

May 30, 1989

Docket Nos. 50-280
and 50-281

DISTRIBUTION
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Mr. W. R. Cartwright
Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Cartwright:

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: MAIN CONTROL
ROOM AND EMERGENCY SWITCHGEAR ROOM AIR CONDITIONING SYSTEM
(TAC NOS. 72721 AND 72722)

The Commission has issued the enclosed Amendment No. 129 to Facility Operating License No. DPR-32 and Amendment No. 129 to Facility Operating License No. DPR-37 for the Surry Power Station, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated March 20, 1989.

These amendments change Technical Specifications Sections 3.14 and 3.23 by imposing additional system operating restrictions on the Main Control Room and Emergency Switchgear Room Air Conditioning System.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

Bart C. Buckley, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 129 to DPR-32
- 2. Amendment No. 129 to DPR-37
- 3. Safety Evaluation

cc w/enclosures:
See next page

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[AMEND 72721/72722]

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D:Berbow
04/3/89

BCB
PM:PDII-2
BBuckley:bd
04/3/89

D:PDII-2
HBerbow
05/24/89

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FRosa
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SPLB
JCraig
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Mr. W. R. Cartwright
Virginia Electric and Power Company

Surry Power Station

cc:

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DATED: May 30, 1989

AMENDMENT NO. 129 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1
AMENDMENT NO. 129 TO FACILITY OPERATING LICENSE NO. DPR-37 - SURRY UNIT 2

Docket File

NRC & Local PDRs

PDII-2 Reading

S. Varga, 14/E/4

G. Lainas, 14/H/3

H. Berkow

D. Miller

B. Buckley

OGC-WF

D. Hagan, 3302 MNBB

E. Jordan, 3302 MNBB

B. Grimes, 9/A/2

T. Meek (8), P1-137

Wanda Jones, P-130A

E. Butcher, 11/F/23

ACRS (10)

GPA/PA

ARM/LFMB

B. Wilson, R-II

cc: Plant Service list



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. 129
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 March 20, 1989, 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 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

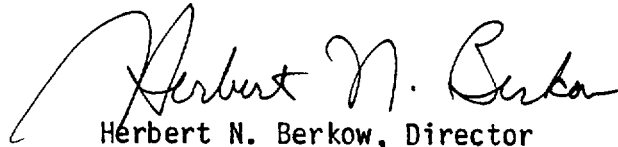
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(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 129, 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



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 30, 1989



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. 129
License No. DPR-37

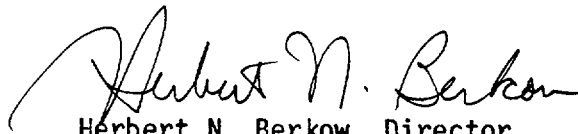
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated March 20, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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 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. 129, 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



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 30, 1989

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 129 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 129 FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
TS 3.14-2	TS 3.14-2
TS 3.23-1	TS 3.23-1
TS 3.23-2	TS 3.23-2
--	TS 3.23-3
--	TS 3.23-4
--	TS 3.23-5

- b. Flow to and from the component cooling heat exchangers required by Specification 3.13.
 3. At least two circulating water pumps are operating or are operable.
 4. At least two emergency service water pumps are operable; these two pumps will service both units simultaneously.
 5. Two service water flowpaths to the charging pump service water subsystem are operable.
 6. Two service water flowpaths to the recirculation spray subsystems are operable.
- B. There shall be an operating service water flow path to and from one operating main control and emergency switchgear rooms air conditioning condenser and at least one operable service water flow path to and from at least one operable main control and emergency switchgear rooms air conditioning condenser whenever fuel is loaded in reactor core. Refer to Section 3.23.C for air conditioning system operability requirements above cold shutdown.
- C. The requirements of Specifications A-5 and A-6 may be modified to allow unit operation with only one operable flow path to the charging pump service water subsystem and to the recirculation spray subsystems. If the affected systems are not restored to the requirements of Specifications A-5 and A-6 within 24 hours, the reactor shall be placed in a hot shutdown condition. If the requirements of Specifications A-5 and A-6 are not met within an additional 48 hours, the reactor shall be

3.23 MAIN CONTROL ROOM AND EMERGENCY SWITCHGEAR ROOM VENTILATION AND AIR CONDITIONING SYSTEMS

Applicability

Applies to the main control room (MCR) and emergency switchgear room (ESGR) and air conditioning system and emergency ventilation system.

Objective

To specify requirements to ensure the proper function of the main control and emergency switchgear room air conditioning system and emergency ventilation system.

Specification

- A. Both trains of the main control and emergency switchgear rooms' emergency ventilation system shall be operable whenever either unit is above cold shutdown.
 - B. With one train of the main control and emergency switchgear room emergency ventilation system inoperable for any reason, return the inoperable train to a operable status within 7 days or be in at least Hot Shutdown within the next 6 hours and in Cold Shutdown within the following 48 hours.
 - * C. The main control and emergency switchgear room air conditioning system shall be operable as delineated in the following:
 - 1. Chiller Refrigeration Units
 - a. Chillers 1-VS-E-4A, 4B, and 4C must be operable whenever either unit is above Cold Shutdown.
- * This interim specification is necessary until the air conditioning system modifications scheduled for the end of cycle 10 on Unit 1 and cycle 10 on Unit 2 are completed. Following completion of the permanent modifications, a revised air conditioning system specification will be submitted.

- b. If one chiller becomes inoperable, return the inoperable chiller to operable status within seven (7) days or bring both units to Hot Shutdown within the next six (6) hours and be in Cold Shutdown within the following 30 hours.

2. Air Handling Units (AHU)

- a. Unit 1 air handling units, 1-VS-AC-1, 1-VS-AC-2, 1-VS-AC-6, and 1-VS-AC-7, must be operable whenever Unit 1 is above Cold Shutdown.
 1. If one Unit 1 MCR AHU becomes inoperable, return the inoperable AHU to operable status within seven (7) days or bring Unit 1 to Hot Shutdown within the next six (6) hours and be in Cold Shutdown within the following 30 hours.
 2. If one Unit 1 ESGR AHU becomes inoperable, bring Unit 1 to Hot Shutdown within the next six (6) hours and be in Cold Shutdown within the following 30 hours.
- b. Unit 2 air handling units, 2-VS-AC-8, 2-VS-AC-9, 2-VS-AC-6, and 2-VS-AC-7 must be operable whenever Unit 2 is above Cold Shutdown.
 1. If one Unit 2 MCR AHU becomes inoperable, return the inoperable AHU to operable status within seven (7) days or bring Unit 2 to Hot Shutdown within the next six (6) hours and be in Cold Shutdown within the following 30 hours.
 2. If one Unit 2 ESGR AHU becomes inoperable, bring Unit 2 to Hot Shutdown within the next six (6) hours and be in Cold Shutdown within the following 30 hours.

- c. Unit 1 ESGR AHU drive motors, 1-VS-FMO-6A, 1-VS-FMO-6B, 1-VS-FMO-7A, and 1-VS-FMO-7B must be operable whenever Unit 1 is above Cold Shutdown.
 - 1. If a Unit 1 ESGR AHU drive motor becomes inoperable, return the inoperable drive motor to operable status within seven (7) days or bring Unit 1 to Hot Shutdown within six (6) hours and be in Cold Shutdown within the following 30 hours.

- d. Unit 2 ESGR AHU drive motors, 2-VS-FMO-6A, 2-VS-FMO-6B, 2-VS-FMO-7A, and 2-VS-FMO-7B must be operable whenever Unit 2 is above Cold Shutdown.
 - 1. If a Unit 2 ESGR AHU drive motor becomes inoperable, return the inoperable drive motor to operable status within seven (7) days or bring Unit 2 to Hot Shutdown within six (6) hours and be in Cold Shutdown within the following 30 hours.

Basis

When the supply of compressed bottled air is depleted, the main control room and emergency switchgear room emergency ventilation system is manually started to continue to maintain the control room pressure at the design positive pressure so that leakage is outleakage. One train of the main control room emergency ventilation consists of one fan powered from an independent emergency power source.

The main control and emergency switchgear room emergency ventilation system is designed to filter the intake air to the control room pressure envelope, which consists of the control room, relay rooms, and emergency switchgear rooms during a LOCA.

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radio-iodine to the control room. The in-place test results should indicate a system leaktightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99.5 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 95 percent for expected accident conditions. The control room dose calculations assume only 90 percent iodine removal efficiency for the air passing through the charcoal filters. Therefore, if the efficiencies of the HEPA filters and charcoal adsorbers are as specified, at the temperatures, flow rates and velocities within the design values of the system, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

If the system is found to be inoperable, there is no immediate threat to the control room, and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within the specified time, procedures are initiated to establish conditions for which the filter system is not required.

System operating restrictions will be imposed on the modified MCR and ESGR air conditioning system until the permanent upgrade is implemented. The restrictions will supplement the current Technical Specification limiting conditions for operation. The basis for the operating restrictions is as follows:

The modified system will require the operation of two chillers, two of the four MCR air handling units, and four ESGR air handling units to maintain design temperatures under maximum heat load conditions. Taking credible single failures into consideration requires that redundant equipment be available during operation. As such, the interim limiting conditions for operation will require that three chillers and eight air handling units be operable when at power

operation. Further, the interim limiting conditions for operation will require that both drive motors on each ESGR air handling unit be operable. In addition to the equipment restrictions above, a fire watch will be required during this interim period in both unit's ESGR and MER #3 to address Appendix R considerations.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 129 TO FACILITY OPERATING LICENSE NO. DPR-32
AND AMENDMENT NO. 129 TO FACILITY OPERATING LICENSE NO. DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

1. INTRODUCTION

By letter dated March 20, 1989, Virginia Electric and Power Company (the licensee), requested changes to the Technical Specifications (TS) Sections 3.14, "Circulating and Service Water Systems" and 3.23, "Control and Relay Room Ventilation Supply Filter Trains." The proposed changes would impose additional operating restrictions on the Main Control Room and Emergency Switchgear Room (MCR and ESGR) Air Conditioning System.

2.0 DISCUSSION AND EVALUATION

By letter dated October 19, 1988, and by commitments made during a meeting on October 26, 1988, the licensee identified several items which required further analysis and appropriate corrective action prior to plant restart. One of the items identified addressed the adequacy of the MCR and ESGR Air Conditioning System. By letter dated March 20, 1989, the licensee submitted an amendment request which included test results and corrective actions, and proposed a number of interim operating restrictions as they relate directly to this issue at Surry Units 1 and 2.

The MCR and ESGR Air Conditioning System is a shared system that cools the Surry Unit 1 and Unit 2 main control rooms, emergency switchgear rooms, and relay rooms. The MCR and ESGR Air Conditioning System cools only the air within the area boundaries and does not serve to pressurize the control room pressure boundary nor condition incoming outside air.

The system was originally designed to consist of one operating full capacity air conditioning train and one full capacity back-up air conditioning train. As discussed later, the licensee, based on test results, concluded that each air conditioning train would not provide the required 100 percent heat removal capacity. Each train contains one chiller refrigeration unit and four air handling units (AHU) - a dedicated AHU for each of the areas served, i.e., the Unit 1 MCR, Unit 2 MCR, Unit 1 ESGR, and Unit 2 ESGR (reference to the ESGR implies reference to the relay rooms also). A third chiller is provided as a maintenance swing chiller.

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The system is designed to maintain the bulk air in the MCR and ESGR within the design temperature envelope following a loss-of-coolant accident (LOCA) coincident with a loss-of-offsite power (LOOP) and a single failure. On September 9, 1988, the licensee prepared a Station Deviation Report to address a potential inadequacy in the MCR and ESGR Air Conditioning System to maintain design room temperatures. Subsequently, a special test was conducted to obtain system and equipment performance data. Extrapolation of the test results showed that the MCR air bulk temperatures would be within the design envelope following an accident. However, the test data also showed that the design accident heat load in the emergency switchgear rooms would exceed the design capacity of a single train of the ESGR air handling units.

In addition, the test results indicated that the calculated ESGR design heat loads, when added to the MCR design heat loads, exceeded the design capacity of a single chiller refrigeration unit. The test also indicated that certain system equipment was not performing adequately, e.g., the air handling unit fan speeds and inadequate chilled water flow.

To maintain design basis room temperatures and the original system design configuration, i.e., two 100% capacity air conditioning trains, a permanent modification must be implemented to replace undersized equipment with new, higher capacity equipment. Due to the long lead time for safety-related, custom designed equipment, this modification is scheduled for implementation during the next Surry refueling outages, currently estimated to occur in the fall of 1990.

In the interim, the MCR and ESGR Air Conditioning System will be modified to utilize the existing equipment to meet the system design basis, i.e., maintain design room temperatures under design basis assumptions (LOCA, LOOP, Single Failure). Specifically, the interim system modifications will require the operation of two air handling units in each emergency switchgear room and two chillers to maintain design ESGR temperatures under design heat load conditions. Modifications to the ESGR air handling units include increasing fan speeds and installing redundant drive motors on each air handling unit which is powered from different power sources.

A chiller modification will also be necessary to account for credible equipment failure. Because only two of the three existing chillers are required to operate under maximum design heat loads, modifications to the chillers are less extensive than those for the ESGR air handling units. However, in one of the failure scenarios considered for the existing design configuration, emergency power would be lost to two of the three chillers. To accommodate this failure scenario, the licensee will install a manual power transfer switch to enable the swing chiller to be powered from either of two emergency buses. By telecon on May 9, 1989, the licensee indicated that their proposed design is such that no single failure in the transfer switch can challenge or cause failure of both emergency buses at the same time. In addition, the licensee indicated that analysis demonstrates that both emergency buses and their associated power supplies and electric distribution systems will have sufficient capacity and capability to accommodate the increased loading proposed by the modification for any design basis conditions. Other associated activities, such as de-energizing unnecessary heat loads, cleaning fans, cooling coils, and refurbishing of pumps, are being performed to enhance system operability.

In addition to the identified hardware modifications, deficiencies in the current maintenance and surveillance programs will be reviewed and corrected to ensure that system reliability and performance are maintained throughout the interim operating period. In addition, the existing Nuclear Design Control Program will be reviewed and enhanced, as appropriate, to ensure that the cumulative effects of incremental heat load additions to critical areas are properly assessed and taken into consideration.

These interim modifications will restore the MCR and ESGR Air Conditioning System to its design basis by ensuring that safety equipment reliability and control room habitability are maintained under normal and accident conditions. These modifications will also restore equipment redundancy to provide single failure protection under credible equipment failure scenarios. The interim limiting conditions for operation will require that three chillers and eight air handling units be operable when at power operation. Further, the interim limiting conditions for operation will require that both drive motors on each ESGR air handling unit be operable. In addition to the equipment restrictions above, a fire watch will be required during this interim period in both units' ESGR and Mechanical Equipment Room (MER) #3 to address Appendix R considerations.

Action statements will allow that redundant equipment be inoperable for a period not to exceed seven (7) days to facilitate preventative and corrective maintenance. If the inoperable equipment is not returned to operable status within seven (7) days, the appropriate reactor unit(s) must be brought to the shutdown condition. The action statements only allow continued operation (i.e., 7-day window) when sufficient equipment is operable to maintain design room temperatures under maximum design heat loads. The action statements require that the appropriate reactor unit(s) be shut down whenever less than the requisite equipment is operable.

Based on the staff's evaluation of the licensee's analysis, and the proposed TS changes and action statements, we conclude that the implementation of the MCR and ESGR Air Conditioning System interim modifications meets design basis criteria for the Surry Power Station and will provide acceptable assurance that the design temperatures in the control rooms and emergency switchgear/relay rooms will be maintained under normal and accident conditions. We, therefore, conclude that the proposed changes to the Technical Specifications are acceptable until a permanent upgrade is implemented during the next refueling outage currently estimated to occur in the fall of 1990.

ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR Part 20. The staff has determined that these amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet 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 these amendments.

CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 30, 1989

Principal Contributor:

B. C. Buckley