

November 8, 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: REQUEST FOR ADDITIONAL INFORMATION - DOMINION NUCLEAR NORTH ANNA, LLC EARLY SITE PERMIT APPLICATION FOR THE NORTH ANNA ESP SITE (TAC NO. MC1127)

Dear Mr. Christian:

By letter dated September 25, 2003, Dominion Nuclear North Anna, LLC (Dominion) submitted its application for an early site permit (ESP) for the North Anna ESP site.

The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of the Site Safety Analysis Report (SSAR) in your ESP application. The NRC staff is requesting additional information with respect to the application. The request for additional information (RAI) contained in Enclosure 1, which addresses emergency planning, has arisen as a result of the NRC's review of the evacuation time estimate provided by Dominion in support of the ESP application. This RAI was sent to you in draft form via electronic mail on August 5, 2004.

Your prompt response to this RAI is important in supporting the staff's timely issuance of its final safety evaluation report for the North Anna ESP application. Because of the timing of this RAI, items in it may be carried as one or more open items in the staff's draft safety evaluation report.

The staff notes that the scope of an ESP application review is different from the NRC's oversight of operating plant emergency planning. The North Anna ESP application includes a "major features emergency plan" pursuant to 10 CFR 52.17(b)(2)(i), which takes into account certain elements of the emergency plan in place at North Anna Units 1 and 2. For Dominion's submittal, the ESP review includes evaluation of information, including the evacuation time estimate, notwithstanding the fact that some of this information may also be part of an ongoing reactor oversight process with respect to Units 1 and 2.

D. Christian

-2-

If you have any questions or comments concerning this matter, you may contact me at (301) 415-1421 or mls3@nrc.gov.

Sincerely,

/RA/

Michael L. Scott, Dominion ESP Project Manager
New Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 52-008

Enclosure: As stated

cc: See next page

D. Christian

-2-

If you have any questions or comments concerning this matter, you may contact me at (301) 415-1421 or mls3@nrc.gov.

Sincerely,

/RA/

Michael L. Scott, Dominion ESP Project Manager
New Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 52-008

Enclosure: As stated

cc: See next page

Distribution:

Hard Copy

PUBLIC

RNRP R/F

WBeckner

LDudes

E-Mail

JDyer/RBorchardt

DMatthews

FGillespie

ACRS

EWeiss

RWeisman, OGC

BMusico

DBarss

ACCESSION NO. ML042590085

OFFICE	RNRP/PM	NSIR/SC	OGC-NLO	RNRP/SC
NAME	MScott	EWeiss	BPoole	LDudes
DATE	9/15/04	9/15/04	9/17/04	11/02/04

OFFICIAL RECORD COPY

**North Anna Early Site Permit Application
Site Safety Analysis Report (SSAR)
Requests for Additional Information (RAI)
Regarding Emergency Planning**

SSAR Section 13.3, Emergency Planning

RAI 13.3-15

Please provide the following information regarding the North Anna Emergency Plan Evacuation Time Estimate (ETE):

- (a) ETE Table 8 (Roadway Characteristics) identifies the road segments and characteristics within the plume exposure emergency planning zone (EPZ). Please provide the associated assumptions and data on road capacities and travel times.
- (b) ETE Table 9 (Summary of Results of Evacuation Time Analysis) provides an overall summary of evacuation times. Please provide any traffic control measures necessary to direct the public out of the EPZ. Also, please discuss whether the ETE depends on these measures being in place.
- (c) The County radiological emergency response plans (RERPs) identify numerous locations for traffic control. Please discuss the resources and time necessary to implement these measures, if needed, in support of evacuation.
- (d) ETE Section 3.1.2 (Key Evacuation Parameters) provides information on the assumptions of adverse weather conditions, including using snow and ice as the adverse weather conditions, and a reduced road capacity of 40 percent. Please provide additional information on the assumptions used, including consideration of (1) any additional time that may be needed for evacuation preparation (such as putting on tire chains), (2) any reduction in both road capacity and travel times, and (3) resources and time that may be necessary for clearing the driveways and major roadways of snow and ice to support the evacuation.
- (e) ETE Section 3.1.1 (Loading of the Evacuation Network) identifies that evacuation network loading is derived from data presented in the 1990 Oak Ridge National Laboratory (ORNL) study, "Evaluating Protective Actions for Chemical Agent Emergencies." ETE Section 3.1.2 provides distribution curves that are derived from the study, which reflect chemical releases that have an immediate threat to life. Please describe how the ETE uses this information to address the development of trip generation times for a radiological release where evacuees would have sufficient time to mobilize.
- (f) ETE Section 3.1.2 states that the assumption of "user equilibrium" is applied to account for local residents' knowledge and use of alternate paths to get to the same destination, as specified in the recommended evacuation routes, and that the evacuating population can and will adjust their routes in response to perceived (evacuation) impedance [sic]. County RERPs designate traffic control points that may limit user equilibrium. Please clarify how this user equilibrium assumption was modeled, and why it is needed.

- (g) ETE Section 3.1.2 states that, because the non-vehicle owning population is a small fraction of the total population, and these individuals typically have neighbors with cars, there is no need for special treatment of them in an evacuation analysis. Please describe how the use of neighbors to provide transport to non-auto owning populations affects the traffic loading.
- (h) ETE Section 4.3 (Estimates for Non-Auto-Owning Population) states that the non-auto owning population is approximately seven to eight percent of the population in Louisa and Spotsylvania Counties, and that it is reasonable to expect that the majority of the population needing transportation will be able to evacuate with neighbors or relatives. Further, the ETE states that any remaining individuals stranded without transportation will be accounted for during the confirmation of evacuation and route alerting via signs to be placed in residents' windows, and that these signs are distributed in public outreach calendars. Please describe the bases for these assumptions, including assurances that this evacuation and confirmation will occur. In addition, for those who may be stranded, please clarify how their accounting is consistent with County RERPs, which identify bus routing for pickup of non-auto owning populations.
- (i) Please describe how the analysis of the site-specific permanent population group was modeled in the Evacuation Simulation Model (ESIM), and provide an estimate of the time to evacuate the permanent population group, including car owners and non-car owners. In addition, please describe how projected demography has been taken into consideration in the ETE.
- (j) ETE Section 4.4 (Estimates for Special Facilities) states that the schools within ten miles of North Anna Power Station (NAPS) have evacuation resources immediately available. In addition, school evacuations had been included with the general population during the evacuation analysis, and they share the time estimates for the general population. Please provide information on trip generation times from the schools to evacuation locations. Please address whether return trips are necessary, and whether they are included in the ETE analysis. In addition, the County RERPs indicate that the majority of school children do not have onsite bus transportation. Please describe the school bus mobilization time, and explain how this statement can be reconciled with the ETE statement that school evacuation resources would be immediately available.
- (k) Please describe whether the ETE provides for working people to return home to evacuate as a family unit. Also, please describe whether the ETE accounts for packing, closing up the home for extended evacuation, pickup of neighbors, businesses securing assembly lines, and farmers feeding or watering livestock prior to leaving. In addition, describe whether trip generation times have been considered for the agricultural and ranching operations identified in the County RERPs.
- (l) Please provide a figure (map) showing only those roads used as primary evacuation routes (e.g., Figure 3 of Appendix 4 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"), and also indicating the sector and quadrant boundaries.

- (m) Please provide a figure (map) showing both the protective action zones (PAZs) and 10-mile EPZ sector and quadrant boundaries.
- (n) Please explain the basis for assuming that peak season night time evacuation represents the worst case scenario.
- (o) Please provide a figure (map) showing evacuation areas, shelter areas, and relocation centers in host areas.
- (p) ETE Section 3.1.2 states that a car occupancy factor of 2.5 is assumed. Please provide justification and site-specific data for this number, as it applies to residents, transients, tourists, industries with more than 50 employees, and working people.
- (q) ETE Section 3.1.2 states that an evacuation is deemed complete when 90% of the affected population (all of those evacuating) have exited the 10-mile EPZ. Neither the COVRERP nor County RERPs indicate that the ETE is for 90 percent of the population instead of 100 percent. In addition, the ETE Executive Summary implies that the total 10-mile EPZ population of 20,292 is included in the time estimates, instead of the actual total of 18,782 shown in ETE Table 9 (Summary of Results of Evacuation Time Analysis). Please explain how these assumptions are consistent.
- (r) ETE Section 4.5 (Confirmation of Evacuation) states that the most time-consuming method to confirm evacuation is to use ground vehicles, and that the time depends on the driving time for each route selected. Please provide the time needed for confirmation of evacuation, including the supporting assumptions and data.
- (s) Please provide the separate distribution functions for the different categories of the population, and for each of the action stages after notification (e.g., see Section IV.B and Figure 4 of Appendix 4 of NUREG-0654/FEMA-REP-1).

NORTH ANNA EARLY SITE PERMIT
SERVICE LIST

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

Ms. Lillian M. Cuoco, Esq.
Senior Counsel
Dominion Resources Services, Inc.
Rope Ferry Road
Building 475, 5th Floor
Waterford, CT 06385

Mr. C. Lee Lintecum
County Administrator
Louisa County
P.O. Box 160
Louisa, Virginia 23093

Mr. David R. Lewis
Shaw Pittman
2300 N Street, N.W.
Washington, D.C. 20037

Dr. W. T. Lough
Virginia State Corporation Commission
Division of Energy Regulation
P. O. Box 1197
Richmond, Virginia 23209

Office of the Attorney General
Commonwealth of Virginia
900 East Main Street
Richmond, Virginia 23219

Senior Resident Inspector
North Anna Power Station
U. S. Nuclear Regulatory Commission
1024 Haley Drive
Mineral, Virginia 23117

Mr. Robert B. Strobe, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P. O. Box 2448
Richmond, Virginia 23218

Mr. David Lochbaum
Union of Concerned Scientists
1707 H Street, NW
Suite 600
Washington, DC 20006-3919

Mr. Paul Gunter
Director of the Reactor Watchdog Project
Nuclear Information & Resource Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

Mr. Adrian Heymer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Russell Bell
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Thomas P. Miller
U.S. Department of Energy
Headquarters - Germantown
19901 Germantown Road
Germantown, MD 20874-1290

Mr. James Riccio
Greenpeace
702 H Street, NW, Suite 300
Washington, DC 20001

Ms. Patricia Campbell
Winston & Strawn
1400 L Street, NW
Washington, DC 20005

Mr. Ernie H. Kennedy
Vice President New Plants
Nuclear Plant Projects
Westinghouse Electric Company
2000 Day Hill Road
Windsor, CT 06095-0500

Dr. Regis A. Matzie
Senior Vice President and
Chief Technology Officer
Westinghouse Electric Company
2000 Day Hill Road
Windsor, CT 06095-0500

Mr. Gary Wright, Manager
Division of Nuclear Safety
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704

Mr. Glenn Archinoff
Licensing Manager
AECL Technologies Inc.
481 North Frederick Avenue
Suite 405
Gaithersburg, MD 20877

Mr. Ed Wallace, General Manager
Projects
PBMR Pty LTD
PO Box 9396
Centurion 0046
Republic of South Africa

Mr. Brendan Hoffman
Research Associate on Nuclear Energy
Public Citizens Critical Mass Energy
and Environmental Program
215 Pennsylvania Avenue, SE
Washington, DC 20003

Mr. Tom Clements
6703 Guide Avenue
Takoma Park, MD 20912

Mr. Paul Leventhal
Nuclear Control Institute
1000 Connecticut Avenue, NW
Suite 410
Washington, DC 20036

Mr. Jack W. Roe
SCIENTECH, INC.
910 Clopper Road
Gaithersburg, MD 20878

Mr. Charles Brinkman
Westinghouse Electric Co.
Washington Operations
12300 Twinbrook Pkwy., Suite 330
Rockville, MD 20852

Mr. Marvin Fertel
Senior Vice President
and Chief Nuclear Officer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Dr. Glenn R. George
PA Consulting Group
130 Potter Street
Haddonfield, NJ 08033

Mr. Arthur R. Woods
Enercon Services, Inc.
500 TownPark Lane
Kennesaw, GA 30144

Ms. Vanessa E. Quinn, Chief
Radiological Emergency Preparedness
Section
Department of Homeland Security/FEMA
500 C Street, SW
Washington, DC 20472

Mr. Michael M. Cline, State Coordinator
Virginia Department of Emergency
Management
10501 Trade Court
Richmond, Virginia 23236-3713

Mr. Jim Debiec
Director - Power Production
Old Dominion Electric Cooperative
4201 Dominion Blvd
Glen Allen, VA 23060

Mr. Thomas Mundy
Director, Project Development
Exelon Generation
200 Exelon Way, KSA3-N
Kennett Square, PA 19348

Ms. Joanne Tetrault
Librarian
Louisa County Public Library
881 Davis Highway
Mineral, VA 23117

Ms. Abhaya Thiele
406 Key West Drive
Charlottesville, VA 22911

External E-mail

David_Christian@dom.com
Eugene_Grecheck@dom.com
Jack_Davis@dom.com
Marvin_Smith@dom.com
Joseph_Hegner@dom.com
Lillian_Cuoco@dom.com
David_Sommers@dom.com
Vicki_Hull@dom.com
david.lewis@shawpittman.com
gzinke@entergy.com
jim.mallay@framatome-anp.com
eddie.grant@exeloncorp.com