Dominion Nuclear North Anna, LLC
5000 Dominion Boulevard, Glen Allen, VA 23060

Dominion®

March 31, 2004

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

Serial No. 04-194
ESP/JDH
Docket No. 52-008

DOMINION NUCLEAR NORTH ANNA, LLC
NORTH ANNA EARLY SITE PERMIT APPLICATION
REVISED APPROACH FOR UNIT 4 NORMAL PLANT COOLING

During a February 18, 2004 conference call, Dominion Nuclear North Anna, LLC (Dominion) advised Mr. A. Kugler, NRC Environmental Project Manager for Dominion's North Anna Early Site Permit application, of Dominion's intent to limit the plant cooling options for a potential Unit 4 at the North Anna ESP site to closed-cycle cooling employing dry towers. This letter confirms Dominion's decision. This more restrictive approach eliminates the use of Lake Anna as a source of make-up water for Unit 4 cooling as well as the potential need to rely on external water sources during drought conditions. Enclosure 2 to this letter summarizes the changes in the environmental impacts resulting from this more restrictive approach.

The original approach to providing plant cooling is described in the North Anna ESP application's Environmental Report, Section 3.4.1.1, Normal Plant Cooling. The section describes the use of Lake Anna as the cooling water supply (using the North Anna Reservoir portion of Lake Anna) and the primary heat sink (using the Waste Heat Treatment Facility portion of Lake Anna) for Unit 3, and the use of a closed-cycle cooling system such as wet cooling towers for Unit 4. Make-up water for the closed-cycle Unit 4 system is described as potentially coming from the North Anna Reservoir, and supplemented by an unspecified external source under certain drought conditions.

Going forward, the base case for heat dissipation for Unit 4 is revised from an approach that relies on the use of wet cooling towers to one that relies on the use of dry towers. This revision eliminates the need for obtaining make-up water from Lake Anna or from another external source.

The Unit 3 approach and source of normal cooling water as described in the ESP application is unaffected by this decision.

It was deemed appropriate to provide notice of our revised approach at this time so that its implications could be factored into NRC's ongoing review activities. The North Anna ESP application will be revised to reflect the change and a revision submitted.

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

Very truly yours,

Eugene S. Grecheck
Vice President—Nuclear Support Services

Enclosures:

1. NRC Correspondence Affirmation Form
2. Revised Approach for Unit 4 Normal Plant Cooling

Commitments made in this letter:

Revise the North Anna ESP application to reflect the revised approach to Unit 4 normal plant cooling.

c w/enclosures:

U.S. Nuclear Regulatory Commission, Region II
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Mr. Andrew Kugler
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Washington, D.C. 20555

Mr. M. T. Widmann
NRC Senior Resident Inspector
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Office of Environmental Impact Review
P.O. Box 10009
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Serial No. 04-194
Enclosure 1
NRC Correspondence Affirmation

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 31st day of March, 2004

My Commission expires: 3-31-08

Maggie McClure
Notary Public

(SEAL)

Enclosure 2

Revised Approach for Unit 4 Normal Plant Cooling

REVISED APPROACH FOR UNIT 4 NORMAL PLANT COOLING

The Environmental Report section 3.4.1.1, Normal Plant Cooling, currently states the following:

> *"A once-through cooling system that uses the North Anna Reservoir as the cooling water supply and the WHTF as the primary heat sink would be used for the normal plant cooling of the new Unit 3, a closed-cycle cooling system would be used for the new Unit 4. The Unit 4 system would use mechanical or natural draft towers for heat dissipation, and makeup water could potentially come from the North Anna Reservoir supplemented by an external source."*

This section goes on to state:

> *"...the net inflows to the lake may not be able to sustain both the supply of makeup water to the Unit 4 cooling towers and the circulating water to the once-through units (Units 1, 2 and 3). If both the existing units and the new units were to continue operation through the critical flow periods, an external water source would be required to temporarily supplement the makeup water supply for Unit 4. The requirement of the external water supply and the environmental impact of bringing this water to Unit 4 would be assessed during detailed engineering and described in the COL application. A dry cooling system for Unit 4 would also be evaluated. Since there would be minimal makeup water requirement and no blowdown discharge to the WHTF from a dry cooling system, impacts to Lake Anna would be minimal."*

Dominion has decided to revise the application to eliminate uncertainty concerning the adequacy of the Unit 4 makeup sources. The base case for heat dissipation for Unit 4 will be changed from wet cooling towers to dry towers.

Under this approach, exhaust from the plant's steam turbines would be directed to a surface condenser inside the power block. The surface condenser would be cooled by a closed loop of circulating water that is pumped to the dry towers located to the west of the power block within the ESP site. The closed loop of circulating water would be cooled by ambient air in dry towers (finned fan coolers) that use electric motor driven fans to dissipate heat from the closed loop circulating water to the atmosphere. This approach eliminates the need for makeup water from the North Anna Reservoir or from an external source. There is also no continuous blowdown to the WHTF from a dry tower system.

Environmental Impacts of Dry Towers for Unit 4 -

The September 25, 2003 North Anna ESP application was reviewed to identify any changes in the environmental impacts described in the original application due to the decision to use dry towers as the base case for Unit 4 cooling. Changes in environmental impacts were identified in the areas of water use, land use, noise, aesthetics, terrestrial ecology, and aquatic ecology. A summary of the environmental impacts in each of those areas is provided below.

Water Use –

The dry tower system has no evaporative water losses, requires no makeup water, and has no blowdown discharge compared to mechanical draft (or natural draft) cooling towers. Makeup water from Lake Anna Reservoir or an external source would not be required. The volume of water available for release from the North Anna dam would be greater and the lake levels would be less affected during periods of extended drought. Further, the ambient levels of total dissolved solids and temperatures in the lake would be unaffected by blowdown. Impacts on water use, water users, and water quality are therefore small.

Land Use –

The dry tower system would be situated within the confines of the existing site so the impacts are considered to be small to none. Using a conservative basis, the footprint of the dry tower system would be approximately 960 feet wide and 1060 feet long occupying 1,017,600 square feet or 23.4 acres (9.45 hectares). This footprint is less than the area that would be occupied by the power blocks for Units 3 and 4 (43.7 acres or 17.7 hectares). For comparison, the NAPS property comprises 1803 acres, of which about 760 acres are covered by water.

Noise –

The dry tower system would generate operational noise from fan operation. The noise contribution from a dry tower system would produce impacts below the NRC-defined significance levels (65dBA) at the exclusion area boundary. Construction noise-related impacts would be small.

Aesthetics –

The dry tower system would be wholly situated on the existing NAPS site and its primary external impact would be the discharge of heated air and noise to the atmosphere. Each of the several structures in the dry tower system could be up to 150 feet tall. The visual impact would be small since it would be located adjacent to the power block with large structures that would be approximately the same height or taller.

Terrestrial Ecology –

The dry tower system uses air, rather than water, for cooling. The system is sized to fit within the existing construction footprint of the ESP site, so there would be no additional impacts to terrestrial ecosystems on site beyond those already evaluated. Fogging, icing, or salt deposition on vegetation would not occur with the dry tower system. The towers would be about 150 feet tall, and would produce operational noise and air movement. At this height and with fan noise and air deterrents, bird collision impacts would be small to none. While bird and wildlife use of the area in the immediate vicinity of the facilities is expected to be minimal, as the noise levels drop with distance from the fans, wildlife populations would be unaffected.

Aquatic Ecology –

A dry cooling tower for Unit 4 would require no water from Lake Anna. No impingement or entrainment of fish would occur as a result of the operation of Unit 4 with dry cooling, and no adverse impacts would result.