

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

August 12, 1988

D. S. CRUDEN  
VICE PRESIDENT-NUCLEAR

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Serial No. 88-278  
NO/ETS:vlh  
Docket No. 50-281  
License No. DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION UNIT 2  
10 CFR 50 APPENDIX J EXEMPTION REQUEST

Pursuant to 10 CFR 50.12, Virginia Electric and Power Company requests an exemption from 10 CFR 50, Appendix J, Paragraph III.A.6(b), which requires, in part, that "if two consecutive periodic Type A tests fail to meet the applicable acceptance criteria in III.A.5.b ... a Type A test shall be performed at each plant shutdown for refueling or approximately 18 months, whichever occurs first until two consecutive Type A tests meet the acceptance criteria in III.A.5.(b), after which time the retest schedule specified in III.D may be resumed." We believe that the purpose of Type A testing is to measure and ensure that the leakage through the primary reactor containment does not exceed the maximum allowable leakage rate. It also provides assurance that periodic surveillance, maintenance and repairs are made to systems or components penetrating the containment. Our last three Type A tests have demonstrated that containment integrity has not significantly degraded over the operating cycle. Therefore, Virginia Electric and Power Company requests an exemption from the schedular requirements of paragraph III.A.6(b) to perform a Type A test every outage until two consecutive tests meet the acceptance criteria and resume our normal test schedule in accordance with III.D.

The containment sump isolation valves (TV-DA-100/200 A&B) have been the major contributor to our containment leakage problems for several outages. These valves have been replaced and are no longer a continuing source of containment leakage. Also, technical justifications have been submitted to your office to resolve the containment Type A testing issues identified in NRC inspection report 50-281/86-36. With the successful resolution of the two technical issues and our corrective action program for the containment sump isolation valves (see Attachment 1), we feel we have met the intent of the regulation in establishing containment integrity (leakage rate less than 0.75 La), and maintaining that integrity over the operating cycle.


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Therefore, Virginia Electric and Power Company believes that this exemption should be granted pursuant to 10 CFR 50.12(a)(2)(ii) and (v), in that: application of the regulation in this particular instance is not necessary to achieve the underlying purpose of the rule which is to measure and ensure that leakage through the primary containment does not exceed the allowable leakage rate at any time during the operating cycle; and, the exemption would provide only temporary relief from the applicable requirement and we have made a good faith effort to comply with the regulation. This one-time exemption will enable Surry Unit 2 to resume the retest schedule specified in Section III.D of 10 CFR 50, Appendix J and therefore, prevent unnecessary pressurization of the containment to design basis pressure. Pursuant to 10CFR170.12 an application fee of \$150 is enclosed.

If you have any questions or need additional information to process this request, please contact us.

Very truly yours,



D. S. Cruden

Attachments

cc: U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, N. W.  
Suite 2900  
Atlanta, Georgia 30323

Mr. W. E. Holland  
NRC Senior Resident Inspector  
Surry Power Station

Mr. Chandu P. Patel  
NRC Surry Project Manager  
Project Directorate II-2  
Division of Reactor Projects - I/II

**ATTACHMENT 1**

**Corrective Action Program**

**Leak Rate Testing Program**

## Corrective Action Program

### I. Problem

Surry Unit 2 was unable to satisfy the "as-found" condition for the 1983, 1985 and 1986 Type A tests due to leakage penalty additions from Type C testing. In each case the leakage was associated with penetrations/valves in systems that are normally filled with water and operating under post accident conditions and/or the containment sump isolation valves (TV-DA-100/200 A & B).

The following are the test results of the previous three Type A tests. In each case, the test results indicate that containment integrity has been maintained.

#### 1983 Type A Test

	<u>Weight Percent Per Day</u>
As-found Type A results	0.060643
Type C penalty without "water-filled" and containment sump penetrations	0.00504 _____
TOTAL	0.065683
As-found Type A results	0.060643
Type C penalty with "water-filled" and containment sump penetrations	a) 0.0446 _____
TOTAL	0.105243

- a) specific contributors were penetrations #46 RCS loop fill, #69 recirculation spray and #38 containment sump valves; each with leakage greater than 40 SCFH

1985 Type A Test

	<u>Weight Percent Per Day</u>
As-found Type A	0.061023
Type C penalty without "water-filled" and containment sump penetrations	0.011049
TOTAL	0.072072
As-found Type A	0.061023
Type C penalty with "water-filled" and containment sump penetrations	b) 0.03481
TOTAL	0.095833

- b) specific contributors were penetrations #7 safety injection, #38 containment sump valve; each with leakage greater than 20 SCFH

1986 Type A Test

	<u>Weight Percent Per Day</u>
As-found Type A	0.063838
Type C penalty without "water-filled" and containment sump penetrations	0.00898106
TOTAL	0.07281906
As-found Type A	0.063838
Type C penalty with "water-filled" and containment sump penetrations	c) > 0.208364
TOTAL	> 0.272202

- c) specific contributors were penetrations #46 RCS loop fill and #38 containment sump valves; both with leakage greater than 300 SCFH "as-found"

Both in 1983, 1985, and 1986, the problem penetration(s) was either a penetration that is normally filled with water and operating under post-accident conditions or the containment sump isolation valves. For each test, the as-found leakage on these valves caused the results of the "as-found" integrated leak rate to exceed 0.075 weight percent per day.

II. Corrective Actions

A. Safety System Valves

Engineering evaluations have been performed in accordance with the standard review plan to demonstrate that specific penetrations in safety systems are normally operating and filled with water under post-accident conditions. See Virginia Electric and Power Company submittal dated February 29, 1988, Serial Number 88-707A.

Therefore, these penetrations/valves are not a credible leakage path from containment during design basis accidents.

B. TV-DA-100/200 A & B (penetration #38)

After we discovered the deficiencies with the original containment isolation valves, Type C testing was performed on these valves every unit cold shutdown and repairs were made as necessary until valve replacement.

The containment sump isolation valves were redesigned and replaced in 1986. In order to improve the reliability of this penetration/valves, the system design was also modified to include a process control check valve. This valve cycles with the containment sump pump leaving TV-DA-100/200 A & B open, which prevents excessive wear on the sump isolation valves. The following are the results of Type C testing for TV-DA-100/200 A & B.

Unit 1

<u>TV-DA-100A</u>	<u>TV-DA-100B</u>
05-22-86 - Replaced Valve	05-22-86 - Replaced Valve
06-21-86 - 0.0 SCFH (Initial test)	06-21-86 - 0.0 SCFH (Initial test)
07-09-86 - 0.90 SCFH (As-left)	
09-11-86 - 255.0 SCFH (As-found) Valve Packing Problem	09-11-86 - 0.0 SCFH (As-found/left) Penetration at 255 SCFH see 09-11-86 (100A)
09-22-86 - 0.0 SCFH (As-left)	
12-12-86 - 0.32 SCFH (As-found)	12-12-86 - 31.43 SCFH (As-found)
01-13-87 - 0.0 SCFH (As-left)	01-13-87 - 0.0 SCFH (As-left)
05-19-87 - 305 SCFH (As-found) Valve Actuation Problem Replaced gasket Air Operator Froze	05-26-87 - 0.0 SCFH (As-found/left)
05-21-87 - 0.0 SCFH (As-left)	
04-16-88 - 0.109 SCFH (As-found)	04-16-88 - 4.99 SCFH (As-found)
04-27-88 - 0.0 SCFH (As-left)	05-24-88 - 0.0 SCFH (As-left)

Unit 2

TV-DA-200A

TV-DA-200B

10-08-86 - Replaced Valve

10-08-86 - Replaced Valve

11-14-86 - 0.0 SCFH (Initial test)

11-14-86 - 0.0 SCFH (Initial test)

12-10-87 - 0.0 SCFH (As-found/left)

12-10-87 - 0.269 SCFH (As-found/left)

III. Integrated Leak Rate Test - 1988 Refueling

Guidance given in IE Information Notice 85-71 indicates that an improved maintenance and test program (Corrective Action Program) for containment penetration boundaries and isolation valves could be an acceptable alternative to increasing the frequency of Type A tests.

Therefore, our Corrective Action Program, as described, has assured that containment integrity is being maintained in that, the last three Unit 2 Type A tests have been successful, only the Type C leakage penalty has caused us to exceed the Type A "as-found" criteria. The penetrations/valves with the high Type C leakage are associated with systems that are normally water filled and operating under post accident conditions and are not considered credible leakage sources or have been replaced with a more reliable design. Thus, the overall plan will ensure in the event of an accident that the dose levels will not exceed 10 CFR 100 limits. Therefore, these corrective actions for the overall containment leak rate test program have fulfilled the requirements of increased frequency for Type A tests.