

August 1, 1988

Docket Nos. 50-280  
and 50-281

Mr. D. S. Cruden  
Vice President - Nuclear  
Virginia Electric and Power Company  
5000 Dominion Blvd.  
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Dear Mr. Cruden:

SUBJECT: SURRY UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE:  
EFFLUENT SAMPLING AND RADIATION MONITORING SYSTEM  
(TAC NOS. 66117 AND 66118)

The Commission has issued the enclosed Amendment No. 122 to Facility Operating License No. DPR-32 and Amendment No. 122 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 May 14, 1987.

These amendments revise Section 4.9, "Effluent Sampling and Radiation Monitoring System" of the Surry Units 1 and 2 Technical Specifications to make the reporting level and detection capability for I-131 in water samples consistent with NUREG-0472, "Radiological Effluent Technical Specifications for PWRs, Revision 2."

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

Chandu P. Patel, Project Manager  
Project Directorate II-2  
Division of Reactor Projects-I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 122 to DPR-32
2. Amendment No. 122 to DPR-37
3. Safety Evaluation

cc w/enclosures:  
See next page

LA:PDII-2  
DM:Mer  
07/20/88

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Mr. D. S. Cruden  
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. 122  
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 14, 1987, 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:

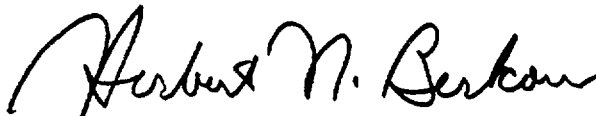
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(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 122, 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: August 1, 1988



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. 122  
License No. DPR-37

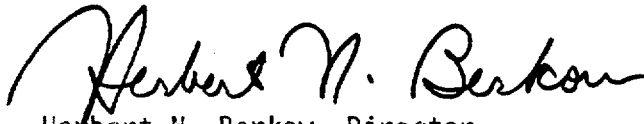
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 14, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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. 122, 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: August 1, 1988

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 122 FACILITY OPERATING LICENSE NO. DPR-32

AMENDMENT NO. 122 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 4.9-12	TS 4.9-12
TS 4.9-13	TS 4.9-13
TS 4.9-14	TS 4.9-14
TS 4.9-15	TS 4.9-15

TABLE 4.9-4

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

## Reporting Levels

Analysis	Water (pCi/l)	Airborne Particulate or Gases (pCi/m <sup>3</sup> )	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)
H-3	30,000				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-Nb-95	400				
I-131	2*	0.9		3	100
Cs-134	30	10	1,000	60	1,000
Cs-137	50	20	2,000	70	2,000
Ba-La-140	200			300	

\* Reporting Level for the Ground (drinking) Water Samples required by Table 4.9-3. The Reporting Level for the Surface (non-drinking) Water Samples required by Table 4.9-3 is 20 pCi/l.



TABLE 4.9-5

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS<sup>a</sup>

LOWER LIMIT OF DETECTION (LLD)<sup>b</sup>

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m <sup>3</sup> )	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)	Sediment (pCi/kg, dry)
gross beta	4	0.01				
H-3	2,000					
Mn-54	15		130			
Fe-59	30		260			
Co-58, 60	15		130			
Zn-65	30		260			
Zr-95	30					
Nb-95	15					
I-131	1 <sup>c</sup>	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
Ba-140	60			60		
La-140	15			15		

Note: This list does not mean that only these nuclides are to be detected and reported. Other peaks that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.

TABLE 4.9-5 (Continued)TABLE NOTATION

- <sup>a</sup> Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13.
- <sup>b</sup> Table 4.9-5 indicates acceptable detection capabilities for radioactive materials in environmental samples. These detection capabilities are tabulated in terms of the lower limits of detection (LLDs). The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66 s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

Where:

LLD is the "a priori" lower limit of detection as defined above (as picocuries per unit mass or volume),

$s_b$  is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per disintegration),

V is the sample size (in units of mass or volume),

2.22 is the number of disintegrations per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

$\lambda$  is the radioactive decay constant for the particular radionuclide,  
and

$\Delta t$  for environmental samples is the elapsed time between sample collection (or end of the sample collection period) and time of counting

Typical values of E, V, Y, and  $\Delta t$  should be used in the calculation.

It should be recognized that the LLD is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as a posteriori (after the fact) limit for a particular measurement. Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidable small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Operating Report pursuant to Specification 6.6.b.2.

- <sup>c</sup> LLD for the Ground (drinking) Water Samples. The LLD for the Surface (non-drinking) Water Samples is 10 pCi/l.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 122 TO FACILITY OPERATING LICENSE NO. DPR-32  
AND AMENDMENT NO. 122 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 14, 1987, the Virginia Electric and Power Company (the licensee) proposed changes to Technical Specifications (TS) Section 4.9, "Effluent Sampling and Radiation Monitoring System," for the Surry Power Station Units No. 1 and No. 2 (SPS 1&2). Specifically, Table 4.9-4 has a reporting level of I-131 for water as 2 pCi/liter. The proposed amendments would keep the reporting level of I-131 for ground (drinking) water samples as 2 pCi/liter and change the reporting level of I-131 for surface (non-drinking) water samples to 20 pCi/liter. Also, Table 4.9-5, "Detection Capabilities for Environmental Sample Analysis" currently has a lower limit of detection of I-131 for water as 10 pCi/liter. The proposed amendments would change the lower limit of detection of I-131 for ground (drinking) water samples to 1 pCi/liter and keep the lower limit of detection of I-131 for surface (non-drinking) water samples as 10 pCi/liter. The amendments would also insert symbols that were inadvertently deleted on page TS 4.9-15 of the Surry Technical Specifications. The changes are proposed to make the Surry TS consistent with the guidance provided by the staff in NUREG-0472, "Radiological Effluent Technical Specifications for PWRs, Revision 2."

DISCUSSION AND EVALUATION

NUREG-0472 provides Radiological Effluent Technical Specifications for pressurized water reactors, which the staff finds to be an acceptable standard for licensing actions. The Radiological Effluent Technical Specifications for SPS 1&2 were issued on June 19, 1984. However, the present TS for SPS 1&2 require some clarifications regarding reporting levels for radioactivity concentrations and detection capabilities for I-131 in water samples. Specifically, Tables 4.9-4 and 4.9-5 list the reporting level for I-131 in water samples as 2 pCi/liter while the lower limit of detection level is shown as 10 pCi/liter. The reporting level of 2 pCi/liter for I-131 is consistent with the staff's guidance in NUREG-0472. However, this reporting level is applicable to ground (drinking) water only. For the surface (non-drinking) water, the reporting level for I-131 is 20 pCi/liter. The proposed change by the licensee will make the reporting level consistent with the guidance in NUREG-0472. Similarly, in Table 4.9-5, the licensee has proposed to change the lower limit of detection for I-131 from 10 pCi/liter to 1 pCi/liter for ground (drinking) water and 10 pCi/liter for surface (non-drinking) water. This is consistent with the guidance provided in NUREG-0472.

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Thus, the proposed changes in Tables 4.9-4 and 4.9-5 meet the intent of the guidance provided in NUREG-0472 and thereby fulfill the requirements of the regulations related to Radiological Effluent Technical Specifications. Therefore, they are acceptable to the staff. In addition, the licensee has inserted some symbols which were inadvertently deleted on page TS 4.9-15. This is an editorial change and found to be acceptable.

#### ENVIRONMENTAL CONSIDERATION

These amendments involve changes in reporting and administrative procedures or requirements and 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) and (c)(10). 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: August 1, 1988

Principal Contributor:

C. Patel