

November 1, 1999

Mr. J. P. O'Hanlon  
Senior Vice President - Nuclear  
Virginia Electric and Power Company  
5000 Dominion Blvd.  
Glen Allen, Virginia 23060

Distribution:  
See next page

**SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: MINIMUM VOLUME OF SODIUM HYDROXIDE SOLUTION IN CHEMICAL ADDITION TANK (TAC NOS. MA5470 AND MA5471)**

Dear Mr. O'Hanlon:

The Commission has issued the enclosed Amendment No. 222 to Facility Operating License No. DPR-32 and Amendment No. 222 to Facility Operating License No. DPR-37 for the Surry Power Station, Unit Nos. 1 and 2, respectively. The amendments change the Technical Specifications (TS) in response to your application transmitted by letter dated April 28, 1999.

These amendments revise TS Section 3.4.A.4 for Units 1 and 2. The changes relax the minimum volume requirement for the refueling water Chemical Addition Tank (CAT) from 4200 gallons to 3930 gallons. The CAT provides sodium hydroxide solution which is mixed with water from the Refueling Water Storage Tank in the event of an accident. The resulting solution is then fed to the suction of containment spray pumps. The change will provide additional operating flexibility while maintaining the proper pH in the containment spray solution and the containment sump.

A minor administrative change is also being made to TS Table 4.1-2B to correct an earlier printing error and to delete a reference which no longer applies.

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:

Gordon E. Edison, Senior Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosures:

1. Amendment No. 222 to DPR-32
2. Amendment No. 222 to DPR-37
3. Safety Evaluation

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

November 1, 1999

Mr. J. P. O'Hanlon  
Senior Vice President - Nuclear  
Virginia Electric and Power Company  
5000 Dominion Blvd.  
Glen Allen, Virginia 23060

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: MINIMUM  
VOLUME OF SODIUM HYDROXIDE SOLUTION IN CHEMICAL ADDITION  
TANK (TAC NOS. MA5470 AND MA5471)

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Sincerely,

A handwritten signature in black ink that reads "Gordon E. Edison".

Gordon E. Edison, Senior Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosures:

1. Amendment No. 222 to DPR-32
2. Amendment No. 222 to DPR-37
3. Safety Evaluation

cc w/encls: See next page

Mr. J. P. O'Hanlon  
Virginia Electric and Power Company

Surry Power Station

cc:

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 222  
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 April 28, 1999, 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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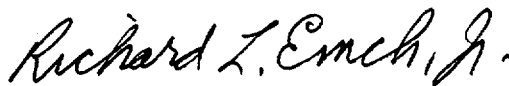
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 222 , 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 its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard L. Emch, Jr., Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 1, 1999



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 222  
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 April 28, 1999, 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.

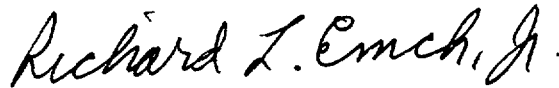
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 222 , 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 its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard L. Emch, Jr., Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: November 1, 1999

ATTACHMENT TO

LICENSE AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-32

LICENSE AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Remove Page

TS 3.4-1

TS 4.1-10

Insert Page

TS 3.4-1

TS 4.1-10



### 3.4 SPRAY SYSTEMS

#### Applicability

Applies to the operational status of the Spray Systems.

#### Objective

To define those limiting conditions for operation of the Spray Systems necessary to assure safe unit operation.

#### Specification

- A. A unit's Reactor Coolant System temperature or pressure shall not be made to exceed 350°F or 450 psig, respectively, unless the following Spray System conditions in the unit are met:
1. Two Containment Spray Subsystems, including containment spray pumps, piping, and valves shall be OPERABLE.
  2. Four Recirculation Spray Subsystems, including recirculation spray pumps, coolers, piping, and valves shall be OPERABLE.
  3. The refueling water storage tank shall contain at least 387,100 gallons of borated water at a maximum temperature of 45°F. The boron concentration shall be at least 2300 ppm but not greater than 2500 ppm.
  4. The refueling water chemical addition tank shall contain at least 3930 gallons of solution with a sodium hydroxide concentration of at least 17 percent by weight but not greater than 18 percent by weight.
  5. All valves, piping, and interlocks associated with the above components which are required to operate under accident conditions shall be OPERABLE.

TABLE 4.1-2B  
MINIMUM FREQUENCIES FOR SAMPLING TESTS

<u>DESCRIPTION</u>	<u>TEST</u>	<u>FREQUENCY</u>	<u>UFSAR SECTION REFERENCE</u>
1. Reactor Coolant Liquid Samples	Radio-Chemical Analysis(1)	Monthly(5)	
	Gross Activity(2)	5 days/week(5)	9.1
	Tritium Activity	Weekly (5)	9.1
	* Chemistry (CL, F & O <sub>2</sub> )	5 days/week(9)	4
	* Boron Concentration E Determination	Twice/week Semiannually(3)	9.1
	DOSE EQUIVALENT I-131	Once/2 weeks(5)	
	Radio-iodine Analysis (including I-131, I-133 & I-135)	Once/4 hours(6) and (7) below	
2. Refueling Water Storage	Chemistry (Cl & F)	Weekly	6
3. Boric Acid Tanks	* Boron Concentration	Twice/Week	9.1
4. Chemical Additive Tank	NaOH Concentration	Monthly	6
5. Spent Fuel Pit	* Boron Concentration	Monthly	9.5
6. Secondary Coolant	Fifteen minute degassed beta and gamma activity	Once/72 hours	
	DOSE EQUIVALENT I-131	Monthly(4) Semiannually(8)	
7. Stack Gas Iodine and Particulate Samples	* I-131 and particulate radioactive releases	Weekly	

\* See Specification 4.1.D

- (1) A radiochemical analysis will be made to evaluate the following corrosion products: Cr-51, Fe-59, Mn-54, Co-58, and Co-60.
- (2) A gross beta-gamma degassed activity analysis shall consist of the quantitative measurement of the total radioactivity of the primary coolant in units of  $\mu\text{Ci/cc}$ .



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-32

AND AMENDMENT NO. 222 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

## 1.0 INTRODUCTION

By letter dated April 28, 1999, Virginia Electric and Power Company (the licensee) proposed amendments to the Technical Specifications (TS) for Surry Power Station, Units 1 and 2. The proposed amendments would decrease the minimum-required volume of sodium hydroxide solution in the chemical addition tank (CAT) from 4200 gallons to 3930 gallons. The licensee requested this change in order to provide additional operating margin for the CAT. Engineering evaluation performed by the licensee has indicated that the decreased volume in the CAT will still provide enough sodium hydroxide to the water coming from the Refueling Water Storage Tank (RWST) and other sources of borated water to maintain pH of the spray solution and the containment sump at specified values.

The proposed amendment includes a minor administrative change to Table 4.1-2B in the TS which specifies minimum frequencies for different sampling tests. These changes consist of slightly modifying the format of the table and clarifications.

## 2.0 EVALUATION

The CAT contains sodium hydroxide solution which is gravity-fed to the borated water coming from the RWST in order to maintain alkaline pH in the post-LOCA sprays and containment sump. The current TS requires a minimum of 4200 gallons of sodium hydroxide solution at between 17 and 18 percent concentration in order to ensure that the pH of the spray solution and containment sump is maintained at or above 8.5 and 7.0, respectively. Maintaining these pH values is needed to ensure that no stress corrosion cracking or reevolution of radioactive iodine will take place in the post-LOCA environment. However, 4200 gallons of solution in the CAT, which has a capacity of 4330 gallons, provides a very narrow operational margin. In order to increase this margin, the licensee reevaluated the minimum volume of sodium hydroxide solution needed for maintaining the required alkalinity levels. The results of this evaluation have indicated that reducing the volume of 17 to 18 percent sodium hydroxide solution to 3800 gallons causes only a very slight decrease in pH which never goes below the specified limits. This allowed the licensee to specify for the CAT a minimum volume of 3930 gallons of sodium hydroxide solution. This volume includes a margin of 3.1 percent which is greater than the instrument channel statistical allowance associated with the CAT level indication.

The staff has reviewed the assumptions and methodologies used by the licensee in its analyses to justify the requested modifications. The staff also performed an independent verification of the licensee's calculations. The staff found that all the justifications were well supported by the appropriate licensee analyses.

The proposed change to Table 4.1-2B is acceptable because there is no safety impact of correcting an earlier misprint and deleting a reference that is no longer applicable.

The staff has reviewed the modification to the Surry Power Station, Units 1 and 2 TS proposed by the licensee. The proposed modification changes the minimum required volume of sodium hydroxide solution in the CAT. Based on its review, the staff concludes that all the TS changes proposed in this submittal are acceptable.

### 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 (64 FR 48869). 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: K. Parczewski

Date: November 1, 1999

DATED: November 1, 1999

AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1  
AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-37 - SURRY UNIT 2

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