

David A. Christian
Senior Vice President
Nuclear Operations and Chief Nuclear Officer

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



September 25, 2003

10 CFR Part 52, Subpart A

James E. Dyer, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Serial No. 03-457
NRC Project No. 719
ESP/JDH

Dear Mr. Dyer:

NORTH ANNA EARLY SITE PERMIT APPLICATION

Pursuant to Part 52, Subpart A of Title 10 of the Code of Federal Regulations, Dominion Nuclear North Anna, LLC (“Dominion”) applies to the U.S. Nuclear Regulatory Commission (NRC) for an Early Site Permit (ESP) for a location in central Virginia identified as the North Anna ESP site. The location is described and characterized in the enclosed application. Dominion requests that the NRC issue an ESP with a duration of twenty years.

Pursuant to 10 CFR 52.15(b), 50.30(a)(6), and 50.4(b)(3), Dominion hereby submits this application for acceptance review and determination of sufficiency for docketing.

The North Anna ESP application is submitted in the form of a CD-ROM, consistent with NRC Regulatory Issues Summary 2001-05, *Guidance on Submitting Documents to the NRC by Electronic Information Exchange or on CD-ROM*. The enclosed CD-ROM contains the North Anna ESP application organized as follows:

- **Transmittal Letter.** This transmittal letter replicated on the CD-ROM.
- **Part 1—Administrative Information.** This part contains general corporate information about Dominion and an overview of the application format and content.
- **Part 2—Site Safety Analysis Report.** This part contains information about site safety, emergency preparedness, and quality assurance. The site safety analysis information includes a description of the site and proposed facilities, an assessment of the site features affecting the facility design, and the meteorological, hydrologic, geologic, and seismic characteristics of the ESP site.

- **Part 3—Environmental Report.** This part contains information about site environmental issues sufficient to support a NRC evaluation culminating in the issuance of an Environmental Impact Statement.
- **Part 4—Programs and Plans.** This part contains information about site redress.

Service upon the applicants of comments, hearing requests, intervention petitions or other pleadings related to this application should be made to counsel for Dominion as follows: Lillian M. Cuoco, Senior Counsel, Dominion Resources Services, Inc., Rope Ferry Road, Waterford, CT 06385 (phone: 860-444-5316; e-mail: lillian_cuoco@dom.com; fax: 860-444-4278) and David R. Lewis at Shaw Pittman, 300 N. Street, N.W., Washington D.C. 20037 (phone: 202-663-8474; e-mail: david.lewis@shawpittman.com; fax: 202-663-8007).

Any written correspondence to Dominion regarding this application should be sent to me at the address shown above. If any additional information concerning this application is needed, please contact Mr. Joseph D. Hegner (phone: 804-273-2770 or e-mail: joseph_hegner@dom.com).

Very truly yours,



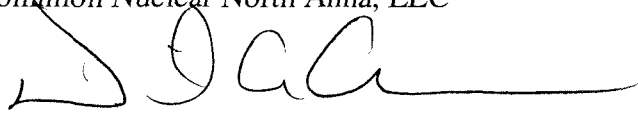
David A. Christian

Enclosures: 1. Affirmation Statement
2. CD-ROM containing North Anna ESP Application

C w/encls: Mr. L. Reyes, NRC Region II Administrator
Mr. M. Morgan, NRC North Anna Senior Resident Inspector
Mr. M. Scott, NRC North Anna ESP Project Manager
Dr. R. Simard, Nuclear Energy Institute
Ms. M. Parkhurst, Battelle, DOE

I, David A. Christian, being duly sworn according to law, state that I am Senior Vice President-Nuclear Operations and Chief Nuclear Officer of Dominion Nuclear North Anna, LLC, that I am authorized to sign and file this application on behalf of Dominion Nuclear North Anna, LLC, and that the application is true and correct to the best of my knowledge, information and belief.

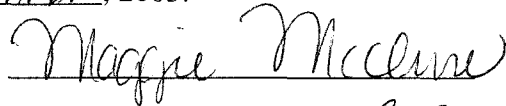
Dominion Nuclear North Anna, LLC



David A. Christian
Senior Vice President-Nuclear Operations and
Chief Nuclear Officer

STATE OF Virginia
COUNTY OF Henrico

Subscribed and sworn to before me, a Notary Public, in and for the County and State above named, this 18th day of September, 2003.



My commission expires 3-31-04

Eugene S. Grecheck
Vice President-Nuclear Support Services

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



October 2, 2003

10 CFR Part 52, Subpart A

James E. Dyer, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Serial No. 03-457A
NRC Project No. 719
ESP/JDH

Dear Mr. Dyer:

NORTH ANNA EARLY SITE PERMIT APPLICATION—REVISION 1

On September 25, 2003, Dominion Nuclear North Anna, LLC (Dominion) submitted its North Anna Early Site Permit application, Revision 0, to the NRC pursuant to 10 CFR 52, Subpart A. As a result of subsequent discussions between M. L. Scott, North Anna ESP Project Manager, and J. D. Hegner of my staff, it was determined that unnecessary detail had been included in Revision 0 of the application. That information has since been removed and Revision 1 of the North Anna Early Site Permit application in CD-ROM format is enclosed. A set of affected pages is also enclosed for convenience.

If you have any questions or require additional information, please contact Mr. Hegner at 804-273-2770 or joseph_hegner@dom.com.

Very truly yours,

A handwritten signature in black ink, appearing to read "Eugene S. Grecheck".

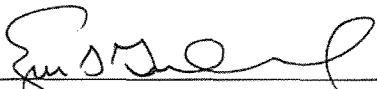
Eugene S. Grecheck

Enclosures: 1. Affirmation Statement
2. CD-ROM containing North Anna ESP Application, Revision 1
3. Revision 1 Affected Pages

C w/encls Mr. L. Reyes, NRC Region II Administrator
1&2: Mr. M. Morgan, NRC North Anna Senior Resident Inspector
Mr. M. Scott, NRC North Anna ESP Project Manager
Dr. R. Simard, Nuclear Energy Institute
Ms. M. Parkhurst, Battelle, DOE

I, Eugene S. Grecheck, being duly sworn according to law, state that I am Vice President-Nuclear Support Services of Dominion Nuclear North Anna, LLC, that I am authorized to sign and file this document on behalf of Dominion Nuclear North Anna, LLC, and that the information is true and correct to the best of my knowledge, information and belief.


Dominion Nuclear North Anna, LLC



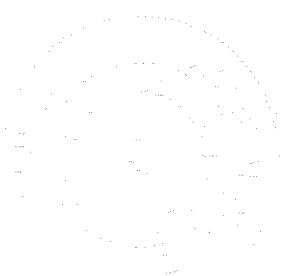
Eugene S. Grecheck
Vice President – Nuclear Support Services

STATE OF Virginia
COUNTY OF Henrico

Subscribed and sworn to before me, a Notary Public, in and for the County and State above named, this 2nd day of October, 2003.



My commission expires 3-31-04





July 15, 2004

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

Serial No. 04-434
ESP/JDH
Docket No. 52-008

DOMINION NUCLEAR NORTH ANNA, LLC
NORTH ANNA EARLY SITE PERMIT APPLICATION
REVISION 2

Enclosed is Revision 2 to the North Anna Early Site Permit application. The application consists of four parts: Part 1, Administrative Information, Part 2, Site Safety Analysis Report, Part 3, Environmental Report, and Part 4, Programs and Plans. Revision 2 primarily updates the Environmental Report to support the NRC staff's ongoing environmental review and planned issuance of a draft environmental impact statement. Revision 2 incorporates Dominion's responses to NRC requests for additional environmental information, Dominion's letter to the NRC responding to Virginia Department of Environmental Quality comments, and other information discussed with the NRC.

Certain information in the North Anna ESP application is common to both the Environmental Report and the Site Safety Analysis Report. Because only information in the Environmental Report is being changed by Revision 2, the corresponding common information in the Site Safety Analysis Report will require separate revision. That revision will occur in the next update, Revision 3, of the ESP application. Revision 3 is intended to be a comprehensive update.

A summary of the changes is provided in Enclosure 1. A CD containing Revision 2 of the ESP application is provided in Enclosure 2.

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

Very truly yours,

A handwritten signature in black ink, appearing to read "Eugene S. Grecheck".

Eugene S. Grecheck
Vice President-Nuclear Support Services

Enclosures: 1. Description of Changes in Revision 2.
2. One CD-ROM labeled "North Anna Early Site Permit Application, Docket No. 52-008, September 2003; Revision 2, July 2004, NRC ADAMS Edition," containing the following 9 files:

001 North Anna ESP Application R2 (1 of 9).pdf; 2,989 KB; publicly available
002 North Anna ESP Application R2 (2 of 9).pdf; 19,202,736 bytes, publicly available
003 North Anna ESP Application R2 (3 of 9).pdf; 49,572,480 bytes, publicly available
004 North Anna ESP Application R2 (4 of 9).pdf; 40,897,951 bytes, publicly available
005 North Anna ESP Application R2 (5 of 9).pdf; 37,328,818 bytes, publicly available
006 North Anna ESP Application R2 (6 of 9).pdf; 26,629,982 bytes, publicly available
007 North Anna ESP Application R2 (7 of 9).pdf; 1,153,004 bytes, publicly available
008 North Anna ESP Application R2 (8 of 9).pdf; 44,908,018 bytes, publicly available
009 North Anna ESP Application R2 (9 of 9).pdf; 24,746,868 bytes, publicly available

Commitments made in this letter: None.

cc: U.S. Nuclear Regulatory Commission, Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Suite 23T85
Atlanta, Georgia 30303

Mr. Andy Kugler
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Michael Scott
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. M. T. Widmann
NRC Senior Resident Inspector
North Anna Power Station

Ms. Ellie L. Irons, Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality

Mr. Adrian Heymer
Nuclear Energy Institute
1776 I Street, N.W.
Washington, D.C. 20013

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 15th day of July, 2004.

My Commission expires: 3/31/08

Maggie McCune
Notary Public

(SEAL)

Enclosure 1

**Description of Changes in Revision 2
North Anna Early Site Permit Application**

North Anna Early Site Permit Application Description of Changes in Revision 2	
Affected Section, Table, or Figure	Reason for Change
Acronyms/Abbreviations/Initialisms	
▪ New entries	Added new entries for changes made in Revision 2
<u>Part 1, Administrative Information</u>	
▪ Section 1.2.2.5	Added section describing notation of changes.
<u>Part 3, Environmental Report (ER) Chapter 1</u>	
▪ Section 1.1.4	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<u>Part 3, ER Chapter 2</u>	
▪ Sections 2.3.1.1, 2.3.3.1	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Sections 2.5.1.2, 2.5.1.3.1 ▪ Tables 2.5-5, 2.5-8, 2.5-10, 2.5-13, 2.5-15, 2.5-16 ▪ Figures 2.5-3, 2.5-4, 2.5-5, 2.5-6, 2.5-7, 2.5-9, 2.5-10, 2.5-11, 2.5-12 	Corrected and updated population figures. Reference May 13, 2004 telecon advising NRC of population figure errors and of intent to correct with next revision.
<ul style="list-style-type: none"> ▪ Section 2.7.5.2 ▪ Tables 2.7-9, 2.7-10, 2.7-11, 2.7-12 	Response to RAI 2.3.4-1; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
<u>Part 3, ER Chapter 3</u>	
▪ Sections 3.1.2.2, 3.1.5	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
▪ Table 3.1-1, Section 9.1	Response to RAI E3.1-1; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Sections 3.2.3, 3.3, 3.3.1 ▪ Table 3.3-2 ▪ Figure 3.3-2 ▪ Sections 3.4.1.1, 3.4.1.3.1, 3.4.1.3.3, 3.4.1.3.4, 3.4.2.1, 3.4.2.2, 3.4.2.3 ▪ Figures 3.4-3, 3.4-4 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
▪ Section 3.8.2.3	Response to Follow-up Environmental RAI

North Anna Early Site Permit Application Description of Changes in Revision 2	
Affected Section, Table, or Figure	Reason for Change
	2 and revised response to RAI E3.8-7; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
<ul style="list-style-type: none"> ▪ Section 3.8.2.5 ▪ Table 3.8-2 	Response to Follow-up Environmental RAI 2; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
<u>Part 3, ER Chapter 4</u>	
<ul style="list-style-type: none"> ▪ Section 4.2.1.1 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Section 4.2.3 ▪ Section 4.2 References 	Response to RAI E4.2.2-2; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 4.3.2 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Section 4.5.3.1 	Response to RAI E4.5-4; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 4.5.3.2 	Response to RAI E4.5-7; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 4.5.4.1 	Response to RAI E4.5-4; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 4.5.4.2 	Response to RAI E4.5-7; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 4.5.4.4 	Response to RAI E4.5-4; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Table 4.5-1 	Response to RAI E4.5-3; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Tables 4.5-2, 4.5-3, 4.5-4 	Response to RAI E4.5-4; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Table 4.5-5 	Response to RAI E4.5-7; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.

North Anna Early Site Permit Application Description of Changes in Revision 2	
Affected Section, Table, or Figure	Reason for Change
Part 3, ER Chapter 5	
<ul style="list-style-type: none"> ▪ Sections 5.1.1, 5.1.1.2, 5.2.1, 5.2.1.1, 5.2.1.2, 5.2.1.3, 5.2.1.4 ▪ Table 5.2-1 ▪ Sections 5.2.1.5, 5.2.2, 5.2.2.1.2, 5.2.2.1.3 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Section 5.2.2.2 	Response to VDEQ Comment AA1; Reference Dominion's 6/28/04 Letter to NRC, Serial No. 04-364.
<ul style="list-style-type: none"> ▪ Sections 5.2.2.3, 5.2.2.4 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Section 5.2 References ▪ Tables 5.2-5, 5.2-6, 5.2-7, and 5.2-8 	Response to VDEQ Comment AA1; Reference Dominion's 6/28/04 Letter to NRC, Serial No. 04-364.
<ul style="list-style-type: none"> ▪ Sections 5.3, 5.3.1, 5.3.1.1, 5.3.1.1.2, 5.3.1.2.1.b ▪ Table 5.3-4 (Deleted) ▪ Sections 5.3.1.2.2, 5.3.1.2.3.a, 5.3.1.2.3.b ▪ Table 5.3-8 (Deleted) ▪ Sections 5.3.1.2.4, 5.3.2.1, 5.3.2.1.2, 5.3.2.1.3, 5.3.2.2.3, 5.3.3, 5.3.3.1, 5.3.3.2, 5.3.3.2.1, 5.3.3.2.2, 5.3.3.2.3, 5.3.3.2.4, 5.3.4, 5.3.4.1, ▪ Section 5.3 References ▪ Tables 5.3-14, 5.3-15, 5.3-16 ▪ Figure 5.3-4 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Section 5.4.2 	Response to RAI E5.4.2-1; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 5.4.4.2 	Response to RAI E5.4.4-1; Reference Dominion's 5/17/04 Letter to NRC, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Section 5.4 References ▪ Table 5.4-12 	Response to Follow-up Environmental RAI 6; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
<ul style="list-style-type: none"> ▪ Section 5.5.13, 5.8.1.2, 5.8.1.3, 5.8.1.4, 5.8.1.5, 5.8.1.6, 5.8.2.3 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
<ul style="list-style-type: none"> ▪ Table 5.10-1 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference

North Anna Early Site Permit Application Description of Changes in Revision 2	
Affected Section, Table, or Figure	Reason for Change
	Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
Part 3, ER Chapter 7	
<ul style="list-style-type: none"> ▪ Section 7.1.4 ▪ Tables 7.1-1, 7.1-2, 7.1-4, 7.1-6, 7.1-8, 7.1-10, 7.1-11, 7.1-13, 7.1-15, 7.1-17, 7.1-19, 7.1-20, 7.1-22, 7.1-24, 7.1-26, 7.1-28 	Response to RAI E7.1-1; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
<ul style="list-style-type: none"> ▪ Section 7.2.2.1 	Response to RAI E7.2-1; Reference Dominion's 7/12/04 Letter to NRC, Serial No. 04-170A.
Part 3, ER Chapter 9	
<ul style="list-style-type: none"> ▪ Section 9.1 	Added description of "No-Action Alternative" in response to June 21-22, 2004 ASLB pre-hearing conference.
<ul style="list-style-type: none"> ▪ Sections 9.4.1, 9.4.1.1, 9.4.1.1.1, 9.4.1.1.2, 9.4.1.2, 9.4.1.2.1, 9.4.1.2.2, 9.4.2, 9.4.2.1, 9.4.2.3, 9.4.2.4, 9.4.2.5 ▪ Section 9.4 References ▪ Tables 9.4-1, 9.4-2, 9.4-3, 9.4-4, 9.4-5, 9.4-6 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.
Part 3, ER Chapter 10	
<ul style="list-style-type: none"> ▪ Section 10.1.3 ▪ Table 10.1-2 ▪ Sections 10.2.1.2, 10.2.1.6, 10.3.2 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194.



September 7, 2004

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

Serial No. 04-537
ESP/JDH
Docket No. 52-008

DOMINION NUCLEAR NORTH ANNA, LLC
NORTH ANNA EARLY SITE PERMIT APPLICATION
REVISION 3

Enclosed is Revision 3 to the North Anna Early Site Permit (ESP) application. Revision 3 updates the application to incorporate Dominion's responses to NRC's requests for additional information and other information discussed with the NRC staff.

Note that Revision 2, submitted July 15, 2004 (Serial No. 04-434) only updated information in the Environmental Report. Revision 3 updates the corresponding common information in the Site Safety Analysis Report.

A summary of the Revision 3 changes is provided in Enclosure 1. A CD containing the North Anna ESP application, Revision 3, is provided in Enclosure 2.

If you have any questions or require additional information, please contact Mr. Joseph D. Hegner at 804-273-2770.

Very truly yours,

Eugene S. Grecheck
Vice President-Nuclear Support Services

Enclosures:

1. Description of Changes in Revision 3.
2. One CD-ROM labeled "North Anna Early Site Permit Application, Docket No. 52-008, September 2003; Revision 3, September 2004, NRC ADAMS Edition," containing the following files:

- 001 North Anna ESP Application R3 (1 of 9).pdf; 2,989 KB; publicly available
- 002 North Anna ESP Application R3 (2 of 9).pdf; 19,202,736 bytes, publicly available
- 003 North Anna ESP Application R3 (3 of 9).pdf; 49,572,480 bytes, publicly available
- 004 North Anna ESP Application R3 (4 of 9).pdf; 40,897,951 bytes, publicly available
- 005 North Anna ESP Application R3 (5 of 9).pdf; 37,328,818 bytes, publicly available
- 006 North Anna ESP Application R3 (6 of 9).pdf; 26,629,982 bytes, publicly available
- 007 North Anna ESP Application R3 (7 of 9).pdf; 1,153,004 bytes, publicly available
- 008 North Anna ESP Application R3 (8 of 9).pdf; 44,908,018 bytes, publicly available
- 009 North Anna ESP Application R3 (9 of 9).pdf; 24,746,868 bytes, publicly available

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission, Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Suite 23T85
Atlanta, Georgia 30303

Administrative Judge
Alex S. Karlin, Chair
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Administrative Judge
Dr. Thomas S. Elleman
Atomic Safety and Licensing Board
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Administrative Judge
Dr. Richard F. Cole
Atomic Safety and Licensing Board
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Washington, D.C. 20555

Dianne Curran, Esq.
Harmon, Curran, Spielberg & Eisenberg, LLP
1726 M Street, N.W., Suite 600
Washington, D.C. 20036

Richard A. Parrish, Esq.
Southern Environmental Law Center
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Charlottesville, VA 22902

Mr. Andy Kugler
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Michael Scott
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. M. T. Widmann
NRC Senior Resident Inspector
North Anna Power Station

Ms. Ellie L. Irons, Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
P.O. Box 10009
Richmond, Virginia 23240

Mr. Adrian Heymer
Nuclear Energy Institute
1776 I Street, N.W.
Suite 400
Washington, D.C. 20006-3708

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 7TH day of September 2004.

My Commission expires: May 31, 2006

Vicki L. Hulse
Notary Public

(SEAL)

Serial No. 04-537
Docket No. 52-008
Revision 3 to North Anna ESP Application

Enclosure 1

**Description of Changes in Revision 3
North Anna Early Site Permit Application**

North Anna Early Site Permit Application Description of Changes in Revision 3	
Affected Section, Table, or Figure	Reason for Change
Acronyms/Abbreviations/Initialisms	
<ul style="list-style-type: none"> ▪ New entries 	Added new entries for changes made in Revision 3.
Part 2 Chapter 1	
<ul style="list-style-type: none"> ▪ Table 1.3-1 	Response to RAI E3.1-1; Reference Dominion's 5/17/04 Letter, Serial No. 04-170.
<ul style="list-style-type: none"> ▪ Table 1.3-1 	Response to RAI 1.3-2; Reference Dominion's 8/10/04 Letter, Serial No. 04-348.
<ul style="list-style-type: none"> ▪ Section 1.8 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Sections 1.8.1, 1.8.2, 1.8.3 	Response to RAI 2.3.5-2; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 1.8.2 	Response to RAI 2.5.2-9 and July 9, 2004 RAI; Reference Dominion's 8/19/04 Letter, Serial No. 04-438.
<ul style="list-style-type: none"> ▪ Section 1.9 (new) ▪ Section 1.9 References ▪ Tables 1.3-1, 1.9-1(new) 	Response to RAI 1.3-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-318A.
Part 2 Chapter 2	
<ul style="list-style-type: none"> ▪ Sections 2.1.3.1, 2.1.3.2, 2.1.3.3.1, 2.1.3.3.2, 2.1.3.4, 2.1.3.5, 2.1.3.6 ▪ Section 2.1 References ▪ Figures 2.1-4, 2.1-5, 2.1-6, 2.1-7, 2.1-8, 2.1-8A (new), 2.1-10, 2.1-11, 2.1-12, 2.1-13, 2.1-13A (new), 2.1-14 	Response to RAI 2.1.3-1; Reference Dominion's 8/10/04 Letter, Serial No. 04-348.
<ul style="list-style-type: none"> ▪ Section 2.1 References 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 2.2.3.1.2 	Response to RAI 2.2.2-3; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Sections 2.3.1.1, 2.3.1.2, 2.3.1.3.1, 2.3.1.3.2, 2.3.1.3.3, 2.3.1.3.4, 2.3.1.3.5, 2.3.1.3.6, 2.3.1.3.8, 2.3.2.1, 2.3.2.2.1, 2.3.2.3, 2.3.2.4, 2.3.2.5 ▪ Section 2.3 References ▪ Tables 2.3-1, 2.3-2, 2.3-4, 2.3-5, 2.3-6, 2.3-7, 2.3-18 (new) ▪ Figure 2.3-24 	Response to RAIs 2.3.1-1 (revised), 2.3.1-2, 2.3.1-3, 2.3.1-4, 2.3.1-5, 2.3.1-6, 2.3.2-1, 2.3.2-2; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Section 2.3.4.2 ▪ Tables 2.3-3, 2.3-13, 2.3-14 	Response to RAI 2.3.4-1; Reference Dominion's 7/12/04 Letter, Serial No. 04-170A.

North Anna Early Site Permit Application Description of Changes in Revision 3	
Affected Section, Table, or Figure	Reason for Change
<ul style="list-style-type: none"> ▪ Section 2.3 References 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 2.4.1.1 ▪ Sections 2.4.7.2, 2.4.7.4 ▪ Section 2.4.8 ▪ Sections 2.4.11.3, 2.4.11.4 ▪ Table 2.4-6 	Change in Unit 4 cooling approach from wet towers to dry towers; Reference Dominion's 3/31/04 Letter to NRC, Serial No. 04-194. Response to RAIs 2.4.1-2, 2.4.1-4; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Section 2.4.7.6 	Response to RAI 2.4.7-5; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Section 2.4.9 	Response to RAI 2.4.9-1; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Sections 2.4.12.1.2, 2.4.12.3, 2.4.12.4 ▪ Table 2.4-15 ▪ Figure 2.4-15 	Response to RAI 2.4.12-1; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
<ul style="list-style-type: none"> ▪ Section 2.4.12.2 ▪ Section 2.4 References ▪ Table 2.4-19 	Follow-up response to RAI 17.1-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 2.5.1.1.4, 2.5.2.2.8 	Response to RAI 2.5.1-1; Reference Dominion's 7/8/04 Letter, Serial No. 04-270.
<ul style="list-style-type: none"> ▪ Section 2.5.1.1.4 	Response to RAI 2.5.1-2; Reference Dominion's 7/8/04 Letter, Serial No. 04-270.
<ul style="list-style-type: none"> ▪ Section 2.5.1.1.4 	Response to RAI 2.5.1-3; Reference Dominion's 7/8/04 Letter, Serial No. 04-270.
<ul style="list-style-type: none"> ▪ Section 2.5.1.1.4 	Response to RAI 2.5.1-4; Reference Dominion's 7/8/04 Letter, Serial No. 04-270.
<ul style="list-style-type: none"> ▪ Section 2.5.1.2.6 	Response to RAI 2.5.4-7; Reference Dominion's 8/5/04 Letter, Serial No. 04-347.
<ul style="list-style-type: none"> ▪ Section 2.5.2.6.2 ▪ Section 2.5 References 	Response to RAI 2.5.2-4; Reference Dominion's 7/8/04 Letter, Serial No. 04-270.
<ul style="list-style-type: none"> ▪ Sections 2.5.2, 2.5.2.6.5, 2.5.2.6.6, 2.5.2.6.7, 2.5.2.6.8, 2.5.2.6.9, 2.5.2.6.10, 2.5.2.7 ▪ Section 2.5 References ▪ Tables 2.5-24, 25, 26, 27, 28 ▪ Figures 2.5-44A, 44B, 46, 48, 49, 50, 51, 52, 53, 54A, 54B, 54C, 55 	Response to RAI 2.5.2-9 and July 9, 2004 RAI; Reference Dominion's 8/19/04 Letter, Serial No. 04-438.
<ul style="list-style-type: none"> ▪ Sections 2.5.4.7.3, 2.5.4.7.4 ▪ Table 2.5-46 	Response to RAI 2.5.4-9; Reference Dominion's 8/19/04 Letter, Serial No. 04-347A.
<ul style="list-style-type: none"> ▪ Sections 2.5.4.8, 2.5.4.8.2, 2.5.4.8.4, 2.5.4.8.5 	Response to RAI 2.5.4-10; Reference Dominion's 8/19/04 Letter, Serial No. 04-347A.
<ul style="list-style-type: none"> ▪ Sections 2.5.5.1.2, 2.5.5.2.3, 2.5.5.5, 2.5.5.6 	Response to RAI 2.5.5-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-347A.

North Anna Early Site Permit Application Description of Changes in Revision 3	
Affected Section, Table, or Figure	Reason for Change
<ul style="list-style-type: none"> ▪ Tables 2.5-20, 2.5-23 	Correction of controlling earthquake calculation; Reference Dominion's 8/19/04 Letter, Serial No. 04-347A.
<ul style="list-style-type: none"> ▪ Table 2.5-45 	Response to RAI 2.5.4-5; Reference Dominion's 8/5/04 Letter, Serial No. 04-347.
<ul style="list-style-type: none"> ▪ Table 2.5-47 	Response to RAI 2.5.4-11; Reference Dominion's 8/5/04 Letter, Serial No. 04-347.
Part 2 Chapter 15	
<ul style="list-style-type: none"> ▪ Section 15.2 ▪ Section 15.4 ▪ Tables 15.4-1, 15.4-3, 15.4-5, 15.4-7, 15.4-9, 15.4-10, 15.4-12, 15.4-14, 15.4-16, 15.4-18, 15.4-19, 15.4-21, 15.4-23, 15.4-25, 15.4-27 	Response to RAIs 15.4-2, 15.4-3, 15.4-5, 15.4-6; Reference Dominion's 8/10/04 Letter, Serial No. 04-348.
<ul style="list-style-type: none"> ▪ Section 15.2 References 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 15.3 References 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
Part 3 Chapter 2	
<ul style="list-style-type: none"> ▪ Section 2.3.2.2.1 ▪ Table 2.3-11 ▪ Section 2.3 References 	Follow-up response to RAI 17.1-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.
<ul style="list-style-type: none"> ▪ Section 2.5.1, 2.5.1.1, 2.5.1.2, 2.5.1.3.1, 2.5.1.3.2, 2.5.1.5 ▪ Section 2.5 References ▪ Table 2.5-12 ▪ Table 2.5-15 ▪ Figures 2.5-7A (new), 2.5.12A (new) ▪ Figure 2.5-10 ▪ Figure 2.5-13 	Response to RAI 2.1.3-1; Reference Dominion's 8/10/04 Letter, Serial No. 04-348.
<ul style="list-style-type: none"> ▪ Section 2.5.2 	Response to RAI 1.3-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-318A.
<ul style="list-style-type: none"> ▪ Sections 2.7.1, 2.7.1.1, 2.7.1.2, 2.7.1.3, 2.7.1.4, 2.7.1.5, 2.7.2.1, 2.7.3.1, 2.7.3.2, 2.7.3.3, 2.7.3.4, 2.7.4, 2.7.4.1.1, 2.7.4.1.2, 2.7.4.1.3, 2.7.4.1.4, 2.7.4.1.5, 2.7.4.1.7 ▪ Section 2.7 References ▪ Tables 2.7-1, 2.7-2, 2.7-3 ▪ Figure 2.7-2 	Response to RAIs 2.3.1-1 (revised), 2.3.1-2, 2.3.1-3, 2.3.1-4, 2.3.1-5, 2.3.1-6, 2.3.2-1, 2.3.2-2; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.

North Anna Early Site Permit Application Description of Changes in Revision 3	
Affected Section, Table, or Figure	Reason for Change
Part 3 Chapter 3	
<ul style="list-style-type: none"> ▪ Section 3.1.6 (new) ▪ Section 3.1 References ▪ Tables 3.1-1, 3.1-9 (new) 	Response to RAI 1.3-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-318A.
<ul style="list-style-type: none"> ▪ Sections 3.2.1, 3.8.1, 3.8.2.2 	Response to RAI 1.3-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-318A.
<ul style="list-style-type: none"> ▪ Table 3.1-1 	Response to RAI 1.3-2; Reference Dominion's 8/10/04 Letter, Serial No. 04-348.
Part 3 Chapter 5	
<ul style="list-style-type: none"> ▪ Sections 5.4.3, 5.8.2.1.2 	Response to RAI 1.3-1; Reference Dominion's 8/19/04 Letter, Serial No. 04-318A.
Part 3 Chapter 6	
<ul style="list-style-type: none"> ▪ Section 6.4.1 	Response to RAIs 2.3.1-1 (revised), 2.3.1-2, 2.3.1-3, 2.3.1-4, 2.3.1-5, 2.3.1-6, 2.3.2-1, 2.3.2-2; Reference Dominion's 8/2/04 Letter, Serial No. 04-318.
Part 3 Chapter 7	
<ul style="list-style-type: none"> ▪ Section 7.1 References 	Response to RAI 1.8-1; Reference Dominion's 8/20/04 Letter, Serial No. 04-354.



May 12, 2005

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

Serial No. 05-305
ESP/JDH
Docket No. 52-008

DOMINION NUCLEAR NORTH ANNA, LLC
NORTH ANNA EARLY SITE PERMIT APPLICATION
REVISION 4

Enclosed is Revision 4 to the North Anna Early Site Permit (ESP) application. Revision 4 updates the application to incorporate Dominion's responses to NRC's requests for additional information, our responses to the open items in the December 2004 draft Safety Evaluation Report, and other information discussed with the NRC staff.

A summary of the Revision 4 changes is provided in Enclosure 1. A CD containing the North Anna ESP application, Revision 4, is provided in Enclosure 2.

If you have any questions or require additional information, please contact Mr. Joseph D. Hegner at 804-273-2770.

Very truly yours,

A handwritten signature in black ink, appearing to read "Eugene S. Grecheck".

Eugene S. Grecheck
Vice President-Nuclear Support Services

Enclosures:

1. Description of Changes in Revision 4.
2. One CD-ROM labeled "North Anna Early Site Permit Application, Docket No. 52-008, September 2003; Revision 4, May 2005, NRC ADAMS Edition," containing the following files:

1. North Anna ESP Application R4 (1 of 8).pdf; 4664 KB; publicly available
2. North Anna ESP Application R4 (2 of 8).pdf; 28,064,970 bytes, publicly available
3. North Anna ESP Application R4 (3 of 8).pdf; 49,772,368 bytes, publicly available
4. North Anna ESP Application R4 (4 of 8).pdf; 47,298,189 bytes, publicly available
5. North Anna ESP Application R4 (5 of 8).pdf; 43,676,749 bytes, publicly available
6. North Anna ESP Application R4 (6 of 8).pdf; 34,149,855 bytes, publicly available
7. North Anna ESP Application R4 (7 of 8).pdf; 51,103,672 bytes, publicly available
8. North Anna ESP Application R4 (8 of 8).pdf; 31,311,890 bytes, publicly available

Commitments made in this letter: None

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Atlanta, Georgia 30303

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COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

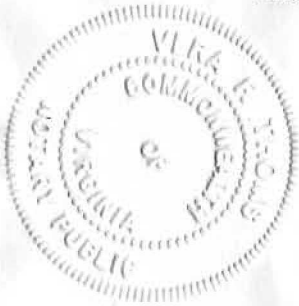
The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Support Services, of Dominion Nuclear North Anna, LLC. He has affirmed before me that he is duly authorized to execute and file the foregoing 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 12th day of May, 2005.

My Commission expires: ~~My Commission Expires July 31, 2007~~

Vera F. Thoms

Notary Public



(SEAL)

Enclosure 1

**Description of Changes in Revision 4
North Anna Early Site Permit Application**

North Anna Early Site Permit Application Description of Changes in Revision 4	
Affected Section, Table, or Figure	Reason for Change
Part 2 Chapter 1	
▪ Section 1.8.1	Editorial change to clarify conformance with requirements of 10 CFR 100.21(c)(1).
▪ Section 1.8.2	Revision 3 format error. Added electronic link to RG 1.76 and DG 1105.
▪ Table 1.9-1	Response to DSER Open Items 2.3-1, 2.3-2, 2.3-3, 2.4-5, 2.4-8, 2.4-10, 2.4-11; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
Part 2 Chapter 2	
▪ Section 2.1.2.1	Response to DSER Open Item 2.1-1; Reference Dominion's May 2, 2005 Letter, Serial No. 05-194A.
▪ Section 2.3.1.3.1 ▪ Table 2.3-4 (deleted)	Response to DSER Open Item 2.3-1; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Section 2.3.1.3.8	Response to DSER Open Item 2.3-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Section 2.3.2.3	Response to DSER Open Item 2.3-4; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Section 2.3.5.1	Editorial change to clarify conformance with requirements of 10 CFR 100.21(c)(1).
▪ Section 2.4.7.5 ▪ Section 2.4 References ▪ Table 2.4-13 (deleted)	Response to DSER Open Item 2.3-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Sections 2.4.11.1, 2.4.11.4 ▪ Section 2.4 References	Response to DSER Open Item 2.4-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Section 2.4.13 ▪ Section 2.4 References ▪ Table 2.4-20 (new)	Response to DSER Open Item 2.4-11; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Sections 2.4.12.1.2, 2.4.12.3, 2.4.12.4 ▪ Table 2.4-15 ▪ Figure 2.4-15	Response to DSER Open Item 2.4-7; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
▪ Sections 2.5.2.5, 2.5.2.6.7, 2.5.2.6.7.c, 2.5.2.6.7.d, 2.5.2.7, 2.5.4.7.1, 2.5.4.7.3, 2.5.4.7.4, 2.5.4.8.2, 2.5.4.8.4.a, 2.5.4.8.4.b, 2.5.4.8.4.c, 2.5.4.8.5, 2.5.5.2.3.a, 2.5.5.2.3.b ▪ Section 2.5 References ▪ Tables 2.5-27A (new), 2.5-45, 2.5-46	Response to DSER Open Item 2.5-2; Reference Dominion's March 30, 2005 Letter, Serial No. 05-194.

North Anna Early Site Permit Application Description of Changes in Revision 4	
Affected Section, Table, or Figure	Reason for Change
<ul style="list-style-type: none"> ▪ Figures 2.5-48, 2.5-48A (new) 2.5-51, 2.5-53, 2.5-54A, 2.5-54B, 2.5-54B(1) (new), 2.5-54B(2) (new), 2.5-54B(3) (new), 2.5-55A (new) 	
Part 2 Chapter 13	
<ul style="list-style-type: none"> ▪ Section 13.3.2.2.2.h 	Response to DSER Open Item 13.3-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
Part 2 Chapter 15	
<ul style="list-style-type: none"> ▪ Table 15.4-26 	Revision 3 typographical errors. Corrected isotope designations.
Part 3 Chapter 2	
<ul style="list-style-type: none"> ▪ Table 3.1-1 ▪ Table 3.1-9 	Response to Supplemental RAIs 1.a and 1.c; Reference Dominion's April 13, 2005 Letter, Serial No. 05-209A.
<ul style="list-style-type: none"> ▪ Table 3.1-9 ▪ Table 3.3-1 ▪ Figure 3.3-1 	Response to Supplemental RAI 1.b; Reference Dominion's April 13, 2005 Letter, Serial No. 05-209A.
Part 3 Chapter 3	
<ul style="list-style-type: none"> ▪ Section 3.4.1.3.3 	Response to DSER Open Item 2.4-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
<ul style="list-style-type: none"> ▪ Section 3.8 	Revision 3 typographical error. CFR citation should be 10 CFR 51.52.
<ul style="list-style-type: none"> ▪ Section 4.2 References 	Revision 3 format error. Reference 13 text should be black versus blue.
Part 3 Chapter 5	
<ul style="list-style-type: none"> ▪ Sections 5.2.2.1.3, 5.2.2.2 ▪ Section 5.2 References 	Response to DSER Open Item 2.4-3; Reference Dominion's March 3, 2005 Letter, Serial No. 05-785B.
<ul style="list-style-type: none"> ▪ Section 5.7.1 	Response to October 29, 2004 RAI on Uranium Fuel Cycle Impacts; Reference Dominion's November 18, 2004 Letter, Serial No. 04-705.
Part 3 Chapter 7	
<ul style="list-style-type: none"> ▪ Section 7.1.2 ▪ Table 7.1-27 	Revision 3 typographical errors. Corrected EAB and LPZ γ/Q values (Section 7.1.2) and isotope designations (Table 7.1-27).