

December 3, 2004

Mr. David A. Christian  
Senior Vice President and Chief Nuclear Officer  
Dominion Resources Services, Inc.  
Innsbrook Technical Center  
5000 Dominion Blvd  
Glen Allen, VA 23060-6711

SUBJECT: POTENTIAL OPEN ITEMS FOR THE DRAFT SAFETY EVALUATION REPORT  
FOR THE NORTH ANNA EARLY SITE PERMIT APPLICATION

Dear Mr. Christian:

On September 25, 2003, Dominion Nuclear North Anna LLC (Dominion) tendered its application for an early site permit (ESP) in accordance with Subpart A of Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR). The U.S. Nuclear Regulatory Commission (NRC) formally accepted the application as a docketed application for an ESP on October 23, 2003, and notified Dominion by letter on that date. Dominion revised and supplemented its application on October 2, 2003, and July 15 and September 7, 2004. The staff has reviewed the ESP application and is developing a draft safety evaluation report (DSER).

In the process of reviewing information provided by Dominion in its ESP application and in responses to staff requests for additional information (RAIs), the staff has tentatively concluded that certain additional information is still needed for the staff to be able to complete its final SER. In addition, Dominion provided some information in response to RAIs that the staff received too late for consideration in this DSER. Both types of items will be referred to in the DSER as "open items."

The staff plans to issue the DSER to Dominion by letter on December 20, 2004. In accordance with the review schedule provided to you in our October 23, 2003, letter, the letter transmitting the DSER to you will request that Dominion respond fully to all open items by March 3, 2005, to support timely issuance of the final SER.

In the interest of expediting Dominion's response to the open items, we are providing a list and brief description of each open item tentatively identified by the staff to this letter (Enclosure 1). We emphasize that these open items are still under staff review, and therefore they may be changed or deleted. Further, additional open items may be identified before the DSER is issued as a result of management review of the DSER. We are providing the tentative open items solely for your convenience and for use as you see fit. To ensure that your responses address the staff-approved open items provided in the DSER, please do not respond to these open items before you receive the DSER. Also, because of the need to focus staff resources on timely completion of the DSER, we will not be able to meet with you to discuss any questions or concerns you may have on the tentative open items until after we issue the DSER.

D. Christian

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We hope you find Enclosure 1 informative and useful. Please contact Michael Scott, the NRC's project manager for review of your ESP application, at (301) 415-1421 (or mls3@nrc.gov) if you have any questions or comments concerning this matter.

Sincerely,

**/RA/**

William D. Beckner, Program Director  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 52-008

Enclosure: As stated

cc w/o encls: See next page

D. Christian

-2-

We hope you find Enclosure 1 informative and useful. Please contact Michael Scott, the NRC's project manager for review of your ESP application, at (301) 415-1421 (or mls3@nrc.gov) if you have any questions or comments concerning this matter.

Sincerely,

**/RA/**

William D. Beckner, Program Director  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 52-008

Enclosure: As stated

cc w/o encls: See next page

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ADAMS ACCESSION NUMBER: ML043070126

E:\Filenet\ML043070126.wpd \* See previous concurrence

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DATE	12/3/04	11/24/04	12/02/04	12/3/04

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NORTH ANNA EARLY SITE PERMIT  
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-1-

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**North Anna Early Site Permit Application  
Draft Safety Evaluation Report  
Tentative Open Items (subject to change)**

DSER Section	Subject
2.1.2	Demonstrate that the applicant has the legal right to control the exclusion area, or has an irrevocable right to obtain such control.
2.3.1	Provide acceptable fastest-mile design-basis wind speed. Applicant's chosen 100-year return period fastest-mile design-basis wind speed of 64 mph is nonconservative compared to the minimum 50-year return period fastest-mile basic wind speed of 70 mi/h specified in Section 6.5.2 of ANSI A58.1-1982 and compared to the highest fastest-mile wind speed of 68 mi/h recorded at Richmond during the 32-year period of record, 1958–1989.
2.3.1	Justify exclusive use of snowpack weight for calculating snow load or use alternate method (e.g., combination of the 100-year return snowpack and maximum-recorded monthly snowfall in the North Anna ESP site region).
2.3.1	Identify an additional ultimate heat sink (UHS) design-basis site characteristic for use in evaluating potential for water freezing in the UHS water storage facility.
2.3.2	Describe how potential increases in atmospheric temperature resulting from operation of closed-cycle dry cooling towers associated with proposed Unit 4 would impact plant design and operation.
2.4.1	Provide coordinate reference system for identification of plant parameter envelope (site footprint) location.
2.4.1	Specify minimum distance between existing unit structures, systems, and components and proposed unit intake and discharge tunnels.
2.4.1	Because expected inflow into Lake Anna can periodically be substantially lower than average inflow, describe potential impacts of low-flow conditions on the operation of all units.
2.4.7	Address the possibility of an ice jam or an ice dam formation upstream of the ESP site, and evaluate the effect of a flood wave generated from the breakup of such an ice formation.
2.4.7	Provide minimum Lake Anna water temperature at the intake for the proposed additional units as a site characteristic.
2.4.8	Provide UHS construction and location details sufficient to assess reliability and stability of the ultimate heat sink under the pressure head of ground water (i.e., determine differential head), since water table is at grade level at certain locations in the ESP site.
2.4.12	Correlate ground water level measurements taken in support of the ESP application with data from long-term piezometers.
2.4.12	Explain why more conservative hydraulic conductivity was not used.
2.4.13	Provide magnitude, frequency, and spatial location of upward hydraulic gradients at the ESP site.
2.4.13	Provide data to support statement that the typical hydraulic gradient of ground water flow across the ESP site to Lake Anna and the Waste Heat Treatment Facility is 0.03 m/m. Define the range of seasonal and long-term variation in the hydraulic gradient.

DSER Section	Subject
2.4.13	Provide onsite measured values of adsorption and retention coefficients for radioactive materials in soils.
2.5.2	Provide and evaluate criteria or weights used for ranking of model clusters and the judgments involved in balancing data consistency and adherence to seismological principles in the EPRI 2003 ground motion evaluation. Explain how recordings from a single earthquake can provide well-resolved values of both crustal quality factor (Q) and site kappa, why the Q value provided of 317 at 1 Hz is much lower than values found in other studies of eastern North American earthquakes, and why other studies find less frequency dependence of Q in the east than in the west.
2.5.2	Incorporate lower shear wave velocities and other subsurface material properties and their uncertainties into the determination of the ESP site safe-shutdown earthquake, and provide the site amplification or transfer function.
13.3.3*	Provide information on availability and capability of laboratories referred to in State and local emergency plans.
13.3.3*	Describe periodic program in Orange County for informing public on how they will be notified of an emergency.
13.3.3	Address adequacy of technical support center, emergency operations facility, and operational support center and related equipment in support of emergency response, and address with specificity such facility and equipment features as location, size, structure, function, habitability, communications, staffing and training, radiological monitoring, instrumentation, data system equipment, power supplies, technical data and data systems, and record availability and management.
13.3.3*	Provide additional information concerning assumptions regarding reliance on DOE for plume tracking.
13.3.3*	Provide additional information regarding use of Patrick Henry High School, agreements for assistance from offsite agencies, measures for dealing with impediments to use of evacuation routes, and when sheltering would be considered.
13.3.3	Provide additional information on evacuation time estimate as specified in staff's request for additional information 13.3-15.
13.3.3*	Provide information on decision-making guidance and authority for exceeding exposure limits.
13.3.3*	Describe capabilities of local and backup hospital and medical services.
13.3.3*	Describe program for qualifying State and local directors of emergency response.
13.3.3*	Provide additional information on cross-references to Supplement 2 to NUREG-0654, as well as description of training programs and review/updates of Orange County emergency response program.

\* Items for which Dominion has provided information intended to address the open item, but which the NRC staff received too late for consideration in the DSER.