

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

May 21, 2003

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

Serial No.: 03-357  
NLOS/MM  
Docket No.: 50-280  
License No.: DPR-32

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**SURRY POWER STATION UNIT 1**  
**CYCLE 19 CORE OPERATING LIMITS REPORT**

Pursuant to Surry Technical Specification 6.2.C, attached is a copy of the Virginia Electric and Power Company's (Dominion) Core Operating Limits Report for Surry Unit 1 Cycle 19 Pattern EM, Revision 0.

If you have any questions or require additional information, please contact us.

Very truly yours,



C. L. Funderburk, Director  
Nuclear Licensing and Operations Support

Attachment

Commitment Summary: There are no new commitments as a result of this letter.

A001

cc: U. S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303-8931

Mr. C. Gratton  
U. S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Mail Stop 8G9  
Rockville, MD 20852

Mr. R. A. Musser  
NRC Senior Resident Inspector  
Surry Power Station

**CORE OPERATING LIMITS REPORT**  
**Surry 1 Cycle 19 Pattern EM**  
**Revision 0**

**May 2003**

**Virginia Electric and Power Company (Dominion)**

## **1.0 INTRODUCTION**

This Core Operating Limits Report (COLR) for Surry Unit 1 Cycle 19 has been prepared in accordance with the requirements of Technical Specification 6.2.C.

The Technical Specifications affected by this report are:

TS 3.1.E and TS 5.3.A.6.b - Moderator Temperature Coefficient  
TS 3.12.A.2 and TS 3.12.A.3 - Control Bank Insertion Limits  
TS 3.12.B.1 and TS 3.12.B.2 - Power Distribution Limits

## **2.0 OPERATING LIMITS**

The cycle-specific parameter limits for the specifications listed in section 1.0 are presented in the following subsections. These limits have been developed using the NRC-approved methodologies specified in Technical Specification 6.2.C.

### **2.1 Moderator Temperature Coefficient (TS 3.1.E and TS 5.3.A.6.b)**

2.1.1 The Moderator Temperature Coefficient (MTC) limits are:

+6.0 pcm/°F at less than 50 percent of RATED POWER, or

+6.0 pcm/°F at 50% of Rated Power and linearly decreasing to 0 pcm/°F at Rated Power

### **2.2 Control Bank Insertion Limits (TS 3.12.A.2)**

2.2.1 The control rod banks shall be limited in physical insertion as shown in Figure 1.

### 2.3 Heat Flux Hot Channel Factor-FQ(z) (TS 3.12.B.1)

$$FQ(z) \leq \frac{CFQ}{P} K(z) \text{ for } P > 0.5$$

$$FQ(z) \leq \frac{CFQ}{0.5} K(z) \text{ for } P \leq 0.5$$

$$\text{where : } P = \frac{\text{Thermal Power}}{\text{Rated Power}}$$

2.3.1  $CFQ = 2.32$

2.3.2  $K(z)$  is provided in Figure 2.

### 2.4 Nuclear Enthalpy Rise Hot Channel Factor-FΔH(N) (TS 3.12.B.1)

$$F\Delta H(N) \leq CFDH \times \{1 + PFDH(1 - P)\}$$

$$\text{where : } P = \frac{\text{Thermal Power}}{\text{Rated Power}}$$

2.4.1  $CFDH = 1.56$  for Surry Improved Fuel (SIF)

2.4.2  $PFDH = 0.3$

Figure 1

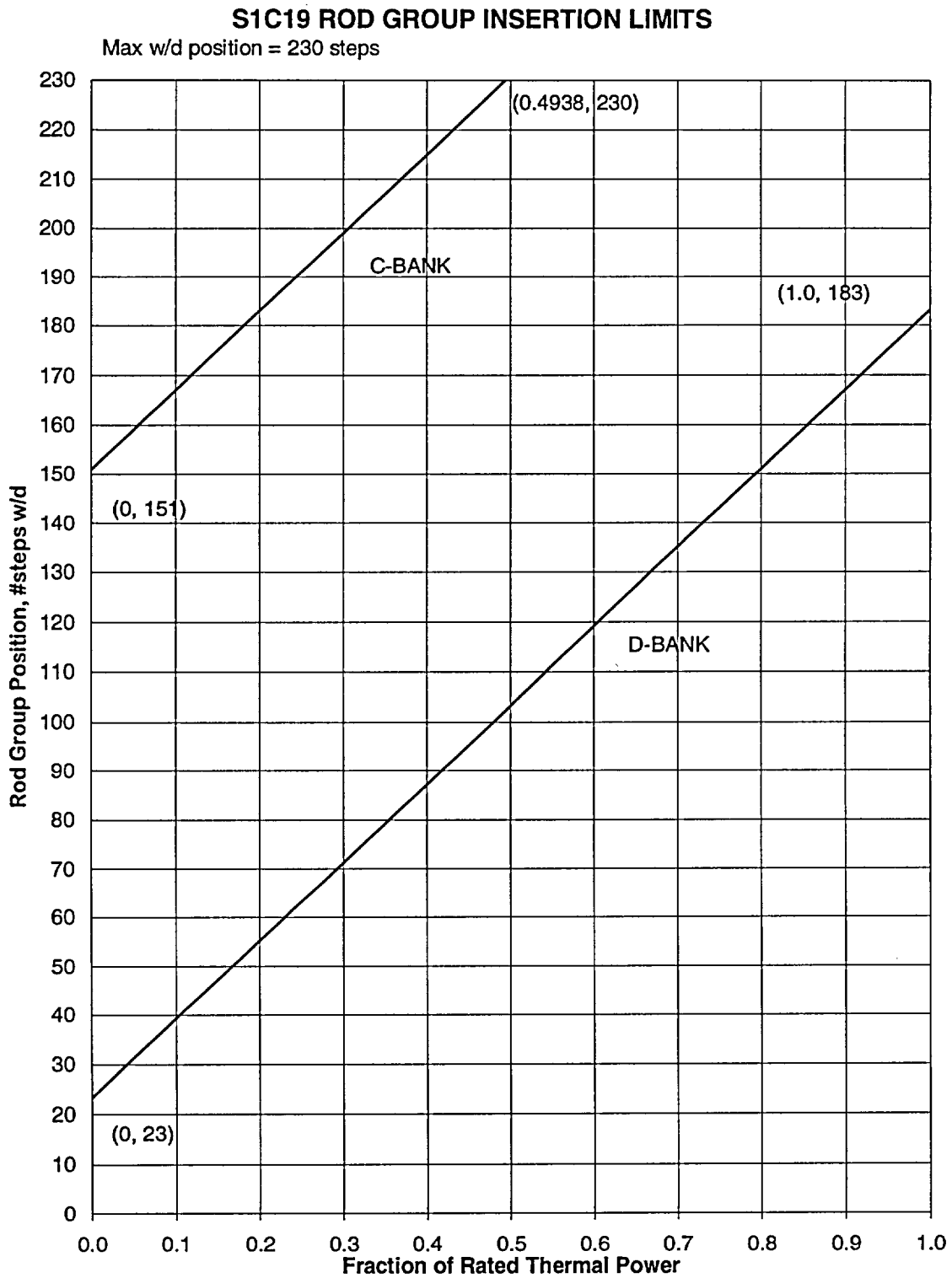


Figure 2

