

October 11, 1990

Docket No. 50-280

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Mr. W. L. Stewart  
Senior Vice President - Nuclear  
Virginia Electric and Power Company  
5000 Dominion Blvd.  
Glen Allen, Virginia 23060

Dear Mr. Stewart:

SUBJECT: SURRY UNIT 1 - ISSUANCE OF AMENDMENT RE: MAIN CONTROL ROOM AND  
EMERGENCY SWITCHGEAR ROOM AIR HANDLING UNITS (TAC NO. 77102)

The Commission has issued the enclosed Amendment No. 145 to Facility  
Operating License No. DPR-32 for the Surry Power Station, Unit No. 1.  
The amendment consists of changes to the Technical Specifications in  
response to your application transmitted by letter dated June 26, 1990.

The amendment eliminates the present operational restrictions on the main  
control room and emergency switchgear room air handling units.

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. 145 to DPR-32
2. Safety Evaluation

cc w/enclosures:

See next page

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Surry Power Station

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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. 145  
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 June 26, 1990, 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:

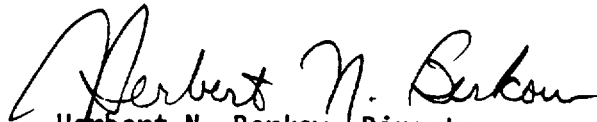
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(B) Technical Specifications

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

3. This license amendment is effective prior to Cycle 11 Startup.

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: October 11, 1990

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 145 FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

Revise Appendix A as follows:

Remove Pages

TS 3.23-1  
TS 3.23-2  
TS 3.23-3  
TS 3.23-4  
TS 3.23-5

Insert Pages

TS 3.23-1  
TS 3.23-2  
TS 3.23-3  
TS 3.23-4  
TS 3.23-5

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) 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.
    - 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 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.
  - 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 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.

\* This interim specification is necessary until the air conditioning system modifications scheduled for 1991 are completed. Following completion of the permanent modifications, a revised air conditioning system specification will be submitted.

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 radioiodine 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.

The Main Control Room and Emergency Switchgear Room Air Conditioning System cools the control room, the control room annex, and the Units 1 and 2 emergency switchgear and relay rooms. The air conditioning system includes three chillers (1-VS-E-4A, 4B, and 4C) and eight air handling units (1-VS-AC-1, 2, 6, and 7 and 2-VS-AC-6, 7, 8, and 9).

Interim modifications were completed on the MCR and ESGR Air Conditioning System to address interim failure and increased cooling requirements for the ESGRs. The interim modifications included installation of redundant drive motors and power supplies to the Units 1 and 2 ESGR AHUs and a redundant power supply to the 1-VS-E-48 chiller. Permanent modifications will include replacement of the CR and ESGR AHUs and installation of an additional chiller to supplement the existing chillers. The new higher capacity AHUs and additional chiller will restore the redundancy of the original system design.

The Unit 1 MCR and ESGR AHUs have been replaced in the first phase of the permanent modification. The Unit 2 MCR and ESGR AHUs will be replaced during the next Unit 2 refueling outage. As a result of the first phase modifications, the following MCR and ESGR Air Conditioning System equipment will be required to operate to maintain design temperatures under maximum heat load calculations:

- 1) Two chillers
- 2) One Unit 1 MCR AHU and one Unit 1 ESGR AHU
- 3) One Unit 2 MCR AHU and two Unit 2 ESGR AHUs

Continued system operating restrictions will be imposed on the MCR and ESGR Air Conditioning System until the permanent system upgrades are completed. The basis for the interim restrictions is as follows:

Taking credible single failures into consideration requires that redundant equipment be available during operation. As such, the three chillers and the MCR and ESGR must be operable when at power operation. Further, both drive motors on each Unit 2 ESGR AHU must 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. 145 TO FACILITY OPERATING LICENSE NO. DPR-32  
VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION, UNIT NO. 1  
DOCKET NO. 50-280

1.0 INTRODUCTION

By letter dated June 26, 1990, Virginia Electric and Power Company (the licensee) requested changes to the Technical Specifications (TS) Section 3.23, "Main Control Room and Emergency Switchgear Room Ventilation and Air Conditioning Systems." The proposed changes would eliminate the present operational restrictions on the Unit 1 main control room (MCR) and emergency switchgear room (ESGR) air handling units. These operational restrictions were an interim measure imposed by a previous specification change (License Amendment No. 129) approved by the staff on May 30, 1989.

2.0 EVALUATION

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 system was originally designed to consist of two 100 percent capacity trains. 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 (the ESGR includes the relay rooms). A third chiller is provided as a maintenance swing chiller.

As identified in the staff's May 30, 1989 evaluation, the licensee determined by testing that each air conditioning train did not provide the required 100 percent heat removal capacity. As an interim measure, modifications to the existing equipment were made to meet the system design basis. The interim modifications required the operation of two air handling units in each emergency switchgear room and two chillers to maintain ESGR temperatures under design heat load conditions. As a result of these interim modifications, interim limiting conditions for operation were also required to address different failure modes.

Permanent modifications are being made to the Unit 1 AHUs such that each AHU for Unit 1 will be capable of 100 percent heat removal capacity in accordance with the original design basis. These modifications will be complete prior to restart from the fall 1990 refueling outage. The proposed TS change reflects the permanent modifications and restores the Unit 1 specification to its initial operating restrictions, i.e., with one Unit 1 AHU inoperable, operation of Unit 1 may continue for up to 7 days. Unit 2 still contains the interim

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operating restrictions which allow a Unit 2 MCR AHU to be inoperable for up to 7 days but require two ESGR AHU drive motors to be operable for each AHU unit and require Unit 2 shutdown within 6 hours whenever an ESGR AHU becomes inoperable. The Unit 2 permanent modifications will be made during the Unit 2 1991 refueling outage. TS 3.23 will be modified at that time to delete the interim operating restrictions for Unit 2.

### 3.0 SUMMARY

Based on its evaluation, the staff concludes that the proposed TS change is conservative and in accordance with the permanent modifications to meet the original design basis criteria of the MCR and ESGR air conditioning systems. The proposed 7-day limiting condition for operation (LCO) with one AHU inoperable is consistent with other engineered safety features LCOs for the Surry plant and with the original Surry MCR and ESGR specification. The staff, therefore, concludes that the proposed change is acceptable.

### 4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. We have determined that this 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

### 5.0 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: October 11, 1990

Principal Contributor:  
W. LeFave

DATED: October 11, 1990

AMENDMENT NO. 145 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1

**[REDACTED]**  
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