

April 17, 1991

DO NOT REMOVE

Docket Nos. 50-280  
and 50-281

*Posted  
amdt. 153 to DPR-37*

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 UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: REQUIREMENTS FOR  
EXPLOSIVE GAS CONCENTRATION (TAC NOS. 76911 AND 76912)

The Commission has issued the enclosed Amendment No. 154 to Facility Operating License No. DPR-32 and Amendment No. 153 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 (TS) in response to your application transmitted by letter dated May 25, 1990.

These amendments modify the requirements for explosive gas concentration to conform to the applicable section of NUREG-0472, Draft 3, Revision 3, dated March 30, 1982, which also complies with the Westinghouse Standard Technical Specifications, Revision 5, Section 3.11.2.5B.

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. 154 to DPR-32
  - 2. Amendment No. 153 to DPR-37
  - 3. Safety Evaluation
- \*\*on condition that (1) published before TAC 77597/98, (2) all written in changes are incorporated into SER & cover letter, (3) shown to me before published.

cc w/enclosures:

See next page \*SEE PREVIOUS CONCURRENCE

DFC	: LA:PD22	: PM:PD22	: D:PD22	: OGC*	: SPLB*	:	:
IAME	: [Signature]	: BBuckley	: HBe [Signature]	: Suttal**	: C McCracken	:	:
DA	: 4/16/91	: 4/16/91	: 4/16/91	: 03/22/91	: 03/21/91	:	:

Mr. W. L. Stewart  
• Virginia Electric and Power Company

Surry Power Station

cc:

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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. 154  
License No. DPR-32

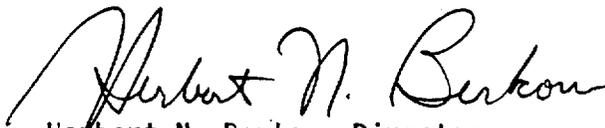
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 25, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 154, 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: April 17, 1991



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. 153  
License No. DPR-37

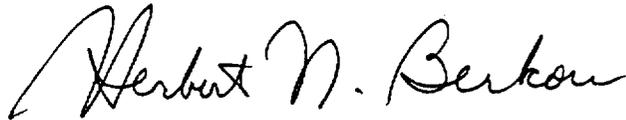
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 25, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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-37 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 153, 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: April 17, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 154 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 153 FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Page

TS 3.11-7

Insert Page

TS 3.11-7

- c. With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.2, a Special Report that includes the following information:
- (i) Explanation of why gaseous radwaste was being discharged without treatment, identification of any inoperable equipment or sub-systems, and the reason for the inoperability,
  - (ii) Action(s) taken to restore the inoperable equipment to operable status, and
  - (iii) Summary description of action(s) taken to prevent a recurrence.

5. Explosive Gas Mixture

- a. The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.
- (i) With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
  - (ii) With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the affected tank and reduce the concentration of oxygen to less than or equal to 4% by volume, then take action (i) above.

6. Gas Storage Tanks

- a. The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 24,600 curies of noble gases (considered as Xe-133).



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 154 TO FACILITY OPERATING LICENSE NO. DPR-32  
AND AMENDMENT NO. 153 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

INTRODUCTION

By letter dated May 25, 1990, Virginia Electric and Power Company (the licensee) requested amendments to the Surry Units 1 and 2 Technical Specifications (TS). The proposed changes would modify the requirements for explosive gas concentration to conform to the applicable section of NUREG-0472, Section 3.11.2.5B.

EVALUATION

In 1983, the licensee requested and was granted changes to the Surry Units 1 and 2 TS for the adoption of applicable Radiological Effluent Technical Specifications. The changes included the addition of TS 3.11.B.5, "Explosive Gas Mixture." This TS was based on Section 3.11.2.5 of NUREG-0472, Revision 3, Draft 3, "Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors" (See attached). NUREG-0472 provides three options for the explosive gas mixture TS. The first option is currently contained in the Surry TS.

The first option of NUREG-0472 is contained in Section 3.11.2.5, and is applicable to systems designed to withstand a hydrogen explosion. According to NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," a system is designed to withstand a hydrogen explosion if it is designed and tested to 20 times its normal operating pressure. The waste gas decay tanks at Surry are designed to 150 psig and operated at up to 115 psig. The use of this criteria demonstrates that the gaseous waste system at Surry is not designed to withstand a hydrogen explosion. Therefore, Section 3.11.2.5 of NUREG-0472, which is currently used in the Surry TS, is not the appropriate section.

Section 3.11.2.5A of NUREG-0472 contains the second option for explosive gas mixture TS. This option applies to systems which are not designed to withstand a hydrogen explosion. Although this option could be used as the basis for the Surry TS, the licensee felt that the third option, discussed below, is the most applicable.

The third option, which is Section 3.11.2.5B of NUREG-0472, is for hydrogen-rich systems not designed to withstand a hydrogen explosion. This option is better suited for the Surry TS, as hydrogen is one of the primary gases processed by the gaseous waste system. The objective of the proposed amendment is to restrict the normal oxygen concentration to less than or equal to 2%, which is more conservative than the current TS objective of maintaining the normal oxygen concentration at or below 4%, which will further reduce the likelihood of a hydrogen explosion. Therefore, the licensee's request to modify the TS requirements for explosive gas concentration to conform with Section 3.11.2.5B of NUREG-0472 is acceptable. Moreover, the proposed amendment also conforms with the Westinghouse Standard Technical Specifications, Revision 5.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments. The State official had no comment.

### 4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the 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 (55 FR 28484). 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.

### 5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Bart Buckley

Date: April 17, 1991

Attachment: NUREG-0472, Revision 3, Draft 3, Pages 3/4 11-15 through  
3/4 11 11-18.

OF NUREG-0472,  
Specifications for PWRs

Draft #3 of NUREG-0472, Rev. 3  
Dated March 30, 1982

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems designed to withstand a hydrogen explosion)

LIMITING CONDITION FOR OPERATION

3.11.2.5 The concentration of hydrogen or oxygen in the waste gas holdup system shall be limited to less than or equal to 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of hydrogen or oxygen in the waste gas holdup system exceeding the limit, restore the concentration to within the limit within 48 hours.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentration of hydrogen or oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen or oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.10.

Draft #3 of NUREG-0472, Rev. 3  
Dated March 30, 1982

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems not designed to withstand a hydrogen explosion)

LIMITING CONDITION FOR OPERATION

3.11.2.5A The concentration of hydrogen and/or oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of hydrogen and/or oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, restore the concentration of hydrogen and/or oxygen to within the limit within 48 hours.
- b. With the concentration of hydrogen and/or oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of hydrogen and/or oxygen to less than or equal to 2%.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5A The concentrations of hydrogen and/or oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and/or oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.11.

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Hydrogen rich systems not designed to withstand a hydrogen explosion)

LIMITING CONDITION FOR OPERATION

3.11.2.5B The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume and the hydrogen concentration greater than 2% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than or equal to 2% by volume.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5B The concentrations of hydrogen and oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.11.

## RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems designed to withstand a hydrogen explosion)

### LIMITING CONDITION FOR OPERATION

3.11.2.6 The concentration of hydrogen or oxygen in the waste gas holdup system shall be limited to  $\leq 4\%$  by volume.

APPLICABILITY: At all times.

### ACTION:

- a. With the concentration of hydrogen or oxygen in the waste gas holdup system exceeding the limit, restore the concentration to within the limit within 48 hours.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.11.2.6 The concentration of hydrogen or oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system, with the (hydrogen or oxygen) monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.10.

## RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems not designed to withstand a hydrogen explosion)

### LIMITING CONDITION FOR OPERATION

3.11.2.6A The concentration of hydrogen and/or oxygen in the waste gas holdup system shall be limited to  $\leq 2\%$  by volume.

APPLICABILITY: At all times.

### ACTION:

- a. With the concentration of hydrogen and/or oxygen in the waste gas holdup system  $> 2\%$  by volume but  $\leq 4\%$  by volume, restore the concentration of hydrogen and/or oxygen to within the limit 48 hours.
- b. With the concentration of hydrogen and/or oxygen in the waste gas holdup system  $> 4\%$  by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of hydrogen and/or oxygen to  $\leq 2\%$  within 48 hours.
- c. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.11.2.6A The concentrations of hydrogen and/or oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and/or oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.10.