continue until survival once again exceeds 75%. A data analysis shall be performed to determine the species responsible for the reduced survival and further analysis shall be performed to attempt to assess the biological significance of the incident.

During periods of low-level screen malfunction or breakdown due to unusual natural conditions such as ice, seine and trawl sampling (weather and river ice conditions permitting) shall be conducted on a weekly basis in the vicinity of the intake structure until such time as low-level screen operation returns to normal.

Significant mortalities of fish that may be related to operation of the station shall be reported to Region II, Office of Inspection and Enforcement, within 24 hours. Data concerning significant fish mortalities and the probable cause shall be included in a more detailed report to NRC within 10 days.

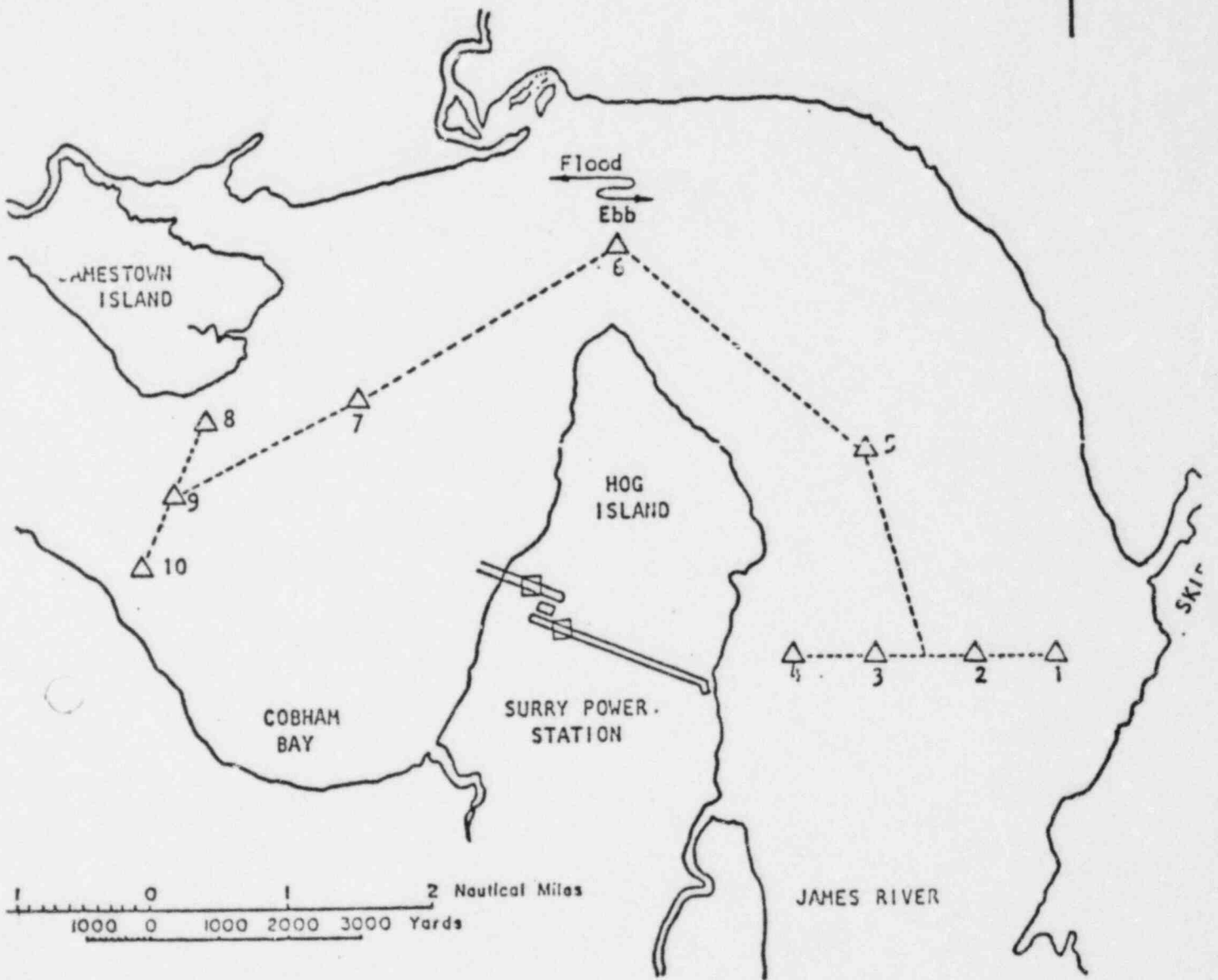
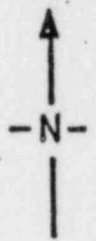
Basis

Excess temperature distributions and alteration of density flows in the tidal segment have been predicted from data developed from model studies for two-unit operation. Surface isotherms for wind conditions of 5 mph have been plotted for different stages in the tidal cycle. The data collected under Specification 4.13A will permit an evaluation of the predictions and provide the basis for describing the parameters which may have environmental significance. The surface and bottom records combined with profile data will also permit cross-sectional as well as longitudinal physical-chemical evaluations to be made of the tidal segment.

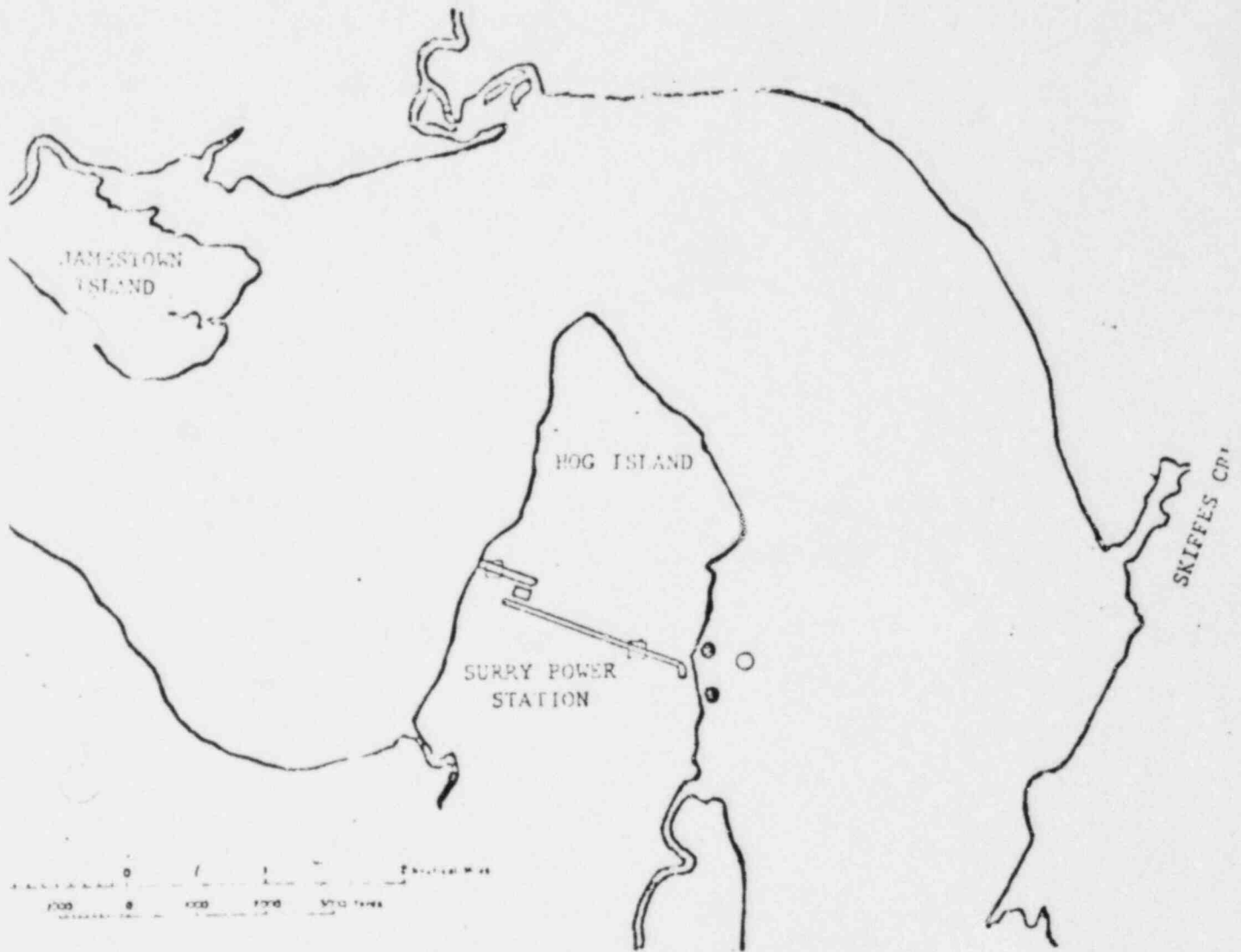
The tidal segment encompassing the Surry site is in the vicinity of the mean transition zone between fresh and saltwater. During periods when the freshwater inflow, as measured at the head of the coastal physiographic province exceeds approximately 12,000 cfs for an extended period, the water in the reach is fresh. At lower flows, the water becomes brackish and during extreme drought conditions the salinity on the discharge side of the point may reach 14 ppt.

The condenser is cleaned by a mechanical system and it is expected that it will not be necessary to use chlorine to maintain condenser cleanliness. In the remote event it becomes necessary to utilize chlorine, its use will be regulated by need as demonstrated by a change in operating parameters. Residual chlorine will be monitored at the point of discharge to the James River and shall not exceed 0.1 mg/liter. This concentration should have no effect on river organisms.

SURRY
POWER STATION



- △ Sampling Stations -- Monthly Salinity - Temperature Profile
- Continuous Near-Surface Temperature Monitoring Stations



LEGEND:

- Trawl (Nekton)
- Seine (Nekton)