Eugene S. Grecheck Vice President Nuclear Development



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July 18, 2011

U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D. C. 20555 Serial No. NA3-11-040R Docket No. 52-017 COL/DWL

DOMINION VIRGINIA POWER NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION SRP 11.04: RESPONSE TO RAI LETTER 77

On June 16, 2011, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA), which consisted of two questions. The responses to the following two Request for Additional Information (RAI) questions are provided in Enclosures 1 and 2:

• RAI 5639, Question 11.04-9

Location of IRSF

• RAI 5639, Question 11.04-10

Conformance with RG 1.143

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck



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Enclosures:

- 1. Response to NRC RAI Letter No. 77, RAI 5639 Question 11.04-9
- 2. Response to NRC RAI Letter No. 77, RAI 5639 Question 11.04-10

Commitments made by this letter: None

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this <u>18th</u> day of <u>July</u>	, 2011
My registration number is <u>310847</u> and my	
Commission expires: 430 2015	Ginger Lynn Rutherford NOTARY PUBLIC Commonwealth of Virginia Reg. # 310847 My Commission Expires 4/30/2015
Hinged Rutherford Notary Public	

- cc: U. S. Nuclear Regulatory Commission, Region II
 - C. P. Patel, NRC
 - T. S. Dozier, NRC
 - J. T. Reece, NRC

ENCLOSURE 1

Response to NRC RAI Letter 77

RAI 5639, Question 11.04-9

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

North Anna Unit 3

Dominion

Docket No. 52-017

RAI No.: 5639 (RAI Letter 77)

SRP Section: 11.04 – Solid Waste Management System

QUESTIONS for Electrical Engineering Branch (EEB)

DATE of RAI issue: 06/16/2011

QUESTION NO.: 11.04-9

In Appendix 11.4-A (Page 11-89), the applicant stated that the Interim Radwaste Storage Facility (IRSF) is classified as non-safety and non-seismic category, based on the fact that the location of the IRSF is separate and does not impact any safety and/or seismic class I structures and components. In order to support this statement, a plan layout showing the locations of the IRSF and other Seismic Category I buildings in the control area is required to show that, indeed, the separations are large enough to not impact the nearby safety-related structures in case of excessive displacements or collapse of the IRSF building under design basis loadings including SSE.

Dominion Response

North Anna unit 3 FSAR Figure 1.2-1R depicts the Unit 3 Site Plan, which shows the location of the Interim Radwaste Storage Facility (IRSF) in relation to seismic Category I structures.

The height of the IRSF is less than 60 ft. above grade. The distance from the IRSF to the nearest seismic Category I structure (Power Source Fuel Storage Vault) is greater than 350 ft. Because the height of the IRSF is less than the distance to the nearest seismic Category I structure, a collapse of the IRSF under design basis loading, including an SSE, will not impact any Category I structure.

Serial No. NA3-11-040R Docket No. 52-017 Enclosure 1

Proposed COLA Revision

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None

Serial No. NA3-11-040R Docket No. 52-017 Enclosure 2

ENCLOSURE 2

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Response to NRC RAI Letter 77

RAI 5639, Question 11.04-10

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

North Anna Unit 3 Dominion

Docket No. 52-017

RAI No.: 5639 (RAI Letter 77)

SRP Section: 11.04 – Solid Waste Management System

QUESTIONS for Electrical Engineering Branch (EEB)

DATE of RAI issue: 06/16/2011

QUESTION NO.: 11.04-10

In Appendix 11.4-A (Page 11-89), the applicant stated that the Interim Radwaste Storage Facility (IRSF) is classified as non-safety and non-seismic (NS) category. USAPWR DCD Sec. 3.2.1.1.3 (Page 3.2-4) defined this class of structures (NS) to have no safety-related function or nuclear safety design requirements, meaning the collapse of the structure is permissible. However, GDC 61 requires that RWMS that contain radioactivity be designed to assure adequate safety under normal and postulated accident conditions, including seismic loadings (GDC 2). Regulatory Guide (RG) 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures and Components installed in Light-Water-Cooled Nuclear Power Plants," provides guidance for compliance with GDC 61 related to the design of the SWMS, including provisions and features to contain the radioactivity in the event of structural failure. Provide the proposed design features and approach to assure that the design of the IRSF will follow the guidelines provided in RG 1.143 or an alternative design method be proposed to satisfy the GDC 61 and GDC 2 requirements that , in the event of the failure of the IRSF due to a seismic SSE event, the radioactive release would not pose undue risk to public health and the environment required under 10CFR Part 20.

Dominion Response

Dominion agrees that GDC 2 and 61 apply to radwaste systems as the Staff indicates. However, in this instance, GDC 2 and 61 are not applicable because the North Anna Unit 3 Interim Radwaste Storage Facility (IRSF) is not part of the radwaste system. Radwaste system boundaries are described in RG 1.143, Section B, Discussion, which states:

For the purposes of this guide, the radwaste systems are considered to begin at the interface valves in each line from other systems provided for collecting wastes that may contain radioactive materials and to include related instrumentation and control systems. <u>The radwaste system terminates</u> at the point of controlled discharge to the environment, at the point of recycle to the primary or secondary water system storage tanks, or <u>at the point of storage of packaged solid wastes</u>. [Emphasis added.]

The North Anna Unit 3 Solid Waste Management System (SWMS) design reflects this boundary definition. That is, the SWMS meets the applicable GDC criteria for a radwaste system up to the point where the storage of the packaged solid wastes begins. In the case of North Anna 3, that boundary point is the building in which the final step of radwaste processing is performed.

Similarly, RG 1.143 defines a solid radwaste system as consisting

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"...of slurry waste collection and settling tanks, spent resin storage tanks, phase separators, and components and subsystems used to dewater or solidify wastes prior to storage or offsite shipment. [Emphasis added.]

The IRSF is designed to provide interim storage of stabilized solid radioactive waste that has already been dewatered and has been packaged in suitable containers for offsite shipment. There are no components within the IRSF to further process this waste. As such, the IRSF is not part of the solid radwaste system.

That the IRSF is a non-seismic structure is consistent with SRP guidance. SRP 11.4, Appendix 11.4-A, makes the following statement under its design objectives and criteria for stabilized waste storage facilities (paragraph V, item 4.A):

All stabilized radwaste should be located in restricted areas where effective material control and accountability can be maintained. While structures are not required to meet seismic criteria, licensees should employ good engineering judgment to ensure that radioactive materials are contained safely, such as by the use of curbs and drains to contain spills of dewatered resins or sludge.

Consistent with the SRP, the IRSF design employs good engineering judgment and sound radiological protection practices. The IRSF is located in a restricted area. The design includes curbs and drains, and the facility is a rugged concrete-reinforced structure that has 4 ft thick reinforced concrete outer walls for shielding and reinforced concrete walls forming 6 separate storage vault areas as shown in FSAR Figure 11AA-

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In the unlikely event that the building was to collapse during a seismic event, the radioactive release would not pose undue risk to public health and the environment. The waste is considered "stabilized waste" and the contents of the waste storage containers would not experience any widespread dispersal. Therefore, in the event of a building collapse stored waste would essentially remain within the collapsed concrete debris.

Proposed COLA Revision

None