50-280

April 29, 1996

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

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SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: REACTOR COOLANT SAMPLING (TAC NOS. M94765 AND M94766)

Dear Mr. O'Hanlon:

The Commission has issued the enclosed Amendment No. 209 to Facility Operating License No. DPR-32 and Amendment No. 209 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 January 30, 1996.

These amendments modify the Technical Specification requirements for the sampling of the reactor coolant for dissolved oxygen, chlorides and fluorides.

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-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 209 to DPR-32
2. Amendment No. 209 to DPR-37
3. Safety Evaluation

cc w/enclosures:
See next page

Document Name - G:\SURRY\M94765.AMD

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DATED: April 29, 1996

AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1
AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-37 - SURRY UNIT 2

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

Surry Power Station

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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. 209
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 January 30, 1996, 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. 209 , 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

P Clifford for

Eugene V. Imbro, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 29, 1996

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. 209
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 January 30, 1996, 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. 209 , 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

D Plotchas FOR

Eugene V. Imbro, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 29, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NOS. 50-280 AND 50-281

Revise Appendix A as follows:

Remove Pages	Insert Pages
TS 3.1-21	TS 3.1-21
TS 4.1-10	TS 4.1-10
TS 4.1-10a	TS 4.1-10a

4. Concentrations of contaminants in the reactor coolant shall not exceed the following maximum limits when the reactor coolant temperature is below 250 degrees F:

Contaminant	Normal Concentration (PPM)	Transients not to exceed 24 hours (PPM)
a. Chloride	0.15	1.5
b. Fluoride	0.15	1.5

If the limits above are exceeded, the reactor shall be immediately brought to COLD SHUTDOWN and the cause of the out-of-specification condition shall be ascertained and corrected.

5. For the purposes of correcting the contaminant concentrations to meet Technical Specifications 3.1.F.1 and 3.1.F.4 above, increase in coolant temperature consistent with operation of primary coolant pumps for a short period of time to assure mixing of the coolant shall be permitted. This increase in temperature to assure mixing shall in no case cause the coolant temperature to exceed 250 degrees F.

6. For conditions above COLD SHUTDOWN, if more than one contaminant or contaminants transient, which results in contaminant levels exceeding any of the normal steady state operation limits specified in 3.1.F.1 or 3.1.F.4, is experienced in any seven consecutive day period, the reactor shall be placed in COLD SHUTDOWN until the cause of the out-of-specification operation is ascertained and corrected.

TABLE 4.1-2B
MINIMUM FREQUENCIES FOR SAMPLING TESTS

	DESCRIPTION	TEST	FREQUENCY	FSAR SECTION REFERENCE
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_2)	5 days/week(9)	4
		* Boron Concentration	Twice/week	9.1
		$\bar{E}$ Determination	Semiannually(3)	
		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 b and q activity	Once/72 hours	10.3
		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 µCi/cc.

(3) $\bar{E}$ determination will be started when the gross gamma degassed activity of radionuclides with half-lives greater than 15 minutes analysis indicates ≥ 10 μCi/cc. Routine sample(s) for $\bar{E}$ analyses shall only be taken after a minimum of 2 EFPD and 20 days of power operation have elapsed since reactor was last subcritical for 48 hours or longer.

(4) If the fifteen minute degassed beta and gamma activity is 10% or more of the limit given in Specification 3.6.E, a DOSE EQUIVALENT I-131 analysis will be performed.

(5) When reactor is critical and average primary coolant temperature ≥350°F.

(6) Whenever the specific activity exceeds 1.0 μCi/cc DOSE EQUIVALENT I-131 or $100/\bar{E}$ μCi/cc and until the specific activity of the Reactor Coolant System is restored within its limits.

(7) One sample between 2 & 6 hours following a THERMAL POWER change exceeding 15 percent of RATED POWER within a one hour period provided the average primary coolant temperature ≥350°F.

(8) When the fifteen minute degassed beta and gamma activity is less than 10% of the limit given in Specification 3.6.E.

(9) Sampling for chloride and fluoride concentrations is not required when fuel is removed from the reactor vessel and the reactor coolant inventory is drained below the reactor vessel flange, whether the upper internal and/or the vessel head are in place or not. Sampling for oxygen concentration is not required when the reactor coolant temperature is below 250 degrees F.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-32

AND AMENDMENT NO. 209 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 January 30, 1996, the Virginia Electric and Power Company (the licensee), submitted a request to amend the plant's Technical Specifications (TS) 3.1.F.4, 3.1.F.5, 3.1.F.6 and Table 4.1-2B, Item 1 related to sampling of the reactor primary water for dissolved oxygen, chlorides and fluorides. The licensee proposes to modify TS 3.1.F.4 by deleting the requirements for sampling for dissolved oxygen whenever water temperature is below 250°F and Item 1 of Table 4.1-2B by including a note stating that there is no need to sample for chlorides and fluorides when fuel is removed from the reactor vessel and the reactor coolant inventory is drained below the reactor vessel flange level. In TS 3.1.F.5 and 3.1.F.6, only administrative changes were made to improve their clarity.

2.0 EVALUATION

TS 3.1.F.4 requires sampling for dissolved oxygen, chlorides and fluorides at all modes of operation, including cold shutdown and refueling modes when the temperature of primary coolant is below 250°F. The licensee found that taking samples during a refueling operation is especially burdensome because when the reactor is depressurized, there is no driving force to move the primary coolant to the sampling points. Normal sampling is, therefore, not possible and the only way to take samples is for the operator to enter the reactor vessel area and take samples manually by dipping a sampling container into the available inventory. This, of course, would result in a high radiation exposure. But even this method becomes impractical when the reactor vessel upper internals or vessel head are installed.

The purpose of monitoring concentration of these chemicals in the primary coolant is to ensure that they do not reach levels causing stress corrosion cracking of the reactor's austenitic steel components. However, this type of corrosion is very temperature dependent and at lower temperatures corrosion rates are significantly reduced. For the modes of operation where primary coolant is maintained at a lower temperature, monitoring of the concentrations of these chemicals becomes, therefore, less important.

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Electric Power Research Institute in their guidelines for primary water chemistry (EPRI Report NP-7077, November 1990) recommends that oxygen in reactor coolant should be monitored only when its temperature exceeds 250 degrees F. In addition, during reload operation, measuring of oxygen concentration in reactor coolant becomes redundant because, with the reactor vessel head removed, primary coolant is exposed to containment atmosphere. The amount of oxygen dissolved in coolant can be, therefore, calculated from its partial pressure in air. Because of these considerations, deletion of the requirement in TS 3.1.f.4 for oxygen measurement when coolant temperature is below 250 degrees F is justified.

Chlorides and fluorides are more aggressive corrosion agents than oxygen and even at the temperatures below 250° they can cause corrosion damage to the reactor components. They have to be, therefore, monitored. However, during reload operation, when fuel is removed and the reactor vessel is drained to below its flange level, coolant inventory stays constant with no new coolant being added and it can be safely assumed that the concentration of contaminants will not change from what it was before the start of reload operation. In this case monitoring is not needed. However, it has to be resumed as soon as the reload mode is over and fresh coolant is added to the reactor vessel. This consideration justifies the proposed modification of TS Table 4.1-2B, Item 1 which would not require sampling for chloride and fluoride concentrations when the reactor vessel coolant inventory is drained to below the vessel flange.

3.0 SUMMARY

The staff has evaluated the proposed amendments to the plant's TS, which modify sampling requirements of the primary reactor coolant for oxygen, chlorides and fluorides. The licensee provided satisfactory justifications for deleting sampling requirements for oxygen when primary coolant temperature is below 250°F and for chlorides and fluorides when during reload operation fuel is removed from the reactor vessel and reactor coolant inventory is drained below the reactor flange. Based on its evaluation, the staff concludes that the proposed amendments of TS 3.1.F.4 and Table 4.1.-2B, Item 1 are acceptable. The staff also finds the amendments to TS 3.1.F.5 and 3.1.F.6 acceptable in that they are editorial changes to improve clarity and maintain consistency throughout the TS.

4.0 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.

5.0 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 (61 FR 13533). 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.

6.0 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: April 29, 1996