Dominion Nuclear North Anna, LLC
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Dominion®

November 18, 2004

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

Serial No. 04-705
ESP/JDH
Docket No. 52-008

DOMINION NUCLEAR NORTH ANNA, LLC
NORTH ANNA EARLY SITE PERMIT APPLICATION
RESPONSE TO OCTOBER 29, 2004 RAI ON URANIUM FUEL CYCLE IMPACTS

In its October 29, 2004 letter titled "Supplemental Request for Additional Information (RAI) Regarding the Environmental Portion of the Early Site Permit (ESP) Application for the North Anna Site (TAC No. MC 1128)," the NRC requested additional information regarding certain aspects of the uranium fuel cycle as it relates to the North Anna Early Site Permit application. This letter contains our response.

At the appropriate time, the North Anna ESP application will be updated as a result of this response.

If you have any questions or require additional information, please contact Mr. Tony Banks at 804-273-2170.

Very truly yours,

Eugene S. Grecheck
Vice President-Nuclear Support Services

Enclosure: Response to NRC RAI on Uranium Fuel Cycle Impacts

Commitments made in this letter: Revise ESP application to reflect RAI response.

cc: U. S. Nuclear Regulatory Commission, Region II
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Mr. Mike Scott
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Mr. M. T. Widmann
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P.O. Box 10009
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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 Support Services, of Dominion Nuclear North Anna, LLC. He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of Dominion Nuclear North Anna, LLC, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 18TH day of November, 2004.

My Commission expires: May 31, 2006

Vicki L. Hull
Notary Public

(SEAL)

Enclosure

Response to October 29, 2004 RAI on
Uranium Fuel Cycle Impacts

NRC October 29, 2004 Question: Section 5.7, Uranium Fuel Cycle Impacts

The North Anna ESP environmental report used Table S-3 as the basis for evaluating the contribution of the environmental effects of the fuel cycle. Table S-3, however, did not estimate releases or consider the environmental effects of radon-222 and technetium-99. The effects of these gases should be included in the environmental report. Provide a detailed analysis of estimated releases and environmental effects of radon-222 and technetium-99 for the uranium fuel cycle.

Response

Dominion's analysis of environmental effects of the uranium fuel cycle for North Anna's ESP application included a review of impact considerations due to radon-222 (Ra-222) and technetium-99 (Tc-99). This assessment took advantage of previous analyses documented in NUREG-1437, Section 6.2, including Tables 6.1 through 6.4, as well as a review of known impacts from experience with these isotopes in the fuel cycle. The analysis in NUREG-1437, Section 6.2 is incorporated by reference in the North Anna ESP application.

As described in NUREG-1437, Chapter 6, the data on environmental impacts of the uranium fuel cycle presented in Table S-3 (which didn't address the impacts of Ra-222 and Tc-99) was supplemented to extend the coverage of assessed impacts to include those isotopes. In NUREG-1437 it states that "Principal radon releases occur during mining and milling operations and as emissions from mill tailings, whereas principal Tc-99 releases occur from gaseous diffusion enrichment facilities." In accordance with the guidance provided in NUREG-1555 (Section 5.7, Appendix A) and the NEPA evaluation process, Dominion determined that there was no new significant information relevant to the impacts of those isotopes for the North Anna ESP site. Since the principal fuel cycle and impact evaluations for new reactor technologies are bounded by the existing LWR impact assessment, Dominion concluded that the overall significance of contribution from Ra-222 and Tc-99 would remain small. In addition, calculated operational aspects of the fuel cycle associated with supporting new units at the North Anna site would only contribute to an extremely low percentage of the natural total body dose to the public. Furthermore, the EPA has found that current emissions from power plants were at levels that provided an ample margin of safety. Therefore, since uranium fuel cycle facilities must comply with federal and state regulatory limits, dose contribution to the public would also be considered small. In addition, the non-radiological impacts of the uranium fuel cycle are acceptable.

Application Revision

Replace the 3rd paragraph of ER Section 5.7.1 with above two paragraphs.