VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

February 2, 2001

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 01-051
NL&OS/GSS/ETS R0
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATION CHANGES
INCREASED FUEL ENRICHMENT AND
SPENT FUEL POOL SOLUBLE BORON AND FUEL BURNUP CREDIT
CORRECTED TABLES

In a September 27, 2000 letter (Serial No. 00-491), Virginia Electric and Power Company (Dominion) requested amendments, in the form of changes to the Technical Specifications to Facility Operating Licenses Numbers NPF-4 and NPF-7 for North Anna Power Station Units 1 and 2, respectively. The proposed changes would 1) increase the fuel enrichment limit to 4.6 weight percent Uranium^{235}, 2) establish Technical Specifications Limiting Conditions for Operations for Spent Fuel Pool (SFP) boron concentration and fuel storage restrictions, and 3) revise the discussion of the allowance for uncertainties in the calculation for K_{eff} in the SFP criticality calculation. In a January 25, 2001 telephone conference call to discuss the proposed changes, the NRC staff requested that we incorporate our September 27, 2000 letter as a reference into the Design Section of the Technical Specifications. This clarification would provide an explicit reference to the basis of the uncertainties associated with the fuel storage criticality analyses, rather than the implicit reference that would exist through the NRC's SER and our submittal when the proposed changes are approved by the NRC staff.

In addition, we have identified some typographical errors in the tables in the discussion of change. The attachment to this letter provides Tables 4.4 through 4.7 with the correct fuel tolerances and uncertainties values. Please use the attached revised Technical Specification pages and tables to complete your review of our proposed Technical Specifications changes.

The significant hazards considerations determination completed for the September 27, 2000 proposed license amendment is not affected by incorporating a direct

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reference to the initiating submittal into the Design Section of the Technical Specifications.

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

Very truly yours,

William R. Matthews
Vice President – Nuclear Operations

Attachment

Commitments made in this letter: None

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

Mr. M. J. Morgan
NRC Senior Resident Inspector
North Anna Power Station

Commissioner
Bureau of Radiological Health
1500 East Main Street
Suite 240
Richmond, VA 23218

Mr. J. E. Reasor, Jr.
Old Dominion Electric Cooperative
Innsbrook Corporate Center
4201 Dominion Blvd.
Suite 300
Glen Allen, Virginia 23060

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by William R. Matthews, who is Vice President - Nuclear Operations, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 2nd day of February, 2001.

My Commission Expires: 3-31-04.

Maggie McClure
Notary Public

(SEAL)

ATTACHMENT 1

Proposed Technical Specification Change
Increased Fuel Enrichment and Spent Fuel Pool Boron Credit
Corrected Tables 4.4 Through 4.7

Virginia Electric and Power Company
(Dominion)
North Anna Power Station Units 1 and 2

Corrected Tables for Increased Fuel Enrichment and Credit for Boron and Burnup in the Spent Fuel Pool Technical Specification Change
North Anna Units 1 & 2

The Virginia Electric and Power Company (Dominion) Technical Specification Change Request submittal dated September 27, 2000, includes discussion of an enrichment tolerance case for criticality assessments. In the discussion the tolerance value of 0.05% is described. However, a typographical error appears in the enrichment tolerances specified in Tables 4.4 through 4.7 of the Discussion of Changes. Additionally, a typographical error appears in the Delta-K column for the conservative geometry tolerance case specified in Table 4.4. The following are revised tables which correct the errors by changing the Delta-K value of the conservative geometry tolerance case from "0.24430" to "0.024430" on Table 4.4 and the enrichment tolerances from "+0.5% Enrichment" to "+0.05% Enrichment" on Tables 4.4 through 4.7.

Table 4.4
KENO Tolerance Case Results
Fresh Fuel Storage Rack
17x17 Westinghouse Fuel, 4.6 w/o LEU, Nominal Design Data

Uncertainty and Bias

Item	K-effective	Standard Deviation	Delta-K
Tolerance Reference[a]	0.93994	0.00037	0.000611
+0.05% Enrichment	0.94266	0.00034	0.003549
97.5% TD, 0% dish	0.94375	0.00036	0.004662
Conservative Geometry	0.96353	0.00035	0.024430
Methodology Uncertainty			0.000990
Total Uncertainty			**0.025150**[b]
Method Bias			0.00357
Total Uncertainty and Bias			**0.02872**

Maximum K_{eff} including Uncertainty and Bias

Total Uncertainty and Bias	**0.02872**
Nominal Keffective	**0.90726**
Maximum Keff	**0.93598**[c]

[a]Tolerence Reference case uses a simplified KENO model relative to that used to determine nominal K_{eff}

[b]Root mean square of individual uncertainty Delta-K

[c]Total uncertainties + Total bias + Nominal K_{eff}

Table 4.5
KENO Tolerance Results
Spent Fuel Storage Rack
2.0 w/o LEU, 0 ppm Boron, 3x3

Uncertainty

Item	K-effective	Standard Deviation	Delta-K
Reference	0.96494	0.00021	0.000347
+0.05% enrichment	0.97243	0.00020	0.007969
+2% density	0.96803	0.00022	0.003592
0% dishing	0.96680	0.00021	0.002350
-0.005 wrapper	0.96734	0.00022	0.002902
-0.005 cell wall thickness	0.96753	0.00021	0.003080
Rack pitch base case	0.96743	0.00020	
Rack pitch –1/64	0.96956	0.00020	0.002597
Rack pitch –1/8 1 row xy	0.96923	0.00020	0.002267
Fuel pitch, 10.27 inch pitch	0.97018	0.00021	0.003229
Methodology Uncertainty			0.000990
Total Uncertainty			**0.010867**[a]

Bias

Item	K-effective	Standard Deviation	Delta-K
Reference case with correct width wrappers	0.96602	0.00021	0.00108
Method bias			0.00357
Temp bias			0.01300
Wrapper error bias			0.00108
Total Bias			**0.01873**

Maximum K_{eff} including Uncertainty and Bias

Total Uncertainty and Bias	**0.02960**
Nominal Keffective	**0.96494**
Maximum Keff	**0.99454**[b]

[a]Root mean square of individual uncertainty Delta-K
[b]Total uncertainties + Total bias + Nominal K_{eff}

Table 4.6
KENO Tolerance Results
Spent Fuel Storage Rack
20 x1.56 w/o LEU, 4x4.60 w/o LEU, 1 empty, 0 ppm Boron, 5x5

Uncertainty

Item	K-effective	Standard Deviation	Delta-K
Reference	0.97701	0.00021	0.000347
+0.05% enrichment	0.98099	0.00022	0.004482
+2% density	0.97922	0.00022	0.002712
0% dishing	0.97829	0.00023	0.001794
-0.005 wrapper	0.97887	0.00022	0.002362
-0.005 cell wall thickness	0.97902	0.00022	0.002512
Rack pitch –1/64	0.97715	0.00022	0.000642
Rack pitch –1/8 1 row xy	0.98035	0.00022	0.003842
Fuel pitch, 95/95	0.98056	0.00022	0.004052
Methodology Uncertainty			0.000990
Total Uncertainty			**0.008650**[a]

Bias

Item	K-effective	Standard Deviation	Delta-K
Method bias			0.00357
Temp bias			0.01000
Total Bias			**0.01357**

Maximum K_{eff} including Uncertainty and Bias

Total Uncertainty and Bias	**0.02222**
Nominal Keffective	**0.97701**
Maximum Keff	**0.99923**[b]

[a]Root mean square of individual uncertainty Delta-K
[b]Total uncertainties + Total bias + Nominal K_{eff}

Table 4.7
KENO Tolerance Results
Spent Fuel Storage Rack
20 x1.56 w/o LEU, 4x4.60 w/o LEU, 1 empty, 230 ppm Boron, 5x5

Uncertainty

Item	K-effective	Standard Deviation	Delta-K
Reference	0.92593	0.00023	0.000380
+0.05% enrichment	0.93052	0.00022	0.005115
+2% density	0.92917	0.00021	0.003754
0% dishing	0.92757	0.00022	0.002165
-0.005 wrapper	0.92675	0.00021	0.001334
-0.005 cell wall thickness	0.92797	0.00023	0.002577
Rack pitch –1/64	0.92729	0.00022	0.001885
Rack pitch –1/8 1 row xy	0.92990	0.00022	0.004495
Fuel pitch, 95/95	0.92954	0.00021	0.004124
Methodology Uncertainty			0.000990
Total Uncertainty			**0.009576**[a]

Bias

Item	K-effective	Standard Deviation	Delta-K
Method bias			0.00357
Temp bias			0.01000
Total Bias			**0.01357**

Maximum K_{eff} including Uncertainty and Bias

Total Uncertainty and Bias	**0.02315**
Nominal Keffective	**0.92593**
Maximum Keff	**0.94908**[b]

[a]Root mean square of individual uncertainty Delta-K
[b]Total uncertainties + Total bias + Nominal K_{eff}

ATTACHMENT 2

Proposed Technical Specification Change
Increased Fuel Enrichment and Spent Fuel Pool Boron Credit
Revised Design Section Technical Specifications Pages

Virginia Electric and Power Company
(Dominion)
North Anna Power Station Units 1 and 2

a. In accordance with the code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,

b. For a pressure of 2485 psig, and

c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is approximately 10,000 cubic feet at nominal operating conditions.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. A K_{eff} equivalent to less than 1.0 ~~or equal to 0.95~~ when flooded with unborated water, which includes ~~an conservative allowance of 3.4% delta k/k~~ for uncertainties calculated in accordance with the methodology described in Virginia Electric and Power Company letter dated September 27, 2000 (Serial No. 00-491).

b. A nominal 10 9/16 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 The new fuel pit storage racks are designed and shall be maintained with a nominal 21 inch center-to-center distance between new fuel assemblies such that, on a best estimate basis, K_{eff} will not exceed .98, with fuel of the highest anticipated enrichment in place, when aqueous foam moderation is assumed.

5.6.1.3 If new fuel for the first core loading is stored dry in the spent fuel storage racks, the center-to-center distance between the new fuel assemblies will be administratively limited to 28 inches and the k_{eff} shall not exceed 0.98 when aqueous foam moderation is assumed.

c. K_{eff} equivalent to less than 0.95 when fully flooded with water borated to 350 ppm, which includes an allowance for uncertainties calculated in accordance with the methodology described in Virginia Electric and Power Company letter dated September 27, 2000 (Serial No. 00-491), but excludes allowances for postulated accidents.

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DRAINAGE

5.6.2 The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 288.83 feet Mean Sea Level, USGS datum.

CAPACITY

5.6.3 The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.

c. A K_{eff} equivalent to less than 0.95 when fully flooded with water borated to 350 ppm, which includes an allowance for uncertainties calculated in accordance with the methodology described in Virginia Electric and Power Company letter dated September 27, 2000 (Serial No. 00-491), but excludes allowances for postulated accidents.

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