

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 26, 2009

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

Serial No. 09-322
NL&OS/ETS R0
Docket Nos. 50-338/339
License Nos. NPF-4/7


VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR
PROPOSED LICENSE AMENDMENT REQUEST
ADOPTION OF TSTF-490, REVISION 0, REGARDING
DELETION OF E BAR DEFINITION AND REVISION TO RCS SPECIFIC ACTIVITY
USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

In a letter dated December 17, 2008 (Serial No. 08-0729), Dominion requested amendments, in the form of changes to the Technical Specifications to Facility Operating License Numbers NPF-4 and NPF-7, for North Anna Power Station Units 1 and 2, respectively. The proposed amendment would replace the current Technical Specifications (TS) limits on reactor coolant system (RCS) gross specific activity with a new limit on RCS noble gas specific activity. In an April 30, 2009 telephone call and a subsequent May 12, 2009 letter, the NRC staff requested supplemental information to complete their review of the proposed amendment request. The requested information, which clarifies the use of two analysis methods in the definition of I-131 and modifies the definition of Xe-133, is provided in Attachment 1. Attachment 2 includes a revised TS marked-up page and typed page with the revised definition of Xe-133. Please use the revised TS pages to complete the review of the license amendment request.

The information provided in this letter does not affect the conclusion of the significant hazards consideration discussion provided in Dominion letter dated December 17, 2008 (Serial No. 08-0729) for North Anna.

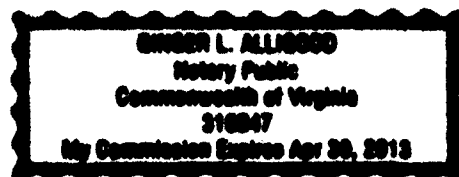
If you have any questions or require additional information, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,


J. Alan Price
Vice President – Nuclear Engineering

Attachments

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)



The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. Alan Price, who is Vice President – Nuclear Engineering, 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 26 day of May, 2009.

My Commission Expires: 4/30/2013


Notary Public

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

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

State Health Commissioner
Virginia Department of Health
James Madison Building - 7th floor
109 Governor Street
Suite 730
Richmond, Virginia 23219

NRC Senior Resident Inspector
North Anna Power Station

Ms. D. N. Wright
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop O-8 H4A
11555 Rockville Pike
Rockville, Maryland 20852

Mr. J. F. Stang, Jr.
NRC Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop O-8 G9A
11555 Rockville Pike
Rockville, Maryland 20852

ATTACHMENT 1

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR
PROPOSED LICENSE AMENDMENT REQUEST
ADOPTION OF TSTF-490, REVISION 0, REGARDING
DELETION OF E BAR DEFINITION AND REVISION TO RCS SPECIFIC ACTIVITY**

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2**

Background

By letter dated December 17, 2008, (Agencywide Documents Access and Management System Accession No. ML083530982) Virginia Electric and Power Company, (the licensee) submitted a license amendment request to adopt TSTF-490, "Deletion of E Bar definition and revision to RCS [Reactor Coolant System] specific activity," for North Anna Power Station, Unit Nos. 1 and 2 (North Anna 1 and 2). The Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee submitted and determined that the following additional information is required to complete the evaluation.

Request for additional information

NRC Question

Proposed inserts 1 and 2 contained in the letter dated December 17, 2008, provide definitions for "dose equivalent I-131" (DEI) and "dose equivalent Xe-133" (DEX). These definitions indicate that DEI and DEX may be determined using several references for dose conversion factors (DCFs). However, the purpose of the limiting condition for operation (LCO) for DEI and DEX is to satisfy Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.36, Criterion 2, which establishes an operating restriction that is an initial condition of a design basis accident (DBA). When surveillance of the RCS radionuclides is performed, each acceptable set of DCFs will yield a different DEI and DEX. As approved by the NRC staff, the intent of TSTF-490 was to allow the licensee to select, from the acceptable list, one DCF reference for the calculation of DEI, and one DCF reference for the calculation of DEX. Consistent with 10 CFR 50.36 and TSTF-490, the licensee should specify one DCF reference for each definition, which will be consistent with the specified LCO and DBA analysis, or justify why a list of several DCFs is consistent with the specified LCO and DBA analysis.

Therefore, please justify how the use of multiple DCFs maintains consistency with the specified LCO values and DBA analyses, or provide a revised definition that incorporates the DCFs appropriate for the North Anna 1 and 2 technical specifications.

Dominion Response

I-131

Although North Anna is licensed to 10 CFR 50.67, North Anna is maintaining the current dose conversion factors in the definition of dose equivalent I-131. The current definition of dose equivalent I-131 allows dose equivalent iodine to be calculated using either

TID-14844 or RG 1.109 dose conversion factors. Currently, the station dose equivalent I-131 surveillance uses TID-14844 dose conversion factors and the definition of dose equivalent I-131 allows the flexibility to upgrade to RG 1.109 dose conversion factors. This flexibility was originally justified in letters dated September 12, 2003 and May 7, 2004 (Serial No. 03-464 and 03-464D). The definition of dose equivalent iodine and the application of dose conversion factors were approved by the NRC in amendments 240/221, dated June 15, 2005 (TAC Nos. MC0776 and MC0777).

RG 1.183 requires that the pre-accident and concurrent iodine spikes used in the design basis analysis be based on the maximum value permitted by Technical Specifications. The use of Federal Guidance Report (FGR)-11 dose conversion factors to calculate dose is consistent with the Total Effective Dose Equivalent methodology described in RG 1.183. However, the use of either the RG 1.109 or TID-14844 dose conversion factors to perform the Technical Specification surveillance for dose equivalent I-131 will restrict plant operations to a lower total allowable iodine inventory in the RCS than would be attainable using FGR-11 dose conversion factors. The 1 $\mu\text{Ci/gm}$ dose equivalent I-131 inventory calculated using RG 1.109 dose conversion factors was used to establish the design basis analysis source term for both the pre-accident and concurrent iodine spikes. The use of the RG 1.109 dose conversion factors to determine the design basis analysis source term bounds the use of either TID-14844 or RG 1.109 dose conversion factors in the Technical Specification surveillance.

It is acceptable for the pre-accident and concurrent iodine spike design basis source terms to be based on RG 1.109 dose conversion factors and the doses to be calculated using FGR-11 dose conversion factors because the source term bounds allowable plant operating parameters determined with either TID-14844 or RG 1.109 dose conversion factors as defined in the Technical Specifications.

Xe-133

Dose equivalent Xe-133 will be based only on FGR-12 dose conversion factors. A revised TS page with the Dose equivalent Xenon definition using FGR 12 is included as Attachment 2.

ATTACHMENT 2

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR
PROPOSED LICENSE AMENDMENT REQUEST
ADOPTION OF TSTF-490, REVISION 0, REGARDING
DELETION OF E BAR DEFINITION AND REVISION TO RCS SPECIFIC ACTIVITY
REVISED TECHNICAL SPECIFICATION DEFINITION XE-133**

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2**

1.1 Definitions

DOSE EQUIVALENT XE-133

DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

**ENGINEERED SAFETY
FEATURE (ESF) RESPONSE
TIME**

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

(continued)