NUREG-1811, Vol. 2

Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site

Final Report

Appendices E & F

U.S. Nuclear Regulatory Commission
Office of New Reactors
Washington, D.C. 20555-0001

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Division of Site and Environmental Reviews
Office of New Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Abstract

This environmental impact statement (EIS) has been prepared in response to an application submitted to the U.S. Nuclear Regulatory Commission (NRC) by Dominion Nuclear North Anna, LLC (Dominion), for an early site permit (ESP). The proposed action requested in Dominion's application is for the NRC to (1) approve a site within the existing North Anna Power Station (NAPS) boundaries as suitable for the construction and operation of one or more new nuclear power generating facilities and (2) issue an ESP for the proposed site located at NAPS. The proposed action does not include any decision or approval to construct or operate one or more units; these are matters that would be considered only upon the filing of applications for a construction permit and an operating license, or an application for a combined license.

In its application, Dominion proposed a plan for redressing the environmental effects of certain site preparation and preliminary construction activities; that is, those activities allowed by Title 10 of the Code of Federal Regulations (CFR) 50.10(e)(1), performed by an ESP holder under 10 CFR 52.25. In accordance with the site redress plan, the site would be redressed if the NRC issues the requested ESP (containing the site redress plan), the ESP holder performs these site preparation and preliminary construction activities, the ESP is not referenced in an application for a construction permit or combined license, and no alternative use is found for the site.

This EIS includes the NRC staff's analysis that considers and weighs the environmental impacts of constructing and operating two nuclear units at the North Anna ESP site or at alternative sites, mitigation measures available for reducing or avoiding adverse impacts, and public comments on both the staff's Draft EIS and the Supplement to the Draft EIS (SDEIS). It also includes the staff's recommendation to the Commission regarding the proposed action.

As part of the NRC review of the application, the NRC solicited comments from the public on the Draft EIS, which was issued in December 2004, and the SDEIS, which was issued in July 2006 in response to changes proposed by Dominion in Revision 6 of its Environmental Report. These changes involved adopting a different cooling approach for the proposed new Unit 3 and increasing the maximum power output for both of the proposed new units (i.e., Units 3 and 4). Volume II of this document sets forth all public comments received concerning the Draft EIS and the SDEIS and the NRC staff's responses to these comments, organized by subject matter. The comment letters on the Draft EIS are in the NRC's document management system (ADAMS) under accession number ML0514720560. Comment letters on the SDEIS are under accession number ML063060459. ADAMS can be accessed through the NRC's website at www.nrc.gov. Where appropriate, changes were made to the Draft EIS and SDEIS and are identified by change bars in the margins of this Final EIS.

The staff's recommendation to the Commission related to its environmental review of the proposed action is that the ESP should be issued. This recommendation is based on (1) the Environmental Report (ER) submitted by Dominion; (2) consultation with Federal, State, Tribal, and local agencies; (3) the staff's independent review; (4) the staff's consideration of public

comments on both the Draft EIS and the SDEIS; and (5) the assessments summarized in this Final EIS, including the potential mitigation measures identified in the ER and in the EIS. In addition, in making its recommendation, the staff has concluded that the alternative sites considered are not obviously superior to the proposed site. Finally, the staff concludes that the site preparation and preliminary construction activities enumerated in 10 CFR 50.10(e)(1) would not result in any significant adverse environmental impact that cannot be redressed.

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Abbreviations/Acronyms

ABWR	advanced boiling water reactor
ac	acre(s)
ACE	U.S. Army Corps of Engineers
ACR-700	Advanced CANDU Reactor
ADAMS	Agencywide Documents Access and Management System
AEC	U.S. Atomic Energy Commission
ALARA	as low as reasonably achievable
ALWR	advanced light-water reactor
ATWS	anticipated transient without scram
BEA	Bureau of Economic Analysis
BMP	best management practices
Bq	becquerel(s)
Btu	British thermal unit(s)
BWR	boiling water reactor
C	Celsius
CEDE	committed effective dose equivalent
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
Ci	curie(s)
cm	centimeter(s)
COL	combined construction and operating license, combined license
CP	construction permit
CWA	Clean Water Act of 1977 (also known as the Federal Water Pollution Control Act)
CWIS	cooling water intake system
CZMA	Coastal Zone Management Act
d	day
DBA	design-basis accident
dBA	decibels
DEIS	draft environmental impact statement
DGIF	Department of Game and Inland Fisheries
DOE	U.S. Department of Energy
EAB	exclusion area boundary
EC	energy conservation mode
EIS	environmental impact statement

EPA	U.S. Environmental Protection Agency
ER	environmental report
ESBWR	economic simplified boiling water reactor
ESE	east-southeast
ESP	early site permit
ESRP	Environmental Standard Review Plan
F	Fahrenheit
FR	*Federal Register*
ft	foot, feet
FWPCA	Federal Water Pollution Control Act (also known as the Clean Water Act of 1977)
FWS	U.S. Fish and Wildlife Service
gal	gallon(s)
GEIS	generic environmental impact statement
gpd	gallons per day
gpm	gallons per minute
GT-MHR	gas turbine-modular helium reactor
ha	hectare(s)
HLW	high-level waste
HPS	Health Physics Society
hr	hour(s)
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
IEEE	Institute of Electrical and Electronics Engineers, Inc.
in.	inch(es)
INEEL	Idaho National Engineering and Environmental Laboratory
IRIS	international reactor innovative and secure
ISFSI	independent spent fuel storage installation
kg	kilogram(s)
km	kilometer(s)
kV	kilovolt(s)
kWh	kilowatt hour(s)
L	liter(s)
LAAC	Lake Anna Advisory Committee
lb	pound(s)
LLW	low-level waste
LOCA	loss-of-coolant accident

LOS	level-of-service
LPZ	low population zone
LWR	light-water reactor
m	meter(s)
m/sec	meter(s) per second
m^3/d	cubic meter(s) per day
m^3/s	cubic meter(s) per second
MBq	million Becquerel(s)
mGy/yr	milligray per year
MGD	million gallons per day
mi	mile(s)
MIT	Massachusetts Institute of Technology
mL	milliliter(s)
mph	miles per hour
mrad	millirad(s)
mrem	millirem(s)
MSL	mean sea level
mSv	millisievert(s)
MT	metric ton(s) (or tonne[s])
MTU	metric ton(s)-uranium
MW	megawatt(s)
MWC	maximum energy conservation mode
MWd/MTU	megawatt-days per metric ton of uranium
MW(e)	megawatt(s)-electric
MW(t)	megawatt(s)-thermal
MWh	megawatt hour(s)
NA	not applicable
NAPS	North Anna Power Station
NCDC	National Climatic Data Center
NCHS	National Center for Health Statistics
NCRP	National Council on Radiation Protection and Measurements
NEPA	National Environmental Policy Act of 1969
NESC	National Electric Safety Code
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NNE	north-northeast
NOAA	National Oceanographic and Atmospheric Administration
NO_x	nitrogen oxide(s)
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission

NUG	non-utility generator
ODCM	Offsite Dose Calculation Manual
OL	operating license
OSHA	Occupational Safety and Health Administration
PBMR	pebble bed modular reactor
PCB	polychlorinated biphenyl
PPE	plant parameter envelope
ppm	parts per million
PWR	pressurized water reactor
RCIC	reactor core isolation cooling
REMP	radiological environmental monitoring program
rms	root mean square
ROI	region of interest
RRY	reference reactor-year
RSA	Rapidan Service Authority
Ryr^{-1}	per reactor year
s	second
SAIC	Science Applications International Corporation
SCDHEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SDEIS	Supplement to the Draft EIS
SER	safety evaluation report
SHPO	State Historic Preservation Officer
SODI	Southern Ohio Diversification Initiative
SO_x	sulfur oxide(s)
SPCC	Spill Prevention Control and Countermeasure
SR	State Route
SRS	Savannah River Site
SSAR	Site Safety Analysis Report
SSE	south-southeast
Sv	sievert(s)
SWR	Service Water Reservoir
SWU	separative work units
TEDE	total effective dose equivalent
TRU	transuranic (waste)
TVA	Tennessee Valley Authority

UCO	uranium oxycarbide
UFSAR	Updated Final Safety Analysis Report
UHS	ultimate heat sink
U.S.	United States
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USEC	United States Enrichment Corporation, Inc.
USGS	U.S. Geological Survey
VAC	Virginia Administrative Code
VTAX	Virginia Department of Taxation
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDOT	Virginia Department of Transportation
VDSS	Virginia Department of Social Services
VEC	Virginia Employment Commission
VEPCo	Virginia Electric & Power Company (Virginia Power)
VNHP	Virginia Natural Heritage Program
VPDES	Virginia Pollutant Discharge Elimination System
yd	yard(s)
yr	year(s)
WHTF	Waste Heat Treatment Facility

Appendix E

Comments and Responses on
the Draft Environmental Impact Statement
and the Supplement to the Draft Environmental Impact Statement

Appendix E – Public Comments and Responses

1.0 Overview

1.1 Background

This environmental impact statement (EIS) was prepared in response to an application submitted to the U.S. Nuclear Regulatory Commission (NRC) by Dominion Nuclear North Anna, LLC (Dominion), for an early site permit (ESP). An ESP is a Commission approval of a site or sites for one or more nuclear power facilities and is a separate action from the filing of an application for a construction permit (CP), an operating license (OL), or a combined construction permit and operation license (combined license or COL) for such a facility. The proposed action is the issuance, under the provisions of Title 10 of the Code of Federal Regulations (CFR) Part 52, of an ESP for the North Anna ESP site for nuclear power facilities with characteristics that fall within a plant parameter envelope (PPE) and to authorize site preparation activities as described in the site redress plan. The proposed action does not include any decision or approval to construct or operate one or more units; these are matters that would be considered only upon the filing of applications for a CP, an OL, or a COL. This Final EIS includes the NRC staff's analysis that considers and weighs the environmental impacts of constructing and operating two nuclear units at the North Anna ESP site, or at alternative sites, and mitigation measures available for reducing or avoiding adverse impacts. It also includes the staff's recommendation to the Commission regarding the proposed action.

This EIS was prepared in accordance with the provisions of the National Environmental Policy Act of 1969 (NEPA), guidance from the Council on Environmental Quality, and the provisions of 10 CFR Parts 51 and 52. As outlined by NEPA, the NRC initiated the scoping process by publishing in the *Federal register* a Notice of Intent to prepare an EIS and conduct scoping (68 FR 65961). NRC invited Dominion, Federal, State, Tribal, and local government agencies; local organizations; and individuals to participate in the scoping process by providing oral comments at public meetings held on December 8, 2003, or by submitting written suggestions and comments no later than January 9, 2004, or both. The public comments received during the scoping process are provided in Appendix D of Volume I of this Final EIS. In addition, the NRC environmental review team visited the North Anna site and its vicinity during December 2003.

Subsequent to the site visit and the scoping meeting and in accordance with NEPA and 10 CFR Part 51, the staff determined and evaluated the potential environmental impacts of constructing and operating two nuclear power plants at the North Anna ESP site and issued its preliminary findings in a Draft EIS on December 2, 2004 (NRC 2004). The Draft EIS included (1) the results of the NRC staff's preliminary analyses, which considered and weighed the

environmental effects of the proposed action (issuance of the ESP) and of constructing and operating two nuclear units at the ESP site; (2) mitigation measures for reducing or avoiding adverse effects; (3) the environmental impacts of alternatives; and (4) the staff's preliminary recommendation regarding the proposed action.

During the course of preparing the Draft EIS, the staff reviewed the Environmental Report submitted by Dominion (Dominion 2006); consulted with Federal, State, Tribal and local agencies; and followed the guidance set forth in the NRC review standard RS-002, *Processing Applications for Early Site Permits,* to conduct an independent review of the issues (NRC 2004a). The review standard draws from the previously published NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NRC 1987)*, and NUREG-1555, *Standard Review Plans for Environmental Reviews for Nuclear Power Plants (NRC 2000)*. In addition, the staff considered the public comments related to the environmental review received during the scoping process.

1.2 Public Comments Concerning the Draft EIS and the Supplement to the Draft EIS

On December 10, 2004, a Notice of Availability was published by the NRC in the *Federal Register* (69 FR 71854) announcing the publication of the *Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site*, NUREG-1811 (NRC 2004b). The Draft EIS was published by the NRC for comment by Federal, State, Tribal, and local government agencies as well as interested members of the public. The NRC made the Draft EIS available for public comment in accordance with 10 CFR 51.73. On December 17, 2004, the U.S. Environmental Protection Agency (EPA) issued a Notice of Filing of the Draft EIS (69 FR 75535), initiating the comment period for the Draft EIS .

Dominion proposed (1) changing its approach for cooling proposed Unit 3 from a once-through cooling system, as described in previous versions of the ER, to a closed-cycle system and (2) increasing the maximum power level per unit from 4300 megawatts-thermal (MW(T)) to 4500 MW(t) for the proposed Units 3 and 4 (hereafter referred to as Units 3 and 4). Under the revised cooling system approach, Unit 3 would use a closed-cycle, combination wet and dry cooling system. The NRC staff determined that the changes to the proposed action in Revision 6 of the application were substantial; therefore, the staff prepared a Supplement to its Draft EIS (referred to as the SDEIS) pursuant to 10 CFR 51.72. The SDEIS was issued for public comment on July 14, 2006 (71 FR 40096). The SDEIS (NRC 2006) evaluated changes to the Unit 3 cooling system and the increase in power level proposed by Dominion after the Draft EIS was published. The evaluation presented in the SDEIS replaced the evaluation of the impacts associated with the originally proposed once-through cooling system for Unit 3 and modified the analysis of impacts related to the power level increase. These revised evaluations, along with

the public comments received on the analysis presented in the SDEIS, are incorporated into this Final EIS together with comments received concerning the original Draft EIS and the staff's consideration of such comments. The comment period on the SDEIS was extended by 15 days in response to requests from the public and the Commonwealth of Virginia (71 FR 46927). As part of the process to solicit public comments on the Draft EIS and the SDEIS, the staff:

- placed copies of the Draft EIS and the SDEIS at the Louisa County Public Library
- made the Draft EIS and the SDEIS available in the NRC's Public Document Room in Rockville, Maryland
- placed copies of the Draft EIS and the SDEIS on the NRC website at: www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1811/index.html
- provided copies of the Draft EIS and the SDEIS to any member of the public that requested a copies
- sent copies of the SDEIS and the Draft EIS to certain Federal, State and local agencies
- published a notice of availability of the Draft EIS and the SDEIS in the *Federal Register* (69 FR 71854), (71 FR 40096), respectively
- filed the Draft EIS and the SDEIS with EPA.

During the comment periods, the NRC held public meetings in Mineral, Virginia, on February 17, 2005, and August 15, 2006. During the public meetings, the staff described the preliminary results of the NRC environmental review, answered questions, and provided members of the public with information to assist them in formulating comments on the Draft EIS and SDEIS. Approximately 300 people attended each meeting, and attendees provided oral comments. A certified court reporter recorded oral comments and prepared written transcripts of each meeting. In addition to comments received at the public meetings, the NRC received thousands of letters and e-mail messages with comments. The comments contained in the transcripts of the public meetings and in the letters and e-mails are addressed in this volume of the EIS. The comment period closed on March 1, 2005, for the Draft EIS and on September 12, 2006, for the SDEIS.

The NRC has published compendiums of the transcript and the written comments received during the public comment periods in public records dated June 16, 2005, for the Draft EIS and November 2, 2006, for the SDEIS. The comment letters, e-mail messages, and transcripts of the public meeting are available from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS) under accession numbers

ML051720560 and ML063060459. ADAMS is accessible at http://www.nrc.gov/reading-rm/adams.html, which provides access through the NRC's Public Electronic Reading Room link. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC's Public Document Room reference staff at 1-800-397-4209 or 301-415-4737, or by e-mail at pdr@nrc.gov. The NRC staff has reviewed each written comment and the transcripts of the public meetings.

1.3 Disposition of Comments

This volume contains the comments extracted from comment letters and e-mail messages provided to the staff during both comment periods, as well as the comments from the transcripts.

Each comment letter, e-mail message, or transcript was assigned a commenter number, so the comments could be traced to the original transcript or communication containing their comments. Comments received on the Draft EIS are identified as DW for draft written comment and DT for draft transcript comment followed by the number of the comment. Comments received on the SDEIS are identified as SE for supplement e-mailed comments, SW for supplement written comments, and ST for supplemental transcript comments followed by the comment number.

Each comment within a written comment letter, email message, or transcript was given a number, which follows the commenter number. For example, a person may have provided 10 specific comments during the Draft EIS public meeting. The commenter would be assigned a commenter number, such as DT-35. The first comment was identified as comment DT-35 1, and each subsequent comment was numbered sequentially (e.g., DT-35 1 through DT-35 10). Tables E-6.1 and E-6.2 are indexes of commenter names and comment numbers sorted alphabetically and numerically with the associated accession number from the NRC's ADAMS record keeping system. In the alphabetically sorted table, commenters who represented a stated organization are listed both by the submission individual's name and the organization.

Four e-mail messages or postcard comments on the Draft EIS were sent to the NRC by hundreds of individuals. These written comments are referred to as mass mailings and are identified in each comment and in the commenter list as in as commenter DMM1 (comments 1 through 12), D MM2 (comments 1 through 4), DMM3 (comments 1 through 4), and DMM4 (comments 1 through 17). Comments from these four letters were considered and are addressed once. In addition to the mass mailings, some of the commenters used one or more of the mass mailing comments in personalized letters and e-mail messages. If the comment letters received were duplicates sent by the same person but on different days, they were

labeled as duplicates, and were addressed as one commenter letter. If the letters were different, each letter was addressed individually.

After the comment period, the staff considered and dispositioned all comments received. To identify each individual comment, the NRC staff reviewed the transcripts of the public meetings and each letter and e-mail message received related to the Draft EIS and the SDEIS. As part of the review, the staff identified statements that they believed were related to the proposed action and recorded the statements as comments. Each comment was assigned to a specific subject area, and similar comments were grouped together. Finally, responses were prepared for each comment or group of comments.

The following chapters present the comments and the NRC responses to them grouped by similar issues:

- Chapter 2. Major Issues and Responses
- Chapter 3. Technical Comments Within the Scope of this EIS
- Chapter 4. ESP Process, NEPA Compliance, Comments Supporting or Opposing the ESP
- Chapter 5. Comments Outside the Scope of this EIS
- Chapter 6. Commenter Reference Tables.

Within the chapters the staff separated the comments received on the Draft EIS and the SDEIS unless the same comment was received on both the Draft EIS and SDEIS, in which case the comment was addressed once with both comment numbers listed after the comment.

When the comments resulted in a change in the text of the Draft EIS or SDEIS, the corresponding response refers the reader to the appropriate section of the report where the change was made. Tables E-6.1 through E-6.5 provide lists of commenters identified by name, affiliation (if given), commenter number, and the source (public meeting or written comments) provided subsequent to the meeting) of the comment. Tables E-6.1 through E-6.3 include commenters responding to the Draft EIS. Tables E-6.4 and E-6.5 include commenters responding to the SDEIS.

Comments are summarized in Chapter 2 for major issues. Many comments addressed topics and issues that are not part of the environmental review for this proposed action. These comments included questions about the NRC's safety review, general statements of support or opposition to nuclear power, observations regarding national nuclear waste management

policies, comments on the NRC regulatory process in general, and comments on NRC regulations. These comments are provided in Chapters 4 and 5. If appropriate, these comments were forwarded to the cognizant organization within the NRC for consideration.

Many comments specifically addressed the scope of the environmental review, analyses, and issues contained in the Draft EIS, including comments about potential impacts and proposed mitigation. Responses to these comments are provided in Chapters 3.

1.4 References

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy,* Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy,* Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants."

68 FR 65961. "Dominion Nuclear North Anna, LLC, North Anna Early Site Permit; Notice of Intent To Prepare an Environmental Impact Statement and Conduct Scoping Process." Vol. 68, No. 226. November 24, 2003.

69 FR 71854. "Dominion Nuclear North Anna, LLC; Notice of Availability of the Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site and Associated Public Meeting." Vol. 68, No. 237. December 10, 2004.

69 FR 75535. "Environmental Protection Agency Environmental Impact Statements; Notice of Availability." Vol. 69, No. 242. December 17, 2004.

71 FR 40096. "Environmental Protection Agency, Environmental Impact Statements; Notice of Availability." Vol. 71, No. 135. July 14, 2006.

71 FR 46927. "Dominion Nuclear North Anna, LLC; Notice of the extension of the Public Comment Period on the Supplement to the Draft Environmental Impact Statement for the Early Site Permit (ESP) at the North Anna ESP Site." Vol. 71, No. 157. August 15, 2006.

Dominion Nuclear North Anna, LLC (Dominion). 2006. *North Anna Early Site Permit Application – Part 3 – Environmental Report*. Revision 9, Glen Allen, Virginia.

National Environmental Policy Act of 1969 (NEPA). 42 USC 4321, et seq.

U.S. Nuclear Regulatory Commission (NRC). 1987. *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants*. NUREG-0800, Washington, D.C.

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U.S. Nuclear Regulatory Commission (NRC). 2004a. *Processing Applications for Early Site Permits*. RS-002, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2004b. *Draft Environmental Impact Statement for an Early Site Permit (ESP) for the North Anna ESP Site*. NUREG-1811, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2006. *Draft Environmental Impact Statement for an Early Site Permit (ESP) for the North Anna ESP Site, Supplement 1*. NUREG-1811, Washington D.C.

2.0 Major Issues and Responses

Major issues raised through the comment process in response to (1) the North Anna early site permit (ESP) Draft Environmental Impact Statement (Draft EIS) (NRC 2004) and (2) the Supplement to the Draft EIS (SDEIS) (NRC 2006) are provided in this chapter along with a summary of the U.S. Nuclear Regulatory Commission (NRC) responses to such comments. The topics addressed herein are:

- NRC's regulatory process
- NRC's safety review
- alternative energy sources, cost of power, need for power
- issues associated with Lake Anna
- human health and radiation impacts
- socioeconomic impacts
- fuel cycle impacts.

Detailed responses to the topics that are within the scope of this environmental review are summarized in Chapters 3 and 4. Comments that are not within the scope of the EIS are listed in Chapter 5 along with a general response.

2.1 NRC Regulatory Process

A number of comments addressed the NRC review process for an ESP and the extent of the NRC's environmental review at the construction permit (CP), operating license (OL) or combined license (COL) stage for an application that references an ESP. Several commenters, asserting that little or no design information exists, questioned the validity of the plant parameter envelope (PPE) for bounding the design characteristics of a reactor that might ultimately be built at the proposed ESP site. Other commenters questioned how the NRC could provide finality at the COL stage for environmental issues resolved at the ESP stage given that changes could occur subsequent to an ESP approval. Finally, one commenter stated that there was no requirement for the NRC to produce an EIS at the COL stage. While the comments and the staff's responses are generally couched in terms of the relationship between the ESP and COL environmental reviews, the responses apply equally to the review of a CP or OL application that references an ESP.

The NRC regulations governing the application addressed in this EIS require that an applicant for an ESP provide the NRC with an environmental report (ER) that meets the requirements of 10 CFR 51.45 and 51.50 (see 10 CFR 52.17). Title 10 of the Code of Federal Regulations (CFR) Section 52.17 also requires that the applicant's Environmental Report (ER) focus on the environmental effects of construction and operation of a reactor or reactors that might be built at the proposed site. Additionally, 10 CFR 52.18 requires that the staff prepare an EIS for the

application that focuses on the same matters. Both the ER and the EIS must include an evaluation of alternative sites to determine whether there is any obviously superior alternative to the site proposed. Certain issues, however, such as the benefits of the action and alternative energy sources, may be deferred to a later licensing stage.

For an ESP, the NRC prepares an EIS that resolves numerous issues based on existing environmental site characteristics, as well as bounding values of power plant design parameters postulated in the application. These issues are subject to issue preclusion in a proceeding on an application referencing the ESP (i.e., such an issue would not be subject to litigation in the later licensing proceeding). NRC regulations allow an ESP applicant to defer an issue (such as the benefits assessment as Dominion Nuclear North Anna LLC [Dominion] has elected here) but also require that a COL applicant referencing such an ESP address the issue in its application. An application referencing an ESP must also demonstrate that the design of the facility falls within the parameters specified in the ESP. In addition, the application should indicate whether the site is in compliance with the terms of the ESP. Such an application should also identify whether there is new and significant information on any issue resolved in the ESP proceeding and address any unresolved issues.

In its application for an ESP, Dominion provided environmental site characteristics, but did not provide a detailed design of a reactor or reactors and the associated facilities that might be built at the North Anna ESP site. Rather, in lieu of detailed design information, Dominion referenced a PPE as a surrogate for a specific plant design. That is, it provided bounding values of design parameters for a plant that might be built at the site and assessed the environmental impacts associated with those bounding values.

The PPE consists of bounding values for specified parameters rather than the characteristics of any specific reactor design. If the design selected in a subsequent application referencing any ESP that might be issued in this proceeding is not bounded by the environmental PPE values specified in such an ESP, then the NRC staff will determine whether such new information is significant. In its review of any future application referencing such an ESP, if new and significant information is identified with respect to an issue resolved in the ESP proceeding, the staff will address that information in the EIS on that application.

Regarding the proposition that an EIS would not be required for an application referencing an ESP, issuance of a CP and a COL are major Federal actions; therefore, the provisions of 10 CFR 51.20 would apply, and preparation of an EIS for such a proposed action would be required.

2.2 NRC's Safety Review

Many comments received in response to the North Anna Draft EIS addressed the NRC safety evaluation. Commenters primarily questioned why safety issues, including emergency preparedness, are outside the scope of the environmental review. A number of commenters specifically questioned why security and terrorism are outside the scope of the environmental review. In addition, commenters expressed concern regarding terrorist attacks at nuclear power plants in general, and at any additional units at the North Anna ESP site in particular.

As specified in NRC regulations, the staff conducts a two-pronged review of an ESP application (see 10 CFR 52.17, 52.18, 100.20, 100.21, and 100.23). In its review, the staff analyzes the environmental impacts of the applicant's proposal and, in tandem, reviews the applicant's compliance with NRC site safety requirements. Because the NRC conducts both reviews in parallel, some members of the public, in response to the staff's request for comments on the Draft EIS, provided comments on safety matters. Such comments, as explained below, are beyond the purview of the NRC's environmental review, and are not addressed in this EIS.

The purpose of an EIS is to disclose the reasonably foreseeable environmental impacts arising from an applicant's proposed action. Further, pursuant to the Commission's regulations, an ESP EIS focuses on the impacts of construction and operation of a new nuclear unit or units that might be built on a proposed ESP site. This EIS focuses on the impacts of constructing and operating such a facility on the proposed North Anna ESP site. Consequently, consideration of comments on the safety of the site or any facility that might be built on it, including comments on emergency planning, are beyond the scope of the matters addressed herein. The staff, however, has forwarded comments that address safety issues to the appropriate NRC staff members for their consideration (ML0517301530).

Security is a safety issue evaluated in the staff's safety evaluation report (SER, NUREG-1835 and Supplement 1). With respect to security, the staff evaluated the application to determine whether the characteristics of the proposed site are such that adequate security plans and measures can be developed (see 10 CFR 100.21(f)). In its SER, the staff found that the ESP site characteristics would allow an applicant for a COL or a CP to develop adequate security plans and measures for a reactor that such an applicant might construct and operate on the ESP site. Should an application be submitted referencing any ESP that might be issued for the North Anna ESP site, the staff would review the security measures proposed in the application to determine whether those measures satisfy the regulations in effect at that time.

With respect to environmental impacts resulting from terrorism, the Commission has determined that the National Environmental Policy Act of 1969 (NEPA) does not require the NRC to consider such impacts in rendering licensing decisions (NRC 2002). *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002). Since

that decision, the Court of Appeals for the Ninth Circuit ruled that an evaluation of terrorism was required in an environmental assessment for an independent spent fuel storage installation at a reactor site. *See San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006). In its decision, the Court of Appeals specifically rejected the rationale for the Commission's decision that the impacts of terrorism need not be considered under NEPA. However, inasmuch as the licensee in the *Mothers for Peace* case has filed a petition for a *writ of certiorari* with the United States Supreme Court, the Ninth Circuit's decision may yet be modified or reversed. Given the ongoing nature of these developments, the Commission has not altered its position regarding evaluation of the environmental impacts of a terrorist attack. Finally, the *Mothers for Peace* decision applies only in the Ninth Circuit. Accordingly, the NRC staff response to this comment is still controlled by the Commission decisions ruling that the impacts of terrorism need not be addressed in the context of NRC environmental reviews under NEPA. The rationale for these decisions is set forth below.

First, the Commission does not currently have a method or theory with which to perform a meaningful analysis of the environmental impacts of terrorism with respect to a particular facility. Second, in the absence of specific information indicating that a terrorist attack on a specific facility is likely to occur, NEPA does not require consideration of postulated terrorist attacks. Third, the public aspect of the NEPA processes conflicts with the need to protect certain sensitive information because (1) a review of terrorism under NEPA would involve examination not only of how terrorists could cause maximum damage but also how they might best be thwarted, and (2) confidentiality in this area protects against the risks that terrorism poses to public health and safety. In light of the foregoing discussion, issues with regard to terrorism are not appropriate topics for an EIS, and the staff has not addressed such issues in this EIS.

It is important to point out that the NRC and other Federal agencies have raised their vigilance, and their licensees' vigilance, with respect to security, and have implemented initiatives to evaluate and respond to possible threats posed by terrorists. The NRC routinely assesses threats and other information provided by other Federal agencies and sources. Ultimately, however, while these are legitimate matters of concern, they will continue to be addressed through the ongoing regulatory process as a current and generic regulatory issue that affects all nuclear facilities.

2.3 Alternative Energy Sources, Cost of Power, Need for Power

Several commenters questioned the deferral of the review of alternative energy sources, cost of power, and the need for power until the COL stage.

An ESP does not approve the construction or operation of a nuclear power plant. Actions authorizing such construction and operation, which could be either the issuance of a CP and

OL, or a COL, require separate environmental reviews and preparation of separate EISs. The benefits assessment can be prepared as part of the CP or COL application, and evaluated by the NRC staff when such an application is submitted. Accordingly, 10 CFR 52.17(a)(2) affords an ESP applicant the flexibility to defer consideration of the benefits of construction and operation of a facility that might be built at the proposed ESP site (e.g., the need for power).

The benefits of construction and operation of a facility at the proposed ESP site would be assessed if any ESP that might be issued were referenced in a COL or CP application. If such an ESP is never referenced in another application, a facility for which that ESP resolved issues would not be built, and the benefits assessment need not be performed. In this same context, an ESP applicant need not include an assessment or discussion of alternative energy sources in its environmental report. Rather, an applicant may choose to defer consideration of alternative energy sources to the COL or CP application (68 FR 55905). Here, Dominion chose not to assess alternative energy sources or the benefits of construction and operation of a reactor or reactors at the North Anna ESP site, including the need for power. Accordingly, this EIS does not consider such issues.

2.4 Issues Associated with Lake Anna

The Draft EIS and the SDEIS comment process generated comments concerning water use by Dominion's potential construction and operation of new nuclear units on Lake Anna. A number of commenters expressed concerns about the increase in frequency, duration, and magnitude of the decline in lake level; the decrease in stream flows downstream of the dam; the increase in water temperature; and the decline in aquatic habitat quality in the lake and downstream. In response to concerns in these areas received from the Commonwealth of Virginia and local citizens, Dominion changed its proposal for the Unit 3 cooling system from a once-through system to a closed-cycle, combination wet and dry cooling system. The new cooling system essentially eliminates the thermal impacts to the lake; however, consumptive water use and lake level remain affected by the new cooling system. The staff performed an independent assessment of the new cooling system impacts to Lake Anna and concluded the impacts to Lake Anna would be MODERATE in drought conditions and otherwise SMALL. (Significance levels are defined in the Chapter 1 [Volume I] of this EIS.)

Several commenters incorrectly implied that NRC has authority over setting water use and water quality standards. The authority for setting water quality and water use policy for Lake Anna resides with the Virginia Department of Environmental Quality. Issuance of an ESP in no way diminishes or interferes with the Commonwealth of Virginia's authority to set water quality and water policy for Lake Anna, nor does it alter the responsibility of Dominion to obtain all the required permits and certifications from the Commonwealth of Virginia.

Regarding the striped bass fishery, construction of the dam in 1972 created an artificial lake that provides habitat for a fishery maintained by continuous artificial stocking. The fishery stocking program is managed by the Virginia Department of Game and Inland Fisheries (VDGIF) and is expected to be an ongoing program. The incremental changes resulting from the addition of a closed-cycle, combination wet and dry cooling system essentially eliminated the thermal impacts to Lake Anna and associated impacts on striped bass habitat in the lake. Habitat changes naturally occur in the North Anna River during the year. They are most noticeable during high-flow conditions that occur in the winter and early spring, and during low-flow conditions that occur in the summer and early fall. Habitat changes can be exacerbated during drought years, or years with abnormally high precipitation.

Although there is no evidence that striped bass live or spawn in the North Anna River below the dam, this species does utilize areas of the Pamunkey River for spawning, but generally not during the times when low-flow conditions would occur. VDGIF has expressed concern, however, that other species (e.g., herring, shad, resident sucker and minnow) may be influenced by low-flow conditions associated with the operation of Unit 3, and that impacts to habitat in or near the North Anna River would occur because of the operation of Unit 3. While it is unlikely that the impacts of the operation of Unit 3 would be sufficient to destabilize the existing fish populations in Lake Anna or the North Anna River, it is possible that the additional periods of reduced flow over the North Anna Dam could influence some resident fish species and also result in additional impacts to downstream habitat, especially during drought events. The staff recognizes the importance of these potential impacts and has revised the Final EIS to address the concerns of VDGIF and other commenters. Detailed responses to these comments are provided in Chapter 3.

2.5 Human Health and Radiation Impacts

Some of the comments related to the assertion that there are higher incidences of cancers around nuclear power plants. Some commenters stated that there is a 73 percent increase in deaths from breast cancer since the North Anna Unit 1 and 2 reactors began operating while others refuted the basis for the statistics suggesting higher regional incidences of cancer. Other concerns were related to infant mortality, cancer, and heart disease. A number of comments stated the regulatory limits were not protective of workers or the environment. Some of the comments related to the release of radioactive material to the environment, both for the proposed units and the currently operating units. There were some questions regarding how the analysis for doses to construction workers was performed. There was also a concern that the staff did not take into account that infants may consume food grown or raised near the power plant.

The NRC is committed to protecting the health and safety of both the workers and the public that live around nuclear power plants. The staff continues to review new data related to health

effects from radiation to both humans and the environment and has reviewed the literature discussing the possible cause and effect relationship between reactor operations and the incidence of cancer. The staff notes that the position of the National Cancer Institute (NCI) is that there is "...no evidence that an excess occurrence of cancer has resulted from living near nuclear facilities." Regulatory standards for doses to workers and the public are developed using extensive research by national and international organizations and are protective of health and safety. In addition to meeting regulatory limits, the operators of the nuclear reactors must also demonstrate that they maintain doses to workers "As Low As Reasonably Achievable," or ALARA. The radiological waste systems, when designed, must also meet the ALARA requirements of Appendix I of 10 CFR Part 50. Small amounts of radioactive material from nuclear reactors may be released into the environment as a result of plant operations. The operators of the reactors must monitor these releases and report them annually to the NRC if they are within regulatory limits, and sooner in the event of an unplanned release or if a release exceeds regulatory limits. The data from these releases are used to estimate doses to the public and the environment, and NRC reviews the information to assure that the reactor releases are within release limits. More detailed responses to the comments are provided in Chapter 3. Regarding the questions related to the staff's analysis in the EIS, revisions have been made where necessary to improve clarity.

2.6 Socioeconomic Impacts

Some of the commenters expressed confusion over, or disagreement with the region of study used for the socioeconomic analysis. Most asserted that a wider geographic area extending beyond Orange, Louisa, Spotsylvania, and Henrico Counties and the City of Richmond should have been assessed. There were several comments regarding the positive impact of the existing North Anna facilities on the economy of Orange County, but several questions were asked about the potential impacts of additional nuclear facilities at the North Anna ESP site on the amount and distribution of local government tax receipts (especially in light of electricity sector deregulation in Virginia). There were several comments concerning the current rapid rate of population growth in the region of the ESP site, and concerns were expressed that the number of personnel employed to build and operate the plant would place a significant additional burden on roads, housing and other infrastructure, and public services in the region. Several commenters noted that road upgrades mentioned in the EIS were unlikely to occur because of State-level budget constraints. There were several comments expressing concern about the expected reductions in lake levels and increases in temperatures in Lake Anna, and potential negative effects on recreation, recreation-related businesses, and property values surrounding Lake Anna. As noted in Section 2.4, Dominion has changed its proposal for the cooling system for Unit 3 to a closed-cycle system, essentially eliminating the thermal impacts to the lake.

The staff developed its socioeconomic region of analysis beginning with an area approximately 50 miles in radius, which conforms to NRC environmental review procedures and other regulatory guidance. The actual focus of the socioeconomic analysis was on those counties in which approximately 79 percent of the operations workforce for North Anna Power Station (NAPS) Units 1 and 2 live, and especially Louisa and Orange Counties, which are expected to see the majority of the measurable socioeconomic impacts.

Regarding population growth, Dominion had estimated that about 80 percent of the construction workforce would come from the labor force already residing in the region. The staff expects that this factor, combined with the fact that any population increases resulting from construction and operation of the two new units at NAPS are expected to be distributed across the region (especially the urban area of Richmond and Henrico County), would mean that the community-service impacts caused by construction of new nuclear units at the North Anna site would be small to moderate. Water and sewer infrastructure and educational facilities in Orange and Louisa Counties would have to be expanded and upgraded even without new facilities at the North Anna ESP site, so they could be scaled to accommodate the additional growth. With respect to roads, the staff acknowledges that the Fredericksburg to Washington, D.C., corridor is congested and that the local roads in the vicinity of Lake Anna can be crowded during peak recreation periods. However, because most of the expected workforce already lives in the region and is already counted in current congestion, because there are multiple commuting routes to the North Anna site, and because the additional commuters would be spread over multiple shifts, the staff determined that traffic impacts would be in the range of SMALL to MODERATE.

The staff acknowledges that Lake Anna water levels can be lower, but determined that with the closed-cycle, combination wet-dry cooling system for Unit 3 and dry cooling for Unit 4, lake temperatures would not be noticeably higher. In addition lower lake levels mainly would be experienced during periods of drought when low lake levels would result in exposed mud flats and some unusable facilities anyway. In view of the already high and increasing property values on the Waste Heat Treatment Facility and the expected influx of population and activity to the region, the staff determined that changes in Lake Anna are unlikely to result in lower property values. More detailed responses to these comments are provided in Chapter 3.

2.7 Fuel Cycle Impacts Including Transportation

Many comments addressed concerns about spent fuel in the spent fuel pool, storage of spent fuel at the site and at a fuel repository, and transportation of the spent fuel to a final repository. Many comments were made regarding the long-term hazards from high-level and low-level radioactive waste and management of the wastes. In some cases, commenters promoted the idea of spent fuel reprocessing. Most comments stated that until there was resolution to the spent fuel storage issue, no additional nuclear reactors should be built. Several commenters

also expressed concern regarding the expiration in 2008 of the Southeast Low-Level Waste Compact with Barnwell, South Carolina.

In the Waste Confidence Rule (10 CFR 51.23), the Commission expressed its confidence that there will be a licensed high-level waste repository. If the proposed Yucca Mountain site is found to be unsuitable as a site for a permanent repository, other sites will be considered. Until a permanent high-level waste repository is operational, spent nuclear fuel will be safely stored either onsite or at an interim storage facility. Federal energy policy discusses the possibility of reprocessing spent fuel; however, only the no-recycle option is analyzed in this EIS. The environmental impacts for transporting spent fuel were analyzed for both normal transportation and accident conditions. Based on the results presented in the EIS, the staff concludes that the impacts of transporting unirradiated fuel to and spent fuel and radioactive waste from the Dominion ESP site are likely to be small for advanced light water reactor (LWR) designs and are unresolved for gas cooled reactor designs. The analysis assumes that shipping containers for advanced reactor fuel and wastes will provide protection equivalent to current LWR fuel cask designs that historically have been used in the United States to safely transport radioactive material, including unirradiated fuel, spent fuel, and wastes. Regarding the expiration of the Southeast Low-Level Waste Compact with Barnwell in 2008, other waste generators in the compact (e.g., hospitals that generate radioactive waste) rely on the Barnwell disposal facility, and an alternate waste disposal location would need to be established prior to 2008.

2.8 References

10 CFR Part 50. Code of Federal Regulations, Title 10, *Energy,* Part 50, “Domestic Licensing of Production and Utilization Facilities.”

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy,* Part 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions.”

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy,* Part 52, “Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants.”

10 CFR Part 100. Code of Federal Regulations, Title 10, *Energy,* Part 100, “Reactor Site Criteria.”

68 FR 55905. “Nuclear Energy Institute; Denial of Petition for Rulemaking.” *Federal Register*. Vol 68, No. 188, September 29, 2003.

National Environmental Policy Act of 1969 (NEPA). 42 USC 4321, et seq.

U.S. Nuclear Regulatory Commission (NRC). 2002. Private Fuel Storage, LLC (Independent Spent Fuel Installation, CLI-02025, 56 NRC 340, Washington, D.C.

San Luis Obispo Mothers for Peace V. NRC, 449 F. 3d (9th Cir. 2006)

U.S. Nuclear Regulatory Commission (NRC). 2004. *Draft Environmental Impact Statement for an Early Site Permit (ESP) for the North Anna ESP Site*. NUREG-1811, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2005. *Safety Evaluation Report of Early Site Permit Application in the Matter of Dominion Nuclear North Anna, LLC, for the North Anna Early Site Permit Site.* Accession No. ML05160246. Available at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html.

U.S. Nuclear Regulatory Commission (NRC). 2006. *Draft Environmental Impact Statement for an Early Site Permit (ESP) for the North Anna ESP Site, Supplement 1*. NUREG-1811, Washington D.C.

3.0 Comments Within Scope

In this chapter, the staff responds to comments received by the U.S. Nuclear Regulatory Commission (NRC) regarding the Draft Environmental Impact Statement (Draft EIS) and the Supplement to the Draft EIS (SDEIS) evaluating the Dominion Nuclear North Anna LLC (Dominion) request for an early site permit (ESP) for two new units (Units 3 and 4) at the North Anna Power Station (NAPS). References in the responses to "the EIS" or "this EIS" usually relate to Volume 1 of this Final EIS and, occasionally, relate to the series of EIS documents (Draft EIS, SDEIS, Final EIS).

Comments presented in this chapter are related to technical and editorial aspects of the evaluation. For each topic, the comments are organized so that comments received on the Draft EIS are listed first and comments received on the SDEIS are listed afterward. An exception to this strategy was made when a comment submitted on the Draft EIS was repeated exactly, or almost exactly, on the SDEIS in which case, the latter comment was noted together with the previous one. A short summary of the general comments in each section is provided in the following paragraphs.

Land Use (Section 3.1). Commenters expressed concerns about the relationship of the additional units to the regional land use plans in light of the forecasts of land use and predicted rapid population growth. Other commenters requested clarification of specific parts of the document.

Meteorology and Air Quality (Section 3.2). Commenters expressed concerns about waste heat and global warming, plant emissions, increased fog and ice fog from increased evaporation from Lake Anna, carbon dioxide emissions, and dust and smog from construction.

Water Use and Quality (Section 3.3). Comments received on water use and water quality cover a variety of topics. Some commenters requested baseline groundwater monitoring and expressed concerns about the effects of construction on surrounding wells. Commenters expressed concerns about the capability of Lake Anna to support the additional units. Many commenters expressed concerns about the effects of additional units on Lake Anna's water level and possible contamination of the lake. Some commenters expressed views about other options for cooling (including using dry cooling to cool Unit 3) and alternate water sources. Commenters expressed concerns about downstream water impacts of additional units as well as overall water use, water quality, water level, water supply, and the description of the water budget model. Some commenters expressed concerns about the projected increase in water temperature in the Waste Heat Treatment Facility (WHTF) as it related to the previously proposed once-through cooling system evaluated in the Draft EIS. Commenters indicated that construction activity could resuspend heavy metals and polychlorinated biphenyls (PCBs) already in the lake sediment. There were comments related to drought and the effects that it

would have on the lake with additional units, particularly related to the once-through cooling system for Unit 3 (no longer proposed) or the evaporative water loss from the wet cooling towers of the closed-cycle, combination wet and dry cooling system. In addition to these concerns, other commenters saw benefits from additional units such as longer recreational seasons resulting from warmer water temperature, again related to once-through cooling. Finally, some commenters drew attention to the fact that Lake Anna is an artificial lake, originally created for the purpose of cooling up to four reactors.

Ecology (Section 3.4). This section is divided into Terrestrial Ecology (Section 3.4.1), Aquatic Ecology (Section 3.4.2), and Wetlands (Section 3.4.3). The majority of the comments were related to aquatic ecology. With regard to terrestrial ecology, commenters expressed concerns about bald eagles in the region and about the noise generated by dry cooling towers and the basis for the staff assignment of SMALL as the impact level for bird collisions with the towers. One commenter suggested that there should be an analysis of additional transmission lines in the Final EIS, and several commenters expressed concerns about the construction activity effects on wetlands around Lake Anna. One commenter recommended additional information on monitoring programs, and the Virginia Department of Environmental Quality (VEDQ) stated that the ESP would not be expected to adversely affect the forests of the Commonwealth.

Many commenters expressed concerns over the increase in water temperature resulting from any additional units using the lake water for cooling (using the once-through cooling system evaluated in the Draft EIS), and the effects that such an increase could have on aquatic species, especially the striped bass, and other aquatic organisms. Some commenters expressed concerns about entrainment and impingement of aquatic organisms that could result from the increase in water use by the cooling system. Some commenters expressed concerns about the potential for a decrease in lake water level during droughts and the effects on aquatic life in Lake Anna. Commenters also expressed concerns about downstream ecosystem effects from additional units. Several commenters expressed their views that the lake was created as a cooling pond for four units and that the striped bass (a non-native, but thermally sensitive species) should not take precedence over other needs.

Some commenters expressed concerns about the potential impacts to wetlands from construction and operation of two additional units and about wetland mitigation and preservation efforts.

Socioeconomics (Section 3.5). Comments received on socioeconomics cover a variety of topics. One commenter asked about the NRC review guidance identifying the size of the region the NRC uses for a site evaluation. Several commenters expressed concerns about the availability of a workforce to construct additional units. There were comments regarding positive and negative economic aspects of additional units. Some commenters indicated that the additional units would create additional jobs, additional tax revenue, and other related benefits. Some commenters expressed concerns that additional units could disrupt business,

especially if recreation, such as fishing and boating on Lake Anna, was affected. Some commenters indicated that traffic on local roadways would be affected. Some commenters suggested that additional economic information be included in the Final EIS. Some commenters expressed concerns about the availability of housing for construction workers, the effect of additional units on the housing values in the Lake Anna area, and possible increased demand on the transportation, educational, and health care systems. Some commenters expressed concern about the aesthetic aspect of the height of the cooling towers. Finally, some commenters requested additional information about the population data included in the document.

Historic and Cultural Resources (Section 3.6). One commenter requested that cultural resource assessments be performed as part of this Final EIS; one commenter questioned the nature of communications with Native American tribes that were conducted for this EIS and sought to determine what mitigation measures would be employed should such resources be discovered.

Environmental Justice (Section 3.7). Several comments were received regarding environmental justice. One expressed appreciation for the environmental justice section, and asked for clarification regarding the poverty level in Louisa County. The other recommended that the NRC review the population data and the potential effects of potential plant development within the 50-mi radius around North Anna. Another asked for the EIS to include more extensive information related to environmental justice.

Site Redress (Section 3.8): Two of the comments received on the site redress plan were submitted by the VDEQ. These comments offered insight on disposal of radioactive soils, lead-based paint, and asbestos. Several commenters expressed concerns about the site preparation activities that would be allowed under the ESP.

Human Health (Radiological Impacts) (Section 3.9). Some commenters expressed concerns about cancer that could be caused by exposure to radioactive material and about the potential for a possible increase in the incidence of cancer near the North Anna plant. Several commenters expressed concerns about the potential for release of radioactive material from the plant and the health of the local population. Commenters expressed concerns about the potential for infant mortality and one commenter requested disease and mortality studies be performed for the local area. Several commenters expressed concerns about health in relation to environmental radiation exposure. One commenter questioned the adequacy of the Federal occupational radiation worker limit of 5-rem per year. There were also comments that concerns about radioactivity were overstated and that alternative forms of power production had a higher risk than the nuclear power alternative.

Human Health (Nonradiological Impacts) (Section 3.10). This section lists comments that principally focus on human health impacts of construction and operation of new facilities that are not related to potential radiological releases. Specifically, the comments address noise and

impacts of electromagnetic fields and potential health impacts from recreational use of the existing plant's waste heat treatment facility. One commenter questioned why the applicant could defer application of the National Electric Safety Code (NESC) on the transmission lines until the combined license (COL) stage. The commenter also suggested that the increased transmission capacity would exceed NESC standards for electrostatic fields and potentially increase the leukemia hazard for humans. One commenter suggested that noise from construction activities may not be an appropriate comparative measure for operational noise impacts.

Uranium Fuel Cycle (Section 3.11). Commenters expressed concern that this EIS does not address the possible security threats of storing radioactive waste on site. Some commenters suggested that nuclear power is not emission free if the mining, transportation, enrichment, and construction activities associated with nuclear power plants are taken into consideration. One commenter suggested that using nuclear fuel actually removes it from the environment, thus cleaning up the planet. Concerns were expressed about the disposal of both high and low-level waste, and the permanent nature of nuclear waste. Several commenters expressed concerns about the proposed repository at Yucca Mountain and the need for a solution to the waste issue. Several commenters addressed the politics involved in the nuclear waste issue, with some commenters taking issue with the elimination of U.S. restrictions on importing uranium from foreign sources, some commenters suggesting that the waste storage issue is being held hostage by politics, and one commenter suggesting that the problems of waste management are political and not technical in nature. Several commenters encouraged fuel reprocessing and suggested that this option should be addressed in this EIS. Some commenters expressed concerns about solid waste and spent fuel, and about the storage of spent fuel at the North Anna site until a more permanent solution is finalized. Other commenters expressed their views that spent fuel is safely stored at the North Anna site and at other similar sites.

Transportation (Section 3.12). Commenters expressed concerns about safe transport of nuclear waste and about the increased volume of waste to be transported with additional reactors.

Decommissioning (Section 3.13). Commenters expressed concerns about the cost of decommissioning and the consequences if any company owning a nuclear power plant went bankrupt. Commenters also suggested that any new reactor would add additional contamination, and asserted that the extent of cleanup would depend on the political clout of the community and waste storage solutions at the time.

Postulated Accidents (Section 3.14). Many of the comments addressed events similar to the Chernobyl and Three Mile Island accidents. In addition, concerns about the reactor vessel head, such as the Davis-Besse reactor head situation, were mentioned. Many commenters expressed concerns about the safety of nuclear power and focused on the likelihood and consequences of human error, while others expressed concerns that an external security threat

could increase the possibility of problems. Several commenters suggested that reduced water availability could increase the likelihood of an unexpected accident. Some commenters stated that the risks of nuclear power outweigh the benefits, and suggested that the cost of liability and cleanup were important factors to consider. Transportation accidents were also mentioned.

Mitigation Measures and Controls (Section 3.15). The VDEQ provided most of the comments about mitigation measures. The comments were recommendations with regard to future construction should Dominion receive an ESP.

Cumulative Impacts (Section 3.16). Comments included concerns about cumulative environmental effects with the proximity of other reactors at the North Anna site, and the cumulative effects over time on the downstream hydrology and biology from the existing and any additional units. One commenter suggested that the NRC staff evaluate cumulative effects from pre-dam conditions. One commenter suggested that regional transportation and roads would be affected by traffic from any additional units above that from the operation of the existing units.

Alternatives (Section 3.17). Several commenters questioned the suitability of the North Anna site for additional units, as opposed to locating them at Surry Nuclear Power Station or the Savannah River Site. Some commenters requested more information, including inclusion of life extensions of the existing plants or their retirement, and more population data. One commenter sought additional information about brownfield sites, and one questioned the impact level of the no-action alternative. One commenter suggested that the Savannah River Site has undergone a comparable level of study and suggested that several of Savannah River's impact levels stated in this EIS be changed from MODERATE to SMALL. One commenter expressed the concern that making direct comparisons among the sites was difficult because several factors are not inherently the same at all sites.

3.1 Land Use

Comment: ODEC's [Old Dominion Electric Cooperative] joint ownership should be acknowledged similar to DEIS Page 2-5, Line 34. [page 2-1, line 31]. (DW-0423 3)

Response: *The staff agrees with this comment. Section 2.1 of this EIS was modified to reflect the comment.*

Comment: Table 2-1 shows the Land Use in four nearby counties. On this and other measures, the DEIS review of the Existing Environment should include a forecast of the conditions over the twenty year life (since the timing for the action is uncertain) of the ESP as the baseline. Given the rapid population growth in the area, the 2002 data cited is already obsolete and huge changes are already forecast for the region even without considering the

proposed project. Spotsylvania, for example, is one of the fastest growing areas of the State. If the DEIS showed current conditions and forecasts for say 5, 10, 20 year intervals as the baseline, the impacts of the project could be put into better perspective. (DW-0438 20)

Response: *NRC regulations state that NRC EISs are to discuss possible conflicts between the alternatives and the objectives of land-use plans, policies, and controls for the area concerned [10 CFR Part 51, Subpart A, Appendix A.7(c)]. The land use information in Table 2-1 was included in this EIS as background information for the reader. Louisa, Orange, and Spotsylvania Counties have comprehensive land use plans in place as required by Section 15.2-2223 of the Code of Virginia. The additional units do not appear to present a land-use conflict because they would be located on the NAPS site which is zoned for industrial use by Louisa County as noted in Section 4.1.1 of this EIS. While projections of population growth are considered in this EIS, forecasts of future land use in Louisa County and adjacent counties are beyond the scope of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-5 line 1 states that the Lake Anna Special Plan is "final." Please verify this statement. Furthermore, it would be useful to state whether the Plan addresses nuclear expansion in the region and/or nuclear evacuation plans. There may be a disconnect between local planning and the proposed project. (DW-0438 13)

Response: *In this case, "final" was used to distinguish it from a draft document. The Plan does not address nuclear expansion in the region and/or nuclear evacuation plans. The wording in Section 2.1 of this EIS has been revised to clarify that the plan is a platform to coordinate planning among local jurisdictions.*

Comment: Page 2-7 line 26 lists a variety of local planning documents. What do these plans say about nuclear material transport, nuclear material storage, power generation facilities, nuclear waste storage, and nuclear waste transport through the jurisdictions? Simply listing the local planning documents does not define the current planning environment against which the proposed action is to be judged as an overlay. As stated in comment 13, there are disconnects between local planning and the proposed project. (DW-0438 16)

Comment: Page 5-1 line 40 states that "any growth would be managed" because the counties have land-use plans. Just because the counties have plans, doesn't mean that growth is managed. Furthermore, at least for several of the adjacent counties, the plans do not specifically contemplate the proposed action. (DW-0438 123)

Response: *Louisa, Orange, and Spotsylvania Counties have comprehensive land use plans in place. The plans are periodically updated by the county planning agencies. The staff assumes that land use plans would be updated by local jurisdictions to consider impacts attributable to the construction and operation of new nuclear generating units at the North Anna ESP site. If*

Dominion were granted an ESP, the staff believes that local planning agencies would have sufficient time to modify their planning documents to reflect construction activities at the North Anna site. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The conclusion of Section 4.1.1 is that the Construction phase would only have "SMALL" impacts (defined on page xxii as "not detectable or so minor that they will neither destabilize nor noticeably alter any attribute…"). This is obviously false for a project with a capital cost of greater than $500 million and with about 5,000 construction jobs in a largely rural region. (DW-0438 88)

Response: *Section 4.1.1 addresses land-use impacts at the NAPS site and in the vicinity. New construction for the proposed Units 3 and 4 would occur entirely on the North Anna ESP site at NAPS on land that was previously disturbed by construction. Therefore, onsite land use impacts for such construction would be small. Some offsite land use impacts could occur, principally for new housing and retail stores. Nevertheless, the staff views the land-use impacts associated with construction of two new units at the North Anna ESP site as SMALL. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to Louisa County Code of Ordinance, Division 7 - Industrial District, Section 96-162, Permitted Uses, none of the 30 "restricted use" categories include electrical generating units explicitly. A conditional use permit may not be required for construction of new generating units. [page 4-2, line 3] (DW-0423 21)

Response: *The staff agrees with this comment. Section 4.1.1 of this EIS was modified to delete the reference to a conditional use permit.*

Comment: The wording in Table 10-2 and Page 10-6 appear to be inconsistent regarding land use impacts. ER Section 5.8.2 concludes that there would be no unavoidable adverse environmental impacts. The Comprehensive Plans for the nearby counties already incorporate projected growth in population and the demand for public services, regardless of whether part of this increase in population growth consists of new operations personnel for new units at the ESP site. [page 10-6, line 35; page 10-7, line 4, Table 10-2] (DW-0423 51)

Response: *Table 10-2 in this EIS was revised to reflect the conclusion that there would be no adverse impacts during operation. Any adverse land use impacts would have occurred during construction.*

Comment: According to the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance, the project area, which is in Louisa County (Draft EIS, page 2-5, Section 2.2.1), is not within a Chesapeake Bay Preservation Act jurisdiction. (DW-0439 49) (SW-0017 79)

Response: *This comment from the VDEQ confirms that the North Anna site is not within a Chesapeake Bay Preservation Act jurisdiction. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: 1) The DEIS refers to the saprolite beneath the site as unsuitable for use as a fill material for plant construction. Instead of "fill," this should be "structural fill." 2) The DEIS indicates that fill material will need to be imported to the ESP site during construction and excavated material will have to be moved to another location. Again, this should be "structural fill" rather than "fill" since all of the excavated material can be used as general fill. 3) Also, as stated in SSAR Section 2.5.4.5.3, bedrock excavated for the deeper foundations can be crushed and used as structural fill. Thus, structural fill would only need to be imported to the ESP site as an alternative or supplement to the onsite crushed rock. [page 2-17, line 38] (DW-0423 5)

Response: *Section 2.4 of this EIS was revised to indicate that the saprolite beneath the site is unsuitable for use as a structural fill material for the foundations of safety-related plant structures.*

3.2 Meteorology and Air Quality

3.2.1 Meteorological Data and Local Climatology

Comment: Page 2-14 line [number not provided] and other parts of the report use inconsistent meteorological reporting periods and thus an inconsistent data set. (DW-0438 27)

Comment: Page 2-14 line 14 reports on storms during the period from January 1950 through July 31, 2003. This is an arbitrary time period which [does not] include Hurricane Isabel, for example. (DW-0438 28)

Response: *Data sets of different time periods are common in reporting of meteorological data depending on the analysis. Long-term data (30 years) are necessary to establish normal values for climatological variables such as mean temperature, the highest and lowest temperatures, and mean rainfall and snowfall, and for use in estimating extreme values of meteorological parameters such as passage of extreme events in the region of the site. Climatological data for short periods are generally evaluated by comparing climatological normals for representative National Weather Service sites to provide a basis for determining the reasonableness of the short-term climatological data. In the case of reported storms between 1950 and 2003, the time period covers the information available from the National Climatic Data Center. Data collected onsite are necessary to estimate the dilution characteristics to assess radiological impacts to the local surrounding areas and to determine the impacts resulting from accidental releases of*

radionuclide material to the atmosphere. The data periods for these assessment purposes were adequate. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Page 2-25 [apparently reference is to page 2-15 in hard copy of report] line 25 states that good data is available from 1/1/96 to 12/31/01 yet line 32 states that only a portion of this interval was used for the DEIS analysis data. Why? Furthermore, the use of a three year data set is arbitrarily low. (DW-0438 29)

Comment: The same limited three-year climatological data set that was used in the DEIS is used for the SDEIS (page 2-7 line 3). Is this the same data referred to in Page 5-14 line 22? This may be insufficient to accurately predict ground fog impacts from the project. Furthermore, this data sent is inconsistent with other reporting periods (see 5-58 line 38 e.g.) used elsewhere in the document. (SE-0045 11)

Comment: More than three years of meteorological data should be used in Section 5.10.1. (DW-0438 162)

Response: *Meteorological data are collected continuously at the NAPS site. For purposes of the ESP application, Dominion chose to present a fixed period from that overall data set. One to three years of representative meteorological data are generally sufficient to characterize the site and are consistent with the period of record set forth in NRC guidance. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Page 2-15 line 36 states "The NRC staff expects that the current monitoring system would remain operational." The applicant should be required to stipulate to this and add additional monitoring (for example, relative humidity) as may be required. (DW-0438 30)

Comment: Page 2-13 line 15 states that relative humidity is not measured at the site. Regional warming of the Lake contributes to microclimates, increased humidity, and intermittent ground fog. This parameter should be measured. (DW-0438 24)

Comment: The small data set cited in 29 [DW-0438 29] is especially problematic given that it is used for the radioactive dispersion assessments (Page 2-16, line 5). (DW-0438 31)

Response: *The staff has determined that one to three years of representative meteorological data are sufficient to estimate the likely impacts from both routine and accidental releases, which for EISs are based on typical meteorological conditions. However, as is the case at NAPS, meteorological monitoring programs would continue during the period of operation of the facility. Dew point and ambient temperatures are also measured at the site. From ambient and dew point temperatures, relative humidity can be calculated.*

NRC guidance, with regard to the meteorological monitoring system are set forth in various documents including Regulatory Guide 1.23, "Onsite Meteorological Programs," and Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident." Accordingly, no changes were made to this EIS as a result of these comments.

Comment: A relative humidity of greater than 90 percent and ambient temperature less than 32°F are conditions required for the formation of ice from steam fog. [page 5-37, line 32] (DW-0423 34)

Response: *Steam fog can occur at humidity conditions of less than 90 percent and temperatures above 32°F. To avoid confusion, the phrase "steam fog formation" used in the Draft EIS was changed.*

Comment: Page 2-12 line 4 confirms that the prevailing winds are from the south-southwest. This is just one reason that impacts on Fredericksburg and the DC metropolitan area should be assessed. (DW-0438 23)

Response: *The statement that prevailing winds at the site are from the south-southwest is correct. The environmental analyses were not limited to one wind direction or another, but reflect the variability that does exist. For each environmental analysis that considered wind direction, the distances (for example, low population zone) used in the analysis are appropriately established in relation to the distance from the site or where exposure is important.*

NRC regulatory guidance for certain environmental analyses outline local and regional regimes. Because Fredericksburg is within the 80-km (50-mile) region of the NAPS site, it was included in the radiological assessment in Section 5.9 (routine releases) and Section 5.10 (postulated accidents). Washington, D.C. is outside the 80-km (50-mile) region and was thus not included in the analysis.

Air quality impacts resulting from the operation of equipment onsite (for example, standby diesel generators) would not be significant compared to ambient air quality conditions (i.e., concentrations of air pollutants from natural and man-made sources, such as vehicle emissions and industrial sources) that could be measured at those locations. Concentrations of pollutants in the region are expected to remain below the National Ambient Air Quality Standards for criteria pollutants. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: As stated in ER section 5.3.3.1, steam-fog-induced icing conditions are very infrequent at the site. Consequently, ice buildup on transmission lines, switchyard, insulators and structures due to steam fog would not be anticipated. (SE-0050 8)

Response: *The comment relates Dominion's experience at the North Anna site. Accordingly, no changes were made to this EIS as a result of this comment.*

3.2.2 Draft EIS: Impact of Waste Heat

Comment: When I was part of the construction efforts for Byron Nuclear Plants 1 & 2, their natural draft cooling towers were praised and touted as the largest and most northern towers yet constructed. And fully capable of handling the waste heat from the 2 plants. One issue that they didn't take into account, however, was the impact of humid air--result was that at the hottest and most humid (August) days (when the power was most needed), Com Ed had to back down their outputs by about 5-8% for those days. Towers didn't work as well as planned. So (while I support the ideas of Dominion), I believe we should carefully re-visit the calculations on heat removal--just to make sure we're accounting for the relevant factors and make sure there's still some margin. (DW-1237 1)

Response: *Design-level analysis on heat dissipation for cooling towers would be conducted as part of the safety evaluation if Dominion receives an ESP and the ESP is referenced in a COL application. However, design-level information is not necessary to evaluate the impact of cooling towers on the environment. The staff evaluated the impact of discharging* 9.7×10^9 *BTU/hr to the environment. With regard to the effectiveness in performance of wet and dry or just dry cooling towers, it may be an element in the benefits assessment that would be performed at the COL stage. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What microclimatic temperature increases and secondary impacts could result from the dry cooler operations (Page 5-38 line 3)? (DW-0438 150)

Response: *The microclimatic changes from the use of dry cooling are not expected to be significant because the waste heat would be readily absorbed into the atmosphere through convective and mechanical mixing. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-13 line 27 indicates that heavy fog is an issue at the site. The increased warm water from the proposed project would contribute to increased heavy fog during some cooler days. The impacts to traffic from this occurrence should be addressed in the DEIS. (DW-0438 25)

Comment: The impacts to traffic from increased fog occurrence...should be addressed in the SDEIS. (SE-0045 12)

Comments Within Scope

Comment: Ground fog is a serious problem along Route 208 in the vicinity of the Lake at times (Page 5-37). This problem will be worse if the Lake waters are heated up. (DW-0438 149)

Comment: No mention is made of the impacts of the increased warm water in the Lake on ground fog and the traffic impacts associated therewith. (DW-0594 8)

Response: *These comments related to conditions discussed in the Draft EIS in which Dominion proposed a once-through cooling system. Dominion revised its proposal to a closed-cycle, combination wet and dry cooling system for Unit 3 and dry cooling towers for Unit 4. Operation of the cooling towers in the wet mode would release warm, moist air into the atmosphere creating elevated plumes. As the plumes lose buoyancy and reach ground level, there is a potential for fogging and icing. The staff estimates the maximum hours of fogging to be 70 hours per year beyond naturally occurring fog. A majority of the estimated fogging would occur within 1000 ft south-southeast from the cooling towers, but could extend as far as 5200 ft. Fogging was estimated to occur in all seasons except summer, but primarily in late fall and winter. During the time the cooling towers operated in the dry mode (which would result in no additional adverse impact and could result in a slight improvement), the atmosphere, rather than Lake Anna, would be the sink for the waste heat. This would not lead to increased ground fog in or around the site area. Section 5.2 of this EIS has been changed to reflect the atmospheric impacts resulting from the proposed change in the cooling system for Unit 3.*

Comment: [T]he cooling towers that you have cooling the air temperature. What is that going to do from a thermal heat pollution to the atmosphere? (ST-0001 3)

Comment: These cooling towers will emit plumes of steam fog formation, which can create fog-icing conditions in the vicinity an average of 70 hours per year (or if three hours per day this equates to 23 extra days of year of fog and/or icing condition on the adjoining roadways). ...What type of mitigation can be done to avoid any traffic problems on adjoining roadways? (SW-0005 7)

Comment: What type of mitigation can be done to avoid any traffic problems on adjoining roadways as a result of the fog and icing conditions approximately an extra 23 days a year? (SE-0003 7)

Comment: We're concerned about ...The impact of additional fog and icing from wet cooling towers on local roadways. (ST-0014 17)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP] …Impact of additional fog and icing from wet cooling towers on local roadways. (SE-0022 29)

Response: *Operation of the cooling towers in the wet mode would release warm, moist air into the atmosphere creating elevated plumes. As the plumes lose buoyancy and reach ground level, there is a potential for fogging and icing. The staff estimates the maximum hours of fogging to be 70 hours per year beyond naturally occurring fog. No icing is expected to occur. A majority of the estimated fogging would occur within 1000 ft south-southeast from the cooling towers, but could extend as far as 5200 ft. Fogging was estimated to occur in all seasons except summer, but primarily in late fall and winter. During the time the cooling towers operated in the dry mode (which would result in no additional adverse impact and could result in a slight improvement), the atmosphere, rather than Lake Anna, would be the sink for the waste heat. This would not lead to increased ground fog in or around the site area or in the vicinity of the roadways. Section 5.2 of this EIS has been changed to reflect the atmospheric impacts resulting from the proposed change in the cooling system for Unit 3.*

3.2.3 Air Quality

Comment: The construction of the plant - including truck traffic, smog and building waste, will be negligible compared to the clean air savings from operation of the facility. (DW-0370 3)

Comment: The construction of the plant, including truck traffic, smog ...will be detrimental to the environment. (DW-MM1 3)

Comment: [Regarding Dominion's Site Safety Analysis.] Section 4.4.1.1.4 - Recreational Facilities - Where this information mentions that fugitive dust would not be a discernible impact on Lake Anna or adjacent environs, additional information should be evaluated. This information mentions discernible impact. To whose discretion? (DW-0191 7)

Response: *Long-term construction emissions are expected to be negligible compared to the clean air savings from operation of the facility versus operation of other large-scale energy production facilities over the lifetime of power-production facilities. Over the short term, activities related to construction could impact the existing local air quality. However, Dominion has committed to implementing a construction management plan to minimize the impact (see Section 4.10). The VDEQ has the ultimate responsibility to determine whether Dominion's dust control plan is sound and implemented properly. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Page 4-4 line 9 states "potential" mitigation measures. The DEIS should specify the actual mitigation measures to be used which should be stipulated by the applicant. (DW-0438 89)

Response: *Dust control plans would be developed if Dominion would seek to proceed with construction activities including site preparation activities. In Section 4.10, Measures and Controls to Limit Adverse Impacts During Construction Activities, the staff stated that it relied on*

the dust control plan in its assessment of impacts. All activities are expected to be conducted by Dominion in accordance with the Commonwealth of Virginia requirements for visible and fugitive dust and emissions from mobile sources. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Please list the "bounding values" of the non-radiological pollutants that would be permitted to be released during [operation of] auxiliary boilers and generators from the proposed new reactors. (DW-0437 60)

Comment: Please list the non-radiological emissions and amounts that are permitted to be released from the existing plants under the Exclusionary General Permit, as well as the 2000 emission statement. What are the expected emissions with the two additional reactors at the site? (DW-0437 57)

Comment: The DEIS (page 2-17, lines 1-4) states that "additional records to be submitted along with a certification for all [non radiological] emission sources" and that "the additional emissions are expected to be limited to a short test period." Please clarify the phrase "short test period." (DW-0437 59)

Response: *The Exclusionary General Permit for non-radiological pollutants (discussed in Section 2.3.2) that may be released at the entire NAPS site is restricted to 50 tons/yr for each of the following pollutants: total particulate matter, particulate matter with a diameter less than 10 microns, sulfur dioxide, nitrogen oxides (NO_x), carbon monoxide (CO), and all volatile organic compounds (VOCs). The total actual emissions of each pollutant must not exceed 20 tons/yr to be exempt from certain recordkeeping and reporting requirements. The emissions for all pollutants were well below the allowable limits for the 2000 reporting period. As described in Section 2.3.2, emissions from equipment proposed to support the two additional units are not expected to exceed the amounts reported for 2000 with the total emission levels expected to be well below the allowable limits of the Exclusionary General Permit.*

Site personnel periodically test the auxiliary boilers and diesel generators to confirm they are in working order. Under the Exclusionary General Permit, the total hours of operation of the auxiliary boilers and five diesel generators are limited to 3000 and 500 hours per year, respectively. Typically, these limits are not approached. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: According to DEQ's Division of Air Program Coordination, the North Anna Power Station is in an ozone non-attainment area. While the change in the cooling system itself will not have any impact on air quality, all precautions are necessary to restrict emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NOx), during pre-construction activities

allowed under the Early Site Permit and also during implementation of the site redress plan in the event the proposed addition of Units 3 and 4 does not materialize. (DW-0439 4) (SW-0017 66)

Response: *On April 30, 2004, Spotsylvania County was designated as non-attainment according to the new U.S. Environmental Protection Agency (EPA) national ambient air quality standard for 8-hour ozone levels which became effective as of July 15, 2004. VOCs and nitrogen oxides (NO_X) are precursors to the formation of ozone; thus, emissions from construction and operating sources could contribute to ambient ozone levels in Spotsylvania County. Subsequently, on December 23, 2005 (70 76165), EPA redesignated Spotsylvania County as in attainment for ozone. Consequently, the staff considers it unlikely that emissions associated with Units 3 and 4 would have an adverse affect on ozone levels in Spotsylvania County.*

States are expected to reduce areas of non-attainment through actions outlined in their State Implementation Plan, which VDEQ administers for the Commonwealth of Virginia through the permit process for point-source emissions. VDEQ is also working with local communities to reduce area emissions from fossil-fuel transportation related activities. VDEQ would establish the permit requirements if a construction permit (CP) or COL is requested. Section 4.10, Measures and Controls to Limit Adverse Impacts During Construction Activities, states that the staff relied on Dominion's compliance with State and Federal permits required for the construction of new units. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Fuel-burning equipment used in construction activities may require an air pollution control permit, depending on capacities and potential to emit air pollutants. (SW-0017 69)

Response: *Dominion would have to obtain applicable permits for construction activities. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What else is going to be evaporated beside the water? We know we have PCBs in the lake. Is this a potential source, to put the PCBs out? How about other pollutants that are in the water, are they going to be spread out into the atmosphere? (ST-0024 2)

Response: *The droplets of the plume exiting from the cooling towers would contain insignificant concentrations of chemicals suspended in the waters of Lake Anna at the point of plant intake. As the water that feeds the cooling towers evaporates, most of the treatment chemicals in the water fall as solids inside the towers and would be removed as part of standard maintenance activities. The concentration of the chemicals remaining in the water vapor plume would fall as drift to the ground and onto vegetation near the towers. Polychlorinated biphenyls (PCBs) primarily exist in solid form in the lake sediments because they are not very water soluble. Without mechanical actions such as dredging to resuspend PCB material into the*

water, any PCB concentrations at the point of the plant intake would be insignificant compared to concentrations found in the sediment in the bottom of Lake Anna. Such concentrations would be below levels of concern. Accordingly, no changes were made to this EIS as a result of this comment.

3.2.4 Severe Weather

Comment: This wording [regarding Hurricanes] is inconsistent with ER Section 2.7.3.4 (ESP Application Revision 3). Hurricane Camille, a tropical depression by the time it passed through the area within 100-nautical miles of the North Anna site, resulted in 11.18 inches of rainfall at the nearby Louisa observation station. [page 2-14, line 8] (DW-0423 4)

Response: *The discussion of hurricanes in Section 2.3.1.5 of the Draft EIS was modified in this Final EIS to reflect the 24-hour rainfall total associated with the passage of the remnants of hurricane Camille.*

3.2.5 Global Climate and Greenhouse Gas Emissions

Comment: I'm very concerned about greenhouse emissions and acknowledge that nuclear power doesn't emit greenhouse. (DT-0001 2a)

Comment: Nuclear is being touted as clean, and I think we need to redefine that term. It does reduce CO_2 emissions, but I don't feel that waste that lasts for hundreds of thousands of years is clean. (DT-0044 2)

Comment: Finally, global warming. There are much better solutions. Global warming is occurring. We need to take action, but more nuclear plants are not the answer. Further investment in nuclear power would squander resources necessary to implement meaningful climate change mitigation policies. (ST-0008 7)

Comment: [T]here is continuing discussion about impacts of energy use on the atmosphere and particularly in terms of climatic effects and we need to start thinking about what are we going to do as a society and as a state to address some of those issues. We believe that nuclear energy is an important part of the overall energy supply picture because it assures a diverse energy supply and it's something that can continue to be available to meet future needs. And nuclear is not emitting, a non-emitting source, from the perspective of carbon dioxide and therefore, if we are concerned about carbon dioxide, if as a society we choose to do something about limiting carbon emissions to the atmosphere, nuclear will be a vital part of that. (ST-0009 2)

Comment: [I]n the U.S., the studies show that it is not possible to maintain the existent percentage of non-emitting energy sources that alone increase this percentage without the contribution of nuclear power. This means that just to maintain the current level of environmental quality we will need to build new nuclear power plants. (ST-0013 3)

Response: *The NRC does not establish public policy regarding electric power supply alternatives. The NRC does not promote the use of nuclear power as a preferred energy alternative. In addition, the NRC does not regulate alternatives to producing electricity that do not involve nuclear power. The NRC does evaluate energy alternatives as part of its CP and COL licensing process.*

Uncontrolled greenhouse gas emissions to the environment are attributed to the consumption of fossil fuels whether for industrial use, such as an energy-intensive manufacturing facility, or personal use, such as for the automobile. Nuclear power plants do not emit greenhouse gases in large quantities, however, that only applies to the operation of the facility for the production of electricity. Fossil fuels are often used as part of the infrastructure needed to operate a nuclear power facility, notably, for the manufacture of the fuel that is used in the facility. Greenhouse gas emissions from vehicle use to, from and at the plant would be comparable to vehicle use by personnel for any other type of power generation. It is an important factor that the amount of greenhouse gas emissions produced in the energy sector is not trivial; this is considered by energy policy decisionmakers elsewhere in the government.

The U. S. Department of Energy (DOE) estimated that the greenhouse gases that would be displaced if nuclear power plants replaced fossil-based electricity generation would be about 3.2 million metric tons of carbon per year for every unit of approximately 1000 MW(e). If the equivalent electricity were generated by alternative or renewable energy sources, then this quantity could be reduced, and if a combination of conservation and alternative energy sources were considered, then the amounts could be reduced even further. The greenhouse gas emissions from nuclear power reactor operational activities are minimal and are principally from auxiliary boiler operation and standby diesel generator testing. As for the fuel cycle greenhouse gas emissions, the NRC estimated that the energy needed for the fuel's life cycle for one year of operation of a 1000 MWe light-water reactor would be about 5 percent of the net output of the reactor (see 10 CFR 51.51, Table S–3, and Table 6-1 of this EIS). Therefore, using the DOE estimate and the 5 percent factor, approximately 160,000 metric tons of greenhouse gases would still be produced for every 1000 MWe assuming a nuclear power plant was operating for the entire year. (The fuel cycle produces about five percent of the CO_2 that would be produced per megawatt by a coal–burning plant.

A high percentage of the energy used in the uranium fuel cycle is consumed in the enrichment stage of the fuel cycle. The estimate of future nuclear fuel needs, current feedstock supplies, and the quality of uranium ore will have a direct bearing on the mining stage through the enrichment stage of the fuel cycle. With the increasing interest in the nuclear power program in

the U.S., advancements in power reactor technology and uranium enrichment technology, the total greenhouse gas emissions that may result from the fuel cycle may differ from those described above. Depending upon the number of nuclear power units that are considered for license renewal and the number of new nuclear power plant units that are contemplated, the need for new fuel resources is likely to be an important variable in this assessment. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The second myth of nuclear power is that it's clean. The mining and refining of uranium, transportation of fresh and spent fuel, construction of reactors and of the waste repository all create carbon emissions. Uranium enrichment uses 93 percent of the chloroflorocarbon or CFC gas made annually in the U.S. CFCs are greenhouse gases that trap thousands of times more heat than carbon dioxide. (DT-0036 5)

Response: *Section 6 of the Draft EIS evaluated the impacts of the uranium fuel cycle (to include mining, milling, conversion, enrichment, and fuel fabrication) and transportation impacts. Impacts from carbon emissions were determined to be SMALL. Impacts of reactor construction were evaluated in Section 4.2 and Section 4.8 of the EIS. The EPA has established the Significant New Alternatives Policy (SNAP) Program to evaluate and regulate substitutes for ozone-depleting chemicals, such as a number of chlorofluorocarbons (CFCs) used in chillers and other refrigerants. Since implemented as part of the stratospheric ozone protection provisions of the Clean Air Act (CAA) amendments of 1990, the production and atmospheric release of ozone-depleting chemicals has been reduced substantially nationwide. There were a number of CFC species that were candidates to be replaced by alternative chemicals. In the case of one CFC, for example CFC-114 (1,2-dichlorotetrafluoroethane), the total annual production reported to the Alternative Fluorocarbons Environmental Acceptability Study ranged from a peak of 19,300 metric tonnes in 1986 before the CAA amendments of 1990 to a low of 300 metric tonnes as recently as 2003. This reduction nationwide was so substantial that the Study no longer calculates the emissions of CFC-114; this should not indicate that industries still using this CFC should not continue to improve, but that the alternatives already in use have achieved the intended goals of CFC conversion to less depleting chemicals. Impacts of construction of the waste repository were not evaluated as this will be a separate licensing action. The Paducah Gaseous Diffusion Enrichment Facility, the only enrichment facility currently operating in the United States, uses a chlorofluorocarbon (CFC) as a process coolant. CFCs leak from pipe joints, valves, coolers, and condensers in the facility, but the leak rate is within the level allowed under EPA regulations. If the proposed American Centrifuge Plant, using an alternate enrichment technology, is licensed by the NRC and becomes operational, the emissions would be reduced even further. (References: http://www.usec.com/v2001_02/Content/Investors/2004pdf/USEC2004AnnualReport-Financial.pdf and http://www.afeas.org). Accordingly, no changes were made to this EIS as a result of this comment.*

3.3 Water Use and Quality

3.3.1 Groundwater Use and Quality

Comment: This wording is inconsistent with ER Section 6.3.1. Wells around the SWR [service water reservoir] are monitored every six months to evaluate the reservoir for leakage, assess the effectiveness of horizontal drains beneath the existing units pump house, and determine the flow rate and clarity of the associated discharge water. [page 2-21, line 13] (DW-0423 6)

Response: *The discussion in Section 2.6.1.3 was modified to clarify the description of groundwater monitoring.*

Comment: Page 2-24 line 38 states that "there are no site-specific data available for the chemistry of the groundwater underlying the ESP site." Why not? Shouldn't groundwater monitoring wells, water sampling, and chemical analyses be part of the ongoing monitoring of a nuclear power project that stores radioactive waste? Shouldn't baseline monitoring be required now as part of the impact evaluation of the proposed Units 3 and 4? This data is clearly on point in evaluating a site as opposed to evaluating its operations (CP/COL). (DW-0438 42)

Response: *The text in Section 2.6.3.2 has been clarified with regard to the availability of groundwater quality data as it relates to nonradiological constituents. Groundwater quality data (e.g., pH and conductivity) have not been collected specifically at the ESP site. However, groundwater quality data have been obtained as part of the adjacent NAPS operating site's radiological monitoring program. Although site-specific groundwater quality data are not available, the use of groundwater data from regional surficial aquifers provides an adequate representation of the radiological perspective.*

Comment: [Regarding the comment that site-specific groundwater chemistry data would be required for a construction permit or combined license] Draft Safety Evaluation Report (DSER) Open Item 2.4-11 requests information necessary to demonstrate compliance with 10 CFR 100.20(c)(3). Dominion's response to this DSER Open Item will provide the requested information. [page 2-22, line 2] (DW-0423 10)

Response: *Subsequent to issuing the Draft EIS, a permit condition was incorporated into the Safety Evaluation Report (SER) (ML051250112) that precluded the need for the site-specific groundwater chemistry data identified in 10 CFR 100.2(c)(3). While related to groundwater issues, this is not specifically related to the scope of the environmental review and would otherwise have been grouped with comments out of scope; it is retained here because it was related to the comment above. For additional information, refer to the hydrology section of the SER for the North Anna ESP. Accordingly, no changes were made to this EIS as a result of this comment.*

Comments Within Scope

Comment: The dewatering systems used during construction of the foundation of new reactors and associated buildings would "depress the water table in the vicinity and possibly change the direction of groundwater flow and the available capacity of local wells" (DEIS, Section 4.3.1, lines 20-22). What would be the approximate duration of this depression, and how many local groundwater users would be affected, including those users who might have their water diverted from the importation that may be required (DEIS, Section 4.3.2, line 35)? (DW-0437 41)

Response: *Dewatering would likely be needed in the vicinity of the reactor building during construction of any additional units. The close proximity of Lake Anna and the discharge canal to the drawdown point (reactor building) would limit the extent of the drawdown in the surficial aquifer to within the boundaries of the relatively large area of the site. Any dewatering system impacts would be local, likely confined to the existing NAPS site, and temporary during the period of construction. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Chapter 4, Pg 4-6, Line 12 - Can an analysis based on the groundwater available and current information on re-charge rates be developed at this stage? (DW-1272 9)

Response: *The water budget model is principally affected by operational impacts. The staff is unable to determine the type of analysis the commenter is requesting regarding construction impacts. Accordingly, no changes were made to this EIS as a result of this comment.*

3.3.2 Surface Water Use and Quality

Comment: So what I would ask of NRC and Dominion would be to somehow publicly reassure people if you do build these reactors that you're not going to do anything to make the lake significantly less usable than it is now. I think if that were done, I think you wouldn't have the problem with the perception and, therefore, with the potential lowering of the property values. I think as long as people know that you're going to be able to use the lake normally and they feel confident about that, then you don't have this potential problem. (DT-0024 3)

Comment: Crucial issues that are not properly addressed in the Draft EIS include inadequate water supplies required for the operation of another reactor, temperature increases in the lake (and subsequent effect on fish species) and potential serious impacts on downstream aquatic life due to reduced water flow. (DW-0401 3)

Comment: Water level and temperature changes resulting from operation of a new pair of reactors would be regulated such that the effects would not exceed the bounds of the environmental assessments. (DW-0370 5)

Comment: The issues addressed in the EIS concerning lake water levels and temperature, and problems with stirring up contamination during construction are drastically under analyzed. (DW-0808 2)

Comment: [O]ther effects on the lake, such as temperature increases and reduced water levels, are not fully analyzed. (DW-MM2 3)

Comment: The negative impacts of the construction process and future facility on the lake are not fully understood, and have the potential to be devastating. (DW-0817 2)

Comment: [A]dditional power plants will have serious consequences for water temperature and water levels at Lake Anna and the rivers that flow from it. (DW-0186 5)

Comment: More nuclear plants will have serious consequences to water temperature and water levels at Lake Anna and the rivers that flow from it. (DT-0047 2)

Comment: Lake Anna may not be able to physically support the addition of new reactors. The increased water use associated with the new reactor will cause the lake level to drop significantly. …Lake temperature will be affected. (DW-0772 2)

Comment: Lake Anna can't physically support the addition of new reactors. They will cause the lake level to drop significantly and will raise water temperatures. (DW-1233 3)

Comment: These impending nuclear reactors will change the temperature of the lake where the outflow goes and use a tremendous amount of water from an area in Central Virginia where there is a lack of water already. (DW-0413 4)

Comment: Particularly, the DEIS has not fully examined the potential for the new reactors to negatively impact Lake Anna through increased water temperatures, decreased lake levels and reduced downstream water flow. These results would bring more environmental harm than that which the NRC has characterized as "small to moderate." (DW-1176 2)

Comment: Should Virginia experience any sustained droughts, the effects on the lake would be more severe. Water levels can be expected to drop and temperatures rise even further. ... Further construction near Lake Anna will disturb the environment, possibly destroying streams and wetlands and polluting the environment with contaminants and heavy metals. (DW-0623 3)

Comment: Now Goochland County Supervisors have weighed in on the issue and determined that the impact of another reactor on Lake Anna might lower the lake level. And many folks who have built on the lake are opposed to expanding the power production of the plant, presumably

based on safety issues. Well, to both groups I would like to point out that Lake Anna WOULD NOT EXIST if it hadn't been built by Dominion Power expressly for cooling the reactors. (DT-0063 4)

Comment: [W]e're still concluding that the supplemental DEIS has not –- is still deficient, and not adequately analyzing that issue [of water use]. (ST-0030 3)

Comment: Building new reactors at North Anna will add further stress to the already-damaged water resources, both local and regional water. (SE-0035 1)

Comment: It appears that there are major discrepancies in the water sections. In numerous places the SDEIS asserts that data was lacking or simplified methodologies were used. (SE-0045 1)

Comment: The determination in Table 10-3 and elsewhere that the impacts on water use and quality is "likely to be SMALL" is unsubstantiated. As was clear from the last public hearing, the public's perception is that the impacts are LARGE. (SE-0045 46)

Response: *These general comments cover diverse aspects of surface water use and quality. Section 5.3 of this Final EIS and the responses to more specific comments, below, on water quality, water levels, temperature, water modeling, and aquatic impacts provide additional information and reflect the changes that were made in this Final EIS and their bases. Construction impacts would be limited by using best management practices. Additional information on water budget calculations performed by the staff are included in Appendix K to address these and other comments on water issues. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: I am also concerned that drops in water quality will adversely affect the Chesapeake Bay, a concern that is not given enough consideration in the Draft EIS. As the states in the Bay's watershed are giving increased attention to the health of the bay, it would be a grave mistake to further compromise the health of tributaries in the watershed. Decreased water flows, increased temperature, and negative effects on vegetation and fish populations are all likely to have negative impacts on the bay. These effects must be studied in detail and we must be assured that the Bay's health will not be further impacted. (DW-0617 4)

Comment: The Chesapeake Bay and its watershed are very important natural resources for the Commonwealth of Virginia. Pollution and over fishing have had negative impacts on the Bay that we are only now beginning to address and correct. The effect of decreases in lake levels of Lake Anna or increases in temperatures, particularly during drought years, due to more nuclear reactors has not been thoroughly considered for its potential effects on the Bay and its watershed. (DW-0630 3)

Comment: [T]he need for greater efforts to preserve and restore the Chesapeake Bay Watershed, of which Lake Anna is a part, has already been highlighted this year. Localities have already initiated debate over a "flush tax" to pay for improvements in nutrient reduction technology at wastewater treatment plants. The last thing the watershed needs now is additional strain placed upon it by pollution created during the construction and operation of a new reactor. (DW-0640 4)

Response: *The staff has concluded that the additional nuclear units at the North Anna site would not impair the water quality of the Chesapeake Bay. Additionally, any impact to the Chesapeake Bay would be limited because of the relatively small contribution of the North Anna River to the water volume in the Bay. The primary tributaries draining into the Chesapeake Bay have a combined average flow of 2041 m^3/s (72,086 cfs). The streamflow gauge 45 km (28 mi) downstream from the Lake Anna Dam reports an annual average flow of only 11 m^3/s (387 cfs). The change in average annual flow from the North Anna River resulting from operation of an additional unit is not significant in comparison to the total flow into Chesapeake Bay and is not expected to impact the health of the bay. Accordingly, no changes were made to this EIS as a result of these comments.*

3.3.2.1 Water Supply and Use

Comment: Lake Anna cannot physically support the addition of new reactors. Dominion's Early Site Permit application does not adequately address the increased water use associated with new reactors, which will cause the lake level to drop significantly. (DW-MM4 2)

Comment: [C]onsider that Lake Anna is an artificial lake that was constructed to provide for cooling of up to four reactors. The increased water use associated with the new reactor(s) would be within the bounds of the lake's constructed capacity. (DW-0370 4)

Comment: Water volume has been an issue with the current reactor. (DT-0054 2)

Comment: [Numerous concerns have been raised by PEC and others over] ... the ability to run the additional reactors without creating a conflict with planned future use of the region's water resources. (DW-1157 3b)

Comment: As the Spotsylvania Board of Supervisors has pointed out in their proposal they support, running nuclear plants uses vast quantities of water. This water is water that all members of Virginia are dependent on. Building new reactors will cut into our supply and pollute what exists. (DW-0408 4)

Comment: [T]hese are the reasons I think nuclear power is really bad. One, nuclear power uses too much water. The nuclear reactors must draw on significant amounts of water in order to operate and avoid a meltdown. Up to 2.5 billion gallons a day are used to cool the current

nuclear reactors. Think of the mass drought us Virginians had in 2003. We couldn't even flush our own toilets. Think of how many toilets we could flush with 2.5 billion gallons of water. (DT-0008 4)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system. This revised design results in considerably less nonconsumptive use of water and slightly less consumptive use of water. The issues raised relevant to the general water supply in Lake Anna are addressed here. Large volumes of water pass through nuclear power plants that use the type of once-through cooling as evaluated in the Draft EIS, but little of this water is consumed in the process. In addition to evaporative losses by this large water body as part of the natural water cycle, additional evaporative losses also occur as a result of elevated lake temperatures. With a closed-cycle, combination wet and dry cooling system, considerably less water is passed through the intake and discharge structures. However, most of the water passing through the intakes is consumptively used in the evaporation from the wet cooling tower portion of the revised design. Any contaminants in the blowdown water are regulated pursuant to 40 CFR Part 423 by the EPA. The Virginia Pollutant Discharge Elimination System (VPDES), referred to hereafter as a National Pollutant Discharge Elimination System (NPDES) permit, would limit the introduction of pollutants to the water by a licensee, thereby preserving Lake Anna water quality. At the COL stage, Dominion would be required to obtain a NPDES permit from the Commonwealth of Virginia for operation of additional units. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Very recently a report projected that nearby Charlottesville will run out of water by 2055 if current usage rates continue. Given the threat of a very real water shortage, it concerns me that the cooling system for Unit 3 will have a "MODERATE" impact during droughts; what about when there is NO water? (DW-0415 1)

Response: *Lake Anna and the North Anna River do not supply water to Charlottesville, Virginia. While the staff considered the effects of droughts, the staff does not believe that a "no water" scenario is credible or warrants evaluation. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: My overall conclusion on the water resource consumption issue is that this watershed is already overtaxed by the existing reactor operations and cannot accommodate additional water consumption by even one new reactor that uses once-through cooling or withdrawals for evaporative cooling towers. (DW-0589 2)

Comment: Spotsylvania County recently passed a resolution against the additional reactors, citing issues of future water supply. (DW-1157 5)

Comment: Neither the DEIS nor the proponent's Environmental Report (ER) deals adequately with the impact of project consumption on ecological and recreational values or on downstream water use, in spite of issues raised by the Virginia Department of Environmental Quality (VDEQ). (DW-0589 3)

Comment: [T]he DEIS fails to address foreseeable conflicts in water resource allocations that would result downstream from the location of two additional reactors at the North Anna Site. (DW-1122 2)

Comment: The DEIS reveals that, due to a forecasted inability to meet its long-range water resource requirements, Hanover County – the county immediately downstream from Lake Anna – has incorporated into its Comprehensive Plan the construction of a new river intake on the North Anna River that would withdraw the equivalent of 46 cfs of water. This would be in addition to the 6.1 cfs currently withdrawn from the North Anna River by the Doswell Water Treatment Plant in Hanover County. Moreover, the DEIS goes on to state that, in addition to Hanover County, two other downstream counties are considering using the North Anna River, or the Pamunkey River into which it flows, as future water sources to meet projected growth. DEIS, p.2-23. … Despite the obvious conflicts, the DEIS provides no analysis of how these conflicts might be resolved, simply concluding that "[a]ny future conflicts over water use fall within the regulatory authority of the Commonwealth of Virginia." DEIS, pp. 5-9 – 5-10. This conclusory dismissal of the conflict as the concern of the State is an inadequate response under both NEPA [National Environmental Policy Act] and relevant regulations. The Final EIS should explore the issue in more detail, even to the point of recognizing that the proposed site is simply not suitable for additional reactors due in part to irreconcilable conflicts over the use of water. (DW-1122 9)

Comment: [T]his projected growth and associated future water supply demand from the North Anna River, especially in the four downstream counties, makes the accuracy of the EIS tremendously critical. Insufficient consideration of the full potential of future water supply demands poses a direct conflict during periods of drought, which are inevitable and have the potential to be severe. (DW-1157 7)

Comment: What I found most interesting about legitimate comments pertaining to the EIS during the proceedings was the impact a new nuclear power plant (or any power plant for that matter), would have upon Lake Anna itself. I found this funny because Lake Anna would not even be there if it were not for the two existing nuclear reactors at the North Anna Power Station and was opposed to in the first place for its environmental impact upon the region. And now, 30 years later, people use the impact on the lake as a reason for not approving further development. The irony is overwhelming and clearly indicates that people are too often focused upon the negative impacts of something and not the positives. (DW-1148 4)

Comments Within Scope

Comment: Water issues surrounding any new nuclear power plants cooling needs are not met under current supply scenarios at Lake Anna. NRC cannot postpone a study on the impacts that this will have. (DW-1181 1)

Comment: At least one of these counties [Culpeper, Stafford, and Fluvanna] is relying on the North Anna River to meet a portion of its future water demands. (DW-1157 6)

Comment: While most of the water that is withdrawn from Lake Anna is returned as hot water in the southern portion of the lake, the Draft EIS does not state the consumptive use – how much water is lost from evaporation – of the existing reactors. This information is crucial for understanding the additional impact from the two proposed reactors and should be explicitly provided in the Final EIS. (DW-0437 8)

Comment: [T]he project itself has real problems including inadequate cooling water. ...Dominion's concession to use dry cooling for Unit 4 is indicative of the water limitations. (DW-0594 5)

Comment: I don't believe you when you say the water at Lake Anna will be sufficient to cool two additional reactors. We have already seen the water level of the lake drop dangerously low during recent droughts. (DW-0614 4)

Comment: The Draft EIS analyzes water resource and quality impacts considering the addition of the proposed Unit 3 as a once-through water-cooled unit and Unit 4 as a dry-cooled unit having negligible effects on water supply (page 5-3, Section 5.3). DEQ's Division of Water Resources commented previously in regard to its concerns for the adequacy of Lake Anna as a source of cooling water for a third nuclear reactor; these concerns remain. (DW-0439 9)

Comment: [T]he net water available varies greatly with the season and year-to-year variations in rainfall. Lake Anna does not have nearly enough storage capacity to even out those variations while maintaining the lake level within limits required for reactor cooling intake, recreation, fishing and other objectives. It is clear from historical data and the model analysis in the ER, as presented in Table 5.2-3 that the NPDES permit requirement of 40 cfs is not achieved 43.9% of the time and that frequency is projected to increase to 52.4% with the addition of Unit 3. Furthermore, even the minimum value allowed during drought conditions (20 cfs) is not achieved 5.3% of the time and that frequency is projected to increase to 11.8% with the addition of Unit 3. (DW-0589 11)

Comment: As stated in the DEIS (2.6.2.1 - Surface Water Use), growth in downstream demands for water withdrawals could result in increase[d] water conflicts. Further, with three downstream counties considering using the North Anna River as a water resource raises the concern over an adequate water budget to accommodate additional power units at the North Anna facility. The DEIS should include a comprehensive water budget. (DW-0422 7)

Comment: [T]he arguments made in the DEIS about water impacts in Section 5.3.2 simply dismiss the importance of low flow impacts such as those that would occur from Unit 3 without any cogent reasons, amounting essentially to arm waving rather than incisive analysis. The last paragraph in that section does not logically follow from the facts presented, especially the conclusions that impacts during severe droughts would only be moderate and that no mitigation is required. We believe it would be highly inappropriate and arguably deceptive to proceed to issue an early site permit while leaving all those issues insufficiently treated and apparently unresolved until the COL process. The VDEQ also requested that the ESP not be issued until the issues of aquatic impact are resolved. (DW-0589 15)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Although the proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system as evaluated in Section 5.3 and Appendix K of the SDEIS and this Final EIS, to the extent that at least some portion of the issues raised are still relevant to the water supply, they are addressed here.*

The water use conflicts issue is a principal issue in this environmental review. Dominion revised its consumptive water use values starting in Revision 6 of the ER to reflect the change in the proposed cooling system for Unit 3. The effects of these revised values are evaluated in Section 5.3. The staff performed an independent assessment of the impacts that additional forced evaporative losses of water would have on the lake and downstream water budget. This assessment was provided in Appendix K of the SDEIS and is included in this Final EIS. The assessment was based on the hydrological conditions and the estimate of the rate of induced evaporative loss listed in Appendix I from Dominion's Plant Parameter Envelope (PPE). The staff concluded that the induced evaporative losses associated with the operation of the proposed closed-cycle, combination wet and dry cooling system for Unit 3 (approximately 19 cfs) would result in declines in the lake level and reductions in downstream flow. During drought periods, the impact would exacerbate low lake levels and low downstream flow conditions. During such drought conditions, the staff concluded the impacts would be MODERATE. During non-drought conditions, the staff concluded the impacts would be SMALL. The staff did not state the impacts would be negligible. (The North Anna River is a tributary of the Pamunkey, which is a tributary of the York River. The York River drains into the Chesapeake Bay.).

The staff used widely accepted and validated modeling techniques in its analysis and concluded that the lake would be sufficient to cool the additional unit using a closed-cycle, combination wet and dry cooling system for Unit 3 and dry cooling towers for Unit 4. The staff relied on the fundamental principle of the conservation of mass (in this case, conservation of water).

In determining the impact level, the staff considers the valuation of the water resource by the Commonwealth of Virginia in assessing the impact. The Commonwealth of Virginia's surface water management area regulation is in 9 VAC 25-220. The Lake Level Contingency Plan and

the license authorizing construction of the Lake Anna Dam to provide cooling water for electricity generation are examples of two other Commonwealth-issued documents that were considered in the evaluation of the North Anna water supply. The Commonwealth of Virginia has jurisdiction over appropriating water. Drought conditions or increases in future water demands could result in intervention by the Commonwealth on the apportionment of the water. Such intervention might include restricting activities, including plant operations, during periods of water use conflicts. Additional information on the water budget calculations performed by the staff are included in Appendix K of this EIS.

Comment: Page 2-22 line 30 mentions other surface water users. Have these entities been directly consulted? (DW-0438 38)

Response: *The staff met with representatives of Doswell Treatment Plant, local and county agencies, and VDEQ staff during the course of its water use review. The outcomes of these meetings were considered during preparation of the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: No adequate justification is provided in the DEIS or the ER for numerous deviations from the terms of the NPDES requirements for minimum releases of water from Lake Anna, for the conclusions about the degree of environmental impact during droughts, in the DEIS, or the conclusion of the DEIS that no mitigation is required. The discussion about water impacts in the DEIS appears to be perfunctory and the conclusions are not consistent with the projected water flows and the issues raised by the VDEQ. (DW-0589 4)

Response: *Reductions in flow to 0.57 m^3/s (20 cfs) from the normal minimum release of 1.1 m^3/s (40 cfs) are not violations of the existing NAPS NPDES permit. Both the 1.1-m^3/s (40-cfs) and 0.57-m^3/s (20-cfs) flows are specified in the Lake Level Contingency Plan issued by the VDEQ. The VDEQ has the authority to specify and regulate release rates from the North Anna Dam. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The two reactors that are already operating at North Anna withdraw 1.9 million gallons of water per minute and then return hot water back into the lake. This utilization of water already has a damaging effect on the lake... The proposed reactor units would mean a great amount of additional water withdrawn per minute. It appears that it would be an increase of 60% over current conditions. Increased heating of the water as well as increased contamination by chemicals and radioactive particles would further degrade the water conditions. ...Water is a necessity of life and it is not a renewable resource. How can you blithely plan to continue to cause damage to our water supplies and our environment? (DW-0653 2)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the proposed change to a closed-cycle,*

combination wet and dry cooling system, the quantity of water withdrawn from the lake is substantially reduced. Cooling towers would consume water by evaporation, and the water would be treated to minimize scale buildup and biological growth. Any change in the chemical composition of the water would be small and would be regulated pursuant to 40 CFR Part 423 and by the NPDES permit issued by VDEQ for new nuclear units at the North Anna site. The release of radioactive material from the plant would be negligible and within the Federal limits, which are protective of public health and safety and the environment. Additional information relating to water use and water quality impacts associated with the closed-cycle, combination wet and dry cooling system is provided Section 5.3 of this EIS

Comment: Neither the proponent's ER nor the DEIS discuss in detail the impacts on the North Anna River and the Pamunkey River that are likely to occur from increased periods of below-minimum releases. While lower stretches are fed by other creeks, such as the South Anna River, it seems likely that during drought periods those other sources of water also will experience low flows. There is no discussion of the combined effects of low flows in those other sources. (DW-0589 13)

Response: *Drought conditions are not localized; they are typically regional with local variations depending on such factors as topographic variations (mountains and valleys). The North Anna and Pamunkey Rivers, and other water sources would have reduced flows during a drought. The operation of Unit 3 with a closed-cycle, combination wet and dry cooling system at North Anna could aggravate low-water flow conditions associated with severe droughts, but this effect would be limited by the proposed operating policy wherein the cooling towers would be operated in the water conservation mode during periods of low lake level. The impacts to the North Anna River below Lake Anna Dam during low-flow conditions are described in Sections 5.3 and 5.4 and Appendix K of this EIS. The comment resulted in an expansion of the discussion of the downstream impacts in those sections of this EIS.*

Comment: [T]he fact that the fourth unit would be air cooled does not allay the Division's concern about the adequacy of Lake Anna as a water supply for a third nuclear reactor. The Division looked at other nuclear reactors along the East Coast to compare the water resources available to them with the water resources available at North Anna (see "Table 1," first enclosure to this [comment] letter). The conclusions drawn from that research are: 1) Most of the intake locations are tidal and have an essentially unlimited water supply; 2) Of the remaining locations, the North Anna location has the least abundant water supply, based on the average flow of a small watershed (342 square miles) and a medium-sized reservoir; and 3) There is a limited number of nuclear power stations located on non-tidal rivers. In these cases, the power plants are on large rivers such as the Connecticut and the Susquehanna. In fact, the only location remotely similar to North Anna's situation is the Oconee plants on Lake Keowee in South Carolina. However, immediately below Lake Keowee is Hartwell Lake, so the section of non-tidal stream affected by consumptive loss is very short. (DW-0439 11) (SW-0017 19)

Response: *The staff concluded that during non-drought years there would be water in Lake Anna sufficient to operate the proposed Unit 3 with a closed-cycle, combination wet and dry cooling system. From the historical record, the staff determined that water availability could have been an issue during 3 years of the 24-year period (from 1979 through 2002). The adequacy of the water supply for a power station, whether it is nuclear or fossil fueled, is a site-specific determination based on the plant design and the hydrological considerations of the site. Although information from other regions and other watersheds may provide insights, the analysis must be site specific such as that performed in this EIS. Additional information on the water budget calculations performed by the staff are included in Appendix K of this EIS.*

Comment: This DEIS wording is inconsistent with ER Table 3.1-9 which describes the cooling water withdrawal rate of 1,140,000 gpm as a nominal design coolant flow. Actual maximum circulating water flows would be dependent on the specific design of the circulating water pumps, but would be within a few percent of this value. [page 3-7, line 3-4] (DW-0423 19)

Comment: This DEIS wording is inconsistent with ER Section 5.2.1.2. The average annual evaporative loss is estimated to be 29 cfs, which assumes Unit 3 operates at a 100% plant capacity factor. [page 3-8, line 15] (DW-0423 20)

Response: *With the change from a once-through cooling system to a closed-cycle, combination wet and dry cooling system, these comments (by Dominion) about proposed Unit 3 are no longer relevant. Accordingly, no changes were made to the EIS as a result of these comments.*

Comment: Regarding slide labeled “Lake Anna Usage” presented during Mary Ann’s [Mary Ann Parkhurst, PNNL Project Team Leader] comments [during the February 17, 2005, public meeting]. Residential was not listed–this is something I do not understand. Recreation is occasional while residential is a 24/7 piece of the setting. Residential should be listed. (DT-0055 1)

Response: *The presentation illustrated consumptive use of Lake Anna and recreational and fishing use whether by residents of or visitors to the Lake Anna area. Water use impacts on residents in the Lake Anna area were specifically discussed in the socioeconomics analyses in this EIS, primarily within the context of property values. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [P]eople talk about the improvement in the plan from the earlier plan, which was flow-through cooling to the wet/dry tower cooling. And from what I've heard tonight, what we're sacrificing for that is water. It's going to cost us more water, and I'm concerned about that. (ST-0007 2)

Comment: [T]he proposed reactors will further increase water evaporation from Lake Anna. Lower lake and downstream water levels will threaten lake recreation, downstream fisheries, and drinking water supplies. (SE-0034 2)

Comment: [I]ncreased water evaporation from the new reactors, and the effect of this water loss on lake levels and on the downstream flow into the North Anna River, have not been resolved. (SE-0035 3)

Comment: Evaporative cooling towers will siphon off an enormous amount of water, continuously. ...The withdrawal of huge amounts of water from these relatively small reservoirs fed by a relatively small watershed will most certainly adversely affect the local environment especially the waterfront. During periods of low rainfall, drought, reservoir levels have dramatically lowered reducing the existing surface acreage for "natural" evaporative cooling. (SW-0015 2)

Comment: The SDEIS does not deal adequately with the impact of project consumption on ecological and recreational values or on downstream water use...There is no adequate justification for the conclusions about the degree of environmental impact during droughts, or the conclusion that no mitigation is required. (SE-0038 4)

Comment: Will this increase water usage create any problems with the entire watershed and possibly increase drought cycles? (SE-0003 11)

Comment: [T]he North Anna watershed is too small to allow large water withdrawals. These would adversely affect the beneficial uses of the North Anna River which flows into the Pamunkey River, which flows into the Chesapeake Bay and then into the Atlantic Ocean. The DGIF &VDEQ analysis clearly indicates that the 3rd unit would increase the drought cycle and cause decreased water flows during March, April, May, June, July, August and October (7 months) of each year. (ST-0014-5) (SE-0022 9)

Comment: We request that Lake Anna not be considered as a source for future municipal water supply. (SW-0004 5)

Comment: If there is ever any thought of using the North Anna River or Lake Anna water for future Louisa County water needs, now is the time to put the request into VDEQ and identify the need. (SW-0005 8)

Comment: Both Louisa and Spotsylvania Counties have been designated in the top 100 fastest growing in the U.S. Both counties rely on wells and septic tanks for the majority of their water supply. With the major increased growth projected and demand for water resources, it would be reasonable to project that one or both counties may look to Lake Anna (the 3rd largest

lake in the state) as a water source for drinking water and public use. How will the new 3rd and 4th reactors (if built) diminish either counties ability to use the lake as a future water source for pubic water consumption? (SE-0003 4)

Comment: One set of the North Anna River Users should not benefit at the expense of another set of users. Whatever, the final solution is for not decreasing the inadequate water supply in the small water shed; the solution should not benefit one set of users at the expense of another set of users. For example, the lake levels should not be raised which could cause property damage to lake owners to quarantine more water so it could be released later to satisfy the downstream users at different times of the year. Likewise the consumptive use of water and increased needs for water caused by population growth by downstream users should not cause the lake levels to be dropped so more water flow could be released to downstream users and then create mud flats throughout the lake. (SE-0022 14)

Comment: [T]he Supplemental Draft EIS acknowledges that several communities along the North Anna and Pamunkey Rivers are contemplating using the rivers as a source of drinking water. This could create a conflict between water uses, with evaporative loss at the North Anna nuclear plant interfering with downstream communities' ability to rely on North Anna and Pamunkey Rivers for drinking water. While the ultimate resolution of this potential conflict may be up to the Commonwealth of Virginia, the NRC is obligated to fully evaluate the potential for such a conflict in the final EIS. (SE-0046 4)

Comment: 3.3.2.9-S. The Final EIS must fully analyze the consumptive water use for the proposed closed-cycle, wet-dry Unit 3. Issues associated with water quantity and quality and potential conflict over water use are still unresolved. Resolution of these issues should have been accomplished prior to the NRC's stated position that the site preparation and preliminary construction activities would not result in any significant adverse environmental impacts that cannot be redressed. (SW-0017 4)

Response: *The water use conflicts issue is a principal issue in this environmental review. In a water budget, as with all other budgets, a finite resource is allocated to serve multiple objectives. The management of water resources involves balancing tradeoffs among these multiple conflicting objectives. In the case of the Lake Anna and North Anna River water resource, these objectives include: providing water for current and likely future downstream water users, providing water for downstream habitat, maintaining relatively stable lake levels, and providing a reliable water supply for industrial facilities including the existing NAPS and proposed Unit 3.*

The staff make no attempt to balance these tradeoffs. Rather, the staff simply disclosed the impacts. Establishing policies that balance water-related tradeoffs is the responsibility of the Commonwealth of Virginia. Construction and operation of a plant at North Anna is predicated

on obtaining a variety of water related permits and certifications from the Commonwealth of Virginia that are independent of a decision on this ESP application by the NRC.

In order to estimate impacts, the staff must rely on available information and past and existing policies. The Lake Level Contingency Plan was considered by the NRC staff in the evaluation of the North Anna water supply. Low flow releases from the dam are prescribed by the VDEQ in the Plan. The policy of decreasing the release from 40 cfs to 20 cfs as the lake level drops below 248 feet above mean sea level (MSL) is prescribed by VDEQ. The staff acknowledges that water conflicts could increase due to the reduction in the water supply as result of consumptive water losses from the operation of proposed Unit 3. These impacts would be greatest when the available water supply is already limited because of climatic factors. Drought conditions or increases in future water demands could result in intervention by the Commonwealth in the apportionment of the water. Such intervention might include operational restrictions during periods of water use conflict. The staff's assessment related to water-related impacts is documented in Section 5.3 and in Appendix K of this EIS. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [Regarding Dominion's ER] Section 2.3.1.1 Make-up water minus Blowdown discharge equals 37.2 cfs (38.8 cfs @ 100%). This evaporation loss of make –up water is almost equal to the discharge from the dam at 40 cfs. The removal of 49.6 cfs (51.7 cfs @ 100%) for make-up water is a huge amount of water from the reservoir. Current Lake Anna storage to 250 ft msl is 305,000 acre- feet or 99,400 million gallons of water. With 4246 cfs (1.9 million gallons per minute) discharge from Plant 1 and 2 (reference par 3.4.2.2 page 3-3-68) plus 51.7 cfs added from plant 3 for a total of 4297.7 cfs (1.93 million gallons per minute), the entire lake volume is pumped every 36 days or about once a month. (SE-0004 8)

Response: *The values of 37.2 cfs and 49.6 cfs mentioned in the comment are the maximum instantaneous evaporation rate and the maximum instantaneous makeup water withdrawal rate, respectively, for proposed Unit 3. (Because these are instantaneous maximums, the correction for the 96 percent average load factor is not appropriate.) During EC mode operation, the spillway would spill water downstream. Once the elevation drops below 250 ft, the spill ends, the release from the dam is set to 40 cfs, and the plant enters MWC mode. Therefore, the evaporative losses are generally greatest when the dam is already spilling a large amount of water downstream. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The draft SEIS ... mischaracterizes the potential future [Hanover] County water supply alternatives. The information submitted by Dominion indicated the County considered multiple water supply options and retained two in the Comprehensive Plan. What was not mentioned was that one of the rejected options was a run-of-the-river withdrawal, which appears to be the option evaluated in the SEIS [Section 5.3.2, also in 7.3] since it equates the potential future County withdrawal with the Lake Anna minimum releases. The alternatives included in the County's Comprehensive Plan, and addressed in more detail in the County's Long-Range

Water Resources Planning Study, both include the use of a quarry for off-stream storage, with pumping to the quarry to be done during high flow conditions. Thus the comparison to minimum releases is not relevant. A more helpful evaluation would be the affect on mean annual flow in the North Anna River and its safe yield so the impact on the off-stream storage option can be evaluated. (SE-0048 2)

Response: *The staff agrees. The comparison of the minimum instream flow to the targeted demand for Hanover County does not properly characterize the demand since any withdrawals from the river could be supplemented with off-stream storage. Consequently, the text in Section 5.3.2 has been revised.*

Comment: DEQ's Division of Water Resources commented previously in regard to its concerns for the adequacy of Lake Anna as a source of cooling water for a third nuclear reactor because the Lake Anna watershed is relatively small (342 square miles). ...Although the wet-dry cooling method would withdraw less water than a once-through unit, addition of a wet-dry Unit 3 would still increase the drought recurrence interval (from 6% for units 1 and 2 operating to 11% with a wet-dry Unit 3 operating; it would increase to 11.8% with addition of Unit 3 as a once-through unit) as well as increase the total weeks of flows that are 20 cubic feet per second (SDEIS page 5-10, section 5.3.2). Unlike the existing NAPS once-through units, the majority of the water withdrawn for Unit 3 condenser cooling would be consumed by the wet towers while operating in the energy conservation mode, which is for most of the year as currently proposed by the applicant. As stated in the SDEIS (page 5-10, section 5.3.2), consumption of water by the wet towers would reduce the overall volume of water in the lake, thereby impacting the quantity of water released at Lake Anna dam. (SW-0017 3)

Response: *The principal environmental benefit associated with the wet-dry cooling method system is in reducing the thermal impacts to Lake Anna. The improvement due to the reduction in consumptive water losses would be modest with the wet-dry design. However, it is expected that less consumptive water loss would result than with a once-through cooling system during critical periods of extended low lake level where the plant could remain in MWC mode for long periods. In Dominion's analysis, all condenser cooling was assumed to be provided by dry cooling (i.e. no consumptive water loss) when the air temperature was less than 67 °F. This could significantly reduce impacts in persistent low water periods that extend into cooler months. The text of Section 5.3 has been revised to provide an expanded description of the differences between Dominion and the staff's estimate of the impacts.*

3.3.2.2 Water Quality

Comment: [W]hat is this third unit going to be doing to our lake? We need to have some baseline as to what the two units that are operating are doing to the lake. (ST-0002 4)

Response: *The impacts associated with the operation of Unit 3 on Lake Anna are discussed in Section 5.4.2. Baseline data, including both physical measurements and biological sampling, have been collected from Lake Anna since its creation. The staff believes that sufficient baseline data, summarized in Section 2.7.2, are available. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: There are already high levels of PCBs, polychlorinated biphenyls, in the lower lake. These chemicals are known to cause cancer and nervous system disorders. This situation is likely to worsen if a nuclear plant is constructed and becomes operational. (DT-0047 4)

Comment: [Numerous concerns have been raised by PEC [Piedmont Environmental Council] and others over] existing contaminants in the lake (PCB's). (DW-1157 3a)

Response: *The staff did not find a relationship between PCBs in the lake and the existing nuclear facility. Some of the highest concentrations of PCBs have been observed in the upper reaches of the lake that could not have been influenced by NAPS operations. This suggests that the source of PCBs is in the upper portion of the watershed that drains into Lake Anna. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [Referring to Dominion's Site Safety Analysis.] Section 4.4.1.1.4 - Recreational Facilities - This information also mentions installing a barrier to prevent the migration of turbid water plume into the lake, if necessary. This should be a requirement based on Dominion's commitment to public safety and health measures and today's environment concerning potential hazardous risks to the public. (DW-0191 8)

Comment: The draft Environmental Impact Statement states that construction activities permissible under the ESP may stir up heavy metals and other contaminants in the lake sediment, while details about mitigation measures are murky. (DW-MM2 2)

Comment: According to the Draft EIS, the greatest construction impact on the aquatic environment of Lake Anna would come from the construction of the new cooling water intake structure and channel (DEIS, Section 4.4.2, lines 35-36), which would require activities such as dredging that could result in a loss of habitat (DEIS, page 4-12) as well as the possible resuspension of heavy metals left from mining activities. The mining runoff had previously contaminated Contrary Creek and parts of the North Anna River downstream such that virtually no aquatic life existed, and the contaminants may still remain in the region's sedimentation (DEIS, pages 4-12 and 4-13). The Draft EIS notes that any potential impacts from these activities "would be addressed through the Clean Water Act Section 404 permit and Section 401 verification process" (page 4-13, lines 22-24). Is this considered a mitigation measure? (DW-0437 42)

Comments Within Scope

Comment: Dredging and other construction allowed under an ESP may also resuspend PCBs, which are known contaminants in Lake Anna. A full analysis of PCBs in the sediments near the site and the impact of construction should be included in the Final EIS. (DW-0437 43)

Response: *Changes to the cooling system for Unit 3 from a once-through system to a closed-cycle, combination wet and dry cooling system would reduce the size of the intake structure needed and, therefore, would reduce the effect of dredging from the level evaluated in the Draft EIS. Dredging for the proposed intake structure is expected to be very localized, largely resulting from the complete or partial removal of the cofferdam. Prior to any construction activities that could result in discharges from the North Anna site that might affect water quality, the applicant would be required to obtain a Commonwealth of Virginia NPDES Construction Site Stormwater Permit. Typically, impacts from construction activities related to surface water are temporary, minor, and easily mitigated. The authority for protecting the nation's nonradiological water quality resides with the EPA under the Clean Water Act, and that statute prohibits the NRC from intruding into such water quality matters. As permitted under the Act, the EPA has delegated this authority to protect water quality to the Commonwealth of Virginia. Under the Clean Water Act, issues involving dredging are the responsibility of the U.S. Army Corps of Engineers (ACE). Issues of resuspension of PCBs, heavy metals, and sediment would be addressed through the permits issued by VDEQ and the ACE. Issuance of an ESP would not change the requirements for the applicant to obtain permits from the VDEQ and ACE. Sections 4.4.2 and 4.10 of this EIS address mitigation measures including installation of a turbidity curtain to minimize the impacts of entrained sediment on the WHTF. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: This DEIS wording is inconsistent with DEIS Sections 5.4.2.6 and 5.4.2.7 and ER Sections 5.3 and 5.10, which do not specify the need for a barrier (e.g., a turbidity curtain or sheet piling) or some form of protection during operation. [page 4-13, line 28] (DW-0423 24)

Response: *The wording in this EIS has been revised to reflect that a turbidity curtain or sheet piling would be used during dredging. The reference to operations has been removed.*

Comment: Suggest that this DEIS statement reflect that the creation of Lake Anna has mitigated most adverse water-quality impacts from Contrary Creek area runoff, yielding a beneficial effect in the drainage basin. [page 4-13, line 14] (DW-0423 23)

Response: *The existence of Lake Anna and its impacts on water quality related to Contrary Creek effluents are outside the scope of the ESP review. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 4-44 line 32 change the word "may" to "would" [in relation to Dominion's statement that it may install a barrier between the ESP site and the lake to reduce the potential for silt and soil entrainment through the existing units to the WHTF.] (DW-0438 119)

Comment: A full analysis of the water quality impacts should be included in the Final EIS, including the list of effluents and discharge levels for Units 1 and 2 allowed under the current VPDES permit, as well as the list of expected effluents and discharge levels for Units 3 and 4. (DW-0437 27)

Comment: As a general comment, one of the most fundamental issues involved in determining the suitability of the North Anna site for additional nuclear units is the impact that the operation of the additional units would have on water quality standards for Lake Anna and the North Anna River, including the need to protect designated and existing uses. Designated uses of the North Anna River include recreational uses, the propagation of aquatic life, wildlife uses, and the production of edible natural resources. Any failure to maintain these existing uses within the river would constitute a violation of State water quality standards and the anti-degradation policy of Section 303 of the Clean Water Act (CWA). 33 U.S.C. 1313. (DW-1122 4)

Response: *The existing uses of Lake Anna and the North Anna River should be preserved. Sections 4.3 and 5.3 of this EIS address the principal water quality parameters likely to be affected by construction and operation of any additional units at the North Anna ESP site. The authority for protecting the nation's nonradiological water quality resides with the EPA under the Clean Water Act, and that statute prohibits the NRC from intruding into such water quality matters. As permitted under the Act, the EPA has delegated this authority to protect water quality to the Commonwealth of Virginia. Part of its enforcement authority allows Virginia to regulate construction and industrial stormwater impacts through the NPDES program and to specify water quality monitoring programs. Recognizing that NRC authority is limited to weighing the environmental effects of the proposed action, including the degradation, if any, of water quality, and considering alternatives to the proposed action that are available for reducing adverse effects, the NRC staff is confident that the Commonwealth of Virginia will specify water quality limits in any future NPDES Storm Water and NPDES discharge permits that would be protective of the environment and would be consistent with the Commonwealth's water quality standards. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Although the DEIS acknowledges that the operation of additional units will increase the amount of heated effluent released into the lake, it fails to address whether or not the additional heated effluent will result in violations of the maximum temperature thresholds allowed by State regulations. (DW-1122 7)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal discharges to the WHTF would be substantially reduced, and heating of the lake would be negligible. A COL applicant referencing an ESP would be required to obtain a NPDES permit from the Commonwealth of Virginia. As permitted under the Clean Water Act, the EPA has delegated the authority to protect water quality to the Commonwealth of Virginia. Part of its enforcement authority allows the*

Commonwealth to regulate construction and industrial stormwater impacts through the NPDES program and to specify water quality monitoring programs. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: What about the environmental degradation of the lake? (DW-0729 5)

Response: *The staff evaluated the water quality related impacts associated with additional units at the NAPS site in Sections 4.3 and 5.3. The only significant impact to the lake is expected to be a decrease in the pool elevation during dry periods. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Has VPDES [VDEQ] been contacted about the possibility of adding biocides, antiscalants, and dispersants into the water? (DW-0806 7)

Response: *The NRC has not contacted the VDEQ, which performs VPDES reviews, about additives. The staff is not aware of any discussions between Dominion and VDEQ regarding the use of biocides, antiscalants, and dispersants in the water. A COL applicant referencing an ESP would be required to obtain a NPDES permit from the Commonwealth of Virginia. Blowdown constituents are regulated by the EPA pursuant to 40 CFR Part 423. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Has VDEQ been contacted with respect to the additions of units 3 and 4 about the increased water temperature of the Lake and the lower Dissolved Oxygen levels? Will VDEQ set a maximum temperature for water re-entering the reservoir [from] the WHTF at Dike 3 as a part of their discharge permit? (DW-0806 10)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal discharges to the WHTF would be substantially reduced, and heating of the lake would be negligible. The NRC met with VDEQ on January 19, 2005, to discuss the staff's findings in the Draft EIS. VDEQ has provided comments on the Draft EIS and the SDEIS. As permitted under the Clean Water Act, the EPA has delegated the authority to protect water quality to the Commonwealth of Virginia. The VDEQ has not indicated to NRC staff that it has a plan to set a maximum discharge temperature limit. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Despite the significance of this issue to the question of site suitability, the DEIS fails to undertake any serious analysis of compliance with water quality standards. The recommendation that an ESP be issued is therefore premature. At the very least, any ESP issued should state that it is expressly conditioned upon a subsequent determination by the State that the proposed operations will comply with all State water quality standards, and that it is invalid without such a State determination. (DW-1122 5)

Response: *In 10 CFR 51.10(c), the NRC recognizes that responsibility for regulating non-radiological pollution discharges rests with the EPA, who may and has delegated this to the Commonwealth. Therefore, the NRC cannot impose non-radiological water quality conditions in an ESP. Pursuant to Section 401 of the Clean Water Act, the NRC cannot issue an ESP authorizing the discharge of non-radiological pollutants into any receiving water body unless the applicant first obtains a Section 401 certification; in this case it must be obtained from VDEQ. The Section 401 certification by the Commonwealth of Virginia assures that the project is not incompatible with Virginia's water quality goals. In its October 6, 2005, response to an NRC request for additional information regarding the status of the Section 401 certification, Dominion requested an ESP permit condition to preclude undertaking any preconstruction activity that would result in a discharge to navigable waters without either first receiving a Section 401 certification from the Commonwealth of Virginia or receiving a waiver from the Commonwealth. The proposed permit condition is included in Appendix J. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [M]akeup water for [the Unit 3] tower would be treated with biocides, antiscalants and dispersants. The SDEIS does not appear to contain an adequate discussion of the treatment of the blowdown or the potential effects of the blowdown on Lake Anna and downstream ecological resources. (SE-0038 5)

Comment: The chemicals that they talk about adding [to the Unit 3 cooling system], some of them are phosphates, and this combined with the high temperatures can cause algae blooms. (ST-0028 6)

Comment: Lake Anna is already impaired and adding to the PCBs in the lake would be reckless and dangerous to residents living in Central Virginia, as well as those living along the North Anna River, the Pamunkey River, the York River and the Chesapeake Bay Region. (SW-0021 1)

Comment: Blowdown from unit 3 would be 12.9 cfs at 100 F for 100% reactor power. Chemicals will be added including Phosphates. This combined with the temperature could affect the algae bloom. Phosphates should not be used. (SE-0027 5)

Comment: [Regarding Dominion's ER] Par 5.3.2.1 page 3-5-55 When discussion is made relative to "extreme summer months" by Dominion, the blowdown should be based on 100% reactor operations and not 96% as implied. We do not agree with Dominion's statement "blowdown discharges etc of Unit 3 would have very small, if not imperceptible, physical, chemical, biological or ecological impacts to Lake Anna". We believe the small impounded (not free flowing river) reservoir of Lake Anna will be affected by the additional water consumption due to "blowdown" which will add to the thermal heating of the water. Dominion plans to add chemicals to the water, which would affect the biological and ecological character of the water. (SE-0007 1)

Comments Within Scope

Comment: We request that the discharge of sewage effluent into Lake Anna be prohibited. (SW-0004 6)

Comment: [O]n page 7.4 of the EIS supplement, it is Chapter 7 of the Cumulative Impacts of the entire operation...on the issue of water use and water quality, it says, "Water quality is unresolved." …[after] all the changes that are proposed, it's still hard for me to understand why water quality is still unresolved. (ST-0035 2)

Response: *The staff evaluated the water quality related impacts associated with additional units at the NAPS site in Sections 4.3 and 5.3. The only significant impact to the lake is expected to be a decrease in the pool elevation during dry periods.*

The staff did not find a relationship between PCBs in the lake and the existing nuclear facility. Some of the highest concentrations of PCBs have been observed in the upper reaches of the lake that could not have been related to NAPS operation. This suggests that the source of PCBs is in the upper portion of the watershed that drains into Lake Anna. There is nothing that suggests a new nuclear unit at the North Anna ESP site would add to the PCBs already in the lake.

A COL applicant referencing an ESP would be required to obtain a NPDES permit from the Commonwealth of Virginia. Discharges of effluents such as phosphate and the treated output of the sewage treatment plant would be regulated by VDEQ through the VPDES permit program. Blowdown constituents are regulated by the EPA pursuant to 40 CFR Part 423. While the staff reasonably anticipates that the discharge limits established by the VDEQ in an VPDES permit would protect the waters of Lake Anna as required by the Clean Water Act, the staff is specifically precluded from basing a NEPA impact conclusion on the mere fact that an NPDES permit will be issued with respect to the resource under consideration. Because Dominion did not provide specific information on station effluents other than for blowdown, the impact is unresolved. Accordingly, no changes were made to this EIS as a result of these comments.

3.3.2.3 Water Temperature

Comment: [I]t should not be necessary to refer to Dominion's Environmental Report in order to make sense of the EIS; the relevant temperature modeling tables should be included in the Final EIS. Please also indicate whether (and if so, how) NRC Staff independently verified Dominion's modeling results. (DW-0437 18)

Comment: Page 5-5 line 15 discusses a methodology that was used to estimate evaporation rates. Was the higher Lake temperature to be expected from the proposed Unit 3 included in this analysis? (DW-0438 129)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal discharges to the WHTF would be substantially reduced, and heating of the lake would be negligible. The discharge temperature and flow from the closed-cycle, combination wet and dry cooling system were used in the calculations. The staff independently reviewed Dominion's modeling results as a starting point and agrees that its model is calibrated for the existing information. Nevertheless, the staff elected to conduct its own modeling as part of its independent assessment. The staff's modeling process, calculations, and results are provided in Appendix K of this EIS.*

Comment: Considerable discussion is made of temperatures at various locations in the lake. Fundamental thermodynamics indicates that the additional heat to be dissipated by a new power plant will be less than or equal to the flow rate of water that would need to be evaporated to produce an equivalent latent heat of vaporization. As long as the flow rate of water needed for total heat dissipation is less than the average flow rate into the lake, it is evident that water temperature deviations within reason can be managed by engineered structures. If any lake temperature issues are evaluated to be other than SMALL, the licensee should be afforded and [an] opportunity to address the particular local issue with additional engineered structures or systems. (DW-0645 4)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Dominion can propose additional structures and systems to further mitigate thermal impacts at any time. However, with the change in the proposed cooling system for Unit 3 to a closed-cycle, combination wet and dry cooling system, the increase in the temperature of the discharge from Unit 3 would not be significant, and any basis for mitigation would not be related to the Unit 3 discharge. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: My question is about the heat load on the lake...The load on that portion of the cooling lagoons is roughly a megawatt per acre. Do you propose to increase that heat load to, say, one and a half megawatts? (DT-0003 1)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and the discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. Although the proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, to the extent that at least some portion of the issues raised are still relevant to the water supply, they are addressed here.*

First, the NRC staff does not propose to increase heat loading to the WHTF. The proponent of the action is Dominion; the NRC has a regulatory and licensing role to consider the proposal presented by the applicant. Second, merely dividing the amount of heat entering the WHTF by

the area of the WHTF is a simplistic representation of several complex processes. With the closed-cycle, combination wet and dry cooling system, the additional heat load to the WHTF would not be significant. In general, the heat load to the WHTF would increase at different rates depending on environmental conditions, the number of units operating, the operating practices, and the flow rate to the WHTF. However, the additional heat load to the WHTF from Unit 3 is not considered significant relative to the heat load from NAPS Units 1 and 2. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: I am a resident whose property abuts the waste heat treatment facility of the North Anna nuclear plant (known as the "hot side" of Lake Anna). I am writing to oppose the use of additional water from Lake Anna to cool a third unit at the North Anna plant, as envisioned by the draft environmental impact statement issued in connection with the North Anna ESP. I oppose the use of water from Lake Anna mostly because it would increase the water temperature in the waste heat treatment facility by 5 to 15 degrees. I purchased my lot about three years ago based on the water being about 10 degrees warmer than the main lake (known as the "cold side" in local vernacular). I found that acceptable. I do not find it acceptable for that temperature to be increased by another 5 to 15 degrees. That would make the water unusable for water sports for at least two months of every year and would chase the fish to the cooler areas of the lake, making fishing useless. (DW-0190 1)

Comment: I don't really think you really adequately addressed the effect of the increased temperatures in the waste heat treatment section and in Section 3.22. Maybe you didn't have the data available, frankly, and that was in the [V]DEQ database, but there really will be a moderate, not just a small environmental impact, and we've done a lot of research on this, Jack [Cushing, NRC Environmental Project Manager], I think, because the temperature in that -- and you may not have had this data actually -- many times between June and August, particularly, the temperatures we have actually measured with real accurate Hydrolab instruments and whatnot can very accurately measure down to a tenth of a degree Fahrenheit. The temperature has often run from 93, 96 degrees. (DT-0029 4)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and the discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a discharge temperature comparable to Units 1 and 2. The discharge flow, however, from Unit 3 would be less than 1 percent of the combined Units 1 and 2 flow.*

The ER provided limited temperature data on the WHTF, which the staff did use in its analysis. The WHTF facility was licensed by the Commonwealth of Virginia as an industrial waste heat treatment facility and, consequently, Dominion is not required to meet water quality standards within the extent of the WHTF. While Dominion allows limited access to the waters of the WHTF by residents, it is considered by the Commonwealth to be part of the industrial complex.

Dominion's proposed change in the cooling system for Unit 3 to a closed-cycle, combination wet and dry cooling system would reduce the thermal discharge to the WHTF. A maximum temperature increase of about 0.1 °F is predicted in Lake Anna, and the Unit 3 thermal discharge would not have a significant impact on the temperature of the WHTF. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The maximum discharge temperature based on site characteristics would not exceed 113°F (maximum inlet temperature of 95°F plus maximum condenser temperature rise of 18°F from PPE). The PPE value of 127°F is not relevant in this instance. [page 3-7, line 1] (DW-0423 18)

Comment: Page 3-7: "Based on the PPE, the maximum temperature increase between the intake and the discharge will be 10°C (18°F) and the maximum discharge temperature will be 52.8°C (127°F). Dominion specified in the PPE that the flow rate through the condenser will not exceed 71,900 L/s (1,140,000 gpm)." I would like to see the basis for the 127°F conclusion more explicitly spelled out. I believe the number is in error (too high) and does not appear to be supported by the information in the ESP application. (DW-0826 1)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and the discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a maximum discharge temperature of 100 °F. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: The PPE methodology discussed on page 5-6 line 39 is too simplistic. Since both ambient and water temperatures are hotter during the summer, a seasonal analysis should be done. This would also permit better analysis of the temperature impacts on aquatic species since their activities can be seasonal (Section 5.4.2.7 states that cool months would have SMALL impacts on striped bass). (DW-0438 134)

Response: *The staff conducted its independent assessment using seasonal temperature data and the projected discharge temperature and volume from Unit 3 with a closed-cycle, combination wet and dry cooling system. The process, calculations, and results of this modeling are provided in Section 5.3.3 and Appendix K of this EIS.*

Comment: What happens to temperatures and lake levels with the third plant operating? … No discussion in the ESP is presented as to how many units will be expected to operate at any time. Will the EIS discuss the maintenance plan for the overall NAPS and to what percentage of the time will all or some of the plants be running compared to existing Units 1 and 2's history? (DW-0806 11)

Response: *The staff based its independent assessment on existing Units 1 and 2 with once-through cooling systems and proposed Unit 3 with a closed-cycle, combination wet and dry cooling system while operating at full load. This scenario results in the most conservative assessment for postulating the effects on lake level. (Unit 4 would be air-cooled and would not affect the lake.) This EIS does not discuss maintenance plans as part of this assessment because any maintenance activities that involve derating or shutting down one or more units would result in less adverse impacts on lake level and temperature. Therefore, the staff's analysis is conservative. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-21 line 40 discusses that limited data is available. Why have no dye experiments been done and the information used? Since hydrology is a key site characteristic and not an operating parameter, deferring velocity flow measurements to the CP/COL stage is not good science or proper EIS procedure. (DW-0438 37)

Comment: NRC should require Dominion to provide the necessary temperature and velocity measurements for the Final EIS, and not wait until the COL stage (page 5-7, line 19). (DW-0437 6)

Response: Specific design information is not available at the ESP stage when the applicant elects to use a PPE approach. The staff performed its assessment based on Dominion's PPE values for induced evaporation and maximum discharge temperature after concluding that Dominion's estimate of evaporation was not unreasonable. However, a COL applicant referencing the ESP would need to demonstrate that actual plant characteristics fall within the PPE values. Based on these comments, changes were made to Section 5.3.1 of this Final EIS.

Comment: The site can hardly be deemed suitable for additional units until it can be determined whether Dominion will be able to discharge in compliance with existing temperature standards or obtain another 316(a) variance for the impact that heated effluent from the additional units will have on the lake. Consequently, the Final EIS must discuss Dominion's ability to meet temperature standards, as well as the need for - and likelihood of obtaining - a further 316(a) variance. (DW-1122 8)

Response: *The NRC is responsible under NEPA to assess the potential impacts of the proposed action, including water quality. The EPA has the authority to regulate water quality under the Clean Water Act, and that statute prohibits the NRC from intruding into such water quality matters. EPA has delegated its authority to the VDEQ to enforce water quality regulations in the Commonwealth of Virginia. Consequently, the VDEQ is responsible for determining whether Dominion is able to comply with existing State water quality standards. Dominion is responsible for obtaining a Clean Water Act Section 316(a) variance from the*

VDEQ. Part of VDEQ's enforcement authority allows it to specify water quality monitoring programs. The WHTF facility for Units 1 and 2 was licensed by the Commonwealth of Virginia as an industrial waste heat treatment facility; as a result of that designation, the Commonwealth does not require that Dominion meet water quality standards within the WHTF. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: There are several points throughout the DEIS where the finding that a particular impact will be small is heavily, or even exclusively, based on the fact that Dominion is expected to comply with the Clean Water Act and other statutes. See, e.g., Sections 4.4.2 (Aquatic Ecosystems), 5.3.3 (Water-Quality Impacts), and 7.3 (Cumulative Impact on Water Use and Quality). As stated above, this approach is flatly prohibited by NRC's own regulatory guidelines implementing NEPA. NRC regulations state that "[c]ompliance with the environmental quality standards and requirements of the [CWA] (imposed by EPA or designated permitting states) is not a substitute for and does not negate the requirement for NRC to weigh all environmental effects of the proposed action, including the degradation, if any, of water quality, and to consider alternatives to the proposed action that are available for reducing adverse effects." 10 C.F.R. § 51.71 n.3. Thus, we would ask that the Final EIS include a more substantive and independent analysis of environmental impacts in the sections cited above, including the likelihood that Dominion will have to obtain a further CWA § 316(a) variance. (DW-1122 14)

Response: *The NRC staff has performed an independent analysis on the water quality and the environmental effects that the proposed action would have on Lake Anna. That analysis is presented in Sections 5.3 and 5.4 and Appendix K of this EIS. Consistent with 10 CFR 51.71, footnote 3, the staff did consider the environmental effects of the proposed action on Lake Anna. The staff discussed that there could be adverse impacts associated with the construction and operation of any additional units. The performance of the WHTF to dissipate heat in a relatively predictable and reliable manner suggests that the small incremental heat load associated with a closed-cycle, combination wet and dry cooling system for Unit 3 is expected to follow a pattern similar to that exhibited by the heat load of the two existing units. The heat load of the additional unit is not projected to be significant, and it is expected that the heat transfer process (transport, loss, and diffusion of heat) in the lake would remain the same. Dominion is responsible for obtaining a CWA permit. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: 1) The DEIS phrase "WHTF conditions" is non-specific and should be further defined. 2) The "approximately 19 percent" is non-specific and should be further defined as to where and what (i.e., surface area, volume, temperature, etc.). [page 8-2, line 32] (DW-0423 46)

Comment: Page 8-2: "The staff estimates that the proposed once-through cooling system for Unit 3 could extend waste heat treatment facility (WHTF) conditions into the main body of Lake Anna. Based on the additional heat load and associated flow, the staff estimates that WHTF

conditions could extend into approximately 19 percent of the main body of the lake." "WHTF conditions" is unclear, and should be defined. Please include a basis for the calculation of the 19 percent, and a more precise description of the conclusion. 19% of the surface area? Specifically where? 19% of the water volume? A temperature increase that is 19% of something? (DW-0826 2)

Comment: It is hard to reconcile the statement on page 8-2 line 36 that "WHTF conditions could extend into approximately 19 percent of the main body of the lake" with the SMALL impact designation for this parameter. (DW-0438 171)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, the thermal discharges to the WHTF would be substantially reduced, and additional heating of the lake from the operation of Unit 3 would be negligible. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: DEQ's Division of Water Resources comment[s that]...the new cooling design eliminates concerns about increased water temperature. (SW-0017 17)

Comment: I want to reiterate, the reason we [Dominion] made that choice [for a closed-cycle, combination wet and dry cooling system for Unit 3] and that choice will probably add about $200 million to the price of the plant we make the decision to build it, the reason we made that choice was to eliminate thermal impact to the lake. There will be essentially negligible thermal impact to either the waste heat treatment facility or the lake as a result of the third unit using this system. And in addition, it would dramatically reduce the amount of water consumption that is of particular interest during a drought condition. (ST-0009 3)

Comment: Dominion also is an excellent environmental steward, and has demonstrated that it is a good neighbor by agreeing to spend $200 million on a cooling tower system to cool a potential third reactor at the North Anna site. Dominion made this commitment to satisfy concerns expressed by state regulatory agencies, and local citizens about the potential thermal impacts on Lake Anna and the waste treatment facility from using the lake for once-through cooling. (ST-0031 6)

Comment: [T]he other thing I appreciated you commenting on was the specific rise in temperature to the cooling lagoons. I do live on the cooling lagoon side and so that obviously is a big concern of ours...I know you said one-tenth of one degree. If that is true, then I'm concerned for not -- I'm not as concerned as I was. You know right now, the lake is 102 to 104 during this time of the year. And that is obviously very, very hot. If it were to raise another six degrees, it probably becomes not usable for most recreational purposes. So I guess if you can confirm that with, you know, a scientific method, that that is what you came to and you are sure that if you were living there you would be okay with it, then I'm okay with that. (ST-0001 2)

Comment: Are the 100 F temperature tied in with the maximum inlet water temperature or is there some heat transfer from the cooling towers heating this water to this temperature? (SE-0027 6)

Comment: [Regarding Dominion's ER] Dominion's conclusion that thermal impacts would be small is used to support their decision only and does not take into consideration the public's use of the lake. No data is presented which supports their conclusion. (SE-0007 11)

Comment: [Regarding Dominion's ER] Table 3.1-9 Can you explain if the blowdown temperature is only 100 degrees F, how this will change the temperature at the discharge canal. If water from units 1 and 2 are 103.6 degrees F, will this blowdown water cool the maximum temperature a little.? (SE-0004 19)

Comment: NRC and VDEQ must fully analyze the impact of any further water temperature increases resulting from the blowdown/discharges of the proposed unit 3 cooling towers or any malfunction of any of the proposed cooling towers or current generating units. The existing units 1 & 2 periodically exceed Clean Water Act limitations and any additional temperature increases by the proposed cooling towers will only exacerbate the situation. (SE-0022 12)

Response: *Dominion's proposal to utilize a closed-cycle, combination wet and dry cooling system for the ESP Unit 3 instead of its initial plan to use a once-through cooling system would substantially reduce thermal impacts to Lake Anna. The blowdown discharge temperature is limited to 100 °F in Dominion's proposed design. Whereas in a once-through design the discharge temperature is inevitably higher than the inlet temperature, in a closed-cycle design the water inlet and discharge temperatures are essentially independent. If the discharge temperature of the existing NAPS units exceeds 100 °F, addition of blowdown discharges from Unit 3 at 100 °F would reduce the temperature of the combined discharges. However, given the small fraction of the blowdown discharge relative to the NAPS discharge, the staff concludes that any benefits would be negligible. Pursuant to the Clean Water Act, enforcement of this or any other nonradiological water quality standard is the responsibility of EPA (and in Virginia, EPA's delegate, VDEQ). The thermal discharges of the existing NAPS Units are regulated by VDEQ. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Recent Lake Anna Civic Association (LACA) water studies have indicated that the North Anna River (3 miles before it enters Lake Anna) is 13 degrees cooler then the central part of the lake above the Rt 208 Bridge. Many areas of the entire lake (both main reservoir and cooling lagoons) have recently experienced temperatures in the low to high ninety's which clearly exceeds the 89.6 degree F temperature limitation in the Clean Water Act. Some residents have reported temperatures as high as 106 degrees F. The entire Lake Anna is being heated as a result of the current power plant. ... Any additional heat transfer from the proposed

third unit water cooling tower blow-down discharge will only compound the problem while the proposed Unit 4 dry cooling air tower would have no additional heat transfer impacts to the lake. (ST-0014 6) (SE-0022 11)

Comment: [Regarding Dominion's ER] Table 5.3-11 page 3-5-78 We feel this table is misleading due to the fact that all available data for temperature was not used. If data is used from 6/1/2005 to 8/31/2005, the following results are seen:

Table 5.3-11 Table Reconstructed using all current data through August 2005 Surface Temperatures at Monitoring Stations in WHTF and North Anna Reservoir.
MAXIMUM DAILY TEMPERATURES
Discharge: 103.6 (actual), 102.4 (Dominion's value)
Dike 3: 96.5 (actual), 95.0 (Dominion's value)
Intake: 92.2 (actual), 90.1 (Dominion's value)
AVERAGE DAILY TEMPERATURES (July – August)
Discharge: 100.5 (actual), 95.0 (Dominion's value)
Dike 3: 92.7 (actual), 88.9 (Dominion's value)
Intake: 87.1 (actual), 83.8 (Dominion's value)
These actual temperatures are up to 5 degrees F hotter than reported by Dominion in the table. Why wasn't current data included? (SE-0007 9)

Response: *Dominion's proposal to utilize a closed-cycle, combination wet and dry cooling system for ESP Unit 3 instead of its initial plan to use a once-through cooling system would substantially reduce thermal impacts to Lake Anna. The blowdown discharge temperature is limited to 100 °F in Dominion's proposed design. The staff did not review more recent data in the WHTF after its earlier assessment of thermal impacts in the Draft EIS because the temperature impacts related to Unit 3 would be reduced with the closed-cycle design. At the request of the staff, Dominion did analyze the indirect impact on average lake temperature resulting from the consumptive water loss and concluded it was about 0.1 °F. The staff's assessment did include the critical low water period in 2001 and 2002, which remains the critical period to date. Pursuant to the Clean Water Act, enforcement of this or any other nonradiological water quality standard is the responsibility of EPA (and in Virginia, EPA's delegate, VDEQ). The thermal discharges of the existing NAPS Units are regulated by VDEQ. THE UHS blowdown is a small fraction of the normal cooling system and, therefore, is bounded by the normal cooling system impacts. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Temperature data used by Dominion even in the updated revisions of the submittals do not reflect the current temperatures of the last few years. That data shows the discharge canal temperatures have reached 104.6 F…. Sprayers in the discharge canal or other alternative cooling methods could alleviate this problem during the hottest weeks at minimum cost. (SE-0027 10)

Comment: [Regarding] sprayers in the discharge canal. ...in order to reduce some of the temperature that is exited at the discharge canal, we might consider using some sprayers in the discharge canal just during the time periods when the temperate really gets hot like it has been lately. (ST-0028 2)

Comment: The existing NAPS units use a spray pond for an Ultimate Heat Sink (UHS). Why is it so difficult to add sprayers to the discharge canal to reduce peak water temperatures when necessary to keep the discharge temperature below 104 F? (SE-0027 2)

Response: *The high temperatures referred to in these comments result from operation of NAPS existing units. This EIS is limited to an evaluation of the impacts of construction and operation of the effects of proposed new units. While the staff did consider the cumulative impact of the existing NAPS units, the staff did not consider mitigation to impacts caused nearly entirely by the NAPS units. Because staff concluded that the incremental thermal impact of the proposed new units would be negligible, mitigation measures such as sprayers were not considered. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: At present Dominion claims that water temperatures never exceed 104F at the discharge point into the cooling lagoons of Lake Anna. As full time residents at Lake Anna for twelve years we have measured temperatures in excess of 104F at this location. (SE-0012 2)

Comment: [The ER states that] Over the entire life of the existing units this 104 degree F temperature has never been reached even in extreme drought conditions. We [Friends of Lake Anna] have seen temperatures at the discharge of the canal but what are the temperatures leaving the heat exchanger at the power plant and what are the temperatures in the Ultimate Heat Sink (UHS) and in the discharge canal itself? (SE-0004 29)

Comment: [Regarding Dominion's ER] Par 5.3.4.1 page 3-5-71 a) With discussion to [related to] PAM (Primary Amoebic Meningoencephalitis), Dominion states the "highest temperatures recorded are summarized in Table 5.3-9. ...no data is used after year 2002. In fact Dominion's data shows that on August 15, 2005, a temperature of 103.6 deg F. was recorded at the Discharge canal. The current data should be included. (SE-0007 7)

Comment: [Regarding Dominion's ER] Table 2.3-7 is misleading. Why is the temperature from 2002 through 2005 ignored. The results would be different if this data was included. All other data in the report includes data for more years than this temperature. Dominion's data for 2005 show temperatures up to 103.6 degrees F in August. (SE-0004 9)

Comment: [Regarding Dominion's ER] Par[agraph] 3.4.1.3.2 page 3-3-65 The maximum intake water temperature for plants 1 and 2 is 95 degrees specified by the "Technical Requirements Manual". This says the output of the discharge canal into the cooling lagoons will be 109 degrees F. This would be unhealthy. Would the plants 1 and 2 be shut down at this

point? Plants 3 and 4 would still run up to 100 degrees input temperature. Would this higher input temperature affect the blowdown or evaporation rates and water requirements (still 49.6/.96 = 51.7 cfs (23,190 gpm)? What would the discharge temperature to the cooling lagoons be at this condition? (SE-0004 22)

Response: *The 109 °F temperature referred to in this comment results from operation of the existing NAPS units. This EIS is limited to an evaluation of the effects of the proposed new units. Pursuant to the Clean Water Act, NRC has no authority to regulate nonradiological pollutant discharges into receiving waters. Therefore, any restrictions on the temperature of water discharged to the WHTF or Lake Anna would be the responsibility of EPA and the VDEQ. However, the staff did base its assessment on the current constraints on operation provided by VDEQ. Currently, the NAPS VPDES permit limits the amount of heat rejected to the WHTF without any specific upper temperature limits. The staff concluded that the incremental thermal impact of the new units utilizing the closed-cycle, combination wet and dry cooling system would be negligible. The wet portion of a closed-cycle cooling system is primarily dependent on the latent heat of vaporization of water, which is relatively independent of the range of water temperatures expected to be experienced in the intake. Therefore, the staff in its independent analysis concluded that the intake temperature would not significantly impact the evaporation rates for the cooling tower. The rate of blowdown water is primarily a function of the intake water chemistry. Water is blown down to limit the concentration of chemicals in the cooling water through repeated cycles where water is evaporated. Unit 4 is proposed to be cooled with a dry cooling tower system and therefore would not contribute to the discharge temperature. The adjustment for the annualized load factor of 96 percent is inappropriate for the calculation of instantaneous maximum values. Correcting for the annualized load factor is only appropriate in the case of values report as annual averages. Accordingly, no changes were made to the EIS as a result of this comment.*

Comment: What happens if it [water from the cooling system] goes in at 101 instead? It's measured at that. What happens if it goes in at 110? Do they just get to do it? (ST-0007 1)

Response: *The staff assumes that the comment refers to the temperature of the combined discharge from NAPS Units 1 and 2 and the proposed Unit 3. The Unit 3 discharge temperature would be limited to 100 °F. However, pursuant to the Clean Water Act, NRC has no authority to regulate nonradiological pollutant discharges into receiving waters including with respect to temperature. Establishing discharge temperature limits and enforcing such limits with the enforcement authority granted them in the Clean Water Act are the responsibility of EPA and the VDEQ. Accordingly, no changes were made to the EIS as a result of this comment.*

Comment: [Regarding Dominion's ER] Par. 5.1.1.1 page 3-5-2. The conclusion that "the change in temperature at the discharge point of the (cooling lagoons) due to operation of the new units would be negligible and would not impact the current or future recreational uses of the lake" is not true. Since the new units would not shut down until the input temperature reaches

100 degrees F, and the existing units at 95 degrees F, this would have a serious impact on the current recreational uses on the lake. (SE-0004 23a)

Response: *Once the temperature at the intakes reach 95 °F, the NAPS Units 1 and 2 would cease to operate. The remaining heat load and discharge flow from Unit 3 would be a very small fraction of heat load and flow relative to the combined discharge with the NAPS operating. It is reasonable to expect that if this condition were to occur, Unit 3 cooling system would be in MWC mode, which would further reduce the heat load and discharge flow to the WHTF. Based on the low heat load, low discharge flow rate, and the long residence time in the WHTF without NAPS in operation, the staff concluded that any impact to recreational uses to Lake Anna would be minor. Recreational implications of the regional population are discussed in Section 3.5.6. No changes were made to the EIS based on this comment.*

Comment: I want to ask the hydrologist if he recently read about the nuclear power plant in France and other European countries. And they are returning water at a much higher level than it is allowed. You know they are facing a very, very hot summer. That means both the temperature of the lake probably or the cooling water that they use is already higher than they had probably anticipated. Now have you all looked at this? Because, you know, we have had increasingly hot summers. And we are, you know, probably in the throes of global warming. ...I just wanted to make people realize that the first two reactors are still once through. And, you know, they are going to be using, in the case of higher temperatures initially, they are going to be using more water through evaporation. Therefore, you add a third unit, you are still going to increase the amount overall that is lost to evaporation. (ST-0002 2)

Response: *The NRC staff is aware of water issues that occurred during the recent high summer temperatures in France. The staff agrees that during warm summer months, particularly in low water years, the existing once-through cooling system for NAPS Units 1 and 2 would result in greater consumptive water use through higher induced evaporation rates. This increased water use would generally coincide with increased natural evaporation rates. If summers become increasingly hot, the Commonwealth of Virginia could require changes in operation of the NAPS and any new facilities to mitigate these impacts. Accordingly, no changes were made to the EIS as a result of this comment.*

Comment: How many temperature sensors are placed around the lake by Dominion and the State of Virginia? (ST-0008 1)

Response: *In accordance with NAPS's VPDES permit, there are eleven fixed continuous temperature recorders. Ten are in Lake Anna and the WHTF and one is downstream in the North Anna River. Additionally, fourteen temperature profile (from surface to bottom at 1-m intervals) cross sections are sampled during two quarters of the year. No changes were made to the EIS based on this comment*

Comments Within Scope

3.3.2.4 Waste Heat Treatment Facility

Comment: ESP indicates the maximum temperature increase will be from 14 to 18°F across the once passing through cooling or an increase of 4°F. There is no discussion as to the expected temperatures in the WHTF (Warm Side). (DW-0806 5)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal discharges to the waste heat treatment facility would be substantially reduced, and thermal conditions generally would be unchanged in the WHTF. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Can Dike 3 handle the increased discharge of the third plant or will the Waste Heat Treatment Facility (WHTF) (Warm side) level increase? … The total draw from the once pass through cooling for three plants is 3 Million gal/min or 4.38 Billion gal/day… Can dike 3 handle 4.38 billion gallons/day discharge into the main lake? (DW-0806 3)

Comment: What is the expected rise in water height of the WHTF from the current height when Units 1, 2, and 3 are operating? If it is expected to be a foot or more, residents' docks may be under water. (DW-0806 4)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Dominion has since proposed a closed-cycle, combination wet and dry cooling system. Based on the small blowdown discharges, operation of the proposed closed-cycle, combination wet and dry cooling for Unit 3 would not be expected to raise the water level of the WHTF by any appreciable amount. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: What will happen to the Dissolved Oxygen (DO) in the WHTF at temperature 100°F or higher? (DW-0806 8)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, the thermal discharges to the WHTF would be substantially reduced, and any decrease of dissolved oxygen would be negligible. In general, increases in water temperature can reduce the solubility of oxygen in water. However, degassing of oxygen would only occur at or near saturated conditions. The solubility of oxygen in water changes from 6.9 to 6.4 mg/L as the temperature increases from 35 to 40.6 °C (95 to 105 °F). However, some of the decrease in solubility may be offset by an increase in re-aeration rates with higher temperatures. Additionally, if adequate nutrients exist in the water, increases in water temperature are associated with increases in biological activity, which could deplete dissolved oxygen under certain conditions. The dissolved oxygen level would not be expected*

to decrease significantly in the WHTF with the addition of Unit 3 discharge to the existing units nor depress the dissolved oxygen in the WHTF to levels detrimental to aquatic organisms. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [Regarding Dominion's ER] Par[agraph] 5.3.4 page 3-5-69 Impacts to Members of the Public, Dominion added a sentence in the Revision 6 ESP application in this paragraph just to solidify their point in dealing with the public. Dominion states "Virginia Power considers the WHTF (Cooling Lagoons) to be an integral part of the power station, and as such it has never been operated as an extension of the North Anna Reservoir for the purposes of public recreational use."...This is directly opposite to the Virginia Power public document from 1970 where they promoted the shoreline construction and recreational use of the entire lake both warm and cold sides. ...How can the NRC, Environmental Protection Agency, National Oceanic Administration and Dominion not consider the cooling lagoons as quasi public waters? What is the North Anna River which provides about 25% of the water cooling for the power plant and the water eventually feeds into the Atlantic Ocean? We do not understand the difference, please explain. (SE-0007 3)

Comment: Shouldn't the WHTF be subject to Clean Water Act and DEQ standards? It is fed by eight public streams and should be treated as public waters. (SE-0045 26)

Comment: 104 degrees have continually been used as a benchmark for acceptable water temperature on the WHTF. Anyone living here, and that number is growing significantly, would tell you that that figure has become unacceptable. This is now a recreational facility, as is the cold side. As I said before things change, and so must the concern for the health and welfare of us using this facility. ...The heat generated by the power plant is now not only affecting the warm side but is now affecting the public side, to a somewhat lesser degree, north of the 208 bridge. This alone should invoke concerns from various governing agencies. People directly across from the third dike and just north of the main dam, have experienced water temperatures approaching those on the warm side. (SE-0018 2)

Comment: The Waste Heat Treatment Facility (WHTF) is an erroneous designation (not supported by state law) that is used throughout the ESP to describe the cooling lagoon portion of Lake Anna and its usage should be stopped. The cooling lagoons should simply be referred to as the "Cooling Lagoons". This WHTF designation has caused the cooling lagoons to be viewed and treated similar to a sewage treatment facility by many state agencies and as a result are viewed as private waters and not afforded the protections or other amenities afforded public waters. (SE-0002 1)

Comment: We also request that the all state agencies stop using the designation, Waste Heat Treatment Facility to describe the cooling lagoons so it is not viewed and treated similar to a sewage treatment facility. This designation affords no public protection for the over 8,000 users of the cooling lagoons. (ST-0014 20) (SE-0022 33)

Comments Within Scope

Comment: We request that the Waste Heat Treatment Facility (WHTF) should be referred to as the "Cooling Lagoons". Names immediately generate mental images when people hear them. The reference to the clean water in the Cooling Lagoons as "WASTE" in the leading word of WHTF immediately gives a bad and misleading image of the clean water and recreational use of the Cooling Lagoons. ...We believe that the "Cooling Lagoons" nomenclature is more accurately descriptive of their attractive nature and recreational use. (SW-0004 9)

Comment: We support the use of the terminology cooling lagoons instead of the waste heat treatment facility. The reason is that when people hear the name "waste" in the leading word of the WHTF, it immediately gives a bad name and a misleading image of the clean and recreational use of the cooling lagoons. (ST-0004 6)

Comment: We request that the cooling lagoons be designated as "quasi public water". ...Changing the designation would require that the State of Virginia treat the Lake Anna Cooling Lagoons as public waters for the purpose of application of Virginia regulations relating to the health, safety, and welfare of the citizens living around and using the Cooling Lagoons. (SW-0004 8)

Comment: I object to the use of the term Waste Heat Treatment Facility (WHTF) to describe the section of the lake on which I live utilized by Dominion. I do not wish or want to live next to what can be viewed as a sewage treatment facility by both my friends and government agencies. (SE-0019 3)

Comment: The issue is simple, once the warm side of the lake was opened up to speculation and development, the rules should have changed. The warm side should no longer have been considered a Waste Heat Treatment Facility, with the same guidelines as if we lived on sewage treatment facility. This term should be changed and guidelines written that would adequately insure the residents of the warm side the same health standards as any other public facility in the state or nation. Our situation is definitely unique and should have been identified as such when the power plant was first built. Realizing that this may have required necessary changes to the plant and its cooling facilities, they could have been included in the plans and that time and saved the Dominion and subsequently the taxpayers a lot of money. (SE-0018 1)

Comment: Both the main reservoir and the cooling lagoons are now populated and substantial individual investment has been made by property owners. On the cooling lagoons most of these individual investments were made after the abandonment of units 3 & 4. Dominion Resources / Virginia Power cannot now turn back the clock and deny access or otherwise render the cooling lagoons unusable for recreational purposes. (SW-0015 1)

Response: *The designation of the WHTF by the Commonwealth of Virginia as an industrial waste heat treatment is not subject to review by either the NRC or NOAA. While water resources are always public, a state can permit the temporary "use" of the water. For instance,*

municipal sewage is not regulated at the point that the effluents enter the sewage treatment system but at the point the treated effluents are returned to the public waters. The responsible permitting agency can specify the condition (water quality) of the water that is returned to public waters. The condition of the water, during its "use", is not generally restricted, whereas the water's condition when it is returned to public use is restricted. The staff's assessment did not question the designation of the WHTF as an industrial waste heat treatment facility. The name of the Waste Heat Treatment Facility is the perogative of the owner, not the NRC. The NRC cannot change the name of the WHTF to "Cooling Lagoons." Accordingly, no changes were made to this EIS as a result of these comments.

Comment: It is unclear from the many various documents...to determine exactly what the impact on both the cold side and cooling lagoons water level's, water flows, and water temperatures are when the 3rd and 4th reactors are activated. ...In some cases they use C, (which requires the public to convert to Fahrenheit degrees. In other cases they use a notation of thermal heat added to the water without any regard to what this means to Fahrenheit degree temperatures. Dominion and the NRC should standardize the use Fahrenheit degrees so the public can easily understand its impact in all ESP and COL documentation. (SE-0003 9)

Response: *Throughout its review (except for this appendix in which most numbers are presented in English units), the staff has presented temperature in both Fahrenheit and Celsius for the convenience of the reader. Accordingly, no changes were made to this EIS as a result of these comments.*

3.3.2.5 Water Levels

Comment: Lake Anna cannot physically support the addition of new reactors. The increased water use associated with the new reactor will cause the lake level to drop significantly. (DW-MM1 4)

Comment: Among my concerns are: Increased water use associated with new reactors--lower water levels have many undesirable consequences. (DW-0998 1)

Comment: The already deficient water level at Lake Anna appears to have been glossed over and ignored. (DW-0431 5)

Response: *These general comments question the sufficiency of the water supply to maintain adequate water levels. Dominion revised its consumptive water use values and its plans for maintaining water levels starting with Revision 6 of the ER to reflect the change in the cooling system for Unit 3. The effects of these revised values are evaluated in Section 5.3. The staff concluded that the evaporative losses associated with the operation of the proposed closed-cycle, combination wet and dry cooling system for Unit 3 (approximately 19 cfs) could result in additional declines in the lake level. During drought periods, the impact could further*

exacerbate low lake levels. During such drought conditions, the staff concluded the impacts would be MODERATE. The staff used widely accepted and validated modeling techniques in its analysis and concluded that the lake would be sufficient to cool the additional unit. In determining the impact level, the staff considers the valuation of the water resource by the Commonwealth of Virginia in assessing the impact. The Commonwealth of Virginia has jurisdiction over allocating water. Drought conditions or increases in future water demands could result in intervention by the Commonwealth on the apportionment of the water. Such intervention might include operational restrictions during periods of water conflict. Additional information on the water budget calculations performed by the staff are included in Appendix K of this EIS.

Comment: Had a third reactor been a once through reactor, the same kind that they're proposing, been built and operating in October of 2002, the lake level would have dropped another two feet, and the reactors would have had to shut down. This is from the draft EIS itself and from Dominion. In response, Dominion has asked to allow the third proposed reactor to operate until the lake level drops down to 242 feet above mean sea level. Not only would this lowering of the shutoff point increase the risks during plant operations. It would also increase the impacts on the lake and downstream. (DT-0019 8)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. While the additional evaporative loss associated with the proposed Unit 3 closed-cycle, combination wet and dry cooling system could result in lower pool elevations and a reduction in downstream flows during extended dry periods, this would not result in any greater risks associated with the safe operation of the plant. The rate at which the lake's pool elevation would decline during a drought, such as the one in 2002, would be gradual enough to safely derate or shut down one or more units before reaching the minimum operating pool level. More information is provided in the staff's Final Safety Evaluation Report for the North Anna ESP (ML 051610246). The environmental effects of lower lake level and downstream flows are evaluated in Section 5.3. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The water resources are already inadequate for this site, and I think the best numbers on that if you look at the percentage of time that the Virginia Department of Environmental Quality's discharge permit is violated... -- perhaps "violation" is the wrong term, but you have to understand that the department wanted a minimum discharge of 40 cubic feet per second (cfs), and except under drought conditions, whatever "drought" means, it can go down to 20 cfs. If you look at the historical record of the two reactors, it is that the history of the hydrological response is that 44 percent of the time, they're discharging less than 40 cubic feet per second, and five percent of the time they're discharging even less than the 20 feet per second, which was only supposed to be under drought conditions. (DT-0021 5)

Comment: You have to seriously question whether you can call something drought if it's happening 44 percent of the time. Those numbers, projected numbers under a third unit, cooling of a third unit, would realize to 52 percent of the time when you'd be discharging less than 40 cubic feet per second...And 12 percent of the time less than 20. Now, my main point is that if you look at the draft environmental impact statement, it does not really analyze the impact of that on the downstream uses in any detail, and I think the logic where they reached a conclusion that would be a small impact most of the time and only moderate part of the time; there's no real analysis to support why you would reach that conclusion. (DT-0021 6)

Response: *In determining the impact level, the staff considers the valuation of the water resource by the Commonwealth of Virginia. The Lake Level Contingency Plan, which sets discharge rates based on lake level, was considered by the NRC staff in the evaluation of the North Anna water supply. Low flow releases from the dam are prescribed by the VDEQ in the Plan. The policy of decreasing the release from 40 cfs to 20 cfs as the lake level drops below 248 feet above mean sea level (MSL) is prescribed by VDEQ. Drought conditions or increases in future water demands could result in intervention by the Commonwealth on the apportionment of the water. Such intervention might include operational restrictions during periods of water use conflict. The water use conflicts issue is a principal issue in this environmental review. Starting with Revision 6 of the ER, Dominion revised its consumptive water use values to reflect the change in the cooling system for Unit 3. The effects of these revised values are evaluated in Section 5.3. The staff performed an independent assessment of the impacts that forced evaporative losses from the proposed wet cooling portion of the Unit 3 system would have on the lake and downstream water budget. This assessment is provided in Appendix K of this EIS. The assessment was based on hydrological conditions and the estimate of the rate of induced evaporative loss listed in Appendix I from Dominion's Plant Parameter Envelope (PPE). The staff determined that the evaporative losses associated with the operation of a closed-cycle, combination wet and dry cooling system for Unit 3 (approximately 19 cfs) would result in declines in the lake level and reductions in downstream flow. Accordingly, the staff concluded that during such drought conditions, the impacts could be temporarily MODERATE. Additional information on the water budget calculations performed by the staff are included in Appendix K of this EIS.*

Comment: The minimum dam release required by the VPDES permit is normally 40 cfs. During a severe drought, a Lake Level Contingency Plan in effect allows a decrease in the release in increments of 5 cfs down to a minimum rate of 20 cfs. The percent of time at 20 cfs is 5.3 percent. [page 5-7, line 34] (DW-0423 31)

Response: *This comment relates to Revision 3 of the ER. The proposed cooling system for Unit 3 has since been changed to a closed-cycle, combination wet and dry cooling system. The staff concluded that the induced evaporative losses associated with the operation of a closed-cycle, combination wet and dry cooling system for Unit 3 (approximately 19 cfs) could result in reductions in downstream flow especially during drought periods. Based on updated*

estimates using bounding assumptions, the flow from the Lake Anna Dam would be 20 cfs from 6 to 11 percent of the time. Section 5.3.2 was revised to reflect the updated analyses.

Comment: This DEIS wording is inconsistent with ER Section 5.2.1.2. The average annual evaporative loss is estimated to be 29 cfs, which assumes Unit 3 operates at a 100% plant capacity factor. As a result, the predicted minimum water surface elevation of 243.4 ft msl on DEIS Page 5-9 (line 24) for Units 1 and 2 plus Unit 3 using once through cooling is higher than the corresponding 242.6 ft msl minimum water level estimated in ER Section 5.2.2.1. [page 5-6, line 2 and at other locations within this section] (DW-0423 29)

Response: *This comment relates to Revision 3 of the ER. The proposed cooling system for Unit 3 has since been changed to a closed-cycle, combination wet and dry cooling system. Dominion's revised PPE states that the forced evaporative losses associated with the operation of a closed-cycle, combination wet and dry cooling system for Unit 3 would be approximately 19 cfs. The revised analysis based on the change in the cooling system indicates that the minimum estimated water surface elevation would be 243.5 ft MSL, which is 1.7 ft lower than the value estimated without Unit 3. Section 5.3 has been revised to reflect this evaluation.*

Comment: In its application, Dominion has asked to allow the proposed third reactor to operate until the lake level drops down to 242 feet above mean sea level. At the February 23, 2005 meeting between NRC and Dominion, Dominion stated that it has lowered the intakes for Unit 1 and 2. Please indicate how Dominion has modified the intake pipes in the Draft EIS. Does Dominion intend to request that the shutoff point for the existing reactors be lowered to 242 feet above mean sea level? (DW-0437 10)

Comment: ESP uses 242-foot level as the minimum lake level before shutdown for Unit 3. Unit 3 should use the 244-foot level not 242 as is currently used by Units 1 and 2 until NRC has studied the proposed 242 level. (DW-0806 2)

Comment: Require intakes at all units remain at 244 feet - We question the wisdom to allow Unit 3 to have an intake at 242 feet above sea level when Units one and two have been regulated to 244 feet. Even at 244 feet, the problems experienced during the drought indicate that a lower intake level could further compound the problem. (DW-1157 18)

Comment: The NRC Staff acknowledges that "operation of Unit 3 would increase the duration of periods during drought conditions when the Lake Level Contingency Plan would be applied" (page 5-9, line 34). The Final EIS should include a full analysis of the impacts on the lake and downstream of lowering the level at which the two existing reactors, in addition to the proposed Unit 3, must be shut down. Please justify why lowering the shutoff point would not further increase the impacts on the lake, as well as downstream by lengthening the period of time of low-flow from the dam. (DW-0437 11)

Response: *The physical location of the intake structures for the existing units and the proposed units are expected to be near 235 feet above mean sea level. The lake level analyses are based on actual or proposed plant operating practices. The applicant revised its operating practices to allow operations of Units 1 and 2 down to 242 ft above MSL after the Draft EIS was released. The calculations in Appendix K and text in Sections 5.3, 5.4, and 5.5 have been revised to reflect this change. The staff's independent assessment did not show a significant change in impacts.*

Comment: Page 5-8 line 41 states that the Lake level is being managed to maintain a stable level of 76.2 meters yet the modeling results on Page 5-9 predict a lower level for all four scenarios mentioned. (DW-0438 139)

Response: *The lake is operated with the goal of maintaining stable lake level of 250 feet (76.2 meters); this is the upper operating height that would not result in submerging docks and boat ramps that were constructed around the lake nor inundating additional land around the lake. When water is plentiful and the stable lake level is easily maintained, the lake outflow is comparable to the lake inflow. Consequently, up to the point that lake outflows (including natural and induced evaporative losses from Units 1 and 2, forced evaporative losses from Unit 3, and releases from the dam) begin to exceed lake inflows, the lake is operated at the stable lake level. Once the lake outflows exceed the lake inflows, the lake level begins to decline; such scenarios were analyzed as well. These analyses included the normal minimum flow of 1.1 m^3/s (40 cfs) when the lake level is between 250 and 248 feet (76.2 and 75.6 m). When the Lake Level Contingency Plan is implemented (at lake levels below 248 feet [75.6 m]), the release is limited to 0.57 m^3/s (20 cfs) to reduce further lake declines. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: One or two additional units on Lake Anna would reduce lake levels due to increased water withdrawals from the lake, especially in the summer and fall when demand for power and evaporation are higher. This was evidenced during the 2002 drought when the lake level dropped to a mere 245.1 feet above mean sea level, nearly requiring the NAPS to be shut down and preventing the use of most boat ramps (DEIS, page 5-44, lines 9-11). (DW-0437 31)

Response: *Annual lake water levels are generally lower during the summer and fall months. With any additional water use required by one or more additional units, the lake level would be further reduced. The staff analyzed the environmental effects of a proposed closed-cycle, combination wet and dry cooling system for Unit 3 and reported the results of its assessment in Section 5.3 and elsewhere where it affects other resources (for example, recreational uses and the fishery). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Regarding Dominion's ER] Par[agraph] 5.2.2.1.2 page 3-5-11 Since a quadratic equation was used to fit the three elevations (240, 250, 260 msl), what was the index of determinate? (SE-0004 24)

Response: *As stated in Section K.4, the staff independently estimated the lake stage volume relationship using digital raster bathymetry data and did not rely on the applicant's approach. Accordingly, no changes were made to the EIS based on this comment*

Comment: The current operating rules for the power plant allow flows to be reduced from a required 40 cfs to 20 cfs whenever the lake elevation goes down to 248 feet msl, according to the Department of Game and Inland Fisheries...While the Department [DGIF] wishes to maintain the frequency and duration of 20-cfs events...DEQ's Division of Water Resources indicates that setting the trigger elevation at 247.5 feet msl instead of 248 feet would require changing the existing Virginia Pollutant Discharge Elimination System (VPDES) permit, and might generate opposition from lakefront property owners. The Division opposes any change in the trigger elevation of 248 feet. However, the Division believes that the DGIF recommendation to raise the lake level three inches in the spring to make more storage available for downstream flows in the spring deserves additional study. (SW-0017 29)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Raising of lake level to retain more water for 3rd unit and resulting in destruction of adjoining property and also for retention for downstream users. (SE-0022 21)

Comment: [Regarding the cover letter in Dominion's ESP Application Revision 6] Question 16f Lake Level -- Can we assume that raising the lake level is a dead issue. It keeps coming up and Dominions response is that it is no problem, but they are not proposing it at this time. When will they propose it? (SE-0004 5)

Response: *Consistent with NRC's role under NEPA, the staff did analyze the impact of raising the normal pool elevation as a possible mitigation measure. The impacts of this specific mitigation measure were considered in the EIS based on a request by the Commonwealth of Virginia to evaluate raising the lake elevation to maintain the current frequency at 20 cfs. Any decision to change the operating policies for North Anna Dam would be the responsibility of VDEQ and not NRC. Accordingly, no changes were made to the EIS based on these comments.*

Comment: [T]here's some inconsistencies in the documents. Unit 3 is stated to operate until the water level drops down to 242 feet, that's 8 feet below normal level….Now the other part of the document says 243.5 feet instead of the 242 for Unit 3, and 245.2 for the existing units. (ST-0028 3)

Comment: Unit 3 is stated to operate until the water level drops to 242 feet lake level and water temperature at the reservoir inlet of 100 F. Why does page 5-39 say 243.5 feet for unit 3 and 245.2 feet for NAPS units 1 and 2? (SE-0027 3)

Response: *The current intake design forces NAPS Units 1 and 2 to shut down if the lake level drops below 242 ft. In the ER, Dominion proposes that the Units 3 and 4 intakes would also have the same limitation. In the staff's assessment, water level would have never dropped to 242 ft even during the critical water period with the units operating. If the staff had predicted the water would have dropped below 242, the model would have simulated all the NAPS and new units shutting down operation. The values of 245.2 ft for Units 1 and 2, and 243.5 ft for Units 1, 2, and 3, respectively, are predicted minimum lake levels. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [Regarding the cover letter to Dominion's ESP Application Revision 6] Since Dominion has decided not to change the existing lake level, can we assume that the lake levels will be 7 inches lower than normal with unit 3 running in times of low flow or droughts? (SE-0004 4)

Response: *The staff's assessment predicted greater declines in the water level than did Dominion's assessment. Based on the staff's assessment described in Appendix K of this EIS, the incremental drop in lake elevations caused by Unit 3 would be less than 3 inches for over 69 percent of the time. However, a maximum incremental decline of 1.7 ft was predicted by the staff's analysis for the critical period. Accordingly, no changes were made to this EIS based on this comment.*

Comment: The third unit will use some lake water through evaporative loss. …We request that simple, obvious steps be taken to manage the available Lake water to maximize the Lake level during times of low rainfall. (SW-0004 3)

Comment: [T]he state-of-the-art cooling design that Dominion has proposed for Unit 3 would evaporate significantly less water [then a once-through system]. Plus when lake level is a concern, a dry cooling tower will be used to maintain lake level and downstream flow. (ST-0012 6)

Response: *Dominion's design of a cooling system that shifts the mix of dry and wet cooling as the lake level declines would reduce the lake level decline compared to a conventional wet cooling tower design. Accordingly, no changes to the EIS were made based on this comment.*

Comment: Altering the intake structures for Units 1 and 2 and lowering the allowable minimum lake level would permit incrementally greater effective storage at the expense of greater impacts on recreation and fish populations. (SE-0038 6)

Comment: Wouldn't the installation of new unit(s) be an opportunity to mitigate some of the existing problems with water temperature and lake level? (SE-0045 25)

Comments Within Scope

Response: *This EIS evaluates the impacts of the proposed Units 3 and 4 and does not evaluate changes relating to the existing NAPS units that are independent of the proposed action except inasmuch as those changes would alter the affected environmental conditions. The change in the minimum lake level for operation of the NAPS units was a separate action that was not subject to NRC review. Accordingly, no changes to this EIS were made based on these comments.*

Comment: [T]o improve the management of the available lake water during times of low rainfall. We request that the release over the dam be changed to limit it to 5 cubic feet per second for lake levels below 250 feet. ...This limitation will have a minimal effect on downstream users, because there are other stream flows into the North Anna River about a half a mile below the Lake Anna Dam. (ST-0004 4)

Comment: We request that the release over the dam be changed to: Lake above 250 - release not limited Lake below 250 - release limited to 5 cfs (cubic feet per second). This change is to make a major improvement of the management and conservation of the very limited flow of water into the Lake. (SW-0004 4)

Response: *Reducing the release from the dam to 5 cfs, whenever the lake drops below 250 ft, would indeed reduce the declines in the lake during times of low rainfall. However, the staff did not evaluate further reductions in downstream flowrates because concern has already been expressed by the Commonwealth of Virginia regarding the increased frequency of 20 cfs flows. During periods of extended low rainfall, releases from North Anna dam can be the principal source of flow in the Pamunkey River as flows from the South Anna River and the Little River may be very low. Reducing the flow to 5 cfs would increase the impacts to downstream users and would violate the Lake Anna Contingency Plan. The Commonwealth of Virginia is responsible for determining the releases from North Anna Dam. Accordingly, no changes to the EIS were made based on these comments.*

Comment: Page 5-9, line 30...Dominion did not propose raising the normal operating lake level above 250 ft msl. The SDEIS should clarify that this was evaluated by Dominion at the request of the Commonwealth of Virginia, but is not proposed by either at this time. (SE-0050 17)

Response: *The text in this EIS has been modified to clarify that Dominion performed this analysis at the request of VDEQ.*

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Lowering lake level by increased water usage thereby causing increased drought cycles ranging from weeks to months. (SE-0022 22)

Response: *In Section 5.3.2 and Appendix K of this EIS, the staff describes its independent assessment of the impact on lake levels of the proposed Unit 3's consumptive water use. Based on current release policies from the North Anna dam, the lake level is projected to decline less than 3 inches on the average. During periods of drought, these declines would be more significant and persist longer. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: DGIF recommends that the normal operating elevation be seasonally increased (April through November) to 250.25 feet msl in order to minimize the impacts of an increased frequency and duration of 20-cfs flows on downstream resources. Rules could be in place to reduce the pool to 250 feet msl elevation prior to predicted storm events such as hurricanes and tropical depressions. (SW-0017 45)

Response: *The Commonwealth of Virginia is responsible for determining the releases from North Anna Dam including during predicted storm events. The staff evaluated the impact of raising the lake level in Section 5.3.2. Accordingly, no changes to the EIS were made based on this comment.*

Comment: While the DEIS points out that drought years have not had significant impact in the past on Lake Anna's water levels, the potential for global warming should be considered. This is especially true because the ESP is valid for 20 years with the possibility to renew for 20 more. Nearly all scientists agree that some effects of climate change will be experienced in the next 20 years. The DEIS has not yet considered what would happen to the lake under the various conditions that could be caused by global climate change. (DW-0630 4)

Comment: [H]as NRC correctly analyzed...the vulnerability of the North Anna site to...climate change...i.e. what are the impacts if the lake steadily dries up in a future local climate of reduced rainfall and higher than average temperatures? ...Analysis of the climate change scenario seems indicated given the projected 60 year life span of a reactor and the recent spate of reactor cooling problems triggered by heat and drought conditions in Europe and the Midwestern U.S. (SE-0040 17)

Comment: While the DEIS points out that drought years have not had significant impact in the past on Lake Anna's water levels, the potential for global warming should be considered. This is especially true because the ESP is valid for 20 years with the possibility to renew for 20 more. Nearly all scientists agree that some effects of climate change will be experienced in the next 20 years. The DEIS has not yet considered what would happen to the lake under the various conditions that could be caused by global climate change. (DW-0630 4)

Response: *Despite intensive investment in climate change science over the past decade, numerous gaps remain in the state of understanding of climate change. The staff reviewed the National Assessment of the Potential Consequences of Climate Variability and Change that was*

prepared by the United States Global Change Research Program. This assessment states the following:

> *"Climate scenarios for the southeastern US provide contrasting results in terms of temperature and precipitation estimates over the region, so that in some cases conditions may improve while in others they may degrade. The Canadian model results show little change until 2030, followed by drier weather in most of the region over the next seventy years. On the other hand, the Hadley Centre model predicts a slight decrease in the region during the next 30 years, after which precipitation increases significantly."*

Such variability in model climate model predictions is not unusual as a result of the complexity and uncertainty in climate models and climate processes. The staff concludes that consideration of climate change predictions does not alter the staff's conclusions regarding impacts of a proposed Unit 3 on water resources.

The primary mission of the NRC is to ensure that authorized activities would be conducted in a manner to provide adequate protection of public health and safety from the effects of the radiological hazards posed by nuclear reactors, materials, and waste facilities. The NRC will continue to monitor efforts to reduce the large uncertainties in projecting future climate change to ensure that the public is adequately protected. Accordingly, no changes were made to this EIS as a result of these comments.

3.3.2.6 Drought-Related Impacts

Comment: Page 5-4 line 21 seems to infer that during normal years the water level in the Lake would be acceptable. What about during drought years? (DW-0438 127)

Response: *Predicted water levels during drought years and their associated impact levels are discussed in Section 5.3 and in Appendix K.*

Comment: Page 5-4 line 25 refers to the drought as a “climatic anomaly” – droughts are normal occurrences over time. (DW-0438 128)

Response: *Droughts of varying intensity, duration, and extent do occur over time. However, droughts are, by definition, departures from the norm and are therefore described as anomalies. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Change the word “could” to “would” on Page 5-18 [assumed to be from page 5-38] line 18. (DW-0438 151)

Response: *The text in Section 5.5.1.4 has been revised to "Impacts of the Unit 3 cooling system on the lake's water level would be more noticeable in time of drought" to reflect this comment.*

Comment: Using elevation 248 as an indicator [of a hydrologic drought], past Dominion records demonstrate that this level has been observed 3 times in the last 26 years, a reasonable expectation of the recurrence interval (8.6 years) for a drought. Addition of Unit 3 would increase the drought recurrence interval to every 2.6 years and more than double the total weeks of flows that are 20 cubic feet per second (cfs) or lower from 67 to 143. Median duration of drought flows of 20 cfs would be 7 weeks with the proposed Unit 3. Virginia State Water Control Board Bulletin #58 reviewed flow statistics for the gauge downstream at Doswell. Prior to dam construction, flows of 25 cfs or lower would occur once every 10 years for about 10 weeks. Addition of Unit 3 would significantly increase the frequency of drought flows downstream, and the duration of those droughts. The change to drought flows once every 2.6 years, for median duration of 7 weeks, is a significant change from conditions prior to the plant/reservoir construction (see item 4(b), below), and demonstrates the need for cumulative analysis of biological impacts. (DW-0439 10) (SW-0017 18)

Response: *Comparisons to the steam flow conditions to those areas below the dam prior to reservoir construction are outside the scope of this EIS review. NEPA requires an analysis of the changes to the existing environment; the existing environment for this EIS includes Lake Anna and NAPS Units 1 and 2. Therefore, the appropriate comparison of the length and frequency of drought conditions in the context of the comment is between the existing conditions and the conditions resulting from the operation of the proposed Unit 3 closed-cycle, combination wet and dry cooling system. Such a comparison is made in Section 5.3. The characteristics of drought conditions prevalent in the North Anna region predating the construction of the reservoir are only relevant to the degree that the historic data can be analyzed in the context of the existing reservoir. The comment is instructive to point out that droughts are part of the normal climatic variability within any ecosystem. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: During these [drought] periods, the problem [future water supply demand] will be further compounded by the minimum release of 20 cubic feet per second from the Lake Anna dam. (DW-1157 8)

Comment: The increased loss from the "once through" cooling process raises the period of minimum release from the dam of 20 cfs from 5.8 percent to 11.8 percent and the amount of time of lower lake levels (those below 248 feet above sea level or less) from 5.2 percent to 11.6 percent not only affects recreational use but also future water demands. Furthermore, according to the findings of staff, severe drought periods could have a temporarily moderate

impact. In its current form, the draft EIS states that due to the temporary nature of drought conditions, no mitigation is suggested. PEC strongly believes that the EIS must expansively define “moderate” in this case, and explain why no mitigation is an option. (DW-1157 10)

Comment: The draft Environmental Impact Statement states that there will be moderate impacts on the quality of water in Lake Anna during drought years, and small to moderate impacts during normal years. This is unacceptable to me, a resident of Richmond and recreational user of Lake Anna. (DW-0617 2)

Response: *NRC has established a standard of significance for impacts using Council on Environmental Quality (CEQ) guidance (40 CFR 1508.27). NRC has defined MODERATE impacts as “Environmental effects [that] are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.” The staff concluded that the impact to water use would be temporarily MODERATE during drought conditions because of the projected decrease in lake levels and downstream flows associated with the forced evaporative losses of the wet portion of the proposed Unit 3 closed-cycle, combination wet and dry cooling system. However, the staff also concluded that because droughts are temporary events for which water supply systems are designed to compensate, the impact would not destabilize the water resource. The lake level would be expected to return to normal levels with the return of normal precipitation in a manner similar to the period after the 2001-2002 drought. During periods when rainfall, streamflow, and associated lake level are at climatic and hydrologic norms, the proposed Unit 3 would not noticeably affect the water resources of Lake Anna, and impacts would be SMALL, as described in Section 5.3 of this EIS.*

The Commonwealth of Virginia, which has jurisdiction over managing the water resources of Lake Anna and the North Anna River downstream of the dam, may mitigate impacts to the water resources by requiring Dominion to derate or suspend operations of one or more units at North Anna in periods of severe drought and associated low water levels. The staff did not identify feasible mitigation alternatives other than derating. Alternative cooling system designs are discussed in Section 8.2. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [T]he North Anna watershed is too small to allow large water withdrawals. These would adversely affect the beneficial uses of the North Anna river. The analysis clearly indicates that the third unit would increase the drought cycle and cause decreased water flows during seven months of the year. (ST-0014 5)

Comment: Evaporative cooling towers will siphon off an enormous amount of water, continuously. ...The withdrawal of huge amounts of water from these relatively small reservoirs fed by a relatively small watershed will most certainly adversely affect the local environment

especially the waterfront. During periods of low rainfall, drought, reservoir levels have dramatically lowered reducing the existing surface acreage for "natural" evaporative cooling. (SW-0015 2)

***Response**: The water use conflicts issue is a principal issue in this environmental review. In a water budget, as with all other budgets, a finite resource is allocated to serve multiple objectives. The management of water resources involves balancing objectives among these multiple conflicting objectives. In the case of the Lake Anna and North Anna River water resource, these objectives include: providing water for current and likely future downstream water users, providing water for downstream habitat, maintaining relatively stable lake levels, and providing a reliable water supply for industrial facilities including the existing NAPS and proposed Unit 3.*

The staff made no attempt to balance these objectives. Rather, the staff simply disclosed the impacts. Establishing policies that balance water-related objectives is the responsibility of the Commonwealth of Virginia. Construction and operation of a plant at North Anna is predicated on obtaining a variety of water related permits and certifications from the Commonwealth of Virginia that are independent from a decision on this ESP application by the NRC.

The staff acknowledges that water conflicts could increase because of the reduction in the water supply as result of consumptive water losses from the operation of the proposed new facility. These conflicts would be greatest when the available water supply is already limited because of climatic factors. Drought conditions or increases in future water demands could result in intervention by the Commonwealth in the apportionment of the water. Such intervention might include operational restrictions during periods of water use conflict. The staff's water use assessment is documented in Section 5.3 and in Appendix K of this EIS. Accordingly, no changes were made to this EIS as a result of these comments.

3.3.2.7 Flow and Water Budget

Comment: Crucial data for making informed analyses are not known, including, quote, a reliable water budget of North Anna. What does that mean? That's how much water is flowing in and flowing out. This means they don't really know how much water is flowing in or flowing out. Nor have measurements been taken on the velocity of the water flow within the lake. Yet the NRC staff admits in the draft EIS that these data are necessary for both understanding the hydrodynamics of the lake and to calibrate the models. With such inadequate data about the lake's hydrology, how can NRC staff conclude that the impacts of another once through reactor on the lake will be small? (DT-0019 2)

Comment: The NRC must gather all of the necessary information about the lake and do all of the necessary analyses before making conclusions about whether there is sufficient water in Lake Anna to operate another once through reactor. (DT-0019 9)

Response: *It is standard hydrologic engineering practice to approximate or extend the discharge for a basin by scaling measured discharges from similar local basins. Therefore, while a water budget was not available directly from the available measured streamflows in the study basin, it was possible to adequately approximate streamflows by using an adjacent basin; for this analysis the staff used the adjacent Little River drainage basin adjusted for the differences in drainage areas.*

The staff relied on the conservation of mass (i.e., in this case, the conservation of water) principle in its independent analyses. The staff's independent assessment is described in Appendix K. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The DEIS completely fails to provide a convincing case for its conclusion that the impact of those reductions in release will be SMALL. If low flows are not a problem, why did the DEQ establish those requirements in its NPDES permit? (DW-0589 14)

Response: *The staff performed an independent assessment of the impacts that forced evaporative losses of water would have on the lake and downstream water budget. This assessment is provided in Appendix K of this EIS. The assessment was based on the current hydrological conditions and the estimate of the rate of the forced evaporative loss listed in Appendix I from Dominion's Plant Parameter Envelope (PPE). The staff determined that the evaporative losses associated with the operation of a closed-cycle, combination wet and dry cooling system for Unit 3 (approximately 19 cfs) would result in declines in the lake level and reductions in downstream flow. Accordingly, the staff concluded that during such drought conditions, the impacts would be temporarily MODERATE. NRC has established a standard of significance for impacts using Council on Environmental Quality (CEQ) guidance (40 CFR 1508.27). NRC has defined MODERATE impacts as "Environmental effects [that] are sufficient to alter noticeably, but not to destabilize, important attributes of the resource."*

In determining the impact level, the staff considered the valuation of the water resource by the Commonwealth of Virginia. The Lake Level Contingency Plan, which sets discharge rate based on lake level, was considered by the NRC staff in the evaluation of the North Anna water supply. The Commonwealth of Virginia has jurisdiction over allocating water. Drought conditions or increases in future water demands could result in intervention by the Commonwealth on the apportionment of the water, including the lake outflow rate.

The lake is operated at the stable lake level of 76.2 m (250 ft); this is the upper operating height that would not result in submerging docks and boat ramps that were constructed around the lake nor inundating additional land around the lake. When water is plentiful and the stable lake level is easily maintained, the lake outflow is comparable to the lake inflow. Consequently, up to the point that lake outflows (including natural and induced evaporative losses from Units 1 and 2, forced evaporative losses from Unit 3, and releases from the dam) begin to exceed lake inflows, the lake is operated at the stable lake level. Once the

lake outflows exceed the lake inflows, the lake level begins to decline; such scenarios were analyzed as well. These analyses included the normal minimum flow of 1.1 m^3/s (40 cfs) when the lake level is between 250 and 248 feet (76.2 and 75.6 m). When the Lake Level Contingency Plan is implemented (at lake levels below 248 feet [75.6 m]), the release is limited to 0.57 m^3/s (20 cfs) to reduce further lake declines.

Comment: The stream gauge data at Partlow, Virginia, was used to estimate outflow from Lake Anna Dam. [page 5-5, line 7] (DW-0423 28)

Response: *This information was used to revise the text in Section 5.3 of the EIS.*

Comment: Suggest that this DEIS wording reflect the description in Part 4, Section 1.2.2.3.2 of Dominion's ESP application. The site drainage system would be designed to incorporate the flow currently conveyed by these streams to the lake. By providing alternate drainage facilities to convey the stream flows, no short-term or long-term adverse hydrologic impacts on site drainage would result. [page 10-5, line 19, Page 10-6, Table 10-1, line 5] (DW-0423 49)

Response: *It would be most effective to address drainage facilities when the station design alternatives are specified; commenting on a plan without the details to characterize its effectiveness to mitigate effects would be speculative. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: DWR [Commonwealth of Virginia, Department of Environmental Quality, Division of Water Resources] examined pre-gauge records and compared those streamflow records with projected releases with three reactors operating in a once-through cooling mode. This is not a true IHA [Indicators of Hydrological Alteration] analysis but it is presented in order to give some perspective of the magnitude of true pre- and post-project conditions. 1) Prior to the project, flows at the dam site were less than or equal to 20 cfs only 4.2% of the time; with the third unit, flows are projected to be 20 cfs 11.8% of the time; 2) Prior to the project, flows at the dam site were greater than or equal to 156 cfs 52% of the time (pre-dam Doswell gauge); with three units, flows will be less than or equal to 40 cfs 52% of the time (Draft EIS, page 5-12, Section 5.4.1.3); 3) Prior to the project, during the driest 14-month period on record (early May 1931 to early July 1931) streamflow in the North Anna River averaged 90 cfs over the 14 months. With the three units, the driest 14-month period (mid- September 2001 through mid-January 2003) streamflow in the North Anna River would average only 20 cfs. DWR disagrees with the conclusion in the Draft EIS that these pre- and post-project flow alterations and their impact can be described as small or moderate. Instead, DWR would characterize these types of alterations as large. (DW-0439 16) (SW-0017 23)

Response: *In determining the impact level, the staff considers the valuation of the water resource by the Commonwealth of Virginia. The Lake Level Contingency Plan, which sets discharge rate based on lake level, was considered by the NRC staff in the evaluation of the*

North Anna water supply. The Commonwealth of Virginia has jurisdiction over allocating water. Drought conditions or increases in future water demands could result in intervention by the Commonwealth on the apportionment of the water. For the purposes of this NEPA evaluation, the stream flow conditions prior to reservoir construction are outside the scope of this EIS review. The characteristics of drought conditions prevalent in the North Anna region predating the construction of the reservoir are only relevant to the degree that the historic data can be analyzed in the context of the existing resources. NEPA requires an analysis of the changes to the existing environment; the existing environment for this EIS includes Lake Anna and NAPS Units 1 and 2. Therefore, the appropriate comparison of the length and frequency of drought conditions in the context of the comment is between the existing conditions and the stream flow conditions resulting from the operation of the Unit 3 closed-cycle, combination wet and dry cooling system. Such a comparison is made in Section 5.3. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [H]ow can we accurately estimate total inflow when (according to the draft EIS) there is no way to estimate the total inflow from the tributaries that directly flow into the lake? (DW-1157 13)

Comment: Water impacts – a defensible water budget is required for any reasonable modeling to be done and for any results to be meaningful. (DW-0432 4)

Comment: The DEIS does not sufficiently address whether there is an adequate water supply in Lake Anna for the operation of another once-through reactor. In fact, the necessary in-depth analyses to determine the impacts on Lake Anna or to mitigate those impacts are put off to the COL stage or are to be determined by the Commonwealth of Virginia at a later date – after the NRC has already granted the ESP. For example, according to the DEIS, “because of the limited inflow data, it is not possible to create a reliable water budget for Lake Anna directly from inflow and discharge measurements” (page 2-21, line 31). Nor have water velocity measurements within the lake been recorded. Yet, the DEIS makes it clear that these data are “important for both understanding the hydrodynamics of the lake and to calibrate numerical models of fluid and heat transport process in the lake” (page 2-22, line 2). In place of velocity measurements, NRC Staff estimated the inflow using data from an adjacent drainage basin and outflow based on the operating rules for the Lake Anna Dam. (DW-0437 5)

Comment: With such inadequate data about the lake’s hydrology, how can NRC Staff conclude that the hydrological impacts of another once-through reactor on the lake will be “small” (page 5-7, line 18)? (DW-0437 7)

Comment: Page 2-21 line 31 is very troubling. It states that “it is not possible to create a reliable water budget for Lake Anna.” How then, can any of the impact forecasts be reliable? (DW-0438 36)

Comment: Page 5-4 line 20 references a water budget model yet on page 2-21, the document states that a reliable water budget model does not exist. (DW-0438 126)

Comment: Page 5-9 line 10 references a water budget model yet on page 2-21, the document states that a reliable water budget model does not exist. (DW-0438 140)

Response: *The complete sentence (page 2-21, line 31) states, "Because of limited inflow data, it is not possible to directly create a reliable water budget for Lake Anna directly from inflow and discharge measurements." It is standard hydrologic engineering practice to approximate or extend the discharge for a basin by scaling measured discharges from similar local basins. Therefore, while a reliable water budget was not available directly from the available measured streamflows in the study basin, it was possible to adequately approximate streamflows by using an adjacent basin; for this analysis the staff used the adjacent Little River drainage basin adjusted for the differences in drainage areas. Accordingly, no changes wee made to this EIS as a result of these comments. The staff's independent assessment is described in Appendix K.*

Comment: ER Sections 5.2.2.1.1 and 5.2.2.1.2 describe the formulation of the water balance model and the conservative methods used to calculate inflows. The DEIS wording suggests that inflow data was limited in some manner that adversely impacted the hydrological assessment. This implication is not accurate. The current hydrological monitoring program is appropriate and sufficient for its intended purpose. No changes to the hydrological monitoring program regarding inflow data are necessary. [page 2-21, line 31] (DW-0423 7)

Comment: This DEIS wording is inconsistent with ER Sections 5.2 and 6.3 and suggests that the absence of velocity measurements adversely impacts the ability of the cooling lake model developed for North Anna. This is not accurate. The Lake Anna cooling lake model used to predict lake water temperature was satisfactorily calibrated with field data collected during the operation of the two existing units. Extension of the model to include additional units was verified by laboratory experiments conducted by MIT. Also, some limited velocity measurements were made in the 1980s to support development of the MIT model. Velocity monitoring, especially for the period before the additional units come on line, will not improve the prediction capability of the Lake Anna cooling lake model. The current hydrological monitoring program is appropriate, sufficient, and will be continued. No changes to the hydrological monitoring program regarding velocity flow measurements are necessary. [page 2-21, line 40] (DW-0423 8.1)

Response: *The Massachusetts Institute of Technology (MIT) model developed in the 1970s, while innovative at the time it was developed, no longer reflects standard hydrologic engineering practice. The model was calibrated by MIT specifically for Lake Anna. Two separate and intensive calibration reports were produced by MIT in 1982 and 1984. Because the model had been calibrated and verified, the staff concluded that the model adequately characterizes the*

temperature measurements in the lake for the operation of the existing Units 1 and 2 consistent with the analytical methods employed (i.e., spatial lumping) by the model. However, for this assessment the staff needed to consider hydrodynamic conditions that lie outside the zone for which it was calibrated. Additionally, the spatial lumping involved in the model did not provide the resolution necessary to resolve the spatial distribution of heat in the lake.

Portions of the MIT model are steady-state and the main lake's upper 28 ft are assumed to be homogeneously mixed. The staff concluded that these assumptions in the model and the spatial lumping employed were not sufficient to assess impacts beyond its calibrated range. Therefore, the staff concluded that the model no longer reflects standard hydrologic engineering practice for use as a predictive tool in determining the impact of the proposed Unit 3 closed-cycle, combination wet and dry cooling system. Use of models of Lake Anna that would be consistent with current standard engineering hydrologic practice would have the following attributes: (1) not steady-state in the WHTF and side-arms, (2) fully three-dimensional non-hydrostatic in zones downstream of Dike 3, (3) dynamically represent thermocline depths, and (4) compute dynamic lake water surface elevation. Unless a conservative bounding approach is employed, a model consistent with standard hydrologic engineering practice would be warranted to assess impacts. Current standard hydrologic engineering practice supported by models that explicitly represent physical processes and provide for fine spatial resolution, coupled with calibration and verification of local conditions, would provide the staff with assurance that the model represents the conditions that could occur with the proposed Unit 3 closed-cycle, combination wet and dry cooling system. The staff used a theoretically based model in accordance with current standard hydrologic engineering practice to independently assess the impacts associated with the proposed Unit 3 cooling system. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Page 5-5 discusses a very weak methodology for assessing water impacts. Line 16 acknowledges that the method has the potential for significant error. Given the importance of the Lake to the region, a more rigorous analytical method should be used similar to that used for FERC hydro applications for inflows. (DW-0438 130)

Response: *The comment refers to Dominion's approach, not the staff's approach. The staff's independent water budget analysis was developed to address such concerns. The results are contained in Appendix K. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What was the length of the data set from which the data was extracted for the analysis on Page 5-5 line 33? (DW-0438 131)

Response: *Data from the Little River gauge from 1961 to the present were used in the water budget calculations. No changes were made to this EIS as a result of this comment.*

Comment: Were the Section 5.3 methodologies that were developed back-tested against actual water levels? What was the level of significance of the match between the forecasts and actual levels? (DW-0438 132)

Response: *After developing its independent assessment approach, the staff compared the predictions with measured outflow data during historic operation of Units 1 and 2. The staff estimated that the residual error in flow projections would average less than 7 cfs or about 2 percent (when compared to an average inflow of 296 cfs). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Why wasn't actual site meteorological data considered for the analysis mentioned on page 5-8 line 22? (DW-0438 137)

Comment: What duration of meteorological data was used for the [evaporation and heat loss] analysis mentioned on page 5-8 line 22? (DW-0438 138)

Comment: PEC [Piedmont Environmental Center] contends that the data being used to determine the precipitation rates and inflows into the lake is insufficient and therefore cannot accurately depict the impact of two additional reactors at the Lake Anna site. The precipitation data is from Richmond (35-40 miles away) and that due to a limited record of tributary flow measurements the inflow data is from tributaries that do not feed, either directly or indirectly into the lake. The Richmond data shows average yearly precipitation levels exceed that of evaporation rates. However, monthly estimates show deficits from June through September by as much as twenty percent. Even in normal years, deficits will appear during periods of recreational use and those months where water demands are often at their highest levels. (DW-1157 11)

Response: *Data from the Richmond airport from January 1978 through January 2003 were used because it is considered representative of the site area for these purposes. In addition, the data are collected routinely using the standard meteorological practices of the National Weather Service and the record spanned a longer period. In its independent assessment, the staff used daily data that represent the water deficit mentioned by the commenter. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: On the issue of inflow, does it make sense to review stream flow records from June of 2000 through April of 2003 as the basis for a worst case scenario? The Draft EIS clearly states that the period of extreme drought was experienced from October 2001 through December 2002 resulting in the lowest estimated inflows in Lake Anna's very short history. By extending the period of review on either side of the documented extreme drought period, the possibility of underestimating the impact is increased dramatically. (DW-1157 12)

Response: *The staff reviewed streamflows and precipitation records over a longer period than was used in the water budget assessment. A drought with the severity of the 2001 to 2002 drought has occurred only once in the 100-year record. Specifically including the 2001 to 2002 drought in the analysis using a 25-year period would provide a conservative assessment. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The data presented does not support a SMALL impact rating on page 5-7 line 19. The very fact that Unit 4 would be designed to use air coolers indicates that the water impacts are much larger. (DW-0438 136)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The staff's analysis demonstrated that Lake Anna can support one additional reactor cooling system (whether once-through cooling unit or closed-cycle, combination wet and dry) but not two additional once-through cooling units. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system resulting in some water impacts that are less adverse than previously analyzed. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]he document states that 20 cubic feet per second will increase from 6 percent of the time to 11 percent of the time, which is like 22 days out of the year, going up to 40 days out of the year. But the Dominion state in their presentation that the 20 cubic feet per second discharge would only go from 5.2, maybe to 7 percent. And the difference really isn't explained in the document why they're different. (ST-0028 8)

Comment: [T]he NRC should explain how its analysis concludes that low flows downstream of Lake Anna, represented by a release from the dam of 20 cfs, will be present 11% of the time, compared to Dominion's calculation of 7%, both increased from 5.2% figure for current operation of Units 1 and 2. (SE-0046 3)

Comment: NRC concludes (page 5-11) that the discharge at 20 cfs will increase from 6% to 11% of the time if unit 3 operates as proposed. ... Dominion stated in their presentation that the 20cfs discharge would go from 5.2 to 7%. Please explain the difference. (SE-0027 9)

Comment: Page K-10, lines 4,20 and 31...ER section 5.2.2.1.2 describes in detailed the methodology used by Dominion to assess lake levels under various operational scenarios. The SDEIS could note that bounding assumptions used by the staff lead to a conservative, bounding analysis. (SE-0050 16)

Comment: The estimates on frequency of 20-cfs flows provided in the applicant's Revision 7 differ significantly from those in the SDEIS. The discrepancy should be fully addressed and resolved before the Final EIS is completed. (i) Analysis. Prior to construction of the North Anna Dam, river flows were less than 20 cfs 4.2% of the time. Currently, flows are decreased to

20 cfs an average of 5.2% of the time. With the proposed Unit 3 wet-dry cooling system, according to the applicant's analysis, the frequency and duration of these 20-cfs events would increase to 7.3% of the time. However, according to the NRC's analysis (SDEIS, Appendix K, page K-12 and page 5-11, section 5.3.2), the 20-cfs events would increase to 11.0% (not 7.3%) with the closed cycle unit 3 instead of the 11.8% of the time for 20-cfs events with a once through Unit 3. This is a slight improvement from the original proposal, which would have resulted in reducing flows to 20 cfs 11.8% of the time. With the existing two units, according to the applicant's analysis, there are two 20-cfs flow events predicted over a 24-year period. The proposed Unit 3 would increase that to five such events over a 24-year period. With a third unit, the duration of the first two events is increased by an additional 4 to 5 weeks. The three additional events have durations of 2 to 13 weeks. According to the NRC analysis, that would increase to seven events. These predictions need to be re-evaluated in light of the NRC analysis. (SW-0017 44)

Response: *The staff and Dominion performed independent assessments. The staff performed a bounding evaluation for the information provided in the PPE. Dominion's analysis reflected some information not explicitly incorporated in the PPE that tends to reduce the consumptive water use during low water periods relative to wet periods. The text of Section 5.3.1 has been modified to describe the source of some of the differences in the two assessments.*

Comment: [Regarding Dominion's ER] Tables 5.2-3 and 5.2-4 Percentage of time outflow is 20 cfs will increase from 5.2 % to 7.3% with unit 3 in place. This 7.3% equals to an average of 27 days per year. Some years more. Some years less. It should be pointed out that this will most probably occur during July, August, September months. Please explain why in table 5.2-4 at elevation 248 existing units plus unit 3 is 7.0% and not 7.3%. (SE-0004 25)

Response: *It appears that Table 5.2-4 in the ER is incorrect and that the value should be 7.3 percent and not 7.0 percent. In Section 5.3.1 and K.5 of this EIS, the staff reported the value of 7.3% based on its performance of an independent assessment. Accordingly, no changes were made to this EIS based on this comment.*

Comment: [Concerning 100% load vs 96% average] In the summer months when the lake levels are lowest, evaporation highest and plant operations are closest to 100%; this value of 100% should be used. In EC mode I see in table 3.1-9 16,700 GPM maximum and not 8707 or 9070 GPM. Explain? (SE-0004 3)

Response*: The 96 percent load factor only applies to the annualized average flows. The maximums reported are instantaneous maximums and, therefore, the 96 percent load factor does not apply. The value of 16,695 gpm reported in Table 3.1-9 refers to the instantaneous maximum evaporation rate in EC mode. EC mode only occurs when the lake is at or above*

250 ft. The 8707 gpm value refers to the annualized average evaporation based on a 96 percent load factor. The text in Section 5.3.1 has been expanded to explain that the staff considers the 8707 gpm value a bounding annual average value independent of the actual load factor.

Comment: In light of the National Environmental Policy Act (NEPA) requirement that an EIS analyze all "reasonably foreseeable" impacts, the NRC analysis clearly falls short, because its water budget model is not predicated on any credible, forward-looking scientific estimates of what hydrological conditions within the North Anna-Pamunkey drainage could be like for the next 40 – 60 years, including population increases, water table levels and recharge rates, competing uses for surface waters that could limit inflows to the lake, projected climate trends and attendant effects on evaporation rates, population increases, and so forth. (SE-0040 5)

***Response**: The staff considered projected future water demands based on county growth plans. In Section 5.3.2 of the EIS, the text mentioned that one of the four downstream counties, Hanover, has identified a need for additional water that could be impacted by the consumptive water use by Unit 3. The staff has acknowledged in the EIS that water conflicts are likely, particularly in low water years. Additionally, the staff reviewed the National Assessment performed by the National Assessment Synthesis Team, US Global Change Research Program (http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overview.htm) in considering the potential change in water supply associated with climate change. The National Assessment reports that the observed precipitation changes during the last century are a patchwork of moderate increases and decreases. While the models used in the National Assessment are consistent in predicting an increase in temperature, the projected impact on precipitation is less clear. The Canadian model scenario for the 21st century indicates near neutral trends or modest increases, while the Hadley model projects increases of near 25% for the region. While acknowledging the significant uncertainty in these climate change projections, the staff concludes that climate change would be an additional factor that could change the future demand for resources including water and power. The staff believes the National Assessment provides an adequate basis to make an impact determination at this time. However, an evolution of climatic conditions would likely result in the Commonwealth revisiting water apportionment priorities. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [P]age 5-7 line 26 concludes that "relatively small errors in the pool elevation measurements using this model [the Massachusetts Institute of Technology model used by Dominion] can result in significant errors in the precipitation, groundwater, and tributary inflow estimate". How then, can the impact forecasts of SMALL be reliable? How can "no mitigation" be a reasonable solution? Perhaps an independent comprehensive water study would provide more robust impact assessments. (SE-0045 23)

***Response**: This comment refers to the staff's finding regarding Dominion's water budget analysis. The staff's impact conclusion of SMALL was based on a separate assessment that applied data from an adjacent basin to estimate the inflows into Lake Anna. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]here are numerous and severely debilitating problems with the NRC-Dominion water budget analysis for Lake Anna. As the NRC staff itself notes, "inherent in this analysis is the assumption that the 23-year period of record simulated would be representative of future conditions (e.g. inflows, precipitation, etc.) at the site." (NUREG-1811, SDEIS, Appendix K-13. (SE-0040 4)

***Response**: The period of October 2001 through December 2002 is included in the 23-year period considered in the staff's assessment. Based on the Richmond airport records from January 1, 1921 to May 31, 2004, the combined precipitation during water years 2001 and 2002 was the driest 2-year period in the precipitation record. The staff concluded that including this period in the analysis provides confidence that the 23-year period is not unrepresentative of critical low water conditions. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]he NRC staff estimate of historical inflows to the lake is not based on actual measurement of flows in the North Anna River drainage area, but estimated from flows in a smaller nearby (Little River) drainage for which there was historical data, and then scaling the results to estimate inflows to Lake Anna. Local precipitation is estimated based on rain gauges at the Richmond Airport, some 40 miles away. This methodology, and its historical bias, suggests that the model results are at best a gross approximation, and heightens the importance of a sensitivity analysis of the results. (SE-0040 6)

***Response:** Long-term inflow measurements for each of the tributaries that contribute water to Lake Anna are not available. The staff employed an accepted practice of scaling streamflow measurements from an nearby watershed to estimate flows at other locations. Data from the Richmond Airport provided an independent long-term meteorological record. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]here is no evidence that the NRC performed an analysis to test the sensitivity of its historical model results to plausible variances in the input data. For example, what is the effect on lake temperatures, on natural and induced evaporation rates, and coolant intake requirements if one assumes a small but steady increase in average surface temperatures over the next 60 years, punctuated by periods of that combine reduced precipitation with above-average summer temperatures? (SE-0040 7)

Response: *Each year of the staff's analysis represents a unique plausible scenario with unique inflows and temperatures. The time series of predictions is the extent of any input sensitivity analysis considered by the staff. The example in this comment appears to be referring to climate change as an element of sensitivity. The staff did review the National Assessment performed by the National Assessment Synthesis Team, US Global Change Research Program (http://www.usgcrp.gov/usgcrp/Library/nationalassessment/overview.htm) in considering the potential change in climate on water conditions. The National Assessment reports that the observed precipitation changes during the last century are a patchwork of moderate increases and decreases. While the models used in the National assessment are consistent in predicting an increase in temperature, the projected impact on precipitation is less clear. The Canadian model scenario for the 21st century indicates near neutral trends or modest increases, while the Hadley model projects increases of near 25 percent for the region. While acknowledging the significant uncertainty in these climate change projections, the staff believes that climate change would be an additional factor that could change the future demand for resources including water and power in the future. The staff believes the National Assessment provides an adequate basis to make an impact determination at this time. However, an evolution of climatic conditions would likely result in the Commonwealth revisiting water apportionment priorities. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: One can envision the formation of a damaging negative feedback loop, in which increased natural heating of cooling intake water increases the evaporation rate of both the wet-dry and existing once-through cooling systems, leading to higher discharge temperatures and/or increased net withdrawals from the lake, leading to reduced lake volume via increased lake-surface and/or coolant tower evaporation (the heat has to be dissipated somewhere), leading to further heating of the reduced volume of intake water, and the cycle repeats itself. (SE-0040 8)

Response: *The staff presumes that the comment was meant to say "damaging positive feedback loop" and not "damaging negative feedback loop". Both positive and negative feedbacks are possible in a system such as Lake Anna. The comment suggests a positive feedback. Negative feedbacks include the increase in heat loss other than evaporation with increased surface temperature from longwave back radiation. The staff identified a specific concern of a possible positive feedback from the increased temperature attributable to the reduced lake volume caused by the consumptive water loss from the proposed Unit 3 cooling system. The staff requested Dominion to estimate the increase in temperature from the reduced water in Lake Anna. Dominion estimated and the staff confirmed a value of 0.1 °F increase. The staff determined that this value was low enough that it did not represent a significant feedback issue. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: DEQ's Division of Water Resources indicates that the Indicators of Hydrologic Alteration (IHA) analysis performed by Dominion shows a highly altered flow regime below the North Anna Dam, especially in the spring and fall. September is a possible exception to this alteration because it is typically the month of lowest flow; in September, the North Anna River actually retains some semblance of normal flow due to the minimum release from the dam. The cumulative effects of Unit 3 on downstream ecosystems could be reduced by using the air cooling system in spring and fall. (SW-0017 27)

Comment: The SDEIS prepared by the NRC Staff Fails to Analyze a Reasonable Range of Reasonably Foreseeable Impacts from Operating Unit 3. ...the induced evaporation rate from operation of the wet-dry cooling system is still 71 percent of the environmentally unacceptable once-through system. The additional lake level drawdown under simulated drought conditions is still almost half that of the once-through system, and there are major uncertainties associated with this calculation that the NRC and Dominion have not bounded with a sensitivity analysis. (This analysis should be based on plausible excursions from and negative feedback interactions between their model's input parameters over the projected period in which the three reactors will be withdrawing water from Lake Anna.) (SE-0040 3)

Response: *The staff did not conclude that a once-through cooling system for Unit 3 would be environmentally unacceptable. The staff has concluded that the temperature changes to the lake would be significantly reduced with the revised design, whereas the impacts to water use would be slightly reduced as a result of the reduced consumptive water demand. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The SDEIS stated flowrate of 3340 gpm would only occur if potable water, demineralized water and fire protection water maximum demands occurred simultaneously, not just fire protection. Table 3.3-1 lists maximum supply rates for potable water (120 gpm), demineralized water (720 gpm) and fire protection (2500 gpm). (SE-0050 1)

Response: *The text in Section 3.2.2 of this EIS has been modified to clarify this statement.*

Comment: The SDEIS could note [in Section 5.3.1] that the difference [between NRC staff's analysis and Dominion's (ER) numbers] is caused by a difference in Dominion's approach of performing a detailed analysis, whereas the NRC staff performed a conservative, bounding analysis. For example, the staff assumed the average evaporative loss from Unit 3 was a constant value of 8707 gpm which is conservative and bounding and which leads to an overestimation of Unit 3's impact on lake level and dam outflow during times when the lake falls below 250 ft msl. (SE-0050 10)

Comments Within Scope

Comment: The SDEIS could note [in Section 5.3.2] that the difference [between NRC staff's analysis and Dominion's (ER) numbers regarding lake elevations] is caused by a difference in Dominion's approach of performing a detailed analysis, whereas the NRC staff performed a conservative, bounding analysis. (SE-0050 11)

Comment: The SDEIS reflects the NRC confirmatory analysis and, while the results do not exactly match those stated in the ER, the conclusion of SMALL IMPACT is unaffected by the difference. The SDEIS could note [in Section 5.4.2.6] that the difference is caused by a difference in Dominion's approach of performing a detailed analysis, whereas the NRC staff performed a conservative, bounding analysis. (SE-0050 12)

Comment: The SDEIS reflects the NRC confirmatory analysis [for water level] and, while the results do not exactly match those stated in the ER, the conclusion of SMALL IMPACT is unaffected by the difference. The SDEIS could note [in Section 5.5.1.4] that the difference is caused by a difference in Dominion's approach of performing a detailed analysis, whereas the NRC staff performed a conservative, bounding analysis. (SE-0050 13)

Response: *The text in Section 5.3 has been expanded to explain the differences between Dominion's and the staff's independent analyses.*

Comment: The SDEIS on page 2-10 Section 2.6 Water, states "the historical pre-dam minimum flows [usually less than 5cfs during dry summer months]" is in conflict the Department of Game and Inland Fisheries (DGIF) where they state in their letter dated July 7, 2006 that "pre-lake during dry conditions in late summer is a minimum of 12cfs flow. ... This is a large difference and the effects are important relative to the amount of water flow into the watershed. The difference needs to be resolved. (SE-0027 1)

Response: *The USGS stream gauge at Doswell (USGS 01671000) downstream of the North Anna Dam records 4 distinct periods of daily flows below 5 cfs, 8 periods below 10 cfs, and 15 periods below 20 cfs. Based on this comment, this EIS has been revised to clarify the frequency of low flow conditions.*

Comment: While the hybrid cooling tower will address thermal impacts from the new reactors, it will equal or increase the overall amount of water lost to evaporation. ...NRC asserts the evaporation rates will be lower than 37.2 cubic feet per second for most of the year... and 25.7 cfs in drought conditions, but the reasons for this are unexplained and the analysis questionable. (SE-0034 3)

Response: *The values of 37.2 and 25.7 cfs refer to the instantaneous maximum water use in the EC and MWC modes, respectively. The annual average consumptive water use is 19.4 cfs. The plant would be operated well below these instantaneous maximum values for much of the time to stay within the annual average. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Page K-4, line 10] In Dominion letter to NRC, Serial No. 06-273, Response to NRC Questions/ESP Application Rev. 6 (Item 10b response), Dominion noted that, in order to account for the evaporation rate contribution of 404 gpm from the Service Water System cooling tower, the average evaporation rate from all normal plant cooling wet towers is revised from 8303 gpm to 8707 gpm. The 8707 gpm (19.4 cfs) value was included in the ESP Application Rev. 6 and later submittals. (SE-0050 26)

Response: *The text throughout this EIS has been revised to reflect the 8707 gpm value.*

Comment: The SDEIS could note that despite the potential negative inflow estimate in the reversed routing method that Dominion used in the water budget model, any potential uncertainties would be cancelled out in the model prediction for the new Unit 3 based on the methodology adopted by Dominion. (SE-0050 9)

Response: *While the reversed routing would compensate for errors in the historical case, it could result in biases in the estimated induced evaporation estimates. These biases could propogate when they are corrected for a baseline condition that assumes continuous operation of the NAPS units. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Regarding Dominion's ER] Figures 2.3-4 and 2.3-5 show the discharge [and] show the spillway curves. Can you explain how you set 40 and 20 cfs from the curves which show a minimum setting of about 2500 cfs for 250 msl for a 2 foot gate opening. (SE-0004 10)

Response: *The 40 and 20 cfs flows are regulated by small skimmer gates that are independent from the larger spillway gates. The spillway gates are used to control large inflows. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [H]ow much water (measured in cft) is delivered into the reservoirs by the watershed? ...how much water (in cft) is currently evaporated from the surface waters of each reservoir, separately...Is there consistently enough inflow to meet the demands of additional evaporative cooling? ... We need a local environmentally neutral (read upstream here) baseline body of water with which to compare the effects of the station. (SW-0015 3)

Response: *The inflow and evaporation rates vary continuously during and between years. In typical years, there is not enough inflow during late summer and early fall months to offset natural evaporation. This would result in some decline in the lake, even in the absence of the*

existing NAPS induced evaporative demand. The NAPS units' operation result in further decline and the proposed Unit 3 would add to this decline. The magnitude and frequency of the decline is discussed in Appendix K of the EIS. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: NRC staff could clarify [page K-3, line 10] that the statement only applies when water level in Lake Anna is greater than or equal to 250ft MSL. Below this level the net discharge would be the same as pre-Unit 3 as the discharge is a controlled flow. When Lake level elevation is below 250 ft MSL, but at or above 248 ft MSL, discharge from the Lake is typically controlled to 40 cfs. Below 248 ft MSL, discharge from the Lake is controlled to 20 cfs. Depending on net inflow to the lake, the addition of Unit 3 could cause more frequent reduction of net outflow to 20 cfs from 40 cfs. (SE-0050 25)

Response: *The text in Appendix K has been modified to clarify that consumptive water loss is only attributable to the wet cooling portion of the hybrid cooling system.*

Comment: The SDEIS...states that the assessments "are based on a simplified representation of the conservation of mass for the lake". This excludes water temperature stratifications and the flow contributions from a many of the tributaries. How then, can the impact forecasts of SMALL be reliable? How can "no mitigation" be a reasonable solution? (SE-0045 22)

Response: *In the EIS, the staff concluded that the impact to water use occasionally would be* MODERATE during droughts. The Commonwealth of Virginia would regulate the water use of a new facility operated at North Anna. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [Regarding Dominion's ER] Table 3.1-9 Flow rates and evaporation rates should be based on 100% power levels and not 96% as shown. For units 1 and 2, the units run at 100% during the summer hottest months and this 100% should be used for maximum calculations when they effect water temperature, flow rates, evaporation, and lake height. (SE-0004 18)

Response: *The instantaneous maximum flow rates are based on a 100 percent load factor. Dominion states that the 8707 gpm annual average evaporation is based on a 96 percent load factor. However, the 8707 gpm value is a bounding value independent of the 96 percent load factor qualifier. Accordingly, no changes were made to this EIS as a result of this comment.*

3.3.2.8 Heat Dissipation System

Comments Received from Draft EIS Relating to Proposed Once-Through Cooling System for Unit 3

Comment: The ER and DEIS discuss various alternatives for cooling proposed Units 3 and 4, including: 1) Use of wet cooling towers might reduce thermal impacts on Lake Anna but would increase the amount of water loss if the Lake is the source of the cooling water withdrawals, 2) Altering the intake structures for Units 1 and 2 and lowering the allowable minimum lake level would permit incrementally greater effective storage at the expense of greater impacts on recreation and fish populations, 3) Providing an alternative source of water for wet cooling towers would eliminate the water problem, but the source of such water is not identified. It seems likely that an alternative water supply, if any, would not be available nearby in the critical summer months or drought periods without constructing an additional large reservoir to store the water that might be available during wet periods, and 4) If dry cooling is feasible for Unit 4, why is it not equally feasible for Unit 3? It thus appears that construction of even one new unit at Lake Anna is likely to result in serious deficits in releases of water to the North Anna River, contrary to the terms of the NPDES permit. (DW-0589 12)

Comment: Since there is less precipitation in July, August, and September, the low-flow period is likely to occur during these months. According the NRC Staff, the reduction in water available to be released from the dam will be another “unavoidable adverse impact” (DEIS, page 10-7, Table 10-2), but it would be avoidable if the proposed third reactor was required to have a dry cooling tower. This option should be evaluated in the Final EIS. (DW-0437 20)

Comment: Has an analysis been performed to consider the difference in impact if both of the potential plants utilized dry cooling towers? Is there a non-trivial difference in the impact on the lake between these two scenarios? Even if the difference is not significant, it may still be recommended to Dominion to pursue dry cooling towers for both reactors in order to appease public concern. (DW-1148 5)

Comment: We are pleased to learn that Dominion has proposed dry cooling for unit four, but question why this method of cooling was not extended to unit three. (DW-1157 9)

Comment: [I]f you see fit to grant this permit, we would suggest the following recommendations would be needed in order to ensure this facility does not threaten the region[‘]s water supply. 1) Require dry cooling at both proposed units - The increase in water use from the once through cooling of Unit three threatens existing and future uses of the lake and the North Anna River. The loss of efficiency by using dry cooling for both additional units would be offset by water availability for lake and downstream users and fishery maintenance. (DW-1157 17)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Subsequently, Dominion revised the heat dissipation system for Unit 3 to a closed-cycle, combination wet and dry system. This response addresses those elements of the comments still relevant after this revision. The existing units are required to meet the conditions of the NPDES permit, and the proposed new units would have to meet any conditions imposed by the Commonwealth of Virginia in its NPDES permit as well. The staff analysis concludes that Lake Anna can support a third unit using closed-cycle, combination wet and dry cooling with SMALL to temporarily MODERATE impacts, as stated in Section 5.3.2 of the EIS. However, the staff did consider dry cooling for Unit 3 as an alternative in Section 8.2.3 of this EIS. Nevertheless, the use of dry cooling towers was not proposed by the applicant for Unit 3. Changes were made to Section 8.2.2 of the EIS to expand the discussion of dry cooling as a result of these comments.*

Comment: Consider designs, techniques, and technologies that will facilitate the re-circulation and re-use of waters used for cooling and steam generation. These techniques can save money by minimizing intake and treatment needs. (DW-0439 51)

Response: *The comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Several technologies were considered in the analysis of alternative cooling systems including wet cooling towers, which operate with re-circulating water. These are discussed in Section 8.2. The evaporative losses of solely wet-cooling towers precluded its selection as the preferred cooling system for the proposed Unit 3. The proposed change to a closed-cycle, combination wet and dry cooling system makes use of the re-circulation benefits to minimize water intake and thermal releases. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 1-6 line 3 states that the proposed fourth plant would use dry coolers. Is there an operating nuclear plant in the U.S. that has demonstrated this technology is appropriate and safe for such a large thermal load? If not the technology risks should be assessed and discussed herein. (DW-0438 10)

Response: *No U.S. nuclear plant uses dry cooling. However, dry-cooling technology is mature and is used in other large industrial facilities. It has been used in a variety of thermo-electric generating facilities in the United States and internationally. Operational safety of a dry-cooling system is a design factor that the staff has identified as a COL action item in its SER; a COL applicant would address the COL action items. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What solution will work with the ESP and not effect current Environmental System? Several possible solutions are proposed. Obviously decommissioning either one or both existing units 1 and 2 will keep the “status quo.” Next, a Dry Cooling tower can be built for each Unit 3 and 4 or a larger one for both Units 3 and 4. Since there is a penalty for dry cooling of

8.5 to 11%, it would only be used when the WHTF reaches a temperature of 96 degrees F or other prescribed conditions. Otherwise the once pass through cooling would be used.
A second option would be to shut down one of the three units when the WHTF reaches a temperature of 96 degrees F or other prescribed conditions. Any of the above solutions would be generally acceptable to residents of the lake. A fourth option would be to introduce supplemental cooling water other than from the reservoir. (DW-0806 12)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. Subsequently, Dominion revised the heat dissipation system for Unit 3 to a closed-cycle, combination wet and dry system. Alternative cooling systems are discussed in Section 8.2 of the EIS. The staff concluded that importing supplemental cooling water was not a viable alternative and was not considered in the EIS. Decommissioning one or both of the existing units in order to build one new unit that would use the lake as a cooling source is not an alternative proposed by Dominion and evaluated by the staff. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-11 mentions that the summers are hot and humid. What is the suitability of dry coolers (for the proposed Unit 4) to this climate? This could be problematic given the statement on Page 2-13, line 15 that relative humidity is not measured at the site.
(DW-0438 22)

Response: *Humidity is not a major issue with dry cooling because the system does not rely on evaporation but rather conductive heat transfer to the atmosphere. Dry cooling systems are being used in the vicinity. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-24 line 33 states that the proposed unit 4 is “expected” to use dry cooling towers. Since this is the basis for the entire DEIS, Dominion should be required to stipulate to this approach. (DW-0438 41)

Response: *The staff has proposed a permit condition in the North Anna ESP Final Safety Evaluation Report that Unit 4 use dry cooling. The text was modified in Section 2.6.3.1 to state that Unit 4 would use dry cooling towers.*

Comment: Chapter 3, Section 3.2.1.2 - If Unit 4 will be a dry cooling tower, then it will require some combination of water treatments, which should be relatively straightforward based on the draft designs. There should exist enough information for this analysis to be included in the DEIS/SDEIS. (DW-1272 4) (SE-0030 18)

Response: *Dominion has not selected a design for the dry cooling towers. Regardless of the system selected, it would be a closed system without a significant discharge to the Lake Anna reservoir. Accordingly, no changes were made to this EIS as a result of this comment.*

Comments Within Scope

Comment: Can you answer the informal questions about the comparative cost for a dry cooling tower for Unit 3 versus the once pass through cooling proposed? Have any studies been done on sprayers in the WHTF? What about the cost versus cooling, evaporation, and aeration for these sprayers? (DW-0806 14)

Response: *In general, the capital and operating costs of dry-cooling systems are greater than wet-cooling systems. Sprayers could be used to cool water by increasing evaporation; however, increased evaporation would increase water loss and cause the level of Lake Anna to decrease more than the dry cooling scenario. Sprayers are bounded by the wet cooling tower alternative discussed in Section 8.2.1. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: ER Revision 3 does not address the water use impact due to the use of a new wet cooling tower unit. [page 5-9, line 26] (DW-0423 32)

Comment: The DEIS conclusions are consistent with ER Section 9. However, the DEIS comparison of two alternative heat dissipation systems (wet and dry cooling towers) with the base case once-through cooling system is inconsistent with ER Section 9.4.2, which evaluates alternative intake locations, discharge systems, discharge locations, water supplies, and water treatment processes. The ER evaluation addresses land use requirements, aesthetics, operating experience, generating efficiency, and capital and operating costs. [page 8-2] (DW-0423 47)

Response: *These comments were received from Dominion based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The staff assessed the closed-cycle, combination wet and dry cooling system for Unit 3; the alternative cooling system of solely wet cooling towers is discussed in Section 8.2.1 of the EIS because the use of wet cooling towers is a reasonable alternative to mitigate the thermal impacts on the lake. This evaluation is consistent with NRC's NEPA responsibility to consider alternatives to the proposed action. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Virginia] Division of Water Resources prefers the once-through cooling process proposed for Unit 3 to a cooling tower because the once-through process results in less consumptive use of water than the cooling tower. This preference would result in larger impingement and entrainment losses . . . and a larger heat load to the Lake than the cooling tower. DEQ's Division of Water Resources recognizes that the cooling tower is not proposed in the Draft EIS, but some commenters may propose it as a solution to thermal loading and impingement and entrainment concerns. In any case, DEQ's Division of Water Resources would defer to DEQ's Division of Water Quality in regard to thermal impacts of any water-cooled units that might be proposed. The once-through cooling process would also entail larger

impingement and entrainment losses. DEQ's Division of Water Resources defers to the Department of Game and Inland Fisheries with regard to impingement and entrainment estimates. (Note: the SDEIS evaluates a closed-cycle hybrid wet-dry cooling tower.) (DW-0439 17) (SW-0017 24)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal impacts are negligible but evaporative losses remain an impact. This comment describes the opinions of two agencies within the government of the Commonwealth of Virginia regarding cooling options. One agency is responsible for physical characteristics of water and one is responsible for oversight of the aquatic biota. Before the NRC may grant a CP or COL application that references an ESP for the North Anna ESP site, the CP or COL applicant would be required to obtain a Clean Water Act, Section 401 certification from the Commonwealth of Virginia that the operation of the plant is not inconsistent with the Commonwealth's water goals. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Has NRC or Dominion looked into the possibility of using water from the New James River Pipeline that is currently under construction for supplemental water for cooling? (DW-0806 13)

Response: *Importing water from another basin was not considered a reasonable alternative by the staff because the assessment of the environmental impacts (land use, cultural resources, terrestrial ecology, aquatic ecology, wetland, etc.) associated with building a large pipeline from an undesignated location would be speculative. Accordingly, no changes were made to this EIS as a result of this comment.*

Comments Received from SDEIS Relating to Proposed Close-Cycle, Combination Wet and Dry System for Unit 3

Use Dry Cooling

Comment: Dominion should if it's serious about wanting to protect this community's water, about protecting the people on the lake so that they can use their boats and they can fish and they can really enjoy that environment and doing what's best for Virginia, they really should get a dry cooling tower if they want to even put this proposal forward. (ST-0005 8)

Comment: [W]e feel strongly that because Dominion obviously is considering a dry cooling tower for the fourth tower, the third tower should be dry cooling tower as well. (ST-0005 4)

Comments Within Scope

Comment: Relative to Unit 4, I don't think enough attention has been given to Unit 4, and its dry cooling. ...I think Dominion should explain this new technology, and state why it would or would not work for Unit 3. (ST-0028 9)

Comment: DEQ should require Dominion to use a dry cooling tower for the third reactor. A dry cooling tower system...would eliminate both thermal and evaporative impacts from the project, and would not be an unreasonable burden on Dominion. (SE-0034 4)

Comment: DGIF recommends use of dry cooling for Unit 3 as a solution to lake level problems and downstream flow reductions. (SW-0017 25)

Comment: Not enough attention has been given to unit 4 and its dry cooling. ... Since the ESP is good for 20 years, why not include unit 3 with this same technology...Please explain this new technology and state why it will not be available for unit 3. (SE-0027 11)

Comment: [W]hy can't Dominion use a completely air-cooled tower for Unit 3, as well as what they talk about for Unit 4. (ST-0028 7)

Comment: Why can’t Dominion use this method [dry cooling] for unit 3 as well as unit 4? (SE-0027 7)

Comment: It appears from the SDEIS and the comments by DEQ that use of a dry cooling tower for reactor unit #3 would alleviate many of these issues and should therefore be considered further as an alternative design. (SE-0047 6)

Comment: Dominion Power could resolve these issues [caused by increased water evaporation] by building a dry cooling tower for the new reactors. (SE-0035 4)

Comment: Use of a dry cooling tower, discussed only for Unit 4, would eliminate the water consumption problem for that unit. If dry cooling is feasible for Unit 4, why is it not equally feasible for Unit 3? That alternative is not evaluated. (SE-0038 3)

Comment: One alternative discussed, but not proposed in the SDEIS is to exclusively use dry Air Cooling for the 3rd unit, which would then negate any further water withdrawals from the small watershed...The dry-air cooling appears to be a feasible option, since this is same technology that Dominion has proposed for Unit 4 and is used by many overseas countries that do not have a local water source. (SE-0022 15) (ST-0014 7)

Comment: Are there any other cooling designs been contemplated? Is that it? And if not, if Number 4, the dry tower's obvious conclusion to cooling number 4, why are we not using it in Number 3? (ST-0035 1)

Comment: We request that alternative analysis for the 3rd unit cooling method be accomplished to fully consider dry air cooling for the 3rd unit as used by many overseas countries to eliminate the consumptive water loss associated with using wet cooling towers. (SE-0022 35) (ST-0014 22)

Comment: [I]f it's [dry cooling] good enough for Unit 4, why isn't it good enough for Unit 3? (ST-0030 4)

Comment: The technology currently exists to mitigate the adverse conditions [of increased water use and changing water levels] using dry cooling, albeit not quite as economically rewarding as a proposed cooling tower. Additionally dry cooling can be used regardless of lake levels, if we suffer an extended drought with water levels falling 10 or more feet at least the 2 new dry cooled units could continue to operate safely. (SW-0015 6)

Comment: [I]f wet/dry cooling is better than once-through cooling, and your fourth reactor is planned for dry cooling, why don't we have dry cooling for the third reactor? (ST-0032 1)

Comment: [W]ouldn't the dry cooling be an even bigger improvement to eliminate even that problem? And I guess I'd like to know why Dominion isn't considering it, and why the Nuclear Regulatory Commission isn't requiring it. (ST-0007 3)

Comment: In their comments on the DEIS and the SDEIS, reviewers recommended using dry cooling for Unit 3, as proposed for Unit 4, stating that they would have no concerns about this project if both the third and fourth reactors proposed at North Anna were air cooled. According to the DEIS, Unit 4 operating as an air-cooled system would use a maximum of 1 gpm of water and would have negligible water-related impacts on Lake Anna, the cooling lagoons, or the North Anna River. Environmental concerns raised during our review of the Draft EIS and SDEIS are water-related. The SDEIS fails to analyze an air-cooled Unit 3 alternative despite recommendations by several reviewers. (SW-0017 1)

Comment: Dominion itself has recognized that Lake Anna would not support once-through, wet-cooling, or even a combination wet and dry cooling system for a fourth unit, and is therefore proposing an exclusively dry cooling system for this unit, construction of which is purely speculative at this point. Of course, this fact begs the question of why dry-cooling could not also be employed for the proposed Unit 3. ...the SDEIS fails to identify the dry-cooling option as an" environmentally preferable" alternative deserving of further analysis. As justification, it merely states that "dry cooling systems are more expensive to build and are not as efficient as wet cooling systems." ...coincident with its judgment that a parasitic load of 150 MW(e)—if indeed it is that large—would be too burdensome on the Unit 3 project, Dominion and the NRC staff revised the ESP permit to increase the thermal output of Unit 3 by 200 MW(t), thereby

allowing them to recover almost half of the electric output that would be “lost” to operation of the dry-cooling system. ... Whatever the real motives at work, the SDEIS analysis of the dry-cooling alternative for Unit 3 is clearly inadequate. (SE-0040 12)

Comment: An air-cooled Unit 3 would eliminate, [or further reduce concerns related to water supply and quality, smallmouth bass abundance downstream, potential impingement and entrainment losses, water-related recreation, and the need for an analysis of cumulative impacts on downstream hydrology and biology.] (SW-0017 5)

Comment: If you are a regulated industry, and your charges are based on your cost to some great extent, your costs are more, your rates are greater, you still make money, everybody's happy, so why don't we go with dry cooling for three and four? (ST-0032 2)

Response: *These comments recommend that Unit 3 use a dry-cooling system. The applicant proposed a closed-cycle, combination wet and dry cooling system, which the staff, after an extensive analysis, found acceptable. The staff acknowledges that a dry cooling system would effectively eliminate the consumptive use of water and thereby eliminate the impact to lake levels in Lake Anna and flows in the North Anna River downstream of Lake Anna. However, a dry cooling system comes with both an energy generation efficiency cost and direct economic cost. In this ESP review, the staff did not consider the incremental capital cost of installing a dry cooling system or the cost of operating such a system. However, the staff did consider the environmental costs of the impact of reduced power generation with replacement fuel cycle costs (increased spent nuclear fuel). The reduced efficiency associated with dry cooling would increase nuclear fuel cycle impacts relative to the energy output. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [T]he construction of a dry cooling tower appears to defeat the very purpose for which the Early Site Permit is being sought because of the high utilization of electricity. (SW-0021 5)

Comment: My question is could you quantify the "high price in energy efficiency" please? (ST-0004 1)

Comment: [W]as it eight to 11 percent, you were calling it an inefficiency that would be added by doing the dry cooling tower instead of a hybrid cooling tower, by efficiency or inefficiency, you mean it is going to need eight to 11 percent more electricity to run the dry system? And my question was is that correct? And also, what would be the cost? What kind of cost is that to Dominion?...how much electricity are we talking about? ...How much this would cost Dominion to make the third reactor completely dry like the fourth one would be. (ST-0005 1)

Response: *In Dominion's ER, the estimate of the inefficiency of dry cooling is stated as 8.5 to 11 percent of the plant output. Because costs are deferred to the review of a COL application, the staff did not consider costs in this ESP review; therefore, no effort was made to estimate the cost of a dry cooling system. Accordingly, no changes were made to this EIS as a result of these comments.*

Hybrid Cooling Technology

Comment: Is there an operating nuclear plant in the U. S. that has demonstrated this hybrid cooling tower technology is appropriate and safe for such a large thermal load? If not, the technology risks should be assessed and discussed herein. (SE-0045 15)

Response: *The ESP review described in this EIS is limited to an assessment of the impacts on the site's environment. In this review, the design of the plant was only bounded by the applicant's PPE. Therefore, the staff did not review a detailed hybrid cooling system design. However, based on the existence and operation of both wet and dry systems for large scale thermoelectric power generation, the staff concluded that a hybrid cooling design is not unreasonable for a nuclear facility bounded by Dominion's PPE. The issue of the safety of plant components is deferred to the safety review at the COL stage, if Dominion receives an ESP and that ESP is subsequently referenced in a COL application. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I am familiar with the hybrid cooling system proposed by Dominion in its modified early site permit, and it seems to me that it's a responsive approach by Dominion that mitigates the thermal impacts of the plants, when those impacts are critical, and allows for the maximum efficiency of those plants under normal conditions. (ST-0033 1)

Response: *This comment is acknowledged but provides no additional information. Accordingly, no changes were made to this EIS as a result of this comment.*

Water Use/evaporation

Comment: NRC, we feel has done an inadequate analysis of the newly proposed hybrid cooling tower system, particularly around the issue of water evaporation. ...NRC again has given the impression that water evaporation will be significantly decreased by the new cooling system. This, however, is incorrect. (ST-0005 2)

Response: *The staff's review was based on the PPE provided in Dominion's ER. The annual average induced evaporation stated in Revision 3 of the ER for a once-through cooling system is 10,500 gpm, whereas the annual average forced evaporation stated in Revision 6 of the PPE for a closed-cycle, combination wet and dry cooling system is 8707 gpm. While this reduction is*

not insignificant, the staff still concluded that the water use impacts would be MODERATE in low water years. Accordingly, no changes were made to this EIS as a result of this comment.

EC/MWC Modes

Comment: [T]he Department of Game and Inland Fisheries (DGIF) recommends against the 7-day waiting period after lake levels reach trigger levels to initiate air cooling (Maximum Water Conservation (MWC) mode). DEQ's Division of Water Resources endorses the DGIF recommendation, which is that implementation of the MWC mode should take place when downstream flows have a three-day rolling average at trigger points described [by the DGIF]. ...According to DEQ's Division of Water Resources, the applicant endeavored to justify the 7-day waiting period by stating that the electricity needed to operate the air cooling system might already be sold by the time the decision is taken to implement the MWC mode. However, given the number of generation assets controlled by the applicant, and the interconnectivity of the electric transmission system, this reasoning does not appear compelling to the Division. (SW-0017 28)

Response: *This comment was provided by the Commonwealth of Virginia (VDEQ) as part of a summary of comments received from various Virginia organizations. The policies for triggering a change between EC mode and MWC would be set by the VDEQ through its permitting processes. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Several reviewers indicated that the proposed reactors will further increase water evaporation from Lake Anna, and the claim that the closed-cycle cooling tower is an improvement with respect to evaporative loss over the once-through reactor is unsubstantiated. According to the SDEIS, the maximum instantaneous evaporation rate for the proposed closed-cycle reactor will be 37.2 cfs in the Energy Conservation mode (most of the year) and 25.7 cfs in drought conditions (Maximum Water Conservation mode). In the Energy Conservation mode, the rate is 11.2 cfs higher than the 26 cfs estimated for the once-through reactor proposed in the Draft EIS. In the Maximum Water Conservation (MWC) mode, the rate is only 0.3 cfs less than the once-through. (SW-0017 15)

Response: *The values mentioned in this comment are instantaneous maximums for the EC and MWC mode. A third bounding value was also listed in the PPE that constrains the annual average evaporation to no more than 8707 gpm (19.4 cfs). The 19.4 cfs value should be compared with the estimate for the annual average once-through cooling induced evaporative losses and not instantaneous maximums. Therefore, on an annual average basis the closed-cycle design is predicted to consume less water than the once-through design. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [NRDC notes that there may be some confusion about the environmental impacts of the proposed "wet-dry" cooling system.] “During periods of favorable [but unspecified] atmospheric conditions, more than one-third (and possibly as much as 100 percent) of the rejected heat may be dissipated through the dry towers.” SDEIS, at K-4...[but that] although the MWC [Maximum Waster Conservation Mode] mode uses less water than the EC mode, it is possible that up to two-thirds of the total heat load would be dissipated by wet cooling.” [SDEIS at 3-11] Not only possible, but probable. It’s clear to us that this is the only binding commitment the applicant is making. After all, operating the dry cooling tower increases the parasitic load and would cost Dominion money, so one would expect that like any profit-seeking entity, Dominion will at all times and in all places seek to minimize its costs while complying with its minimum commitment to dissipate “at least one-third” of the Unit 3 reject heat through dry cooling. (SE-0040 2)

Response: *To achieve an average evaporation rate of 8707 gpm, the plant would have to reject more than one-third of the waste heat using dry cooling during some portion of the year. While Dominion may reasonably be expected to operate the cooling system in a manner to maximize revenues, any ESP would include the PPE values for consumptive water uses, including the instantaneous maximums and the annual average as a part of Appendix J. An ESP does not allow operation of a nuclear power plant. An applicant would have to submit a COL application to be allowed to operate a nuclear power plant. If the COL application referenced this EIS, then the applicant would have to demonstrate that the design falls within design parameters, which may be PPE values, in the permit. Appendix I of this EIS presents the PPE values for consumptive water use. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Regarding Dominion’s ER] Table 3.3-1 It is not clear who has the final decision as to when the unit #3 will change from Energy Conservation (EC) mode to Maximum Water Conservation (MWC) mode. I understand that after seven days of 250 msl a switch would be made. What if a rain storm is predicted? Would the change still be made? How would the public know the MWC mode is in effect. How fast can the plant change to EC mode? Does the level have to be above 250 msl for seven days to convert back to EC mode? (SE-0004 20)

Response: *The authority for deciding the operating policies for the Unit 3 cooling system and the operation of the Lake Anna Dam resides with the Commonwealth of Virginia. Dominion proposes that the shift from EC to MWC mode would take no more than seven days. The staff based its review on Dominion’s proposal. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: During Maximum Water Conservation (MWC), a minimum of one-third of the heat would be removed by the dry towers. The remainder would be removed, as required, by the wet towers. The SDEIS statement could be qualified to add the term “minimum” in describing the

percentage of cooling which is proposed to be achieved by the dry cooling towers in the MWC mode. As site dry bulb ambient temperature decreases from the design maximum ambient condition, the dry cooling towers will transfer increasing percentages of the condenser heat to the atmosphere. (SE-0050 2)

Response: *Based on this comment, the text in Section 3.2.2 has been clarified.*

Comment: [Regarding Dominion's ER] For the IHA study referenced on page 3-5-17, does the cooling towers for unit 3 take into account the EC and MWC modes[?] (SE-0004 27)

Response: *The IHA analysis is based on Dominion's simulation of downstream flows. The simulation assumed the operation of Unit 3 shifts between EC and MWC modes based on lake elevation. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment:3.3.2.8-S. DEQ's Division of Water Resources agrees with the applicant that air cooling (i.e., the MWC mode) should be implemented when the lake level falls below 250 feet msl at a minimum. However, the Division agrees with the Department of Game and Inland Fisheries (DGIF) that the MWC mode should be implemented at other times as well, when the lake is not necessarily below a full condition; (SW-0017 26)

Response: *The Commonwealth of Virginia has authority to regulate the policies governing both the water used by a new facility and the releases from the Lake Anna Dam. Accordingly, no changes were made to this EIS as a result of this comment*.

Intake Structure

Comment: As the water supply required for the closed loop cooling system proposed for Unit 3 is significantly lower than required for a once through cooling system which the existing intake channel was designed, Dominion may only remove a portion of the full cofferdam expanse through tunneling or dam removal. (SE-0050 3)

Comment: No statement is made in the ER that a separate discharge structure would be constructed. It is possible that the partially completed discharge structure for Units 3 and 4 would be utilized as the "new outfall structure". (SE-0050 4)

Comment: It would be more appropriate to state, "No separate intake structure is required for Unit 4". Although the Unit 4 normal plant cooling towers would require little to no make-up from Lake Anna, a water supply from the lake would be required for UHS make-up (if required by the COL-selected reactor technology), fire protection, and demineralized water make-up. The Unit 4 water supply demands would be significantly less than for Unit 3 and would therefore be accommodated in the Unit 3 intake structure. See ER Section 3.4.2.1. This is acknowledged in

SDEIS Section 3.2.2.2, Component Descriptions-Intake System, which states, "Any makeup water required for Unit 4 could be obtained from the Unit 3 intakes." (SE-0050 5)

Comment: ER Section 3.4.2.1 states that to bring water from the reservoir to the new intake structure via the approach channel, the cofferdam, or a portion of it, would be removed. Because of the limited quantity of water to be supplied from the North Anna Reservoir, no major modification to the existing shoreline or dredging in the approach channel would be necessary. (SE-0050 6)

Response: *Based on these comments, the text in the Sections 3.2.2.2 and 4.3.1 of this EIS was clarified.*

Comment: The original intake was 150 feet long and 200 feet wide and required dredging and shoreline reshaping. The current intake will be significantly smaller. ... What is the cost differential for this smaller intake versus the increased cost for cooling towers? (SE-0027 8)

Response: *Consideration of costs is deferred to the COL stage and is not considered part of the ESP review process. Therefore, the staff did not consider costs in this ESP review. Accordingly, no changes were made to this EIS as a result of this comment.*

Operating Parameters

Comment: [Regarding Dominion's ER] It is also designated that the water cooling towers will create a discharge of "blowdown" water into the existing discharge canal, but it does not designate any limiting temperature of the water. It also does not designate how the flow rate when combined with the existing 2 million gallons per minute currently discharged may impact the private residence boat houses, piers, etc. in the cooling lagoons. It is unclear on exactly how many inches/feet the entire lake will drop at what times of the year as a result of the increased water usage for the cooling towers. (SE-0003 10)

Response: *In its ER, Dominion provides a PPE bounding maximum blowdown water temperature of 100 °F and a maximum blowdown flowrate of 5565 gpm. The maximum blowdown temperature is less than the maximum discharge temperature from existing NAPS Units 1 and 2. The flowrate of the Unit 3 blowdown is an insignificant fraction of the existing combined discharges for NAPS Units 1 and 2. Therefore, the staff concludes that the temperature and flow impact of a hybrid cooling system's blowdown would be negligible. However, the staff acknowledges that the lake level would drop as a result of the consumptive water use from Unit 3. This impact is described in detail in Appendix K of this EIS. Accordingly, no changes to this EIS were made as a result of this comment.*

Comments Within Scope

Comment: [Regarding Dominion's ER] Par[agraph] 9.4.1 page 3-9-13 Heat Dissipation Systems. The screening of Unit 3 Alternative Heat Dissipation Systems by Dominion for Spray Ponds (Alternative 5) is flawed. … Spray ponds could be used as a supplemental peak load solution (not a stand-alone system for all the heat dissipation) to the heat problem in the hot summer months. These sprayers could be located in the discharge canal and would not affect the open area of the cooling lagoons or in the Ultimate Heat Sink (UHS) location or new ponds on site. (SE-0007 10)

Response: *The staff concluded that the incremental thermal impact of a closed-cycle, combination wet and dry cooling system for Unit 3 would be negligible. Therefore, the staff found no need for supplemental cooling. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The SDEIS indicates that the additional drawdown would be 3.4 ft, while the North Anna Closed Cooling Evaluation indicates that the additional drawdown would be 2.5 ft. The SDEIS reflects the NRC confirmatory analysis and, while the results do not exactly match those stated in the Anna Closed Cooling Evaluation, the conclusion of SMALL IMPACT is unaffected by the difference. (SE-0050 14)

Comment: The SDEIS indicates that the additional drawdown would be 1.6 ft, while the ER indicates that the additional drawdown would be 0.9 ft. The SDEIS reflects the NRC confirmatory analysis and, while the results do not exactly match those stated in the ER, the conclusion of SMALL IMPACT is unaffected by the difference. (SE-0050 15)

Response: *The text in Section 5.3.2 of this EIS has been clarified to explain the differences between the staff's analysis and Dominion's analysis.*

Supportive of Wet/Dry Cooling

Comment: I really appreciate Harry Ruth's remarks [representing Friends of North Anna], in particular, because what I heard him say is that they are all in favor of new nuclear, as long as the cooling towers are invisible, make no noise, cause no evaporation, and don't increase any of the temperatures in the lake. (ST-0025 1)

Comment: Dominion also is an excellent environmental steward and has demonstrated that it is a good neighbor by agreeing to spend $200 million on a cooling tower system to cool a potential third reactor at the North Anna site. Dominion made this commitment to satisfy concerns expressed by state regulatory agencies and local citizens about the potential thermal impacts on Lake Anna and the Waste Heat Treatment Facility from using the lake for once-through cooling. (SW-0007 3) (SW-0013 3)

Comment: Dominion has...agree[d] to spend $200 million on a cooling tower system to cool a potential third reactor at the North Anna site: Dominion made this commitment to satisfy concerns expressed by state regulatory agencies and local citizens about the potential thermal impacts on Lake Anna and the Waste Heat Treatment Facility from using the lake for once-through cooling. (SW-0002 3)

Comment: [I]n response to concerns voiced by Lake Anna residents regarding the thermal impact on the lake of the "once-through" cooling method of the existing reactors, Dominion has agreed to spend $200 million on a cooling tower system for any potential third reactor at the North Anna site, thereby obviating the need for using lake water for cooling, despite the lack of any scientific evidence of any adverse public health or environmental impact of the existing Waste Heat Treatment Facility. (SW-0012 3)

Comment: [T]he construction of a dry cooling tower appears to defeat the very purpose for which the Early Site Permit is being sought because of the high utilization of electricity. (SW-0021 5)

Response: *These comments are supportive of Dominion's proposed closed-cycle, combination wet and dry cooling system design. Accordingly, no changes were made to this EIS as a result of these comments.*

3.3.2.9 Downstream Impacts

Comment: Section 5.3 does not fully address downstream impacts of the proposed project. (DW-0438 125)

Comment: The North Anna River is a spectacularly scenic and remote canoeing river with excellent fishing, according to the Department of Conservation and Recreation. Between State Route 601 and U.S. Route 301, the River is heavily used because it presents some of the most beautiful and remote paddling opportunities in the mid-Atlantic region. During periods of low rainfall, releases from the Lake Anna Dam are less than what is needed to support recreational boating on the River. Accordingly, discharge rates from the Lake Anna Dam should be adequate to meet minimum in-stream flows needed for recreational boating from State Route 601 to U.S. Route 301. The Department of Conservation and Recreation recommended, in its earlier comments on the Draft EIS, that a minimum in-stream flow recreation study be conducted to determine what this discharge rate should be. (DW-0439 48) (SW-0017 10, SW-0017 16)

Comment: The Tennant method [for analysis of flows] is a common desktop method and summer flows in the 20-30% mean annual flow (MAF) range are beneficial for sustainable fisheries. Because it has been called the Montana Method, it has been deemed as only applicable in Western streams. That is a misconception, as it was developed "over the past

17 years from work on hundreds of streams in the states north of the Mason-Dixon Line between the Atlantic Ocean and the Rocky Mountains" (Fisheries 1(4): 6-10). Summer flows below the desired level of 68 cubic feet per second (cfs), or 20% of MAF, are the norm under current conditions and will worsen under future conditions. The Department of Game and Inland Fisheries recommended that an Instream Flow Incremental Methodology (IFIM) Study be conducted to properly evaluate this project on the stream fauna. The expected increased frequency of drought flows to a common occurrence (2.6 years) is expected to have significant impacts. Conclusions need to be based upon sound scientific modeling. DGIF states that if Dominion can offer a better approach to modeling flow impacts, that Department would be happy to consider any alternative. (DW-0439 45) (SW-0017 52)

Comment: The lowest flow rate at the North Anna dam, which releases only 5.4% of the natural flow, is considered as "severe degradation" according to the Tennant method for flow recommendations. This evaluation should be acknowledged in the Final EIS. (DW-0437 19)

Response: *Based on discussions with the VDEQ, Dominion included an analysis using the Indicators of Hydrologic Alteration (IHA) methodology described in Section 5.2.2.2 of the ER. The NRC staff based its review on the release rule codified by the VDEQ in the Lake Level Contingency Plan. The Commonwealth of Virginia may require an Instream Flow Incremental Methodology study as part of its licensing activities under the Clean Water Act and Coastal Zone Management Act for any facility for which a CP or COL application is filed that references an ESP for the North Anna ESP site. Additional analysis on downstream impacts was included in Section 5.4.2.6 and Appendix K of this EIS.*

Comment: [I]t's estimated that the percentage of time when the flow has to be reduced from the normal minimum of 40 cubic feet per second down to 20 cubic feet per second, that increases from about 6 percent to 11 percent with the addition of Unit 3. And that is really kind of the nub of the problem. [assumed to mean "for downstream uses"] (ST-0030 2)

Comment: It's identified in the SDEIS as historical pre-dam minimum flows of 5 cubic feet per second, or less. And in a letter from the Department of Fish and Gaming Inland Fisheries, they state in their July 7th letter that the pre-lake dry conditions is 12 cubic feet per second, so there's some disconnects here that I think we should straighten out in the documents. (ST-0028 1)

Comment: Bear Island appreciates that Dominion has modified its original plan for the reactor unit #3 cooling system iin response to earlier comments by DEQ, but Bear Island believes that such modifications do not fully address the negative consequences on downstream flows and the increased risk to downstream users of the North Anna River. (SE-0047 4)

Comment: [T]he flow rates in the North Anna River [before the plant] varied from a barely trickled creek to a flooded river before the dam started regulating the flow. Now the downstream flows are regulated. (ST-0020 4)

Comment: Bear Island is very concerned that [increased low-flow conditions] will put at some risk the ability of the combined wastewater flows from Bear Island's facility and the County of Hanover's Doswell wastewater treatment plant…to function as designed based on current permit requirements and water quality standards. …ensuring adequate instream flows based on sufficient releases from Lake Anna is quite critical to Bear Island. (SE-0047 3)

Comment: Bear Island respectfully disagrees with the NRC that the impacts associated with the proposed ESP and related plans for the Station expansion would be small or moderate at most and not arise to the level of significant environmental impact. …The SDEIS itself makes quite clear that the downstream effects would be significant and adverse to the downstream portions of the River. …Bear Island requests that the NRC reconsider and change its characterization of these effects to reflect more accurately their expected and stated adverse nature and degree of harm and amend its conclusion to recognize that, as currently proposed, the expansion would cause a significant adverse environmental impact that cannot be redressed. At minimum, the NRC should require further assessment by Dominion or conduct its own further assessments to more completely evaluate the effects on downstream users and appropriate alternative designs and potential mitigation opportunities. (SE-0047 5)

Comment: [I]ncreased low-flow conditions will make it more difficult for Bear Island to withdraw water from the River as needed and as permitted by law. Bear Island's water intake structures currently include the nominal capacity to withdraw up to 12 cfs. …the increased frequency and length of low-flow conditions expected to result from the planned expansion based on more frequent and longer releases of ony 20 cfs would pose serious risks to Bear Island and others relying on water withdrawls from the River below the Lake Anna Dam. Bear Island has existing limited water storage capacity to address short-term interruptions of suspensions of its withdrawals,…however, given the increased frequency and length of periods of such low flows as described in the SDEIS, it will be more difficult, if not impractical at certain times, to recharge the on-site water storage, thus diminishing the usefulness of this storage. (SE-0047 1)

Comment: Bear Island obtains water from the County of Hanover water system, which is served by a withdrawal intake upstream from the Bear Island facility. If the increased low-flow conditions expected as the result of the planned Station expansion come to pass, then it also seems reasonable to expect that the County will have a more difficult time in withdrawing water, …Consequently, the ability of the County to meet the needs of its residents and businesses in the area will be compromised. (SE-0047 2)

Comments Within Scope

Comment: The impacts on decreased water releases to the South Anna River have not adequately been mitigated by the proposed changes in the project. ...this watershed is already overtaxed by the existing reactor operations and cannot accommodate additional water consumption by even one new reactor that results in water consumption for cooling. ...What is difficult to assess is the frequency with which high water consumption levels will coincide with relative drought conditions resulting in low releases of water to the North Anna River. ...what criteria would govern operations? (SE-0038 1)

Comment: The SDEIS concludes that the frequency of water releases at the level of 20 cfs will increase from 5% to 11%. That is not acceptable in terms of impacts to the North Anna River and downstream areas. (SE-0038 2)

Comment: The [Hanover] County remains concerned with the increased frequency of the low flow conditions and the impact on downstream users, which the draft SEIS classifies as moderate during drought conditions and small during normal conditions. Any reduction in flow will have an adverse impact on the County and Bear Island Paper due to the unique nature of the Doswell Wastewater Treatment Plant VPDES Discharge Permit, which is tied to flow in the North Anna River. (SE-0048 1)

Comment: The modifications to the cooling system design for Unit 3 reflected in the Supplemental Draft EIS substantially address concerns dealing with release or discharge of heated water to Lake Anna. However, evaporative loss of cooling water from the cooling towers remains a significant concern, especially in the North Anna and Pamunkey Rivers downstream from the Lake during periods of drought. (SE-0046 1)

Comment: One set of the North Anna River users should not benefit at the expense of another set of users. (ST-0014 26)

Comment: [T]he consequence [of proposing combination wet and dry cooling towers] is that we've gone to a system that could potentially have even greater impacts downstream in terms of releases. ...In the normal so-called EC mode, the water use increases to 22,298 gallons per minute. That's approximately 90 percent greater than with the once-through cooling. ...We've increased the total water use substantially in order to be able to get the benefits of reducing the immediate lake impact. ...basically, they [VDEQ] and we - and the Sierra Club both raise the issue of whether Lake Anna has sufficient water resources to support cooling, consumptive cooling use for a third nuclear reactor. (ST-0030 1)

Comment: We've got the lowered lake levels in the lake downstream. (ST-0024 3)

Response: *The water use conflicts issue is a principal issue in this environmental review. In a water budget, as with all other budgets, a finite resource is allocated to serve multiple objectives. The management of water resources involves balancing tradeoffs among these*

multiple conflicting objectives. In the case of the Lake Anna and North Anna River water resource, these objectives include: providing water for current and likely future downstream water users, providing water for downstream habitat, maintaining relatively stable lake levels, and providing a reliable water supply for industrial facilities including the existing NAPS and proposed Unit 3.

The staff made no attempt to balance these objectives. Rather, the staff simply disclosed the impacts. Establishing policies that balance water-related objectives is the responsibility of the Commonwealth of Virginia. Construction and operation of a plant at North Anna is predicated on obtaining a variety of water related permits and certifications from the Commonwealth of Virginia that are independent of a decision on this ESP application by the NRC.

In order to estimate impacts, the staff must rely on available information and past and existing policies. The Lake Level Contingency Plan was considered by the NRC staff in the evaluation of the North Anna water supply. Low flow releases from the dam are prescribed by the VDEQ in the Plan. The policy of decreasing the release from 40 cfs to 20 cfs as the lake level drops below 248 feet above mean sea level (MSL) is prescribed by VDEQ. The staff acknowledges that water conflicts could increase due to the reduction in the water supply as a result of consumptive water losses from the operation of proposed Unit 3. These impacts would be greatest when the available water supply is already limited because of climatic factors. Drought conditions or increases in future water demands could result in intervention by the Commonwealth in the apportionment of the water. Such intervention might include operational restrictions during periods of water use conflict.

The forced evaporation from proposed Unit 3 would reduce the volume of water released from North Anna Dam, thereby impacting downstream water users. To characterize this impact, the staff estimated the change in the reliability of a hypothetical off-stream storage reservoir used to service a steady water demand. The capacity of a reservoir adequate to provide releases of a steady flow of 20 cfs from the North Anna Dam from the operation of NAPS Units 1 and 2 was calculated to provide 95 percent reliability. The staff estimated that the reliability of the same hypothetical reservoir would decrease from 95 to 90 percent with the addition of Unit 3's additional consumptive water loss. The staff's assessment related to water-related impacts is documented in Section 5.3 and in Appendix K of this EIS. Changes were made to Section 5.3 of this EIS as a result of these comments.

3.3.2.10 Applicant's Comments and Corrections

Comment: None of the three counties upstream of Lake Anna (Louisa, Spotsylvania, Orange) is relying on the North Anna River to satisfy their water demands. [page 2-23, line 2] (DW-0423 9)

Response: *The sentence in Section 2.6.2.1 has been changed to reflect that none of the counties upstream of Lake Anna is relying on the North Anna River to satisfy its current water demands.*

Comment: (1) Not all reactor types require an ultimate heat sink [UHS]. (2) The size, storage volume, flow rates, heat rejection rates, blowdown rates, etc. identified in the SSAR and ER are maximum values. In the event that the selected reactor design requires an UHS, the UHS would be appropriately sized for the unit as part of detailed engineering and described in the COL application. [page 3-6 through 3-8, lines 2, 16, 28] (DW-0423 17)

Response: *While some reactor designs may not require an ultimate heat sink, other designs do. The staff analyzed the impacts based on the PPE, which included an ultimate heat sink. Accordingly, no changes were made to this EIS as a result of this comment.*

3.3.2.11 Other Comments

Comment: Where data is referenced from another document like in Page 3-5 line 31 [induced evaporation presented in Section 5.2.2 of the ER], a summary should be included in the DEIS. (DW-0438 84)

Comment: Page 2-20 line 9 states that units 1 & 2 have "likely" added to evapotranspiration. Since a DEIS is intended to be a public document, data of this type should be summarized and included in the DEIS along with the staff conclusions derived therefrom. If actual data is not available then the formulae or methodology for prediction should be included. (DW-0438 35)

Response: *A more detailed discussion of the staff's approach and results is presented in Appendix K of this EIS. Further summarization of Dominion's analysis was not provided where the staff relied upon its own independent analysis as the basis for its conclusions.*

Comment: Page 2-34 line 6 discusses clams in Lake Anna. What chemical and mechanical control measures against clams and other aquatic organisms are used by Dominion to protect the cooling water intakes and outflows? What assurances are there that these organisms will not interrupt the flow of necessary cooling waters? The discussion on page 2-39 line 28 is too cursory to be evaluated. (DW-0438 49)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, the size of the intake structure would be substantially reduced because of the significant reduction in intake water requirements. Interruption of normal cooling water is not an environmental issue, but rather a safety issue. Control of*

freshwater clams and biofouling in cooling water systems is well understood by the industry, and fouling of cooling water systems represents a minimal risk to the safe operation of the facility. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The Draft EIS/SEIS does not provide information on the linear feet of streams impacted by the construction and operation of the proposed facility, nor does it include any mitigation for the loss. (DW-0422 6) (SE-0030 7)

Response: *Subsequent to the publication of the DEIS, Dominion received a wetlands jurisdictional determination from the Corps of Engineers based on wetlands delineation performed by Dominion and reviewed by the Corps. No mitigation has been proposed in this EIS, but the Corps of Engineers may require Dominion to provide compensatory mitigation as part of the Corps' Clean Water Act, Section 404 permitting process. Updated information is provided in Section 4.4.1 of this EIS.*

Comment: Page 2-22 line 41 states that there is "limited projected development in the three upstream counties" which includes Spotsylvania. This statement, and therefore, any conclusions drawn from it, is false. The February 23, 2005 Free Lance Star reported that Spotsylvania is one of the 20 fastest growing counties in the United States! (DW-0438 39)

Comment: The text indicates that due to the use of policies promoting storm-water management practices that limit the impact of impervious surfaces, upstream land use changes are not expected to appreciably alter the patterns of inflow into Lake Anna. PEC is alarmed by these underlying assumptions, given the fact that Spotsylvania County is listed in the top 100 fastest growing counties with an annual growth rate of 19 percent. (DW-1157 4)

Response: *The watershed upstream of Lake Anna encompasses Louisa, Spotsylvania, and Orange Counties. The upstream area is 57 percent forest, 38 percent cropland and pasture, and 3 percent developed residential area. The staff acknowledges that Spotsylvania County is a rapidly developing area. However, within the region the greatest projected growth is around Fredericksburg, which lies outside Lake Anna's watershed. Assuming Spotsylvania County's recent growth rate of 4.5 percent was to continue for the entire watershed, it would take 15 years for the watershed's residential land use to double to 6 percent. Assuming that land use "best management practices" are applied, the impact of increases in impervious surface area that are associated with residential use is expected to be SMALL. Therefore, the staff concluded that this future growth would not adversely change the water supply feeding Lake Anna. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: What would be the impacts to the project and the Lake Anna area if the Virginia State Water Control Board designates it as a surface water management area (Page 2-23, line 25)? (DW-0438 40)

Response: *Should this change occur prior to NRC's issuance of an ESP or COL, the NRC would evaluate the impacts of this designation on the project. However, this has not yet occurred. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I might add that the original application from Dominion included 50 pages of thermal and water level mitigation options that were not contained in the EIS. These options, if executed, would further reduce the impacts discussed previously. (DT-0011 6)

Comment: Dominion Power should propose some thermal mitigating actions when the temperature at Dike 1 exceeds 95°F (e.g., spray fountains such as used in the discharge canals at other generating facilities, a mechanical draft cooling tower that would process part of the 1,140,00 gal/min discharge, etc.) (DT-0029 9)

Comment: Information and analyses on "operational practices and procedures" for mitigating hydrological impacts (page 5-7, line 10) is crucial for determining whether the impacts can be minimized and should be an integral part of the Final EIS. (DW-0437 12)

Comment: Given a MODERATE impact rating on Page 5-10 line 10, how can the statement that no mitigation is warranted be correct? The proposed facility, if permitted, should be required to have design and operational mitigation to minimize the water impacts. These mitigation measures should be spelled out in the DEIS. (DW-0438 141)

Comment: Page 2-25 line 15 [and line 35] states that "many of the same monitoring activities would be continued." The applicant should stipulate now that monitoring activities will be continued and expanded. Preferably, monitoring activities should be detailed as one of the mitigation measures in a DEIS. (DW-0438 43) (DW-0438 44)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, thermal impacts would be negligible. The NRC's evaluation of cooling water alternatives is in Appendix K of the EIS. The WHTF facility was licensed by the Commonwealth of Virginia as an industrial waste heat treatment facility; as a result of that designation, the Commonwealth does not require that Dominion meet water quality standards within the WHTF but rather from the water return to Lake Anna at Dike 3.*

The staff did conclude that the impact to water use would be MODERATE temporarily during drought conditions because of the projected decrease in lake levels and downstream flows associated with the forced evaporative losses of the wet portion of the proposed closed-cycle, combination wet and dry cooling system. However, the staff also concluded that because droughts are natural temporary events for which water supply systems are designed to compensate, the impact would not destabilize the water resource. During periods when rainfall, streamflow, and associated lake level are at climatic and hydrologic norms, the Unit 3 cooling

system would not noticeably affect the water resources of Lake Anna, and impacts would be SMALL, as described in Section 5.3 of this EIS.

The EPA has the responsibility for mitigating water quality impacts associated with the cooling system under the Clean Water Act; EPA delegated that authority to the Commonwealth of Virginia. The NRC cannot specify water quality standards or monitoring programs to mitigate impacts associated with the cooling water system. The staff acknowledges that the Commonwealth of Virginia, with its jurisdiction over managing the water resources of Lake Anna, may mitigate impacts to the water resources by requiring the proposed Unit 3 to derate or close operations in periods of severe low water. The staff identified no feasible mitigation other than derating or closing operations based on the proposed design. Alternative cooling system designs are discussed in Section 8.2.

Comment: Can you explain the UHS (Ultimate Heat Sink)? Why is it there? What does it do? (SE-0004 21)

Response: *The UHS is described in Section 3.2.1 of this EIS. The UHS is a safety-related component that provides adequate cooling to safely shutdown the plant in case of an emergency. Dominion proposes to use a separate mechanical draft cooling tower with an engineered underground basin containing a water supply for the UHS. Accordingly, no changes were made to this EIS as a result of this comment.*

3.3.2.12 Regulations

Comment: A VPDES permit would not be required for site preparation activities. [page 4-6, line 37] (DW-0423 22)

Response: *VDEQ advised the NRC that a NPDES stormwater construction permit would be required for site preparation activities. Administration of Virginia's construction stormwater NPDES permit was recently transferred from VDEQ to the Virginia Department of Conservation and Recreation. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What is the current status of Dominion's VDEQ certification as discussed on Page 2-8, line 16? (DW-0438 17)

Response: *Dominion submitted a request for a Federal Consistency Certification under the Coastal Zone Management Act (CZMA) to VDEQ for the North Anna ESP action on March 21, 2005. On November 22, 2006, Dominion submitted a letter stating that they had received concurrence from the Commonwealth of Virginia on Dominion's request for a Federal Consistency Certification under the CZMA (Dominion 2006b). Reference to this letter has been added to this EIS.*

Comments Within Scope

Challenging Consistency with CZMA

Comment: We believe that the North Anna project as currently proposed is inconsistent with the Va. Coastal Zone Management Program as approved under the U.S. Coastal Zone Management Act. We support the concept of a 3rd and 4th reactors, but the above environmental items must be resolved prior to the issuance of either a Federal Consistency Certification. We request that a Federal Consistency Certification or an Early Site Permit not be issued until the above issues are satisfactorily resolved. (SE-0022 31) (ST-0014 19)

Comment: Dominion's proposal is not consistent with the Coastal Zone Management Act (CZMA) and would have serious negative impacts on already stressed local and regional water resources. (SE-0034 1)

Response: *On November 22, 2006, Dominion submitted a letter stating that they had received concurrence, with conditions, from the Commonwealth of Virginia on Dominion's request for a Federal Consistency Certification under the CZMA with respect to the ESP application (Dominion 2006b). The staff is including a recommended permit condition for the ESP should one be issued (see Appendix J). Accordingly, no changes were made to this EIS as a result of these comments.*

Requesting Regulation of the WHTF

Comment: [Regarding Dominion's ER] Par[agraph] 5.2.2.5 page 3-5-20 "The discharge of heated water to the North Anna Reservoir via the (cooling lagoons) would be subject to CWA (Clean Water Act) Section 316(a) regulations which require that the thermal discharges assure the maintenance of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving body of water. The withdrawal of cooling water from the North Anna Reservoir would meet Section 316 (b) of the CWA and the implementing regulations, as applicable." This is not in agreement with a recent ruling of the U. S. Supreme Court decision (No 04-1527 S.D. Warren Company, Petitioner, v. Maine Board of Environmental Protection et al). As described in the decision, Congress passed the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters, with the national goal being to achieve water quality which provides for (1) the protection and propagation of fish, shellfish, and wildlife and (2) provides for recreation in and on the water". Dominion can not get the same variance as it currently has for existing units as well as the new unit 3 in their VPDES with this ruling. Recreational use of the discharged water must be addressed. In the June 28, 2005 letter from Dominion to VDEQ requesting "Reissuance of VPDES Permit No. VA0052451", Dominion requested "Continued 316(a) Variance for water temperature discharge." This is because they discharge water over the allowed 32 degree C maximum. Why did Dominion request eight (8) other new waivers from VDEQ. What are they and why were they requested? Would these new waivers be requested for unit 3 also? Quid-Pro-Quo, the public should receive some

compensation if VDEQ and the State Water Control Board give these waivers to Dominion. Such a concession would be limiting temperatures at the discharge canal to no more than 104 degrees F. (SE-0004 28)

Comment: The Agencies of the State of Virginia apply a number of regulations to public water bodies. There are regulations which relate to the health, safety, and welfare of the citizens living around and recreationally using public water. We request that the State Agencies be legally required to apply these health and safety regulations to the Cooling Lagoons. (SW-0004 7)

Comment: Changing the "Point of compliance" from Dike 3 to the End of the Discharge Canal and re-designating the cooling lagoons as "quasi public waters". ...The "quasi public water" designation would recognize that Lake Anna is unique for thermal cooling, unlike other power plants that discharge heated waters into ocean's or major free flowing rivers. It would also permit the state to treat the cooling lagoons as public waters and be afforded all the same protections as other public waters unless there is a nuclear disaster. ...It is requested that the point of compliance be changed to the end of the discharge canal so that any future discharge permit renewals for the North Anna power plant will be waived from compliance with the U.S. Clean Water Act with a maximum temperature of 104 degrees F, together with Dominion being required to take real-time corrective action if the water temperature approaches 104 degrees F and thereby in agreement with the recent U.S. Supreme Court Decision. (SE-0002 3)

Comment: Limiting the Water Temperatures at the end of the Dominion Discharge Canal to no more then 104 degrees F. The U.S. Consumer Product Safety Commission and the Virginia State Health Commission (Dr. Robert Stroube), and Hot Tub Manufacturers have identified that water in excess of 104 degrees F is dangerous to human health. Dominion has stated that they have never exceeded 103.6 degrees F at the end of the discharge canal for the past 35 years. There are many options (spray in the discharge canal, design of cooling towers, location of cooling towers, design of 3rd reactor complex, reducing thermal heat discharge with current reactors) that Dominion can use to maintain the 104 degrees F limit (if and when it would become necessary, which it has not for past 35 years, even in extreme drought conditions). Since Dominion has designated in the ESP that they are running their current reactors (units 1 & 2) at 93% capacity, maintaining the less then 104 degrees F temperature at the end of the discharge canal in the future should not be a problem. As described in the Supreme Court decision, Congress passed the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters, with the national goal being to achieve "water quality which provides for (1) the protection and propagation of fish, shellfish, and wildlife and (2) provides for recreation in and on the water." In order to comply with the U.S. Clean Water Act of providing for recreation in and on the water and the recent Supreme Court decision, it is requested that any federal or state permits issued to Dominion limits the water at the end of the ½ mile discharge canal (before it enters the cooling lagoons) to no more then 104 degrees Fahrenheit. (SE-0002 2)

Comments Within Scope

Comment: [W]e request that the VPDES Point of compliance be changed from Dike 3 to the end of the Discharge Canal and the Cooling Lagoons start to be treated by all state agencies as quasi-public waters so the health, welfare and safety of those who use the cooling lagoons is protected. The quasi-public water designation would recognize that Lake Anna is unique for thermal cooling (unlike other power plants that discharge heated waters into oceans or major free flowing rivers). It would also permit the state to treat the cooling lagoons as public waters and afford them the same protection as other public waters unless there is a nuclear disaster. This would also adhere to the recent Supreme Court Decision (S. D. Warren vs. Maine Board of Environmental Protection) to be adhered to which did not permit the privatization of public waters. (SE-0022 34) (ST-0014 21)

Comment: A point of compliance for all U.S. water permits should be changed from dike 3 to the end of the discharge canal to provide for Clean Water Act protections for all the cooling lagoons users. ...We need to enforce the U.S. Clean Water Act for recreating in and on the water on both the main reservoir and the cooling lagoons. ... Currently the cooling lagoon and main reservoir waters exceed hot tub temperatures on many occasions. ...Currently, it's only enforced only on the main reservoir.... The cooling lagoon users have no protections at all. (ST-0014 8) (SE-0022 17) (SE-0022 23)

Comment: [W]e also have concerns about the hot side of the lake. We don't think it should be treated as private property or as a waste treatment center. We think it should be fully regulated under the law just like the rest of the lake is and should be subject to the Clean Water Act. (ST-0005 3)

Comment: We request that the state agencies be legally required to apply these health and safety regulations [which relate to the health, safety, and welfare of citizens living around and recreationally using public water] to the cooling lagoons. (ST-0004 5)

Comment: I would very much support anything that moved toward regulating that side and dropping the temperatures on that side, but the warm water is good. (ST-0001 4)

Comment: A cap needs to be placed on the temperature in the cooling lagoons and enforced with penalties when it is exceeded. (SE-0008 2)

Comment: Limit water temperatures to no greater than 104 degrees F at the end of the discharge canal to comply with U.S. Safety Commission and Virginia Department of Health. (SE-0015 2)

Comment: Keeping in mind that hot tub manufacturers warn that customers should not use their product if the water temperature is above 104 degrees, at what temperature does the Lake Anna water become unsafe for human activity? Who is responsible for monitoring this temperature and what means is in place to inform the public when the water becomes unsafe for human activity? (SE-0019 1)

Comment: To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP…Water temperatures should be limited to no more then 104 degrees F at the end of the discharge canal. (SE-0022 16)

Comment: Will the applicant stipulate to a 100 degree thermal discharge limit as an operating permit condition as requested by the Waterside Property Owners Association? Will the applicant stipulate to a 104 degree limit at the end of the discharge canal as requested by Friends of Lake Anna? (SE-0045 17)

Comment: We request that the water temperature at the end of the discharge canal be limited to 104 degrees F. Limit on heat transfer to the Main Lake could remain at Dike 3. There needs to be an effective means of prompt enforcement. …The temperature issue is a matter of public safety for people swimming in the first Lagoon. As is well documented in hot tub literature, swimming in water temperatures above 104 degrees is life threatening. Thus the temperature should be limited at 104 degrees. (SW-0004 2) (ST-0004 3)

Response: *Dominion's proposed design for Unit 3 limits maximum blowdown temperature of water discharged into the WHTF to 100 °F. These comments refer to temperatures in the WHTF as opposed to temperatures in Lake Anna. The temperature increase in the WHTF is the result of operation of existing NAPS Units 1 and 2. Units 1 and 2 have a VPDES permit that is undergoing renewal by the Commonwealth of Virginia. The VPDES permit governs the heat discharge for Units 1 and 2. Proposed Unit 3 would have a negligible heat discharge to the WHTF, and proposed Unit 4 would have no heat discharge to the WHTF. The Clean Water Act assigns the authority and responsibility for setting water quality requirements to the EPA. In Virginia the EPA has delegated this responsibility to VDEQ. Therefore, any restriction on the discharge temperature to the WHTF or Lake Anna is the responsibility of EPA and the VDEQ. The NRC has no authority to set standards for nonradiological pollutant discharges into receiving waters. See Section 5.8 for a discussion on health impacts of water temperature. Similarly, the designation of the WHTF as an industrial waste heat treatment facility was made by the Commonwealth of Virginia and is not subject to review or comment by the NRC. Accordingly, no changes were made to the EIS as a result of these comments.*

Comments Within Scope

Temperature/Variance

Comment: It [the SDEIS] also states those units 1 and 2 can operate up to an inlet temperature of 95 F. These temperatures far exceed the variance granted in the VPDES permit. Controls on this temperature need to be delineated in the permit. (SE-0027 4)

Comment: [T]hese temperatures of 95 and 100 degrees far exceed the variances that have been granted to Dominion in their VPDES discharge permit. We need to put some controls on the temperatures to delineate the exact values instead of just heat transfer numbers. (ST-0028 5)

Comment: Both Louisa and Spotsylvania are in the top 100 fastest growing counties in the USA. It is reasonable to project an increase in recreational activity around the lake. We do not agree that the temperature discharge from the cooling lagoons at 100 degrees F would not affect current or future recreational uses of the lake. (SE-004 23b)

Comment: We request that the U.S. Clean Water Act be enforced so the entire lake is not a hot tub with temperatures throughout the lake in the 90's that we have experienced in recent weeks and the waters at the end of discharge canal be no greater then 104 degrees F. (SE-0022 32)

Comment: Since the entire lake is 17 miles long and includes 13,000 acres of water (with depths of 50- 75 feet in many parts), and water temperatures exceed 90 degrees F throughout the lake, it would seem that Dominion is routinely in violation of the U.S. Clean Water Act and the VPDES variance that they have. (SE-0022 13) (ST-0014 25)

Comment: From what I understand, Lake Anna is subject to the Clean Water Act with several waivers. It should be pointed out that the Clean Water Act clearly specifies that the discharge of heated water will assure the maintenance of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving body of water. If one of these variances pertains to discharging heated water that substantially raises the water temperature to a point that it is considered unhealthy for both human and indigenous wildlife, then the responsible party for issuing this variance should seriously reconsider their position. (SE-0019 2)

Response: *The Clean Water Act assigns the authority and responsibility for setting water quality requirements to the EPA. In Virginia the EPA has delegated this responsibility to VDEQ. The NRC has no authority to set discharge standards of nonradiological discharges. Similarly, the designation of the WHTF as an industrial waste heat treatment facility was made by the Commonwealth of Virginia and is not subject to review or comment by the NRC.*

Comment: The SDEIS should include further discussion into the thermal variance issued under the existing NPDES permit for Units 1 and 2. As discussed in the SDEIS the most significant surface water quality concern with the existing units is the localized elevated temperatures. Elevated temperatures can place stresses on the aquatic communities due to reduction in dissolved oxygen. This condition has been compounded in Lake Anna by the tributaries being impaired by low dissolved oxygen (DO)'levels. The DO impairment to the tributaries is significant enough for the Commonwealth of Virginia to designate them under Section 303(d) of the Clean Water Act. EPA has concern that the proposed project may not be-accounted-for under the-existing-thermal variance for units-l-and 2. (SE-0030 3)

Response: *The operation of Unit 3 would result in a reduction in the releases at the North Anna Dam, which could result in reduced flushing, possibly increasing biological oxygen demand (BOD) and thereby reduce the dissolved oxygen (DO). However, the staff believes that continued operation of NAPS with its high flow rate would offset any DO depression resulting from the operation of Unit 3. Low DO conditions have been observed in the summer below the thermocline in Lake Anna. Such conditions are typical of stratified reservoirs in this region. However, above the thermocline, which is the majority of the lake volume, DO is not considered a limiting factor in the lake ecology. The staff has estimated that the incremental temperature increase resulting from operation of new Unit 3 would be minimal and unlikely to adversely affect aquatic communities throughout the lake. Accordingly, no changes were made to this EIS as a result of this comment.*

Mitigation

Comment: Shouldn't the operator's role in decisions to change the normal lake level (Page 5-11, line 28 et. seq.) be one of conditions of the ESP? Just because "modifications to the water release regime from the Lake Anna Dam to mitigate impacts would be under the jurisdiction of VDEQ, does not absolve the operator or the NRC from adopting reasonable mitigation measures which could be subject to VDEQ approval. (SE-0045 24)

Response: *The staff has considered the possible mitigative benefits of changes in dam release policies. For instance, the staff describe in Appendix K, Section K.8 of the EIS an analysis of a change in elevation at which dam releases are dropped to 40 cfs. This alternative would change the frequency of 20 cfs flows, in addition to the lake elevation. The staff also considered that dam releases could be managed to create a more normative flow regime downstream or to increase downstream flows in low flow seasons. Each of these modifications to the water release policy would trade off impacts among various water management objectives. Based on discussions with VDEQ and VDIGF, the staff concluded that the continuation of the existing dam release policies and an increase in the elevation threshold for*

40 cfs release represent the types of release options that VDEQ was considering. Nevertheless, the Commonwealth of Virginia has the sole authority to regulate reservoir releases from North Anna Dam. Accordingly, no changes to this EIS were made based on this comment.

3.4 Ecology

This section reviews comments related to terrestrial ecology, aquatic ecology, and issues related to wetlands.

3.4.1 Terrestrial Ecology

Comment: The wording in Table 10-1 and Page 10-6 appear to be inconsistent regarding terrestrial ecology impacts. [page 10-5, line 19;page 10-6, Table 10-1, line 5] (DW-0423 50)

Response: *The text in Table 10-1 and page 10-6 of Volume I are consistent. Table 10-1 indicates that there is an unavoidable impact of construction (i.e., loss of habitat) and provides methods for mitigation. The text on page 10-6 explains the magnitude of this impact and provides more details regarding the specific amount and quality of habitat that is subject to disturbance. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The Department of Forestry indicates that activities contemplated under the Early Site Permit will not give rise to significant impacts upon Virginia's forest lands. However, the Department reserves the right to comment further should the project proceed [and provided specific guidance]. (SW-0017 76)

Response: *This comment references the Department of Forestry's comment related to future activities. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-31 line 30 mentions that Dominion has cooperated with Ducks Unlimited and the Audubon Society to allow informal monitoring. Has the NRC consulted directly with these groups? (DW-0438 47)

Response: *These organizations were not contacted directly by the NRC staff. However, data collected near the NAPS site as part of the Audubon Society-sponsored Christmas bird count were examined by the staff as part of the evaluation of the terrestrial environment. The text in Section 2.7.1.3 was changed to better reflect the relationship between Dominion and these organizations.*

Comment: What is the basis for the statement on Page 5-11 line 32 that collisions would be rare. (DW-0438 143)

Response: *The general issue of avian collisions with structures associated with nuclear power plants was evaluated in the Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants (NUREG-1437) (NRC 1996). In that document, the staff found that avian collisions with structures were not a significant issue at any of the operating nuclear power plants throughout the United States. This conclusion was based on extensive literature reviews and the operating histories of more than 100 nuclear reactors at more than 50 sites around the U.S. including the North Anna site. The staff is not aware of any data or reviews published since the license renewal GEIS was prepared that would change those generic conclusions. Avian collisions with existing structures at NAPS have not been observed to any significant degree, and the NAPS site is not in an area with unusually high levels of bird migration. There would be no new facilities at the North Anna ESP site, including the wet and dry cooling towers, that would significantly increase the number of avian collisions at the site. Most of the notable cases of avian collisions have occurred at sites that have a tall, narrow tower (such as a radio tower) with guy wires that are not visible at night or during periods of reduced visibility. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to the Department of Forestry, the activities pursuant to the Early Site Permit will not significantly affect the forests of the Commonwealth. (DW-0439 57)

Response: *The comment is consistent with the staff's analysis of the potential impacts to terrestrial systems. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-31 line 31 states that the "NRC expects Dominion to work with the State on development and implementation of any required monitoring programs." The applicant should stipulate now which monitoring activities will be implemented. Preferably, monitoring activities should be detailed as one of the mitigation measures in a DEIS. (DW-0438 48)

Response: *As part of this ESP application, no specific power plant design or site layout has been submitted; consequently, it would not be possible to specify the environmental monitoring that would be performed during construction or operation to protect terrestrial resources. The staff may identify an appropriate terrestrial ecology monitoring program at the time of the COL application review and approval process. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-29 lists some of the birds in the areas. Dry coolers may emit high-pitched sounds. What are the impacts on avian and terrestrial species? (DW-0438 46)

Comment: Dry coolers may emit high-pitched sounds which could affect certain wildlife. The frequency characteristics of the noise should be assessed in addition to the sound pressure levels in Section 5.4.4. (DW-0438 142)

Response: *Dry cooling towers have mechanical components that produce noise. The staff is not aware of any reason why an unusual level of high-pitched sound would be produced by cooling towers. Based on the information provided by Dominion regarding the noise levels associated with dry cooling towers, the overall decibel level at the point where natural habitats would exist adjacent to the site would be below the levels known to cause adverse effects in birds and other wildlife. Furthermore, high-frequency sound attenuates more rapidly than sound at the lower end of the audible noise spectrum. Should high frequency sounds from cooling towers be generated, they are not likely to affect wildlife. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Page 4-8 line 15 discusses possible third-party permit conditions that "may" restrict the timing of certain construction activities. What if these permits are not imposed by the other agency? The applicant should stipulate here the mitigation measures to be applied. (DW-0438 94)

Response: *If the State agency with regulatory jurisdiction over the wildlife at the site does not choose to impose any permit conditions, then the staff would assume that there are no restrictions required. While the NRC would consider mitigation for the actual construction activities specified in a COL application for a specific design and plant layout, it is outside the mandate of the NRC to impose restrictions or mitigation measures in areas that are specifically under the jurisdiction of other State or Federal agencies. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [The] analysis [of transmission line adequacy] should be done for the Final EIS, and the impacts on terrestrial resources (Section 5.4.1.4) and threatened species (Section 5.4.3) of building one or more additional transmission lines should be fully considered. (DW-0437 62)

Response: *Dominion performed a preliminary analysis of the adequacy of its existing transmission system to handle the additional load produced by up to two additional generation units at the North Anna ESP site. Based on this analysis, Dominion believes that the transmission system is adequate and has stated that no changes to the system are needed or anticipated. The NAPS site was initially planned to contain four nuclear power units, and as such, much of the infrastructure necessary to support an additional two units is already present. If a subsequent analysis at the time of a COL application reveals that changes to the transmission system would be needed to transmit the additional electrical load from one or more new units at the North Anna ESP site, such modifications to the transmission system would be subject to Virginia State Corporation Commission and Federal Energy Regulatory Commission oversight. The NRC would evaluate and disclose the impacts of these modifications, if known, in a separate NEPA analysis during the review of a COL application. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Delete the phrase "if additional power from Units 3 and 4 is transmitted through this system" from the end of Section 5.4.1.4. (DW-0438 145)

Response: *The subject phrase was included to indicate that the conclusion given at the end of Section 5.4.1.4 is still applicable if the system is also used to transmit power generated by any new units at NAPS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Under a memorandum of agreement between DCR [Commonwealth of Virginia, Department of Conservation and Recreation] and the [Virginia] Department of Agriculture and Consumer Services (VDACS), DCR represents VDACS in commenting on potential project impacts on state-listed threatened and endangered plant and insect species. VDACS has regulatory authority to conserve rare and endangered plant and insect species. The proposed project will not adversely affect such species, according to DCR. VDACS confirms this statement. (DW-0439 2) (SW-0017 71)

Comment: According to the [Virginia] Department of Conservation and Recreation, natural heritage resources have been documented in the project area. However, due to the scope of project activity and the distance to the resources, the Department of Conservation and Recreation does not anticipate that the activities pursuant to the Early Site Permit would adversely affect these natural heritage resources. (DW-0439 1)

Comment: Because new and updated information is continually added to the Biotics Data System, NRC or the applicant should contact the [Virginia] Department of Conservation and Recreation's Division of Natural Heritage ...for updated information if a significant amount of time passes before the foregoing information on natural heritage resources is used. (DW-0439 3)

Response: *If the North Anna ESP is issued and an applicant applies for a COL referencing that ESP, then the staff would contact appropriate State and Federal agencies at the COL review stage, and any updated information would be obtained and evaluated at that time. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Impact to wildlife...endangered species (bald eagles) as a result of increased water temperatures, reduced water flow, increased drought cycles and possible loss of food supply for endangered species due to fish kills as a result of high water temperatures in the cooling lagoons, reduced water flow. (SE-0022 20) (ST-0014 11)

Comments Within Scope

Comment: On April 27, 2006 FOLA [Friends of Lake Anna] representatives met with Fish and Game's predatory bird expert.... A bald eagle's nest [has been reported] ... in a northern red oak tree ... within 3 miles of the NAP]. Also on May 18, 2006 the Section 312 Evaluation, Federal Consistency team had a tour of the Lake Anna "Cooling Lagoons" as hosted by FOLA. In attendance were the NOAA Evaluation Team, DEQ, DGIF, LACA [Lake Anna Civic Association], and Dominion. During the tour of the cooling lagoons adjacent to the discharge canal location, a bald eagle was seen with a fish in it claws flying just overhead. This was proof positive that the bald eagles are within three miles of the NAP. (SE-0004 7)

Comment: According to the Department of Game and Inland Fisheries, the existing power plant does not appear to be within the primary or secondary management zones of any of the confirmed bald eagle nests. It is possible that a new or unconfirmed nest might be found closer to the project site, in which case, the applicant should coordinate with DGIF and the U.S. Fish and Wildlife Service. (SW-0017 82)

Comment: Does the feeding range of bald eagles or loggerhead strikes extend to the North Anna vicinity? (SE-0045 13)

Comment: [B]ald eagles nest as close as 2.5 miles to the site. What effect will the project have on fish that the eagles may use as a food source? (SE-0045 18)

Response: *It has been established that bald eagles pass through the area and nest within the region, so bald eagles can be expected to fish from the lake when they are in the area. On May 17, 2006, the staff informed FWS that it had become aware of two new eagle's nests located approximately 2.5 and 5 mi, respectively, from the North Anna ESP site. The staff concluded that because no ESP activities are proposed within the normal restriction buffer distances of 0.25 to 0.5 mi used for bald eagle management and protection, the proposed actions at the North Anna ESP site are not likely to adversely affect the bald eagle (2006b). On May 20, 2005, the FWS concurred with the staff's biological assessment that the proposed action is not likely to adversely affect the bald eagle (FWS 2005).*

Because there should not be a significant impact on fish species as a result of the proposed action, there would not be a significant effect on the availability of this food source for the eagles. A buffer zone exists between the known nests and the plant site. Should a new nest be found within the buffer zone near the project site, the applicant would coordinate with the U.S. Fish and Wildlife Service to ensure proper protection of the eagles. Regarding the reported bald eagle nest mentioned above, aerial and ground-truthing surveys of the areas based on the coordinates provided established that the nest belonged to a red-tailed hawk (documented in Enclosure 1, response 17 in the April 13, 2006 cover letter to Dominion's ER Revision 6). Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for an Early Site Permit at the North Anna ESP Site, in North Anna, Virginia. With the exception of the issue discussed in the paragraph below, the DEIS adequately addresses issues of concern to the Department, including those regarding fish and wildlife resources, as well as species protected by the Endangered Species Act.

The U.S. Fish and Wildlife Service (Service) has determined that there is at least one nest of the bald eagle (Haliaeetus leucocephalus), federally listed threatened at Lake Anna. The Virginia Department of Game and Inland Fisheries (VDGIF) believes there are additional nests, but the Lake Anna area is not part of the annual aerial survey, so confirmation of nests would require additional ground truthing. We recommend the U.S. Nuclear Regulatory Commission (USNRC) develop an eagle management plan to protect eagle habitat along sections of the lake shore while allowing development in others. Both land clearing and boat traffic impact eagles. We understand that Virginia Dominion Power regulates piers on the Lake. The Service is interested in pursuing a Memorandum of Agreement with USNRC, Virginia Dominion Power, and VDGIF to address eagle management at Lake Anna. (SE-0024 1)

Response: *In its letter of November 3, 2006, to the U.S. Department of the Interior, the NRC stated that it does consult with the FWS on the bald eagle under the Endangered Species Act; however, the NRC does not have the regulatory authority to develop or enforce an eagle management plan. Therefore, there is no reason for the NRC to develop such a plan or enter into a memorandum of agreement regarding one.*

The FWS confirmed that consultation was completed and that this request was not being made as part of the consultation process. The concern FWS expressed was that with the potential de-listing of the bald eagle, it would no longer be protected under the Endangered Species Act and that protection of the bald eagle may be more difficult under the Bald and Golden Eagle Protection Act; therefore, implementing an eagle management plan at lake Anna would make protection easier. Dominion suggested that FWS may want to consider working with Louisa County on its shoreline management guidelines as a possible means to address eagle management around the lake. VDGIF expressed concern that there may not be funding for VDGIF to work on eagle management once the eagle is de-listed because VDGIF is funded for the protection of endangered species.

3.4.2 Aquatic Ecology

3.4.2.1 Construction Impacts

Comment: Construction and operation of the new facilities will disrupt fish stocks and wetlands. (DW-0640 2)

Response: *The comment is general and does not specifically identify any species that could be affected, or any specific impacts on wetlands. Potential impacts to fish are discussed in Section 4.4.2, and the staff concluded that construction activities would have a small impact on aquatic ecological resources. Typically, construction impacts to aquatic systems are temporary, easily mitigated, and can be timed to minimize impacts. Impacts to wetlands are discussed in Section 4.4.1. The few small wetlands on the ESP site would be avoided to the extent practicable during construction, and the work would be performed in accordance with appropriate laws and permits. Disturbance of any areas determined to be wetlands would be avoided or mitigated, as appropriate. Operational impacts on fish stocks are discussed in Section 5.4.2. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 5-27 discusses cold shock and says that it will be less of a problem with a multiple unit plant. This is only true if the entire station does not shut down. If the remaining unit or units shut down, the cold shock will be much more severe due to the loss of a huge thermal load. (SE-0045 28)

Response: *Although it is possible that the entire station could shut down, it is extremely unlikely this would happen. The most likely scenario is a shutdown of only one unit at any given time, which would reduce the potential for cold shock. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [Regarding Dominion's ER] Par[agraph] 5.3.2.2.2 page 3-5-60 Under [Aquatic Ecosystem Impacts] a. Physical effects, we [Friends of Lake Anna] do not agree that as stated by Dominion the "1,905,565 gpm (units 1, 2 and 3) would have no impact at the Dike 3 discharge, the current VPDES point of compliance." "Impacts to aquatic organisms would be negligible. Mitigation would not be warranted". The recent Supreme Court decision (No 04-1527 S.D. Warren Company, Petitioner, v. Maine Board of Environmental Protection et al) makes "Mitigation warranted". It includes protections for not only limitations on aquatic but also recreational uses of the water also. (SE-0007 2)

Response*: The staff recognizes the Dike 3 discharge as point of compliance for plant-related discharges because this is the location identified in the NPDES permit. NRC's analysis of impact is based on this location. The Commonwealth of Virginia has the authority to issue the VPDES permit in accordance with the Clean Water Act. The staff determined in Chapter 5 that mitigation was not warranted for protection of aquatic organisms or recreational areas. Furthermore, the Court in the Warren case, 126 S.Ct 1843 (2006) made that limited holding that operating a dam to produce hydroelectricity raises a potential for a discharge and, thus requires State approval pursuant to Section 401 of the Clean Water Act. The case does not stand for the proposition proffered by the commenter. However, the Commonwealth is free to impose mitigation measures in connection with its VPDES permit, in accordance with Virginia law. Accordingly, no changes were made to this EIS as a result of this comment.*

3.4.2.2 Operational Impacts–General

Comment: Lake Anna cannot physically support the addition of new reactors. Dominion's Early Site Permit application does not adequately address the increased water use associated with new reactors, which will cause the lake level to drop significantly and will raise water temperatures harming game fish. (DW-MM3 2)

Comment: There are a number of other issues that I consider to be problematic at Lake Anna; such as the impact on the water levels, the temperature, the fish population, wetlands and other aquatic ecosystems, and safety concerns relative to recreational usage of the Lake. (DW-0407 3)

Comment: Recreational fishing use on Lake Anna could also be damaged if the health of fish populations is diminished by the thermal impacts on the lake, as well as increased impingement and entrainment, from additional reactors at the site. These problems, combined with the adverse effects of a reduced river flow downstream from the plant caused by additional reactors, must receive a more thorough consideration in the NRC's final EIS on the North Anna ESP. (DW-0437 32)

Comment: Page 2-36 line 42 states that striped bass are already subject to environmental stress from the existing two units but the later discussion about the impacts of increased thermal loading from additional nuclear units is cursory. (DW-0438 52)

Response: *Some of the above comments relate to the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a proposed closed-cycle, combination wet and dry cooling system, the quantity of water withdrawn from the lake is substantially reduced, and heating of the lake would be negligible. Sections 4.3, 5.3, and 5.4.2.7 of the EIS (and Sections 4.3.2 in the ER) describe the physical effects of additional units at the North Anna ESP site. Sections 5.4.1.3, 5.4.1.4, and 5.4.2.4 in the EIS (and Sections 2.3.1, 2.4.1.8, 2.4.2.2, 3.4.2, and 5.2 in the ER) describe the effects of additional units on water levels, temperatures, wetlands, and striped bass.*

The staff has concluded that sufficient water is available for the proposal, i.e., one unit that uses closed-cycle, combination wet and dry cooling and one unit that uses dry cooling towers. Additionally, the proposed units would contribute minimally to the thermal impacts on the lake and would have a SMALL impact on recreational fishing and the striped bass fishery. Impingement and entrainment would be SMALL. Section 5.4.2.6 in the EIS has been added to discuss the potential effects on the aquatic environment downstream of the dam.

Comment: If the approval is granted, water levels will undoubtedly decrease in the lake and in the North Anna river. This will harm fish and underwater vegetation. Because the North Anna river is a part of the Chesapeake Bay watershed, any problems in this river will result in

problems in the Bay. Secondly, Lake Anna will experience an increase in temperature, as its water would be used to cool the new plant. This will have an adverse affect on fish populations. (DW-0623 2)

Response: *The above comment relates in part to the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which produces minimal thermal impacts on Lake Anna vegetation and fish populations. The majority of species inhabiting Lake Anna are pre-adapted to lake level fluctuations and high water temperature and should not be adversely affected by conditions expected from additional units. Fish and other mobile organisms actively seek out optimal conditions and avoid potentially harmful ones. Lake vegetation would not be affected by the construction and operation of additional units at the North Anna ESP site. Lake Anna is a large reservoir with a well-developed shoreline that offers a variety of habitats and environmental conditions.*

The estimated monthly mean inflow into Chesapeake Bay from 1951 to the present is about 2200 m^3/s (78,000 cfs) (USGS 2005). The changes in the flow in the North Anna River as a result of the proposed closed-cycle, combination wet and dry cooling system for Unit 3 would be less than 40 cfs. The staff concludes that this 0.06 percent change in annual average inflow rate to the Chesapeake Bay would be insignificant.

The potential impacts of lake level changes are discussed in the EIS (Sections 5.3.2 and 5.4.1.3) (and Section 5.2.2.2 of the ER). The results presented quantify the impact on lake levels that could result from the operation of Unit 3 with a closed-cycle, combination wet and dry cooling system. The maximum annual drawdown in most years would not differ greatly from the current operation of the existing units. The results show that the minimum lake levels occur in the latter half of the calendar year. The data are again summarized here. During the 25 years (1978 to 2003) evaluated by the staff in its water balance, differences in water levels were less than 3 in. between the base case and the ESP case for 69 percent of the time based on the bounding simulation. The timing of predicted differences is expected during the times of the year when fish are less likely to be impacted by lower lake levels. Fish populations in Lake Anna and the North Anna River are most vulnerable to low flow conditions during and immediately after spawning, which generally occurs in spring and early summer. This coincides with the highest water flows in the watershed.

Reduction in lake water levels would impact submerged aquatic vegetation along the margins of the reservoir, particularly during drought conditions; however, aquatic vegetation is fast growing and would quickly be re-established at the new lake levels. Submerged vegetation is not an important component of small rivers, such as the North Anna River downstream of the dam, because of turbidity, turbulence, and varying flow rates, and therefore, reduced flows during the summer is likely to have little effect on submerged vegetation. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Among my concerns are: increased water temperatures which will negatively affect game fish. Increased lake temperatures will also affect waters downstream--a “ripple effect,” if you will. (DW-0998 2)

Comment: The application also fails to sufficiently examine the increase in the lake temperature, which will negatively affect the striped bass population, a popular gaming fish, and other marine organisms. Waters downstream will be affected similarly. (DW-MM4 5)

Comment: It would significantly increase the temperature of the lake and downstream, which would, again, affect the aquatic life, in particularly the habitat of the popular striped bass. It would also reduce the water flow downstream, which would again affect aquatic life in the river and increase further conflicts over water use by downstream counties. And finally, it would more than double the number of aquatic life killed in the intake pipe. (DT-0019 6)

Response*: These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have minimal thermal impacts on Lake Anna or North Anna River aquatic life. Operation of the proposed closed-cycle, combination wet and dry cooling system would increase the water temperature in Lake Anna by approximately 0.1 °F and increase impingement and entrainment currently occurring from the operation of Units 1 and 2 by less than 3 percent. These increases would have a negligible environmental impact on Lake Anna and the North Anna River. Staff analysis regarding downstream impacts was added to Section 5.4.2.6.*

Comment: This utilization of water already has a damaging effect on the lake, … and the aquatic life in the lake. … The additional nuclear reactors will undoubtedly have serious adverse effects on the aquatic life in the lake. (DW-0653 4)

Response: *The comment is not specific. The hydrological and aquatic impacts assessed with additional units at the ESP site are discussed in Sections 7.3 and 7.5 of Volume I. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: These possible negative impacts will ... affect the biota of the lake and its ecosystems. (DW-0817 3)

Response: *This comment is not specific. The impacts to the biota assessed with additional units at the ESP site are discussed in Section 5.4.2 of Volume I. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Lake temperature will be affected, probably killing the lifeforms that inhabit it [if the permit is issued]. (DW-MM1 6), (DW-0057 2)

Comments Within Scope

Comment: And at present when you raise that another four degrees, you're talking about 100 degrees, and according to most ecologists that I know, when you get above 100 degrees that's pretty much lethal for many of the species of fish. (DT-0029 5)

Comment: [T]he potential rise in water temperature could be worse for local ecosystems than currently predicted. (DW-0415 2)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. With the change in the proposed cooling system to a closed-cycle, combination wet and dry cooling system, the thermal discharge of Unit 3 operation to the lake would be negligible as would associated impacts on the local ecosystem. In general, the majority of species inhabiting Lake Anna are pre-adapted to high water temperature. Fish and other mobile organisms actively seek out optimal temperatures and avoid potentially harmful conditions. Lake Anna is a large reservoir with a well-developed shoreline that offers a variety of habitats and environmental conditions. The staff has concluded that the operation of the proposed Unit 3 cooling system would raise the temperature of Lake Anna by only 0.1 °F, a negligible amount, and considers this a SMALL impact. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Page 2-34 line 6 discusses clams in Lake Anna. How will the increased lake temperature from the proposed units effect the clam populations? (DW-0438 50)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling for Unit 3 system. With the change in the proposed cooling system to a closed-cycle, combination wet and dry cooling system, thermal discharges to the lake would be negligible. The principal clam species inhabiting the reservoir is Corbicula sp. or the Asiatic clam. Other mollusc genera are reported for collections from Lake Anna (VEPCO 1986) but they account for only a minor portion of the benthic organisms. Asiatic clams, an invasive species native to Asia, were introduced in Lake Anna. They are generally considered a nuisance species. Their numbers increased from 1979 (when first discovered) to the late 1980s. The clam population densities declined in the 1990s. With two units, maximum mean monthly Lake Anna surface temperatures approach 90 °F during July and August. It is not expected that the addition of the proposed Unit 3 cooling system would cause any significant change in Asiatic clam habitat nor destabilize the populations that are established in the lake. Asiatic clams would remain an important component of the benthos and the most common mollusk in Lake Anna. Impacts would be small. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Another reactor of the size that Dominion is proposing would reduce the lake level affecting fish habitat. (DT-0019 4)

Comment: Lower water levels will impact the lake ecosystems…This could kill many of the life forms that inhabit it. (DW-0772 4)

Comment: I am worried that the use of the water would affect the fish and other wildlife, disrupt the ecosystem. (DW-1151 3)

Response: *These comments are general in nature and were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system. Potential impacts of lake level changes are discussed in the EIS (Sections 5.3.2 and 5.4.1.3) and the ER (Section 5.2.2.2). In non-drought years, the projected incremental decline of the lake level attributable to the proposed Unit 3 is not expected to affect fish and wildlife in the reservoir or the North Anna River. The timing of drawdown is expected during the times of the year when fish are less likely to be impacted by lower lake levels. Impacts are more likely to occur when fish are spawning (i.e., in the spring). An expected impact from extended lake level changes would likely slightly reduce available fish habitat, but it is unlikely to destabilize fish populations and other aquatic organisms. This is discussed in Section 5.4.2.8 of this EIS. In general, fish species inhabiting Lake Anna are pre-adapted to tolerate the large fluctuations in lake level that occur frequently in natural watercourses. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [N]uclear power would disrupt marine ecosystems. In addition to the power plant's drawing water from Lake Anna, the power plants would also discharge water back into the lake. The discharged water can be 25 degrees higher than the rest of the lake and contain chemicals, heavy metals, cleaning solvents, biocides, and radioactive contamination. (DT-0008 5)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling for Unit 3 system. With the change to a closed-cycle, combination wet and dry cooling system, thermal impacts on the lake would be negligible. Lake Anna is not a marine environment. It is a freshwater reservoir that was primarily constructed as a source of cooling water for the North Anna nuclear power facilities. The proposed wet and dry cooling system for Unit 3 would increase the temperature of Lake Anna by approximately 0.1 °F, a negligible amount that would not result in additional thermal impacts to Lake Anna or the North Anna River. Overall, the staff determined in Sections 5.3.1 and 5.4.2.4 that the impacts of the thermal discharge from Unit 3 to the WHTF would be negligible and would not destabilize the native fish populations. During the summer when lake temperatures are naturally warmer, species sensitive to temperature increases would still be able to find refuge in cooler, deeper parts of the lake. Additionally, the fish found in the lake most frequently are prolific, exhibit a high reproductive potential, and compensate to offset losses.*

With regard to water quality, the impact on water quality of Lake Anna from the effluents from NAPS Units 1 and 2 is regulated by an NPDES permit administered by the Commonwealth of

Virginia. A NPDES permit would also be required for Units 3 and 4. The maximum levels of chemical contaminants allowed under such a permit would be protective of aquatic species. Radioactive contamination is discussed in Section 5.7 of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: For temperatures at or above 100 degrees F, the DO [dissolved oxygen] of the WHTF will be in the 5 ppm where fish cannot survive. Table 5-21 of the ESP, for the Aquatic Ecosystems should have an impact level of MODERATE and not SMALL as represented by the ESP. (DW-0806 9)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. With the change to a closed-cycle, combination wet and dry cooling system, thermal impacts on the lake, and therefore dissolved oxygen, would be negligible. Regarding the dissolved oxygen comment, the commenter is not correct. Known fish species in Lake Anna can survive and thrive at dissolved oxygen concentrations of 5 ppm. Even cold water species can survive in waters with dissolved oxygen level of 5 ppm (Swingle 1969). Fish would actively avoid areas with high temperatures or low dissolved oxygen. Accordingly, no changes were made to this EIS as a result of this comment.*

3.4.2.3 Entrainment and Impingement Impacts

Comment: The Department of Game and Inland Fisheries made an earlier recommendation for a 1 mm mesh size screen and an intake velocity of 0.25 fps. During several meetings with NRC and Dominion, there was discussion regarding the lack of sweeping velocity in a reservoir situation. As a result of further review of scientific literature, DGIF arrived at a recommendation of a 2 mm mesh size and an intake velocity of 0.5 fps for the intakes for proposed Units 3 and 4. The 9.5 mm screen proposed by the applicant (SDEIS, pages 5-19, 5-26) will only exclude fish larger than 3.4 inches from the intake. The 2 mm mesh size and 0.5 fps intake velocity will make for more effective resource protection, according to DGIF. (SW-0017 57)

Response*: The statement that a 9.5-mm screen would only exclude fish longer than 3.4 in. rests on the assumption that the fish enter the screen in a perpendicular orientation (i.e., head-first). It is highly unlikely that this would consistently happen; thus the actual size of the fish commonly excluded (impinged) could be less than 3.4 in. Additionally, EPA has determined that 0.5 ft/sec or less intake velocity is sufficiently protective for aquatic life. A discussion of this issue is presented in Section 5.4.2.1 of this EIS.*

Comment: The potential amount of fish loss resulting from impingement and entrainment has been reduced by using the closed-cycle, wet-dry cooling method instead of the once-through system originally proposed. (SW-0017 9)

Response: *This statement by VDEQ is in agreement with the staff's analysis. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [E]ntire sections on impingement and entrainment are virtually identical to the ER. Please indicate whether (and if so, how) NRC Staff did its own independent assessment of the information that Dominion supplied in its ER. (DW-0437 25)

Response: *Much of the historic information presented in Dominion's ER was extracted from NRC's supplemental EIS for renewal of the North Anna Units 1 and 2 operating licenses (NRC 2001). Dominion's ER was submitted under oath or affirmation as part of the application for an ESP. Therefore, the staff relied on the supplemental license renewal EIS and the ER as sources of basic information about the plant parameters, the site, the region, and the environment. In addition, the staff visited the site, consulted with local, State and Federal agencies, and conducted its own independent review.*

With regard to the summary of the impingement and entrainment data collected at NAPS since the initial operation of Units 1 and 2 as presented in the Draft EIS, the NRC review team members contacted the U.S. Fish and Wildlife Service (FWS) and staff of the Virginia Department of Game and Inland Fisheries regarding information relevant to the aquatic ecology of Lake Anna and the North Anna River. The thermal impact assessments used in the aquatic evaluations were conducted by NRC review team members. The team members concluded that the data and presentation in the ER accurately represent entrainment and impingement of aquatic organisms at NAPS Units 1 and 2. As a result, portions of the presentation in the ER were extracted directly to lessen the possibility of misrepresenting the data. However, the omission of the reference to the Dominion ER was unintentional and has been corrected.

The North Anna ESP EIS is the result of the staff's review and properly includes material from the other sources. Section 5.4 of the EIS has been reviewed and revised to ensure that sources of information are clearly identified and properly attributed. Because the proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system and would have a significantly lower intake flow rate, the entrainment and impingement losses were reevaluated. This reevaluation showed that the operation of Unit 3 with a closed-cycle, combination wet and dry cooling system would increase current impingement and entrainment rates associated with the operation of Units 1 and 2 by less than 3 percent because of their reduced water needs for Unit 3.

Comment: Tables 5-4 through 5-6 (pages 5-22 through 5-24) reflect seasonal losses from March through July, so the "Yearly Totals" column is not appropriately named. To properly reflect yearly totals, losses for the remaining seven months need to be added to the table. If summer, fall, and winter data were not collected, that data may have to be extrapolated by the best fitting of a non-linear function to the available data. Only then can the full impacts of entrainment on important fish species begin to be addressed. (DW-0439 33) (SW-0017 34)

Comments Within Scope

Comment: The Department of Game and Inland Fisheries recommends that the entrainment tables be corrected to reflect an actual annual loss. The discrepancies should be corrected and a much more rigorous spatial and temporal evaluation conducted before any conclusion can be reached that the effects of impingement and entrainment are "small." (DW-0439 39) (SW-0017 40)

Response: *"Yearly Totals" are estimated based on the months in which larval fish were present in the entrainment samples. The tables were appropriately changed to make the estimate clear to the reader. Eggs and larvae are typically not present in any significant numbers in the water column in summer, fall, and winter. Clarification of the staff's methodology was added to the table. The conclusions reached in the Draft EIS are not affected.*

Comment: The Department points out that the conclusions regarding entrainment losses in the Draft EIS are not based on scientifically sound evidence. This is exemplified by the statement: "Because the fish entrained most frequently are prolific, exhibit a high reproductive potential, and compensatory responses of the fish population occur to offset losses, the staff concludes that the impacts of entrainment would be SMALL [emphasis in the original]. (See Draft EIS, page 5-25, end of Section 5.4.2.3.) (DW-0439 38) (SW-0017 39)

Response: *This comment was received based on the evaluation in the Draft EIS on a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate, which would substantially reduce the entrainment and impingement losses. The staff determined that the operation of the proposed Unit 3 cooling system would increase the entrainment losses by approximately 2 percent from currently occurring losses from the operation of Units 1 and 2.*

The NRC staff has described the methods used to evaluate potential impacts to fish in Lake Anna. For potential construction impacts, this discussion is provided in Section 4.4.2 and, for potential operational impacts, in Section 5.4.2.3 of the EIS. The staff reviewed the numbers and species of fish in samples collected at the intake during entrainment studies. The staff stated its assumptions about fish distribution in Lake Anna, entrainment rates and survival for fish that are entrained based on the entrainment data. The evaluation of the revised intake system and the associated impingement and entrainment impacts based on the proposed closed-cycle, combination wet and dry cooling system are provided in Section 5.4.2. Because the operation of the proposed Unit 3 cooling system would increase overall impingement and entrainment by less than 3 percent, the staff concluded the environmental impact of impingement and entrainment is SMALL. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Page 5-24 states that "larval abundance is not known" and that a 1978 model was used for the estimation. How good is the estimation? Couldn't representative sampling give an estimate of larval abundance? (SE-0045 27)

***Response**: There are numerous difficulties associated with environmental sampling to estimate larval abundances in large reservoirs. Generally, spatial and temporal variability makes it difficult to accurately assess larval trends in large bodies of water, and such variability leads to highly variable results. The most efficient sampler in these large systems is the plant cooling system, because it operates continuously and provides opportunities for sample collection that can be related to plant flow. Numerical models are used to estimate larval abundance based on plant characteristics and to integrate the results through time. There are inherent uncertainties in all models, and entrainment models are no exception, but the methods employed at North Anna represent a reasonable approach to assessing entrainment impacts. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Impingement and entrainment calculations for Unit 3 were based on intake flows of 27,309 gpm or 60.8 cfs; NRC staff used correct flow rates in the entrainment section 5.4.2.3 of the Draft EIS, but referenced lower flows in the impingements section. (SE-0050 19)

***Response:** Impingement and entrainment losses were based on a maximum flow rate of 27,309 gpm or 60.8 cfs. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The Virginia Department of Environmental Quality -- Game and Inland Fisheries (Appendix F-50) have raised issues related to fish impingement and entrainment as well as increase[d] water temperature and circulation flow patterns associated with the water demand of the proposed units during EIS application review. It is unclear under the Draft EIS [and SDEIS] what was modeled, what were the results of the modeling and what was the mitigation, if any being proposed. (DW-0422 8) (SE-0030 8)

***Response:** This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce the entrainment and impingement losses. It also would result in a substantially reduced discharge temperature that would be similar to those of Units 1 and 2.*

Fish impingement and entrainment were not modeled but were projected based on the assumptions as stated in Sections 5.4.2.2 and 5.4.2.3 of the EIS. To determine the potential impingement and entrainment associated with the proposed Unit 3 cooling system, Dominion assumed the current fish and larval distributions and compositions were similar to those observed during the study required by Section 316(b) of the Clean Water Act, that the proposed

cooling system would operate at 100 percent pumping capacity, and would use a maximum flow rate of 60.8 cfs to determine impingement and entrainment losses. The staff agreed with this approach and compared the estimated impingement and entrainment losses associated with the Unit 3 cooling system to the losses currently occurring from operation of Units 1 and 2. Because the additional losses associated with the proposed Unit 3 cooling system represent less than a 3 percent increase above the losses currently occurring, the staff concluded that the potential impacts related to impingement and entrainment would be SMALL, and no mitigation is expected to be needed. This statement regarding mitigation has been included in the Final EIS.

Comment: New reactor units may also have a negative impact on recreational fishing in North Anna through the effects of increased water temperature and impingement/entrainment, where fish and fish larvae are sucked into the water intake apparatus required to cool reactors at the NAPS. (DW-0437 30)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce the entrainment and impingement losses. Additionally, thermal discharges to the waste heat treatment facility would be substantially reduced from the original proposal, and heating of the lake would be negligible. The comment is not specific. Potential entrainment impacts are discussed in Section 5.4.2.3 of the EIS. The recreational fishery for striped bass is discussed in Section 5.4.2.5, and potential recreation impacts are discussed in Section 5.5.3.4. The staff concluded that the impacts of impingement and entrainment were SMALL. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: How can a 300% increase in the number of fish impinged (422,000 per year from 182,000) be considered a SMALL impact in Section 5.4.2.2? (DW-0438 146)

Comment: The Final EIS should acknowledge that more than doubling the number of entrained larvae would violate the Clean Water Act, which requires the use of best available technology. (DW-0437 23)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce entrainment and impingement losses. NRC's significance levels for impact of SMALL, MODERATE, or LARGE refers not to some quantitative standard of change but rather the effect of the impact category on the resource. Even a doubling or tripling of losses may not necessarily result in destabilizing the important attributes of the resource.*

Based on the assumption that the current fish and larval distributions and compositions in Lake Anna were similar to those observed during the study required by Section 316(b) of the Clean Water Act, Dominion estimated impingement and entrainment losses that would occur during the operation of the proposed Unit 3 cooling system. The staff agreed with this approach and compared the estimated losses associated with the Unit 3 cooling system to the losses currently occurring from operation of Units 1 and 2, which are not considered to adversely impact the fish and larval populations of Lake Anna. The staff determined that the operation of the proposed Unit 3 cooling system would increase the overall impingement and entrainment losses by less than 3 percent. Because this constituted an undetectable impact on the fish and larvae of Lake Anna, the staff concluded that the impact of the proposed Unit 3 cooling system would be SMALL. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [I]t is crucial to consider the size and age distributions of the impinged fish in order to understand the impact on the structure and viability of the population. This information should be included in the Final EIS. (DW-0437 24)

Response: *Potential impingement impacts are discussed in Section 5.4.2.2 of the EIS. Comparison of the estimated impingement losses for the proposed Unit 3 cooling system to existing losses from the operation of Units 1 and 2 indicate that the operation of Unit 3 could increase overall impingement and entrainment losses by less than 3 percent. Because this represents a SMALL impact, the staff does not believe the additional data related to the size and age distribution of impinged fish are necessary to reach a conclusion on the level of impact. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Tables 5-2 (page 5-18) and 5-5 (page 5-23) may have significant errors, or the reasons for the differences are not fully explained. For example, in Table 5-2, for Unit 3, January striped bass and bluegill numbers impinged are greater than in Units 1 and 2 (Table 5-1, page 5-17), but black crappie, gizzard shad, white perch, and yellow perch numbers are less than in Units 1 and 2. Similar discrepancies exist for other rows in the table, and for the cumulative Tables 5-3 and 5-6. These discrepancies should be explained further. (DW-0439 34) (SW-0017 35)

Comment: Section 5.4.2.2 estimates the impingement loss to the fish population as a percentage of the estimated total lake population as derived from cove rotenone. We applied this same technique to entrainment numbers and calculate that 6.8% of the gizzard shad and 87% of the black crappie are lost due to entrainment. When combined with impingement 7.7% of the gizzard shad and 93.9% of the black crappie numbers are killed by the intake structure. We do not consider losing almost 8 and 94% of these populations from an intake a small impact. (DW-0439 36) (SW-0017 37)

Response: *These comments were received based on the evaluation in the Draft EIS on a once-through cooling system for Unit 3. The proposed cooling system has since been changed*

to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce the entrainment and impingement losses. Impingement impacts for representative fish species as the biomass lost to impingement ranged from 0.02 percent for bluegill to 3.8 percent for the black crappie. Section 5.4.2.2 has been revised to reflect the lower rates of predicted impingement and entrainment.

Comment: The Department of Game and Inland Fisheries (DGIF) applauds the applicant's use of "worst case" scenarios for estimating impingement and entrainment, and acknowledges the estimate of a 131% increase in the impingement rate for Unit 3 (Draft EIS, pages 5-13 through 5-18, Sections 5.4.2.1 and 5.4.2.2). In developing the total estimate, data derived from 1979 through 1983 was added to worst-case Unit 3 operation.

However, it is not clear whether the 1979-1983 values for Units 1 and 2 reflect current operating conditions and are valid. The Final EIS should indicate whether water volume pumped for these units has increased or decreased since the 1979-1983 study period, in light of the facts that plant operating time, efficiency, and volume of water pumped have all increased. In such case, the table reflecting the impacts of Units 1 and 2 (Table 5-1, page 5-17) needs to be revised to reflect current operating conditions. (DW-0439 30) (SW-0017 56)

Response: *The commenter expressed concern that the NAPS water volumes pumped through the intake structure during the impingement and entrainment sampling from 1979 to 1983 were not representative of the volume of water currently pumped through the facility, resulting in an underestimate of impingement and entrainment. Because the potential entrainment and impingement losses for proposed Unit 3 were derived by scaling the losses associated with the 1979-1983 study, the comment expresses concern that the potential underestimates in the original study were applied to the predictions for Unit 3. Because the original predictions expressed entrainment as a function of water volume, it is appropriate to apply a scaling factor to develop entrainment estimates for Unit 3. For impingement, the explanation is slightly different. Impingement, unlike entrainment, is a function of the approach velocity to the intake screen, and intake velocity is related to the flow rate through the intake and can be influenced by reservoir water levels. The relationship between impingement losses, approach velocity, and reservoir level is not linear. Additionally, the size of the intake structure also affects the rate of impingement. Thus small intake structures typically used for closed-cycle cooling systems have relatively low levels of impingement when compared to once-through systems. Because the estimates of impingement derived for Unit 3 were based on the 1979-1983 study of the once-through system for NAPS Units 1 an 2 and normalized by volume, it probably represents an overestimate of the impingement losses that would occur at Unit 3. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The Department of Game and Inland Fisheries recommends the use of state-of-the-art intake screens, as encouraged by the U.S. Environmental Protection Agency in recent screen recommendations. Specifically, the Department of Game and Inland Fisheries recommends openings of 1 millimeter (mm), and an intake velocity of 0.25 feet per second (fps) to protect aquatic life. This would greatly alleviate the impingement and entrainment issue, as would the use of a dry cooling tower. (DW-0439 31)

Response: *The recommendations noted in this comment are in a 1999 report prepared for the Virginia Department of Game and Inland Fisheries (VDGIF) entitled Design Criteria for Fish Screens in Virginia: Recommendations Based on a Review of the Literature by C. Gowan, G. Garman, and W. Shuart. Gowan et al. (1999) focused only on the mechanics of physically screening out organisms of a certain size and not on analyzing the impact of a particular mesh size on the population dynamics of target species. The report did not address debris loading, lack of sweeping currents, or the size of the screened area needed for a large plant. Therefore, the NRC staff has concluded that the study is not directly applicable to large central station power generators.*

In a letter to FWS dated 18 June 2003 (ML031700052), the NRC staff stated that unless (1) there is a demonstrated impact, (2) the reduced mesh size would mitigate the impact, and (3) the technology is feasible, the NRC did not plan to consider the 1-mm mesh size as a mitigation. Furthermore, the use of fine mesh screens is of little value in lakes or reservoirs that lack a sweeping current to continually wash impinged organisms from the surface of the screen.

Before any additional units operate at the ESP site, a COL applicant would have to obtain an NPDES permit from the VDEQ. As part of the review for that permit, a COL applicant would be required to comply with the new EPA Clean Water Act Section 316(b) regulations related to intake structures performance standards for steam electric facilities. As part of the NPDES permitting process, the Commonwealth of Virginia could require additional mitigation. Such mitigation could include modifications to reduce impingement to the intake structure. A discussion of screen mesh size was added to Section 5.4.2.3 of this EIS as a result of this comment.

3.4.2.4 Impacts on Fisheries–General

Comment: Lake Anna was created specifically to support nuclear power plants. Some of the fish that they [opponents of the ESP] are so worried about are not indigenous to this area and have been stocked in the lake. Furthermore, the existence of the power plant actually serves to sustain many fish populations. Try reading an excellent summary of the Lake Anna ecosystem written by expert anglers at the McCotter's (PH) Lake Anna Guide Service website. (ST-0012 7)

Comments Within Scope

Comment: We will agree that this new system will address the flow impacts to a great extent, will also take in less water from the lake which is good in terms of what they're talking about is taking in fish, but the water evaporation impacts remain. (ST-0005 9)

Response: *These comments are acknowledged and do not provide any additional information. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: The Department of Game and Inland Fisheries disagrees with the assessment that the impact of Unit 3 upon gizzard shad, the most prevalent species, would be a "small" impact (page 5-21, end of Section 5.4.2.2). As DGIF states in its comments on the Draft EIS: Gizzard shad are indeed a "prolific forage fish," but their abundance has been low in VDGIF samples in two recent years. This species is the primary forage for stocked predators (striped bass and walleye) and also supplements largemouth bass diet. Further declines in striped bass habitat (another contested issue) combined with potential reductions in the forage base could significantly impact this recreationally and economically important fishery. (DW-0439 35) (SW-0017 36)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce the entrainment and impingement losses, including those of the gizzard shad. The staff determined the operation of the proposed Unit 3 cooling system could increase impingement and entrainment of gizzard shad by less than 3 percent relative to the current losses associated with the operation of Units 1 and 2. This was considered a SMALL impact by the staff. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: This wording is inconsistent with DEIS Section 2.7.2.1 and ER Section 2.4.2.2. Grass carp were stocked in the WHTF in 1994 to control hydrilla. [page 2-40, line 10] (DW-0423 11)

Response: *The following two statements are from the Draft EIS, Section 2.7.2.1: "Sterile triploid herbivorous grass carp* (*Ctenopharyngodon idella*) *was stocked by Virginia Power," and "During 1994, grass carp were stocked by Virginia Power (with the approval of the VDGIF) in the WHTF to control the growth of the nuisance submerged aquatic plant hydrilla* (*Hydrilla verticillata*)*."*

The following statement is from the ER, Section 2.4.2.2. "In 1994, a fifth non-native species, the herbivorous grass carp, was stocked by Virginia Power (with the approval of the VDGIF) in the WHTF to control the growth of the nuisance submersed aquatic plant hydrilla*." The wording is not inconsistent, and accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The balance of a major argument within the document centers on subjective speculation on whether the installation of Units 3 and/or 4 would present complications for fish populations. DGIF believes that such complications would occur. More likely at issue is not if complications would occur, for they almost certainly would; but the extent of such complications and the population level impacts. Without extensive modeling, it is impossible to argue either point successfully. We recommend the application of sound scientific modeling to the decision process and that appropriate corrections based on model outcomes be incorporated in the Final EIS. (DW-0439 47) (SW-0017 54)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a significantly lower intake flow rate and would substantially reduce the entrainment and impingement losses and minimize effects on fish populations. The EIS describes the methods used to assess potential impacts to fish in Lake Anna. For potential construction impacts, see the discussion in Section 4.4.2, and for potential operational impacts, see the discussion in Section 5.4.2 of the EIS. These methods are scientifically accepted and provide a reasonable assessment of impact. The losses resulting from impingement and entrainment on Lake Anna from additional units would be undetectable because of their small numbers, the large year-to-year variability in population size of the species impinged or entrained, and the inability to accurately sample populations even in reservoirs without having a significant impact on the population. Modeling population changes, even in a relatively closed system such as Lake Anna would add little to the impact assessment. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to DGIF, the Draft EIS makes the following statement: "... long-term monitoring of the North Anna River has documented improvements in the abundance and diversity of aquatic biota since impoundment." DGIF is unaware of any intensive data analysis to support such an assertion. DGIF's analysis of the Dominion data set documented changes that are reflective of drought conditions. Placing the population of aquatic species under frequent drought stress will shift the community substantially. This analysis was previously provided to Dominion. Recent DGIF surveys of the North Anna River have suggested that the primary sportfish, smallmouth bass, has much lower abundances than in other rivers in the region. Other fish populations were present in relatively low levels. It is the opinion of DGIF biologists that the low abundance and biomass of predator and forage species in the North Anna River is related to higher than naturally occurring incidences of drought conditions. There also is the possibility that drought flow conditions could adversely impact downstream anadromous nursery areas. This potential impact should be evaluated. Increasing the drought frequency to the proposed extent would have an unacceptable negative impact on this fishery. (DW-0439 46) (SW-0017 8) (SW-0017 53)

Response: *The quoted statement identified in the comment could not be found in the Draft EIS. The staff has included additional information on the North Anna River fishery downstream of the dam in Section 5.2.4.6 of the EIS in response to this comment. Clearly, the fishery in the North Anna River has improved since creation of Lake Anna. Prior to the construction of the dam, flows in the vicinity occasionally were as low as 5 cfs, and water quality was severely degraded for many miles downstream in the North Anna River because of drainage from Contrary Creek. Pre-impoundment surveys conducted by Reed and Simmons (1972) found depressed fish diversity and standing crop estimates in the North Anna River over 20 river miles downstream of the mouth of Contrary Creek. Based on the reestablishment of mussel beds, Reed and Simmons (1972) concluded that the river had recovered at the confluence of the North and South Anna Rivers. The release from the dam of less than 40 cfs in most years would not differ greatly from the current flow regime with two units operating. The results show the discharge of less than 20 cfs would occur in the latter half of the calendar years in those years experiencing drought conditions. Impacts to the river fishery are more likely to occur when fish are spawning (i.e., in the spring and early summer). While the staff recognizes that fish abundance in a river can vary from year to year, expected impacts from instream flow of less than 20 cfs would not be destabilizing to fish habitat. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The NRC, in section 5.3.2 of the SDEIS, concludes that the impact on the resource is small during most years and moderate during drought years. Extensive hydrologic analysis has been conducted which demonstrates significant changes in the flow patterns. Earlier DGIF recommendations included a similar analysis of incremental habitat changes as impacted by changes in flow. Without that analysis, any conclusion of "small to moderate impacts" is not substantiated. (SW-0017 55)

Response: *The staff assumes the commenter is expressing concern about the flow regime in the North Anna River that may be adversely affected by Unit 3 operation. The results of the staff simulations indicate that flow less than 40 cfs but more than 20 cfs would occur in the latter half of the calendar year. Many fish species typically found in downstream locations spawn during the spring and early summer when low flows are unlikely. Thus flow reductions are likely only at times that such reductions would have only minimal impacts on fish habitat. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Several problems exist with this approach [in estimating fish loss] and these need to be addressed. Lakes undergo eutrophication with age and that is occurring at Lake Anna as the watershed becomes more fully developed. As that occurs, the biomass of fish increases. The current biomass is undoubtedly higher than twenty years ago when the original entrainment/impingement analysis was conducted. The report uses cove rotenone data but does not account for spatial and temporal variation within that data. Within large reservoirs, biomass typically declines downstream through a trophic gradient. That is apparent from our routine sampling as well as historic rotenone data. The impacts of entrainment and

impingement may be even more spatially and numerically significant in the lower lake where the numbers of fish are less than above the Rt. 208 bridge. (DW-0439 37) (SW-0017 38)

Response: *The NRC staff recognizes that fish biomass in reservoirs can change over time. In the case of Lake Anna, the reservoir was filled by December 1972. Impingement and entrainment studies were conducted from 1978 to 1983 (VEPCo 1986). The staff included the methods used to describe potential impacts to fish in Lake Anna in the EIS. The potential operational impacts are discussed in Section 5.4.2. The methods used to describe potential impacts to fish in Lake Anna from construction and operation of the proposed new units are discussed in Sections 4.4.2 and 5.4.2, respectively. These methods are accepted as scientifically sound and provide a reasonable assessment of impact. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Suggest that this DEIS statement reflect that Virginia Power biologists have gathered additional data on the abundance and distribution of black bass species in the lower North Anna River via direct observation techniques. [page 2-41, line 31] (DW-0423 12)

Response: *In response to this comment, the staff has included additional information on the Virginia Power studies of the bass species in the North Anna River. This information appears in Section 5.4.2.6 of the EIS.*

Comment: We have concerns with fishery management. The Department of Game and Inland Fisheries (DGIF) has found that the fish will continue to be adversely affected even after the changes to the 3rd reactor have been made. (ST-0014 4) (SE-0022 8)

Comment: The SDEIS should investigate the existing and potential impacts of the proposed project to the trophic condition of Lake Anna. High temperature and low DO along with high nutrients can cause algal blooms in the lake. Algal blooms are known to accelerate lake eutrophication and can cause human and animal health effects. (SE-0030 4)

Response: *The proposed wet and dry cooling system for Unit 3 would not detectably raise the average temperature of Lake Anna. NAPS Units 1 and 2 do not now contribute to nutrient loading that is commonly associated with eutrophication of lakes. Nonpoint pollution associated with urban development is the most likely contributor to nutrient loading. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Impact to wildlife, fish, and endangered species...as a result of increased water temperatures, reduced water flow, increased drought cycles and possible loss of food supply. (ST-0014 10) (SE-0022 19)

Comments Within Scope

Response: *The impacts to wildlife, fish, and endangered species from the construction and operation of the propose Units 3 and 4 are evaluated in Sections 4.4 and 5.4 of this EIS. The use of a closed-cycle, combination wet and dry cooling system would substantially reduce impingement and entrainment losses. Accordingly, no changes were made to this EIS as a result of this comment.*

3.4.2.5 Impacts on Striped Bass

Comment: I learned that the Department of Game and Inland Fisheries introduced striped bass to Lake Anna, and they have to restock 100 to 2000 striped bass every year at considerable expense because the creeks and river that feed the lake just aren't deep enough or fast enough for spawning runs. You see, without spawning runs, a self-sustained striped bass population just isn't possible regardless of lake temperature. What's interesting though is that Public Citizen, a government watchdog group, isn't blowing the whistle on the state government for supporting an artificial striped bass population. Instead they filed a legal contention that Dominion will make the lake less comfortable for the striped bass that the state dumps into the lake every year. (DT-0031 1)

Comment: I agree with your conclusions pertaining to the impact upon the striped-bass in the lake. This is a stocked fish that cannot currently procreate in Lake Anna. If it is discovered that there is an impact upon their population, more may be stocked. Currently, approximately 200,000 fish are stocked in the lake each year; however, in the past that number has at times been almost 700,000 in one year so there is definite wiggle room in that area. And if there is still an impact after that, recreational fishermen still have several species of fish to choose from that won't be impacted by the change in water temperature. The recreational fishing industry on the lake will only be minimally impacted, if at all. (DW-1148 6)

Comment: What troubles me is that the NRC is even allowing the Striped Bass contention. Simply put: Dominion built and sized Lake Anna as a waste heat treatment facility for four nuclear units. In 1973, the Virginia Department of Game and Inland Fisheries decided to bring Striped Bass to Lake Anna. This decision had long-term implications for the state, since the river and streams that feed Lake Anna are not deep enough, long enough, and fast enough for spawning runs. Without spawning runs, a self-sustaining Striped Bass population is not possible in Lake Anna. The Virginia Department of Game and Inland Fisheries (VDGIF) must stock 100,000 - 200,000 Striped Bass annually to support a "put, grow, and take" strategy. (DW-1149 2)

Response: *These comments were received based on the evaluation in the Draft EIS on a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and be expected to have a negligible effect on striped bass. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Experience has also shown that even extreme circumstances (e.g., an extended drought) do not eliminate striped bass habitat in the upper lake and mid-lake areas. No striped bass die-offs have been observed in any portion of Lake Anna. Striped bass restricted to a narrow layer of water around the thermocline or to thermal refuges may not be able to move freely and feed normally; thus they may be forced to live on stored energy reserves. As a consequence, they may lose weight or show a decline in condition. This phenomenon has been observed at a number of southeastern reservoirs where striped bass experience a late-summer habitat "squeeze." When surface waters cool in September and October, striped bass are able to move freely in the water column again and resume normal feeding. Weight gain and an improvement in their condition generally follow. (DW-1149 9)

Response: *The commenter is quoting from the Draft EIS (page 5-30). Although dead striped bass have been observed in Lake Anna in late summer, large-scale die-offs have not been reported by VDGIF. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: By admitting the striped bass contention, the NRC is allowing the comfort of fish in the state's "striped bass experiment" to take priority over Dominion's plans to use Lake Anna in the manner for which it was originally built. The future of nuclear power in the U.S. energy mix and the resultant reductions in greenhouse gas production is far more important than the comfort of non-native striped bass in Lake Anna. (DW-1149 10)

Response: *Pursuant to the Atomic Energy Act, the Atomic Safety and Licensing Board (ASLB) is charged with resolving issues admitted as contentions as part of the hearing process. The ASLB is established by the NRC as an independent review board. The ASLB dismissed the contention on October 24, 2006 (NRC 2006).*

Comment: Considerable discussion of striped bass is included in the assessment. Lake Anna was created by Dominion as a cooling water source for power plants. Bass are not a native species and are artificially introduced into the lake each year by state employees. Temperature effects on the bass population is not a proper subject for consideration in an EIS, since the artificial introduction of this species by a government agency is in fact a disturbance of the natural environment. Any incompatibility of such an artificially introduced species with the primary purpose of the body of water must be accounted for and managed by the agency introducing the species, and cannot properly be considered as an impact of the power plant. (DW-0645 3)

Response: *This comment on the striped bass fishery relates to the species as a non-native, stocked fish. The staff disagrees with the statement that the striped bass is not a proper subject for consideration in the EIS. Through the efforts of the Commonwealth of Virginia, the striped bass has become part of the Lake Anna environment. NEPA requires the evaluation of the action on the existing environment regardless of whether the species is native or introduced.*

Nonetheless, because Dominion has changed its proposal for cooling Unit 3 to a closed-cycle, combination wet and dry system; effects on the lake temperature and, consequently, on the striped bass fishery are projected to be negligible. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The nomenclature of the Draft EIS on native vs. non-native species appears to minimize the value of the striped bass fishery (Draft EIS, Section 2.7.2.1, pages 2-33 through 2-40) [and as stated in DGIF's February 15, 2005 comments on this subject]. Striped bass and other anadromous fish are native to the York River drainage and the North Anna River, while largemouth bass, bluegill, black crappie, walleye, and channel catfish are not. Nevertheless, all of these species are important to the recreational fishery in the lake. (DW-0439 29) (SW-0017 6)

Comment: The Department of Game and Inland Fisheries agrees with the descriptive statements in the Draft EIS (page 5-30, lines 24-33). However, line 37 incorrectly states that striped bass are not native to this watershed. The use of nomenclature surrounding native vs. nonnative species appears to minimize the value of the striped bass fishery. This is incorrect. Striped bass are, in fact, native to the York River drainage and downstream reaches of the North Anna can be seasonally important for spawning and juvenile rearing. The lake population is correctly acknowledged as being supported by stocking. In recognition of this fact, the Department of Game and Inland Fisheries strives to stock Chesapeake strain striped bass in the reservoir so as not to change the genetics of downstream populations. (DW-0439 40) (SW-0017 48)

Response: *The use of the term "non-native" properly describes the striped bass population in Lake Anna and differentiates striped bass from native species. Non-native species, such as largemouth bass, bluegill, crappie, walleye, and channel catfish, are basically from habitats similar to Lake Anna and its tributaries, are reproducing populations, and have adapted to reservoir conditions. The terms "native" or "non-native" are used as descriptive terms and do not state or imply a value or worth to a particular species. The terms are commonly used in FWS discussions of plant and animal populations. The terms are also used by the Virginia Department of Game and Inland Fisheries, VDGIF. The use of such terminology does not refer to the recreational interest in the species.*

Regarding striped bass in Lake Anna, the EIS does not state that "…striped bass are not native to this watershed." The EIS correctly states that "…the Lake Anna striped bass population is not native to this portion of the watershed and does not reproduce naturally in the lake; the striped bass fishery is dependent on annual stockings."

There was no record of a striped bass fishery in the North Anna River above the Fall Line (about 25 miles downstream of the Dam) before the North Anna dam was constructed. Dominion has monitored this reach of the North Anna River for over 30 years, and during that

time, has collected only a single striped bass. Because the Fall Line represents a barrier to upstream migration, the Dominion staff concluded that this one-time collection was the result of a fish passing over the North Anna dam. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: An extensive amount of temperature data from historic monitoring of the lake was used to model thermal conditions at various locations in the lake. Despite that extensive data set, no modeling of summer striped bass habitat was conducted to support statements that the impacts would be small in normal years and moderate in drought years (Draft EIS, page 5-3 1, lines 18-19). In combination with the elevated temperatures and increased frequency of drought conditions (lowering to elevation 248) within the lake, the striped bass population could be stressed every 2.6 years. Based on the information in the Draft EIS, it is inconclusive whether the installation of a third unit would cause acute mortality from exacerbated summer habitat squeeze. It is also inconclusive, however, that such mortality would not occur. At some point, striped bass will begin to die as water quality declines (based primarily on higher water temperatures and lower dissolved oxygen). (DW-0439 41) (SW-0017 49)

Comment: Since no modeling of summer habitat was conducted, it is unknown whether the additive impacts of a third unit would allow reservoir conditions to reach this point, and the exact point at which this will occur is unknown; but to discount the possibility is subjective. Even with the elimination of Unit 4, the predicted maximum surface temperature increase at the dam of 3.6 degrees Fahrenheit could result in striped bass mortalities depending on the plume configuration, inflow, and stratification pattern. Striped bass habitat modeling is essential in the Final EIS to explain the potential of a new (third) unit and its impact on striped bass habitat. (DW-0439 42) (SW-0017 50)

Response: *These comments were received based on the evaluation in the Draft EIS on a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and flow rate and would be expected to have a negligible effect on the striped bass. The staff has not concluded that mortality would not occur but rather that it is unlikely. Striped bass utilization and avoidance of habitat is a function of water temperature, dissolved oxygen concentrations, and other water quality parameters. There is a considerable body of research that has determined that striped bass avoid habitats where water temperatures, dissolved oxygen levels, and other water quality parameters are less than optimal. Potentially lethal conditions are not expected to occur instantaneously and lake-wide. The staff has reviewed the potential conditions that are expected to occur in Lake Anna with the revision to the proposed Unit 3 cooling system. Striped bass are expected to avoid less than optimal conditions that would occur during drought conditions. Additional modeling is unlikely to provide a more accurate assessment of potential impacts to the Lake Anna striped bass fishery*

because current models do not have the fidelity to accurately predict impact on the fishery with the data that are available. Furthermore, the additional modeling is unlikely to identify mitigative measures that could reduce impact. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The Sierra Club position is that currently, two reactors operating at Lake Anna draws 1.9 million gallons of water per minute from the waters of the South Anna, and discharges hot water back. Hot water has a negative affect on the striped bass, one of the most thermally-sensitive fish species. This statement is supported by VDEQ statement of "a tenuous situation" for the health of the striped bass population. We fear that the maximum daily surface temperature would increase near the dam and intake pipe. According to the Virginia Department of Game and Inland Fisheries, "It is likely that even a small increase in reservoir water temperature would have a dramatic effect-further reducing the already limited habitat and perhaps jeopardizing the entire striped bass fishery." We cannot afford this impact on our populations of sport fishery and recreation that Sierrans around the state enjoy. (DW-0857 2)

Comment: The addition of another once-through reactor will increase the temperature of Lake Anna, which will affect the striped bass, one of the most thermally-sensitive fish species in the lake. Striped bass prefer temperatures between 65 and 70°F and avoid temperatures above 77-81°F (DEIS, page 5-27, Table 5-7). According to Dominion's models, the "maximum daily surface temperature" near Thurman Island would reach 95.1°F (DEIS, page 5-28, line 4). The "maximum daily surface temperature," however, is calculated as an average of the upper 28 feet of the water column. This ignores the temperature gradient, especially in the lower parts of the first 28 feet water column where the striped bass reside. (DW-0437 13)

Comment: [T]he conclusory statements in the DEIS regarding the availability of striped bass habitat and the practicability of mitigation measures render the discussion of impact upon the Lake Anna striped bass population inadequate. (DW-1122 3)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and flow rate and would be expected to have a negligible effect on lake temperature and the striped bass. The Lake Anna striped bass population is a "put-grow-and-take" fishery created using stocked fish that did not historically occur in or migrate through the North Anna River in the vicinity of Lake Anna before the North Anna Dam was completed and Lake Anna was impounded. Because the proposed Unit 3 cooling system would be expected to increase overall lake temperature by only 0.1 °F, thermal impacts beyond those that currently exist from the operation of Units 1 and 2 are unlikely. During the warmer months or extended drought events, the staff have concluded that suitable refuge for striped bass would continue to exist in Lake Anna. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Striped bass are also sensitive the level of dissolved oxygen in the water, but no dissolved oxygen data is presented in the Draft EIS. The selection of temperature and dissolved oxygen is a balancing act for striped bass. In order to make a real assessment of the impact of additional reactors on the striped bass, vertical profiles of temperature and dissolved oxygen within the upper 28 feet of the water column and need to be provided in the Final EIS. (DW-0437 14)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on the striped bass. Water temperature data recorded at several locations and depths in Lake Anna have shown that a thermally stratified condition exists in the lake during several months each year. This thermal stratum (i.e., thermocline) typically develops in Lake Anna in the spring months. However, the thermocline does not remain at a constant depth and deepen during the summer because of surface heating from the atmosphere and NAPS operations. In the late fall, mixing processes deepen the thermocline to the reservoir bottom and the lake becomes thermally homogeneous.*

During the summer and early fall, dissolved oxygen concentrations below the thermocline are often too low to support striped bass. Data on dissolved oxygen concentrations in Lake Anna are presented in the NAPS Clean Water Act Section 316(a) report and annual environmental reports. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The following comment in the Draft EIS regarding droughts, "In such circumstances, mitigation to reduce the impact could be accomplished by stocking more fish, stocking larger fish, or managing the fishery to provide more catch opportunities of large fish," is incorrect and not a scientifically recognized fishery management solution, according to the Department of Game and Inland Fisheries. Such a comment does not recognize the biological and physical factors necessary for a successful striped bass population. (DW-0439 43) (SW-0017 60)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on the striped bass. The striped bass is not endemic to this reach of the drainage and was placed in an environment where it did not exist prior to 1970s. Even without current NAPS operations, the habitat is sub-optimal. Management of the fishery through annual stocking is necessary to maintain the fishery. Fishery biologists recognize the biological and physical factors necessary for a successful striped bass fishery and use this information to effectively manage this species.*

This approach represents a "scientifically recognized fishery management solution." Accordingly, no changes were made to this EIS as a result of this comment.

Comment: If adult striped bass are forced to move to marginal habitat in the northern part of the lake, they could be prevented from feeding normally. Spatial segregation from their forage base and increased metabolic rates could cause loss of condition or starvation. The NRC Staff concludes that the problem can be mitigated by stocking more fish or stocking larger fish. But larger fish are known to be affected by increased temperature, and are often the first to suffer summer "die-offs." While more fish can be stocked, the potential for large fish greater than 10 lbs (or maybe even fish greater than 6 lbs) is greatly reduced with increased temperatures. It would also be very expensive to significantly increase the annual stock, and Virginia taxpayers should not be held financially responsible. A cost analysis of the stocking proposals should be included in the Final EIS. (DW-0437 16)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on the striped bass. The staff stated in Section 5.4.2.5 that the condition of the fish could be affected if the fish are forced to move upstream during summer. Given the change in the Unit 3 cooling system, a cost analysis of maintaining a sub-optimal fishery in Lake Anna through stocking is outside the scope of this EIS and would be more appropriate for the VDGIF. Accordingly, no changes were made to the EIS as a result of this comment.*

Comment: I am concerned that a drop in water level will adversely affect fish populations, including striped bass as well as their striped bass eggs and larvae. Extra stocking is not an attractive option as it doesn't consider the unsuitability of a warmer lake for the fish population, and only slightly mitigates the effects of a negative environmental change. (DW-0617 3)

Response: *The potential impacts of lake level changes are discussed in the EIS (Sections 5.3.2 and 5.4.1.3) and the ER (Section 5.2.2.2). The results presented quantify the impact on lake levels that would occur with the proposed Unit 3 closed-cycle, combination wet and dry cooling system. Striped bass are not known to spawn in Lake Anna or the tributaries to the lake. Therefore, there cannot be any adverse impacts to striped bass eggs or larvae. Striped bass are maintained in the reservoir through annual stocking of fingerlings. The maximum annual drawdown in most years would not differ greatly from the current operation of the existing units. The results show that the minimum lake levels occur in the latter half of the calendar year. During the 25 years (1978 to 2003) evaluated by the staff in its water balance, differences in water levels were less than 3 in. between the base case and the ESP case for 69 percent of the period of the simulation. The timing of predicted differences is expected during the times of the year when fish are less likely to be impacted by lower water levels. Impacts for species other than the striped bass are more likely to occur when fish are spawning*

(i.e., in the spring and early summer). Expected impacts from lake level changes on fish habitat would not destabilize the fish habitat. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Although the NRC Staff conclude that the striped bass will be forced "up-lake into areas that provide suitable habitat" for "a three-to-four month period in summer and early fall" (DEIS, page 5-31, line 3), no data was presented that shows that suitable habitat exists in the other areas of the lake. This data should be included in the Final EIS. (DW-0437 15)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on the striped bass. Given the change in the proposed Unit 3 cooling system, it is unlikely, that even extreme circumstances (e.g., an extended drought) would completely eliminate striped bass habitat in the upper- and mid-lake areas. Striped bass mortalities have been observed in Lake Anna during two-unit operation and have been reported in the WHTF. These are likely related to elevated water temperatures. Striped bass restricted to a narrow layer of water around the thermocline or to thermal refuges may not be able to move freely and feed normally; thus, they may be forced to live on stored energy reserves for several months. As a consequence, they may lose weight or show a decline in physical condition. This phenomenon has been observed at a number of southeastern reservoirs where striped bass experience a late-summer habitat "squeeze." When surface waters cool in September and October, striped bass are again able to move freely in the water column and resume normal feeding. Weight gain and an improvement in their physical condition generally follow. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]he DEIS concludes that the heat stress impact on striped bass would be small during cooler months and non-drought years, and would be only moderate during the summer months and drought years because "suitable habitat would continue to exist in Lake Anna" during these times. DEIS, p. 5-3 1. The DEIS provides no evidentiary support for this conclusory assertion. (DW-1122 10)

Comment: Increased lake temperature threatens the striped bass population in the lake. Lower water levels would adversely impact recreational activities in the lake. Yet, any analysis to determine "operational practices and procedures" that might minimize adverse impacts" is deferred until the COL application. (DW-0589 6)

Comment: [T]he DEIS fails to include any support for its determination that mitigation measures could be implemented that would reduce the impact on the striped bass. The DEIS specifically suggests that more and larger fish could be stocked, and that the fishery could be

managed to provide more catch opportunities of larger fish. Adding more large fish to the lake would seem to only increase competition for any remaining viable large-fish habitat in the lake. The Final EIS should include an explanation as to the practicability of the proposed mitigation measures. (DW-1122 11)

Comment: [T]he ecological balance of lake could be significantly affected if the hybrid [sterile white bass/striped bass] manages to reproduce, a phenomenon that has reportedly occurred when other "sterile" species have been added to an ecosystem. Since this potential mitigation measure was proposed after the DEIS was published, it has not yet been evaluated. If there is any realistic possibility that this strategy might be employed, its potential impacts and effects on the ecosystem need to be explored in a supplement to the DEIS that is circulated for public review and comment. (DW-1122 13)

Comment: [I]n a significant new mitigation proposal, Dominion has recently offered to provide financial assistance "to aid in the development and stocking of a more thermally-tolerant species (such as a sterile white bass/striped bass hybrid)" in response to VDGIF concerns regarding the impact of an additional unit on the lake's striped bass population… The addition of a white bass/striped bass hybrid to Lake Anna could further decrease the amount of suitable habitat and food for the striped bass. (DW-1122 12)

Response: *These comments were based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and flow rate and would be expected to have a negligible effect on the striped bass. Previously, in an April 12, 2005, response to an NRC staff request for additional information, Dominion transmitted to the NRC a letter to the VDGIF in which Dominion proposed to assist with development and stocking of a suitable, more thermally tolerant hybrid species. However, because of the change in the proposed cooling system and its negligible effect on lake temperatures, Dominion need not consider implementing this plan Accordingly, no changes were made to the EIS as a result of these comments.*

3.4.2.6 Downstream Impacts

Comment: [A]dditional data and analysis…is needed to ensure that reduced downstream flows do not harm striped bass and other fish. (SE-0046 2)

Response: *This comment is nonspecific. Section 5.4.2.6 in this EIS discusses the potential impacts of downstream flows on striped bass and other fish. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to the Department of Game and Inland Fisheries, the downstream impacts to fisheries resources were ignored in the Draft EIS in spite of the increased frequency of low flows that a third water-cooled unit would produce. Currently, (with two units in the regulated "base scenario"), 67 weeks of drought conditions (20 cubic feet per second ("cfs") or less) out of a 26-year period would be expected. Given the addition of a third unit, the expected drought frequency would rise to 150 weeks using the once-through cooling method. The length of time the drought frequency would increase using the closed-cycle cooling method would depend on factors such as the frequency of triggering the Maximum Water Conservation Mode and the design used. (DW-0439 44) (SW-0017 7) (SW-0017 51)

Comment: According to the Virginia Department of Environmental Quality, another reactor will mean "nearly perennial condition of severe degradation" every fall. Dominion's own model shows that the minimum flow (20 cfs) is expected to occur 10 years out of the 25-year modeling period with a third reactor. With the two existing units, minimum flow (20 cfs) is predicted in only 3 years out of the 25-year modeling period. This will have a serious impact on the downstream aquatic life, as well as increase conflicts over water use by downstream counties in the future. Yet, there is no discussion of how the increased occurrence of minimum discharge will affect on living organisms downstream. (DW-0437 21)

Comment: Dominion's models predict that the flow from North Anna Dam will be reduced to 20 cfs for 11.8% of the time, compared to 5.3% of the time currently. The impact of increasing periods of extreme low-flow at 20 cfs—not only increased periods of flow at 40 cfs—from the dam on downstream habitat should be fully evaluated in the Final EIS. (DW-0437 26)

Comment: The DEIS fails to undertake a serious analysis of the impacts on downstream aquatic habitat of the increased durations of low flow… NRC's regulations make clear that merely suggesting that Dominion's compliance with the permitting scheme of the CWA will protect aquatic resources downstream is insufficient. The Final EIS must therefore incorporate a more thorough analysis of the impact of increased durations of reduced flow on downstream aquatic habitat. (DW-1122 6)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system. The percentage of time that flow would be reduced to 20 cfs was evaluated considering the system thermal discharge and evaporative water loss associated with the proposed Unit 3 cooling system. The staff has included additional information on the North Anna River fishery downstream of the dam in Section 5.4.2.6 of the EIS. The release from the dam of less than 40 cfs in most years would not differ greatly from the current flow regime with two units operating. The results indicate that the discharge of less than 20 cfs would occur in the latter half of the calendar years in those*

years during drought conditions. Impacts to the river fishery are more likely to occur when fish are spawning (i.e., in the spring and early summer). Expected impacts from reduced in-stream flow during other periods of the year would not destabilize the fish habitat.

Aquatic organisms inhabiting small Piedmont streams, such as the North Anna River, are pre-adapted to tolerate reduced in-stream flow rates during a portion of the year. The addition of an additional unit would reduce the variability of downstream flow. The staff determined that the downstream habitat would not be eliminated or diminished to the point that the aquatic community would be destabilized as a result of low-flow conditions.

Comment: What thorough studies have been conducted on the plant and animal ecology both at the lake and downstream on the Pamunkey River and further downstream to the York River and the Chesapeake Bay, all impaired water systems, and with the bay at 27 percent of its historical percentage? (DT-0038 8)

Comment: Decreases in the downstream release of water will adversely affect the wildlife of the streams in the York River watershed, including the North Anna and the Potomac Rivers. This will be particularly critical during periods of drought. (DT-0047 3)

Comment: [A] full evaluation of the potential impacts of reduced or variable discharge on the life history stages of the native Pamunkey River striped bass population is warranted, especially due to the fact that the Pamunkey River population is one of the healthiest populations in the Chesapeake Bay ecosystem and is being used for propagation for Chesapeake Bay restoration efforts. The impacts of extended periods of low-flow downstream should be fully analyzed in the Final EIS as an integral part of determining site suitability, rather than simply punted to the Commonwealth of Virginia to address after the ESP decision is made. (DW-0437 22)

Comment: DGIF has reviewed the impacts of stream flow on American shad juvenile production in the Pamunkey River. The data were presented to Dominion and the NRC in separate meetings in the spring of 2006. ...the best juvenile shad survival occurred during wetter June-August years (those with flows at the 80th percentile). Lake Anna is about one-third (1/3) of the drainage area of the Pamunkey River at the gauge station near Hanover, and is an important contributor to that river's flow. Flow losses within Lake Anna due to evaporation can have a significant impact upon downstream shad resources. The NRC analysis would predict a much more significant impact on potential summer shad habitat than the Dominion analysis. (SW-0017 46)

Comment: The SDEIS concludes on page 5-31, line 18 that “consumptive water losses may noticeably impact lake levels and downstream flows”. This is a major area of local concern and should be more thoroughly analyzed and documented. It is hard to understand how an impact assessment of SMALL is derived from the discussion. It seems like the impacts are at least MODERATE and potentially LARGE. (SE-0045 29)

Response: *In response to these comments, the staff has included additional discussion of the North Anna River and its aquatic life downstream of the dam in Sections 2.7.2.3 and 5.4.2.6 of the EIS. The potential changes in discharges from the dam are not expected to adversely impact the fishery in the Pamunkey River, which is formed at the confluence of the North and South Anna Rivers 27 miles downstream of the dam. Most species of fish inhabiting coastal Piedmont streams are preadapted to tolerate low flow conditions. Staff simulations of releases from the North Anna Dam for Unit 3 operation indicate that during non-drought years, flows of less than 40 cfs but more than 20 cfs could occur in the latter half of the calendar year. Fish are most vulnerable to low-flow conditions during spawning, and most species (including striped bass) inhabiting the North Anna River spawn in the spring and early summer. The staff concludes that reduced flows resulting from the operation of Unit 3 are not likely to destabilize the fishery downstream of the Lake Anna Dam. The principal tributaries draining into the Chesapeake Bay have a combined annual average flow of 72,086 cfs. The changes in the flow in the North Anna River as a result of the operation of Unit 3 would be less than 40 cfs. The staff concluded that this 0.06 percent change in annual average inflow rate to Chesapeake Bay would be insignificant. The Potomac River, an upstream tributary to Chesapeake Bay, is not part of the York River drainage.*

Comment: The Department of Game and Inland Fisheries remains concerned regarding the increased evaporation from Lake Anna and its impacts upon downstream hydrology, attributable to the addition of Unit 3. The increased frequency of flows below 40 cubic feet per second (cfs) will, if allowed, cause the downstream hydrology to change to a drier condition than would occur naturally, resulting in lower flows affecting downstream resources in the Pamunkey River, to which the North Anna River flows. The required release flow of 40 cfs is 11.6% of mean annual flow. Normal summer flows in a stream the size of the North Anna River would be from 70 to 100 cfs or 20-30% of mean annual flow. Reduced flows would result in reduced summer habitat for resident Lake species as well as downstream migratory species. An analysis of Dominion's long-term North Anna River monitoring data demonstrated that the fish community requires a diverse flow pattern, with different species doing best in wet years. This is similar to study results from the James River and the North Fork of the Shenandoah River. (SW-0017 43)

Response. *Fish in Coastal Piedmont streams are preadapted to surviving large fluxuations in annual flow. Because the minimum flow rate from the dam would not decrease, there would be no additional loss of habitat. However, the staff recognizes that the duration of reduced flows would likely be extended as a result of the operation of Unit 3. The Commonwealth of Virginia has the authority to regulate Dominion's water use and would specify release schedules at the North Anna Dam, as appropriate, to protect the downstream environment. The staff has included additional discussion of the North Anna River and its aquatic life downstream of the dam in Sections 2.7.2.3 and 5.4.2.6 of this EIS.*

Comment: How can a 20% change (52% from 44%) in the low flow conditions not have noticeable downstream impacts [on riparian vegetation]? (DW-0438 144)

Response: *Health and diversity of riparian vegetation is primarily influenced by extreme flow regimes (floods) and not by low-flow conditions. In the coastal Piedmont, there is sufficient moisture to maintain the riparian vegetation. Therefore, reductions in North Anna River flow resulting from the operation of Unit 3 is unlikely to adversely affect downstream riparian vegetation. The text in Section 5.4.1.4 of this EIS has been modified to explain the staff's assessment.*

Comment: Impacts of those [generating] facilities upon the lake temperature, particularly in the summer months, can affect the downstream fishery. (SW-0017 14)

Response: *Because a closed-cycle, combination wet and dry cooling system is now proposed for Unit 3, the increase in existing lake temperature would be negligible. Thus, thermal impacts to Lake Anna and the North Anna River below the dam would not be increased as a result of the operation of Unit 3. Accordingly, no changes were made to this EIS as a result of this comment.*

3.4.3 Threatened and Endangered Species

Comment: Suggest that this DEIS statement reflect that the only listed aquatic species likely to be present in the vicinity of the North Anna ESP site is the dwarf wedgemussel, that none were collected in pre-impoundment surveys of the North Anna River, and none have been collected in more recent years during routine monitoring surveys. [page 2-42, line22] (DW-0423 13)

Comment: Based on a review of the Virginia Department of Conservation and Recreation website, two of the mussel species listed in the DEIS (*Fusconaia masoni* and *Pleurobema collina*) are found in the James River drainage, but not the York River drainage (which includes the North Anna River). It appears that the DEIS includes occurrences of protected/rare mussels in counties (such as Albemarle, Fluvanna, and Goochland) that are within 25 or 50 miles of NAPS, but do not adjoin Lake Anna or the North Anna River. Although there are inconsistencies in the treatment of protected/rare mussels, the conclusions of the ER and the DEIS are the same: one listed mussel species occurs in the counties of interest (Caroline, Hanover, Louisa, Orange, and Spotsylvania), and this population would not be affected.

Comment: According to DCR [Department of Conservation and Recreation], natural heritage resources have been documented in the project area. ...Laura's Clubtail, an odonate (Odonata, i.e., dragonflies and damselflies), has been historically documented in Lake Anna. This insect species is not listed as endangered or threatened. ...Because of their aquatic lifestyle and limited mobility, the larvae are particularly vulnerable to siltation and to shoreline disturbances that cause the loss of shoreline vegetation. Larvae are also sensitive to alterations resulting in poor water quality, aquatic substrate changes, and thermal fluctuations. (SW-0017 70)

Response: *This species was not considered in the EIS for the following reasons: (1) although acknowledged as rare, it is not considered to be a species of concern by either VDCR or the*

FWS, (2) the VDGIF does not list it as occurring in the area of concern, and (3) according to NatureServe (2006), the closest occurrence is in a county at least 50 miles from the site. If Dominion is issued an ESP and applies for a COL, then the staff would contact appropriate State and Federal agencies at the COL review stage, and any significant new information about important species would be obtained and evaluated at that time. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [T]he SDEIS makes reference to the shortnosed sturgeon as being listed as endangered by the National Marine Fisheries Service and by Virginia. It also appears on the Virginia Department of Cultural Resources List of "Extinct and Extirpated Animals of Virginia." (SDEIS, page 8-29, section 8.5.4). There is no "Virginia Department of Cultural Resources." Perhaps the reference is to the Department of Historic Resources, which does not have responsibility for endangered species. (SW-0017 59)

Response: *The correct reference should have been to the Virginia Department of Conservation and Recreation, which maintains a list of rare animals. This reference has been corrected in Section 8.5.4.*

Comment: Suggest that this DEIS wording should reflect that none of the Federally or State-listed species have been observed or collected in local streams or the North Anna River. [page 2-42, line 29] (DW-0423 14)

Response: *Section 2.7.2.4 of the final EIS was changed to make it clear that none of the Federally or State-listed species has been observed or collected in local streams or the North Anna River.*

3.4.4 Wetlands

Comment: Since Section 4.3.1 line 9 states that “Dominion did not provide information on wetlands in its ER” how can the DEIS conclude that the impacts of hydrological alterations would be SMALL? The text discusses numerous possible impacts. (DW-0438 92)

Comment: The Draft EIS/SDEIS does not provide information on the delineation (in acres) or the type of wetlands impacted by the construction and operation of the proposed facility, nor does it include any mitigation for the loss of wetlands. (DW-0422 5) (SE-0030 6)

Comment: Existing wetlands, streams, and woodlands on the North Anna Power Station (NAPS) site may be adversely affected by construction activities for the proposed Units 3 and 4 (draft EIS, page 4-2, lines 20-23). (DW-0589 9)

Comment: Existing wetlands, streams, and woodlands on the North Anna site may be adversely affected by construction activities for the proposed Units 3 and 4 (DEIS, page 4-2,

lines 20-23). Dominion's ER for the North Anna ESP observes, "Any work that has the potential to impact a wetland would be performed in accordance with the applicable regulatory requirements." (ER, Section 4.1.1.6.2) This is repeated almost word-for-word in the draft EIS at Section 4.1.1. The ER concludes, without supporting evidence, "Therefore, no construction-related impacts on water courses or wetlands would result" (ER, Part 3, Section 4.1.1.6.2). Does it necessarily follow that "applicable regulatory requirements" will preclude any negative impacts on wetlands? A more trenchant analysis of the question is deserved in the Final EIS, especially since Dominion provided no information on wetlands in its ER (DEIS, Section 4.3.1, line 9). Please explain the mitigation measures that will be employed to achieve this end. (DW-0437 40)

Comment: Section 4.3.1 line 9 states that "Dominion did not provide information on wetlands in its ER." That does not relieve the NRC as lead agency from its responsibility to collect, analyze, and report information on wetlands in the DEIS. This information must be included since Page 2-27 line 29 mentions that there are wetlands in the vicinity. (DW-0438 93)

Comment: The Draft EIS states, "a few small wetlands and two intermittent streams exist on the North Anna ESP site" (page 4-7, Section 4.4.1), but no wetland delineation of the area has been accomplished. The Draft EIS also states, in several different places, that avoidance and minimization of wetland impacts will be practiced to the maximum extent practicable. Given the above information, however, DEQ cannot determine whether project activities would adversely affect wetland or stream areas subject to DEQ water permitting jurisdiction. For this reason, DEQ recommends that the applicant submit the following: 1) a National Wetland Inventory (NWI) map identifying the project area; 2) photographs of the intermittent streams; 3) a confirmation of the wetlands delineation by the Army Corps of Engineers; and 4) any other information pertaining to the location of wetlands or streams in or near the project area. This information would be necessary for any Virginia Water Protection Permit application, but it is also vital for an informed decision on federal consistency and on the environmental impacts of the proposed project. (DW-0439 7) (SW-0017 41)

Comment: Page 2-27 line 29 discusses wetlands associated with streams and one within the ESP site. What wetland preservation efforts will be done? (DW-0438 45)

Response: *The staff examined National Wetland Inventory (NWI) maps of the North Anna ESP site while preparing the Draft EIS and inspected the potential wetland areas at the North Anna ESP site during a site visit in December 2003. This site inspection and the NWI maps were part of the basis for the staff's conclusions in the Draft EIS regarding impacts to wetlands at the North Anna ESP site.*

Since publication of the Draft EIS, Dominion has completed a wetland delineation that identified 6.68 acres of wetlands in the North Anna ESP area. The delineation also identified approximately 5500 linear feet of streams that cover an area of approximately 0.46 acres, and

approximately 2.49 acres of open water within a beaver pond at the western edge of the North Anna ESP area near the end of an unnamed arm of Lake Anna. The U.S. Army Corps of Engineers (ACE) verified this delineation and indicated that a permit from the ACE or VDEQ may be required prior to any mechanized land clearing, or any filling or excavation that could disturbed these wetlands or streams. However, neither the ACE nor VDEQ can determine the type of permit(s) required (e.g. CWA Section 404 permit, Virginia Water Protection Permit, or NPDES construction site storm water permit) or the limitations or requirements, if any, would be attached to the permit(s) until a more detailed site design and development plan is available. When other State or Federal agencies have regulatory jurisdiction over a resource such as wetlands, those agencies have the authority to impose restrictions, requirements, or mitigation measures. Therefore, the staff need not set standards for the specific protection and mitigation measures that will be taken. However, Dominion has stated in the ER that watercourses and wetlands would be avoided to the extent practicable during construction, and that it would adhere to any ACE or VDEQ permit conditions or requirements.

Approximately 128 acres of upland habitat would be permanently disturbed; much of this is pine or pine-hardwood mixed woodlands. Land clearing would be performed using best management practices to avoid impacts such as run-off and soil loss.

With respect to the comment regarding withdrawal of cooling water from, and thermal discharges into, the WHTF, no response is necessary because Dominion has since revised its application to eliminate once-through cooling for proposed Unit 3, in favor of a close-cycle, combination wet and dry system, which would have an insignificant effect on the water temperature within the WHTF, Lake Anna, and the North Anna River.

The text in Sections 2.7.1 and 4.4.1 was changed to include the wetland delineations performed by Dominion and the ACE verification of the delineation.

Comment: I have a concern with the wetlands that were once surrounding the area where I currently live. (DT-0057 2)

Response: *The staff evaluated the potential impacts of station operation on wetlands along the shoreline and upper reaches of Lake Anna based on its conservative assessment as described in Appendix K of the EIS. This assessment estimated that the difference between the lake level with and without the proposed Unit 3 would be less than 3 in. approximately 69 percent of the time, less than 6 in. approximately 85 percent of the time, and less than 1 ft approximately 94 percent of the time. All of the days between 1978 and 2003 when the difference in lake level with and without the proposed Unit 3 was predicted to be greater than 1 ft would have occurred during the two major drought periods of 1980 to 1981 and 2001 to 2002.*

Differences in lake level that fluctuate between 0 and 6 in. are likely to have no discernable effect on shoreline vegetation or wetlands. During the occasional periods when there are

greater differences in the lake level, there likely would be noticeable temporary changes in the shoreline and wetland vegetation. Upper areas may dry out, and lower, normally inundated areas may develop stands of wetland vegetation over time. However, the increased drawdown is expected to be temporary, and even if the additional drawdown lasts for a year or more, any observable changes would not be detectable within a relatively short time after the water level returns to normal. Riparian and wetland vegetation is adapted to survive in periodic drought conditions without detectable long-term effects.

Although no changes were made to this EIS as a result of this comment, the text in Section 5.4.1.4 was revised to reflect the change in the proposed cooling system for Unit 3.

Comment: Existing wetlands, streams, and woodlands on the North Anna Power Station (NAPS) site may be adversely affected by construction activities for the proposed Units 3 and 4 (draft EIS, page 4-2, lines 20-23) and possibly by potential increases in the maximum Lake Level and decreases in the minimum Lake Level. (SE-0038 9)

Response: *Dominion has stated in the ER that watercourses and wetlands would be avoided to the extent practicable during construction, and that it would adhere to any ACE or VDEQ permit conditions or requirements. Although no changes were made to this EIS as a result of this comment, the text in Sections 2.7.1 and 4.4.1 was revised to include the wetland delineations performed by Dominion and the ACE verification of the delineation.*

3.4.5 Other Comments

Comment: *Ameiurus catus* is the correct scientific name. [page 2-35, lines 33 and 38] (DW-0423 57)

Response: *Based on this comment, Table 2-3 in the EIS was revised to reflect the correct name.*

Comment: Table 5-7 on page 5-27 does not explain why there are two rows of numbers for bluegill and large-mouth bass. According to a similar table in Dominion's ER (Table 5.3-22, page 3.5.91), the two rows are from different sources. Please clarify this in the Final EIS. (DW-0437 17)

Response: *The two lines of data for bluegill and largemouth bass reflect information from two different sources for each species. Based on this comment, the noted table was modified to clarify the source of information for the final EIS.*

Comment: Page 2-34 discusses fish populations. What percentage of fish catches and deaths show abnormal anatomy? How does this percentage compare to inland waters around other nuclear plants? How does this percentage compare to inland waters not near nuclear plants? (DW-0438 51)

Response: *The frequency of physical abnormalities in fishes resulting from exposure to radiation in Lake Anna fish populations could be addressed if some organization had reason to believe that an aquatic sampling program was necessary. However, radiation guidelines that are protective of the public also provide adequate protection to plants and animals. This conclusion has been upheld by national and international groups that have examined the issue, including the National Council on Radiation Protection and Measurement (NCRP Report No. 109, Effects of Ionizing Radiation on Aquatic Organisms, 1991), the International Atomic Energy Agency (IAEA Technical Report Series No. 332, Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards, 1992), and the International Commission on Radiological Protection (ICRP Publication 26, Recommendations of the International Commission on Radiological Protection, 1977). The national and international groups emphasized that individuals of non-human species may be adversely affected by such radiation levels, but effects at the population level are not detectable. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: How will the increased temperature of the lake contribute to mosquito populations, particularly those that are West Nile disease carriers? (DW-0438 95)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and the elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and be expected to have a negligible effect on lake temperature or result in a change in mosquito statistics. Accordingly, no changes were made to this EIS as a result of this comment.*

3.5 Socioeconomics

3.5.1 Region of Socioeconomic Evaluation

Comment: Page 2-1 talks about a 50-mile radius but in other parts of the document different radii are used (see for example Figure 2-3, Table 2-1). A consistent area or areas should be used throughout the document. For example, a 15 mile radius might be the HIGH area of impact, a 50 mile radius (which would include Richmond) might be MEDIUM areas of impact, and an 80 mile radius (which would include DC) might be a LOW area of impact. For each parameter addressed in the DEIS the impacts in each area of impact should be defined. Impacts on DC must be addressed. (DW-0438 12)

Comments Within Scope

Comment: Along the lines of comment 12 above, Page 2-5 line 10 defined "the region" as within a 50 mile radius but provides no basis for why that area was selected. In this comment I also noted that DC is generally considered part of the region. (DW-0438 14)

Comment: Table 2-1 shows data for four counties. As mentioned in our comment #12, this is inconsistent with discussion of a "region" of study. (DW-0438 21)

Comment: Page 2-37 line 24 acknowledges the project proximity to Washington, D.C. yet the document is largely void of discussion of impacts on the D.C. area. (DW-0438 54)

Comment: The potential impacts to the DC area are not addressed at all in the document and should be included. (SE-0045 3)

Comment: Page 2-45 line 16 states that the "impact area for the analysis" includes only the counties of Henrico, Louisa, Orange, and Spotsylvania and the City of Richmond. This area is too small because likely and potential impacts exceed as far out as 80 miles from the site. This area is arbitrary and inconsistent with other study areas used in the DEIS (see comment #12). (DW-0438 59)

Comment: Page 2-57 line 32 mentions that there are 32 counties within a 50 mile radius of the project. It is not clear whether this 50 mile radius is the subject area for this part of the analysis. As stated in comment #12, consistent subject areas should be used. (DW-0438 71)

Comment: Page 4-17 line 11 discusses a ten mile radius from the site without providing a rationale for why this radius was selected. As suggested in comment 12, I believe that rationales should be provided and several radii should be used for all parameters studies. (DW-0438 97)

Response: *These comments relate to the following issues: (1) the basis for the radial distances from the ESP site used in the analysis, (2) defining a region of study, and (3) defining the economic impact area.*

Apart from the specific geographic area for socioeconomic impact analyses, the NRC is guided by EIS preparation principles for each issue analyzed. The staff focuses its review on the area that may be affected by a specific action or by alternatives; the geographical area varies depending on the issue and the resource. The impacts analyzed in an EIS are to be discussed in proportion to their significance with less important material summarized, consolidated, or referenced and the most important material to be presented for issues with the greatest significance. The NRC uses the scoping process to inform the analytical efforts, discussions, and documentation on those issues of greatest significance or of likely greatest impact resulting from the proposed action whether direct, indirect or cumulative. In performing the analyses, there is inherent uncertainty in characterizing the effects and in prescribing the geographical

area influenced. Simply put, the NRC does not undertake detailed analyses to assess improbable impacts nor does it extend the geographical area of analysis to the point where the environmental effects of the proposed action may be irrelevant, negligible, or may not be observable. Consequently, the judgement requires forethought and flexibility if the scoping process reveals some unique circumstances.

NRC regulatory guidance to applicants in place since the 1970s, including Regulatory Guide 4.2, Preparation of Environmental Reports for Nuclear Power Stations, has delimited the region of interest for EISs to about 50 miles for most issues. The radial distances from the plant site are generally scaled to reflect the reasonable range of influence of plant activities on the environment. The region of influence, or affected area, is not uniform across the environmental disciplines or environmental resources. For the socioeconomic issues, the NRC's Standard Plans for Environmental Review for Nuclear Power Plants (ESRP) (NRC 2000) states that the term "vicinity" means "a band or belt 10 km (6 mi) wide surrounding the plant site." An objective of the analysis is to investigate socioeconomic factors in an area in which the site makes up no more that 10% of the area. For purposes of the socioeconomic environmental reviews, "region" means "an area within an 80-km (50-mi) radius of the station site, but excluding the site and "vicinity." The relevant region is limited to "that area necessary to include social and economic base data for (1) the county in which the proposed plant would be located, and (2) those specific portions of surrounding counties and urbanized areas (generally, up to 80 km (50 mi) from the station site) from which ….work forces would be principally drawn, or that would receive stresses to community services by a change of residence of these workers. Other social and economic impacts can generally be presumed to fall within the same area covered by this definition of region.

The guidance described above was used in conducting the socioeconomic analysis for this EIS. However, the actual focus of the socioeconomic analysis was on those counties (Orange, Louisa, Spotsylvania, and Henrico) and the City of Richmond where approximately 79 percent of the operations workforce for NAPS Units 1 and 2 live. With no evidence to the contrary, the staff postulated that a similar percentage of the operations workforce of the proposed ESP Units 3 and 4 would likewise live in these counties. In addition, most of the socioeconomic impacts of plant construction and operation of Units 3 and 4 would likely occur in Louisa County and, to a lesser extent, Orange County. While there would be socioeconomic impacts to Spotsylvania and Henrico Counties and the City of Richmond, these impacts would be more diffuse. The impacts become diffuse because of the larger economic base of the counties and the City of Richmond. The remaining 28 counties within the 80-km (50-mi) radius are far removed from the NAPS site and have less socioeconomic connection to the site, so any socioeconomic impacts would be very small and difficult to measure. Likewise, socioeconomic impacts occurring beyond 50 miles from the ESP site would be very small and difficult to measure and,

consequently, need not be considered for this EIS. The likely residential locations of the construction and operating workforce and impacts are covered in Sections 4.5.2, 4.5.3.5, 5.5.2, and 5.5.3.5 of the EIS. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The use of population radii in Section 2.81 is good. However inconsistent radii are used throughout the section so comparisons (for example of stable and transient populations) are difficult. (DW-0438 62)

Response: *Section 2.8 of the EIS describes the current, affected environment. Table 2-5 presents the population (using Census 2000 data) and estimated population by decadal increments out to 2065 by concentric radii starting at 0 to 16 km (0 to 10 mi) and ending at 60 to 80 km (37.3 to 50 mi), which defines the region of analysis. Section 2.8.1 of the EIS then discusses where some of the towns, cities, and other attractions (Lake Anna and King's Dominion) are located within the radii. As stated in the section, an accurate count of the transient population within an 80-km radius of the site is difficult. As an alternative, the analysis focused on the two biggest attractions for transient populations within the 80-km radius of the NAPS site – King's Dominion and Lake Anna Recreational Facilities and State Park – and used these attractions collectively as a proxy for transient population in the region. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-9 line 15 discusses "the region" and it fails to mention that Fredericksburg is within the radius drawn. Was Fredericksburg considered in other parts of the analysis? (DW-0438 19)

Response: *Fredericksburg was considered in the socioeconomic analysis of Spotsylvania County. Accordingly, no changes were made to this EIS as a result of this comment.*

3.5.2 Economics and Taxes

Comment: The economic considerations to the community are considerable and as a resident who lives within 20 miles of the plant I feel comfortable about the addition of two units at the site. (DW-0791 3)

Comment: I am a Louisa County resident and the benefits to our county and state are extensive. (DW-0858 2)

Comment: [T]hey [Dominion Power] have provided jobs to the citizens of Louisa and surrounding counties in the state of Virginia, which have been important to continued prosperity. (DW-1007 3)

Comment: Dominion is a good citizen of our community. They pay their taxes. They employ more than 900 people with average wages significantly average the average wage of the community as a whole. They provide good, clean electric power and they help reduce our dependence on oil. (ST-0018 2)

Comment: It makes sense. It increases tax revenues at very little expense to the community. It adds high paying jobs for construction and ongoing operations. It is at the leading edge of initiatives to reduce our dependence on oil. It's good business and it's good for business and we support it. (ST-0018 3)

Comment: For the whole time that I've been here [since 1984]... they [Dominion] have always helped the community and the environment. We have put fish structures in. We've helped stock the lake. We've done everything we could to make the lake a viable resource for the community to use. (ST-0023 1)

Comment: [B]y my own observations as well as published polls that I'm familiar with, the vast majority of the people of the community are in favor of expansion at North Anna. It's little wonder since North Anna has provided employment for so many thousands of people right here in this community. In this community, North Anna has provide a tremendous tax base for the local community and Dominion employees have provided valuable voluntary services including volunteering in this very school that I'm in speaking right now. (ST-0020 1)

Comment: Construction and operation at North Anna will increase the tax base of the County allowing it to improve education and other core public services. Businesses seek locations with reliable energy sources and educated workforces. More workers with good jobs also drive the economy. …There will be the additional benefit of these new workers spending their money with local businesses and providing a better life for their families. (SW-0003 3)

Comment: The construction and operation of an additional unit at North Anna would also result in significant economies, economic benefits for the region, and for the Commonwealth. Dominion estimates that 400 permanent employees will be required to operate the new facility. These are high-paying jobs, as we've heard earlier, with annual salaries over twice the average salary level in the region. (ST-0031 4)

Comment: I was going to talk about economic benefits ...to Louisa County and the State of Virginia and the nation that this project could provide and the fact that the benefits that Dominion Power has provided this county over the last 20 or 25 years. (ST-0016 1)

Response: *These comments express support for the socioeconomic factors related to the proposed ESP units. The operation of the current NAPS Units 1 and 2 continues to provide economic benefits to Louisa County and the surrounding region. Construction and operation of the additional units, if undertaken, would have similar benefits. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Page 2-37 line 15 talks about "professional fishing guides" and line 25 states that the Lake "is heavily fished." What compensation will there be to these business if the impacts of increased thermal loading from additional nuclear units affects their business? (DW-0438 53)

Response: *This comment was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on lake temperatures and associated fishing. It is unlikely that there would be a significant adverse impact on fishing guides. No compensation is planned. For further discussion of aquatic thermal impacts, see Section 5.4.2.4 of the EIS. For effects on recreational activity, including guides and marinas, see Section 5.5.3.4 of the EIS.*

Comment: Page 2-54 line 41 cites a 2002 study that Capital One is one of the largest private employers in the area. How have well-publicized job cuts there since 2002 changed this rating? (DW-0438 65)

Response: *With almost 9000 associates, Capital One remains one of Richmond's largest employers. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-55 states that NAPS has been economically beneficial to Louisa County but does not cite any data to quantify this impact. (DW-0438 67)

Response: *As stated in Section 2.8.2.1 of the EIS, operation of NAPS Units 1 and 2 in Louisa County has kept the property tax assessment rates significantly below those of neighboring counties. It also enabled the County to begin an economic development program in the 1970s with the construction of its industrial park. In addition, Table 2-15 shows the property taxes paid to Louisa County by Virginia Electric and Power Company (VEPCo), which range between 56 and 39 percent of the total property taxes collected by the County. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Section 4.5.3.1 should include typical salary information for the jobs to be created. (DW-0438 101)

Response: *The wages paid to the construction workforce would vary by the type of skills each worker possesses. The wages paid would most likely be the prevailing wage rate or higher in the area for each type of skill when the workforce is hired for construction activities and skilled workers are in demand. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [T]he analysis has also not given adequate attention to the potential for the new reactors to bring severe economic disruption in the region, particularly for those businesses and individuals whose economic well-being is intricately connected with the health and viability of Lake Anna. (DW-1176 3)

Response: *For the most part, the economic effects of construction and operation of new units is expected to be beneficial to the region by virtue of the new employment opportunities, expenditures made by the new employees in the community, and taxes realized for any new units in the Louisa County property tax base (Sections 4.5.3.1, 4.5.3.3, 5.5.3.1, and 5.5.3.3 of the EIS). The construction and operation of the new units is not expected to materially affect Lake Anna or the businesses relying on Lake Anna. Any potential adverse impacts to the lake, such as decreased water level during periods of drought, are expected to be transitory and temporary (Sections 4.5.3.4 and 5.5.3.4 of the EIS). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The power station has been a tremendous tax asset to Louisa County. (DT-0029 8)

Comment: Dominion Power has been a real good neighbor and friend here in Louisa County…and Spotsylvania and Goochland Counties, too. It has provided a wonderful lake for recreation and housing and a great state park. It has provided tax money and employment for people all over the area. It currently pays Louisa County more than $10 million a year in taxes just to be here. And the company has supported fairs and events and programs and kids and road clean-ups and much, much more. (DT-0063 5)

Comment: Some of the opposition [to the ESP] comes from people living in the vicinity of the plant. Somehow they forget to mention the low property taxes they are paying because of the high taxes paid by Dominion. I would love to have a nuclear plant in my neighborhood. (DW-1248 2)

Comment: Additionally, the direct and indirect tax revenues generated by the project will provide over $70 million per year to local and state coffers, as estimated by the Virginia Economic Development Partnership. This will provide much needed funding for schools and other critical infrastructures in the region. (ST-0031 5)

Comment: The construction and operation of an additional unit at North Anna would also result in significant economic benefits for the region and for the Commonwealth. ...The Virginia Economic Development Partnership (VEDP) estimates that 1,500 additional jobs would be created due to economic activity associated with the plant. ...the direct and indirect tax revenues generated by the project will provide over $70 million per year to local and state coffers as estimated by VEDP. This will provide much needed funding for schools and other critical infrastructure. (SW-0007 2)

Response: *NAPS Units 1 and 2 have had a beneficial economic impact on Louisa County and the surrounding region. Louisa County has received property tax benefits as a result of NAPS being located in the county. As a result, Louisa County's property tax rate is the lowest of the surrounding counties (Sections 2.8.2.1 and 5.5.3.3 of the EIS). In addition, the salaries of those working at NAPS are higher than the prevailing salaries and wages in the area for the workforce with similar skills. The expenditures made by plant employees in the surrounding counties and the property taxes paid on their residences are an economic benefit to the surrounding counties. VEPCo is responsible for the recreational resource known as Lake Anna. The increases in property values of residences around the lake, and resulting property taxes paid, are an economic benefit to Orange, Spotsylvania, and Louisa Counties. Any new units are likely to result in similar beneficial economic impacts. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: What potential effects could the institution of electric utility deregulation in Virginia have on the taxation of Dominion and the NAPS? It is suggested on page 5-42 of the EIS that deregulation may affect the amount of property taxes paid by Dominion. (DW-0437 52)

Comment: Page 5-42 on taxes mentions utility deregulation. Would the new units be merchant plants or rate-based? (DW-0438 154)

Response: *Virginia's transition to a competitive energy market is in progress. While competitive service providers of natural gas have been making offers to consumers in some areas, electric service providers have not. As with other states, it may take time for a competitive electric service market to fully develop in Virginia.*

The potential effects of electric utility deregulation in Virginia and its impacts on property taxes paid by both the existing NAPS Units 1 and 2 and the proposed ESP Units 3 and 4 are not known. However, as stated in the EIS, it is reasonable to conclude that the operation of the new units should result in an increase in the existing Louisa County property tax base. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: According [to] the EIS, no quantitative assessment of the impact on regional tax revenue can be provided at this time because Dominion has not yet selected the type of reactor it would build at the North Anna site. This is yet another example of the arbitrariness of the licensing division between ESPs and COLs, a separation that precludes a complete analysis of the environmental impacts that would be produced from the construction and operation of new reactors at the North Anna site (or any reactor site, for that matter). (DW-0437 64)

Response: *This EIS has been prepared in response to an application for an ESP submitted to the NRC by Dominion. Specific plant designs have not been selected for the proposed new Units 3 and 4; instead, a set of plant parameters was provided to establish the basis for considering environmental impacts using the characteristics of the North Anna ESP site.*

Dominion can choose from several reactor types (including new reactor technologies). The actual NRC decision on whether to issue a license for the construction and operation of one or more of the proposed units would be made only upon the filing of applications for a COL, or a construction permit (CP) and then an operating license (OL). Each COL, CP or OL is a major Federal action; an EIS on the requested action would be prepared to address the environmental impacts (including socioeconomic impacts) of that action. Through NEPA concepts known as "tiering" and "incorporation by reference" (see, 10 CFR Part 51, Appendix A), the findings and conclusions of this EIS will serve as portions of a subsequent EIS prepared for an application for a COL or CP that references an ESP for the North Anna ESP site. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: What mitigation measures is the applicant proposing to provide direct economic benefit from the proposed project to those neighboring counties that do not receive tax revenues? (DW-0438 69)

Response: *No mitigation measures are proposed. While the surrounding counties will not benefit from the property tax revenues paid with any new nuclear units, the neighboring counties would still benefit economically from the proposed construction and operation of ESP Units 3 and 4. The benefits would accrue through increased taxes (i.e., sales, use, and property taxes) paid by the construction workforce and operating plant employees. In addition, the general economy of the neighboring counties would benefit through the expenditures of the employees and business associated with the construction and operation of the proposed units, including a betterment in employment and wages/salaries paid to non-Dominion employees as a result of the overall increased economic activity. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Section 4.5.3.3 is almost useless without including indicative numbers for the capital and operating costs and the likely tax contributions that would result. (DW-0438 108)

Response: *Tax revenues are dependent on the valuation of the facility, for example, power production, which in turn would affect the size of the construction workforce. Dominion has not committed to a particular type of reactor design (there are over half a dozen new reactor technologies that could be chosen), therefore, the impacts of construction on tax revenues can only be discussed qualitatively. Should Dominion decide to proceed with construction of new nuclear units at the North Anna ESP site, it would need to file with the NRC an application for a COL, or an application for a construction permit and an operating license. At such time, Dominion would commit to a particular reactor technology, which would then enable tax revenues to be estimated quantitatively. Accordingly, no changes were made to this EIS as a result of this comment.*

Comments Within Scope

Comment: Section 4.5.3.3 should consider the potential for loss of property tax revenue from the residential sector in the area if the proposed project results in a devaluation of real property. (DW-0438 109)

Response: *There is no evidence to support a conclusion that real property values would decline with the construction of additional units at North Anna. The opposite has occurred with the construction and operation of NAPS Units 1 and 2. Residents of Lake Anna have enjoyed an increase in property values over the years since VEPCo's construction of Lake Anna and the operation of Units 1 and 2 (Section 2.8.2.3 of the EIS). Any adverse impact of construction would be temporary and would be unlikely to affect real property values. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The conclusion of SMALL impact for Section 4.5.3.5 is not supported by the text or the actual situation in the region. (DW-0438 110)

Response: *The conclusion of SMALL impact is supported by staff findings and the text in the EIS. The bases for the conclusion are as follows. Approximately 80 percent of the construction workforce already lives within the region, which means they already have residences, would not likely move, and would commute to the site. Of the approximately 1000 workers (of 5000 maximum expected to be hired) that would come from outside the region, some percentage of them would also commute to the site. The remaining part of the approximately 1000 workers who might potentially move to the region (80-km [50-mi] radius from the NAPS site) would most likely live in the areas of the region where rental housing is more readily available (e.g., Henrico County, City of Richmond). If, however, the above assumptions do not hold (for example, a significantly higher cost for commuting), and more construction workers than anticipated attempt to move closer to the NAPS site, then there could be a MODERATE adverse impact on housing; this is unlikely given past trends for major construction projects and expected outcomes, as described. Accordingly, no changes were made to this EIS as a result of this comment.*

3.5.3 Population

Comment: Citing the comprehensive plan developed for Louisa County, the EIS notes that "it is the goal of the Louisa County Board of Supervisors (LCBS) to preserve the rural character of Louisa County" (page 4-17, lines 14-16). But the construction of new reactor units at the North Anna site would require an additional workforce of up to 5,000 individuals (DEIS, Section 4.2.2), and the operation of such reactors would require a workforce of an additional 720 persons, which would increase the regional population by an estimated 2,900, assuming each worker represents a family of four (DEIS, Section 5.5.2)… Even without the construction of the new reactor units, the population of Louisa County is expected to grow by 13 percent in the next five years and another 15 percent between 2010 and 2020 (DEIS, Section 4.5.1.3); moreover, the

regional population is expected to grow by over 1 million by 2040. Is this degree of development consistent with the wishes and plans described in the LCBS to preserve the "rural character" of the region? (DW-0437 45)

Comment: Given that Louisa County had a population of about 25,000 in 2000... the conclusion that a construction work force of 5,000 would have a SMALL impact... is unsubstantiated and suspect. (SE-0045 19)

Comment: Considering the desires of the LCBS, how does the NRC consider these impacts [on rural character] to be "small" (page 4-21, line 4). (DW-0437 46)

Response: *The reason for the SMALL impact designation is that the staff expects that about 80 percent of the construction workforce would already live within the region (80-km [50-mi]) and, thus, would have established residences. The rest of the workforce (about 1000 workers) that may come from outside the region may commute to the NAPS site from existing residences. Some fraction of the approximately 1000 workers and up to 4000 persons may relocate to the region, but not all of them would necessarily locate to Louisa County. Similarly, of the expected 2900 person increase in population resulting from the operations workforce moving to the region, it is expected (based on the distribution of place of residence of the current operations workforce of NAPS Units 1 and 2) that the population of Louisa County would increase by 3.2 percent, based on Census 2000 data. This would not change the rural character of the county. Given the lead time to consider construction and operation of major industrial projects, the County Planning Department, the County Board of Supervisors, and the citizens of the county will have ample time to participate in county development plans.*

Comment: [Regarding Dominion's Site Safety Analysis.] The population data needs to be strongly scrutinized as new developments in the Louisa area around Lake Anna are consistently developing, as well as areas of Spotsylvania and Hanover County. (DW-0191 2)

Comment: [Regarding Dominion's Site Safety Analysis.] There are many schools within the region of the 80-km (50 mile radius) of the plant that are only briefly mentioned and could be affected should conditions warrant. I am sure that additional plans and measures will be developed as time permits, however, all of this data should be evaluated from current data not data that is 15 to 18 years old. A determination should be made to accurately use the information based on the 2000 Census data or current information. The total population totals mentioned in Section 4.4.3 now far exceeds the totals referenced in this section, and the disproportionately high and adverse human health or environmental effects mentioned. (DW-0191 10)

Response: *The NRC staff reviewed Dominion's ER and conducted an independent evaluation of the regional population and its demographics. The information is presented in Section 2.8.1 of the EIS. All population data used in the staff's socioeconomic analysis are based on Census*

2000 data, which are the most recent official counts of the population. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Information regarding the demographic make up of the communities in close proximity to the areas of potential impact is not well defined. The document does not contained detailed information regarding the exact demographics of the areas that would be most impacted by site activities. Community characterization at the small community level would be most helpful. What is the make up of the areas closest to the site? Are there areas close to the site where multiple site activities might take place? What would the cumulative impacts be on such a community? (SE-0030 9)

Response: *The socioeconomics section in the SEIS describing the affected environment (Section 2.8) was by necessity an abbreviated version of the much more descriptive section in the Draft EIS and in this Final EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The demographic data used in Section 2.81 on Page 2-45 is outdated and inaccurate. Spotsylvania County, for example, has grown 24% in the last five years! (DW-0438 60)

Comment: It appears the NRC is basing decisions on 5 year old [population] data and has not considered recent property development around the lake or world events in any of their decision making. (SE-0022 4)

Response: *Population data in the EIS are based on Census 2000 data and the recent population projections from the Virginia Employment Commission and Weldon Cooper Center for Public Service. The rapid rate of growth in Spotsylvania County population is acknowledged in Section 2.8.1 of the EIS. The population of Spotsylvania County has grown by approximately 25 percent as of the end of 2004. Much of this growth has occurred in and around Fredericksburg. The estimated population for the county is expected to increase to 125,000 by 2010, or an increase of approximately 38 percent over the decade, which is consistent with the growth rate through 2004. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: As stated in comment #20, a population forecast through 2026 should form the baseline of the existing environment. The project could then be overlayed on this forecast to assess impacts at different time intervals. (DW-0438 61)

Response: *Table 2-7 in the EIS was updated to include population forecasts through 2065 (2010 was used in the Draft EIS). However, doing this did not change any of the impact conclusions reached in Sections 4.5 and 5.5 of the EIS. The reason is that any population increases resulting from construction and operation of two new units at the North Anna ESP site*

are expected to be distributed across the region. In addition, an increase in the future population base against the fixed number of construction and operations employees, whose number is not expected to change, would mean a smaller percentage increase in population because of the construction and operations impacts.

Comment: Page 2-57 line 9 states that "there are no growth restrictions in Spotsylvania County." Please define this phrase. The County has zoning and other restrictions. (DW-0438 70)

Response: *The commenter is correct that there are zoning and other restrictions to regulate new growth. However, the county has not implemented a moratorium or placed absolute limits on new growth or construction. This could be imposed, for example, if the water or sewer systems of the county were not adequate to handle new demands placed upon them because of new residential, business, or industrial growth. Accordingly, no changes were made to this EIS as a result of this comment.*

3.5.4 Housing and Public Services

Comment: This EIS Section assumes a worst case of a large number of workers relocating with their families even if they were in trailers. ER Section 4.4 implies that there would be little likelihood that most construction workers would relocate with their families for this effort, that is, this would be unusual. [page 4-33, line 9] (DW-0423 26)

Response: *In Section 4.5.3.5 of the EIS, the staff indicates that most of the construction workforce is expected to come from within the region. The staff also acknowledges that, in its ER, Dominion states that approximately 80 percent of the construction workforce is expected to come from within the region and already have established residences; thus, about 20 percent of the construction workforce (about 1000 workers) could come from outside the region. Predictions of 20 years or more regarding the availability of the future workforce, such as that needed for the construction of any new nuclear units, has some uncertainty. Thus, the socioeconomic analysis discusses the potential aspects and related impacts that potentially might occur, and then concludes that the impacts of the construction workforce on housing would be SMALL because of the availability of rental housing in the region, particularly in the larger metropolitan areas. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to this Section of the draft EIS, the construction workforce required to build new reactor units at the NAPS could reach 5000, and there is a shortage of housing in Louisa and Orange Counties. Yet the building of new rental units to accommodate the influx of workers is not expected (though this seems to be contradicted by assertions to the contrary on page 4-2, lines 32-37), and, as a result, rents may increase and "some low-income populations could be priced out of their rental housing" (DEIS, page 4-30, lines 11-12). Nevertheless, the

NRC staff opines that construction of new reactor units at the site will be "economically beneficial" for "disadvantaged population segments," concluding that impacts on housing will be "small" and mitigation measures are not warranted. Would it not be prudent to recommend the establishment of additional and/or affordable housing in the region in order to prevent a shortage? (DW-0437 47)

Comment: The assumption on page 2-62 line 36 that temporary housing for refueling workers is as dispersed as for permanent employees is unsubstantiated. Furthermore, if four units are operational, the potential for overlap of refueling outages increases and thus the possibility that significantly more than 700 temporary workers would be required at one time. (DW-0438 77)

Response: *In Section 4.5.3.5 of the EIS, the staff states that the development of a significant number of new rental units in anticipation of construction of the new units at the North Anna ESP site is not expected. The reasons are that most of the construction workers are expected to come from within the region and the construction period is for only five years and the expected capital investment would most likely not be recovered in such a short time frame. In addition, sufficient rental units exist in the larger metropolitan areas of the region to accommodate the construction workforce. Based on discussions with Dominion, the temporary refueling workers for the NAPS units would be dispersed across the region in a distribution similar to that of the permanent employees. The projected number of temporary workers employed for refueling outages with the additional two units would remain the same as with existing units (700 to 1000) because Dominion plans to stagger refueling operations so that only one unit would be refueled at a time, which is the current practice for NAPS Units 1 and 2. The construction workers would be in addition to the normal outage workforce for Units 1 and 2. With four operating units, there would most likely be two outages each year – one in the spring and the other in the fall. There may be some investment activities to accommodate the construction workforce, as discussed in Section 4.1.1 of the EIS, or there may be some upward pressure on rents if construction workers disproportionately locate in Louisa or Orange Counties. The construction of new units would provide economic benefit to the region, including the creation of construction and related jobs, that would benefit business in the region, primarily in Louisa County. Through the multiplier effect of expenditures, jobs would be created that would benefit the region, including its disadvantaged population segments. The staff considers the case where low-income residents would be priced out of the housing market as an unlikely event and therefore does not justify mitigative measures. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Section 2.8.2.5 on Housing and the related parts of Sections 4-7 do not assess the impacts of the proposed project on housing values in the Lake Anna area. (DW-0438 76)

Response: *Section 2.8 of the EIS discusses the current baseline conditions in the region and Section 4.7 discusses the Environmental Justice impacts of construction. Section 4.5.3.5 discusses the impacts of construction on housing. Because most of the construction workers*

are expected to come from within the region and commute to the NAPS site, it is unlikely that there would be a direct impact of an increase in housing values due to the construction workforce. However, housing values around the lake would most likely be supported because of the increased economic benefits resulting from the construction activity. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Section 5.5.3.5 should assess the impact on local housing values from the proposed project. (DW-0438 157)

Comment: No mention is made of the impacts of the project on property values in the Lake Anna Area. (SE-0049 1)

Comment: [T]here is no data on the impact that the project will have on local house values. (SE-0045 2)

Response: *Section 5.5.3.5 of the EIS states that in Louisa and Spotsylvania counties, there could be a temporary shortage of housing, thereby putting upward pressure on housing prices or values, although the shortage would likely be alleviated with more construction. In general, housing values are expected to be supported by the improved economic vitality of the two counties resulting from the operation of the two new nuclear units. Accordingly, no changes were made to this EIS as a result of this comment.* Section 5.5.3.4 covers the effects of low water on property values. A change was made to Section 5.5.3.4 in this EIS. See also Section 3.5.5 of this volume.

Comment: What is the estimated number of new residences that would be required in Spotsylvania to serve the construction (and later operating) personnel? If these persons have school age children, this would add to the growing education demands. (DW-0438 111)

Response: *Generally, it is expected that approximately 80 percent of the construction workforce already lives in the region (defined as 80-km [50-mi] radius from the NAPS site). About 20 percent of the construction workforce (about 1000 workers) could live outside the region and commute to the job site or move into the region. Those who move into the region may or may not include the workers' families (the workers may live in rental housing during the workweek and commute back to their residences on the weekend). Based on these assumptions, 1000 workers and their families moving into the region, or 4000 individuals (assuming four members per family for each construction worker) would be a reasonable estimate. If the staff assumes that these new, relocated construction workers distribute across the region as the existing workforce for NAPS Units 1 and 2 (see Section 2.8.2.5 of the EIS), then approximately 230 residences would be purchased in Spotsylvania County. If these workers have school-age children, then they would add to the population of the county's schools.*

A workforce of approximately 720 employees would be needed to operate the two new nuclear units, and they are expected to come from outside the region. Assuming these employees are distributed across the region in a similar distribution as the employees of NAPS Units 1 and 2, then the staff expects approximately 165 operating employees and their families (or 740 individuals) to locate in Spotsylvania County. The EIS already reflects these estimates. Accordingly, no changes were made to this EIS as a result of this comment

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Impact of 5,000 – 7,000 new workers (construction, periodic maintenance, professional) employees for 5 years on local ... schools. ...New schools and other county infrastructure (police, fire, rescue squads, etc.) will need to be planned and built prior to any new tax dollars coming from Dominion. (SE-0022 26)

Comment: [T]hree newly approved Louisa County subdivisions in the proximity [will be needed] which is going to add about 1800 new homes in that area. New schools and other county infrastructure, police, fire, rescue squads, etc. will need to be planned and build prior to any new tax dollars coming from Dominion. (ST-0014 14)

Response: *See the response related to schools in this section. Given the growth taking place in these two counties, the infrastructure would need to be expanded independent of and in anticipation of the potential North Anna ESP development. County services and potential infrastructure needs are discussed in Sections 4.5 and 5.5. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Life safety – there are no hospitals nearby Lake Anna and none in the adjacent counties of Spotsylvania or Louisa. (DW-0432 3)

Comment: The "Police, Fire, and Medical Facilities" Section on page 2-68 is substantially flawed. It states that there are TWO hospitals in Spotsylvania when there are NONE. (DW-0438 78)

Comment: The Section in 5.5.3.6 on Police, Fire, and Medical Services is flawed. It states that patients travel to Spotsylvania for hospitalization, but in reality is no hospital there. (DW-0438 158)

Comment: The fact that there are no hospitals in the three closest counties (Orange, Louisa, and Spotsylvania) should weigh heavily against the proposed facility. How far is the nearest hospital? (DW-0438 159)

Response: *The comments that there are no hospitals in Spotsylvania County are correct. The Draft EIS stated there are no hospitals in Louisa and Orange Counties. There is one hospital in Fredericksburg, which is a separate jurisdiction from the County. The nearest hospitals to the North Anna ESP site are Mary Washington Hospital in Fredericksburg, Culpeper Regional Hospital in Culpeper, Henrico Doctor's Hospital in the Richmond area, and Martha Jefferson Hospital in Charlottesville. All are in the range of 48 to 56 km (30 to 35 mi) from Mineral.*

There are a number of hospitals scattered throughout the region (80 km [50 mi]). Because approximately 80 percent of the construction workforce is expected to originate from within the region and have places of residence scattered throughout the region, there is no evidence that any one health care facility would be adversely impacted by construction of the two new nuclear units.

In response to these comments, Sections 2.8.2.6 and 5.5.3.6 in the EIS were revised.

Comment: Section 4.5.2 ignores the strain that a new populace would place on the limited health care resources in the region. This is a major socioeconomic factor and should be thoroughly analyzed. (DW-0438 100)

Comment: The lack of full-time hospitals and fire/rescue facilities in the immediate Lake Anna area creates a high potential for serious impacts from an accident at the project. How can the SDEIS state that the impact is SMALL (with no hospitals in "the nearest three Counties" – page 2-18) when the DEIS stated that the impact is SMALL and assumed the existence of two hospitals in Spotsylvania? (SE-0045 14)

Response: *The analysis considered that approximately 80 percent of the construction workforce is anticipated to live in the region and is considered in the demand for medical services already. Of the remaining 1000 construction workers that may originate from outside the region, some percentage of those would commute to the job site and would continue to maintain their residences outside the region. Some percentage of the 1000 workers and their families would move into the region. These workers most likely would move to the City of Richmond and greater metropolitan regions of Henrico County, where there are a number of existing medical facilities. Also, such new residents (the fraction of the approximately 1000 workers and their families) would be a small number when compared to the larger population base (several hundred thousand) and would place a minimal incremental demand on the medical system. Accidents at the new facility likely would be covered by an extension of the medical arrangements for the existing NAPS workforce. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The Draft EIS acknowledges that even without the construction of new reactor units at North Anna, there may not be sufficient water and sewer infrastructure in the region to keep up with the expected growth. Further, a recent drought has exacerbated a shortage in the

availability of water supplies in Louisa and Orange Counties, where there are no growth restrictions (DEIS, Section 4.5.3.6). Thus, the NRC staff has judged that the construction of new reactor units at the NAPS may have "moderate" impacts (page 4-31, line 34). Given this conclusion, the environmental impacts of extending services in Orange and Louisa Counties should be considered, as well as measures to mitigate those impacts. (DW-0437 44)

Response: *Louisa and Orange County officials indicated that the existing water supply and sewer infrastructure is currently near capacity. Given the growth taking place in these two counties, the infrastructure would need to be expanded independent of the potential North Anna ESP development.*

Approximately 80 percent of the construction workforce (or 4000 individuals) is expected to already have residences within a 50-mi radius of NAPS. About 20 percent of the construction workforce (about 1000 workers) could live outside the region and commute to the job site or move into the region. Some percentage of the 1000 construction workers residing outside the region and their families would probably move to the region to be closer to the job site. Because there is more available rental and temporary housing in the larger metropolitan area of Henrico County and the City of Richmond, it is expected that many of these workers would probably relocate to that area, where water and sewer facilities are adequate and impacts would be SMALL. Only if a majority of these workers relocate to Orange and Louisa Counties would there be the potential for moderate impacts associated with the North Anna ESP development. This situation is unlikely because rental and temporary housing is less available in Orange and Louisa Counties. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [Another] issue is the impact on housing itself. ...we have many young teachers at our schools...It will be very hard for them to compete in the rental market with 3 or 4 young single...construction workers pooling their resources. (SE-0036 3)

Response: *In Section 4.5.3.5 of the EIS, the staff states that the development of a significant number of new rental units in anticipation of construction of the new units at the North Anna ESP site is not expected. There may be some investment activities to accommodate the construction workforce, as discussed in Section 4.1.1 of the EIS, or there may be some upward pressure on rents if construction workers disproportionately locate in Louisa or Orange Counties. The construction of the new units would provide economic benefit to the region, including the creation of construction and related jobs, that would benefit business in the region, primarily in Louisa County. Through the multiplier effect of expenditures, jobs would be created that would benefit the region, including its disadvantaged population segments. The staff considers the case where low-income residents would find it difficult to secure housing as an unlikely event and therefore does not justify mitigative measures. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I feel it very important to say the Louisa County School Board is not here in support of or in opposition to the new reactors. Our business is to educate students who come to Louisa County Public Schools, and this will happen whether the reactors come or not. ...The school division receives approximately 60 percent of the tax base from Louisa County. With this money, Louisa County Public Schools is a strong and growing school division. …The school district must remain neutral in political matters, however, we do have to consider the contingencies of all outcomes and how they might impact the school division financially and in terms of student population. With the increase in taxes from Dominion Power, we must understand this will raise our composite index. When the index goes up, the funding from the State of Virginia will go down and the state will expect the localities to pick up the lost funding. We could at best guess estimation lose between $6 to $8 million. We must understand that it will be the job of our local government to pick up this portion of lost revenue. There could be a lag time between the lowering of the index and when we actually start getting more tax dollars. Again the county and its taxpayers must be willing to fund the school budget should this happen. (ST-0011 1)

Comment: [Regarding Dominion's ESP Application] Major influx of new persons to Louisa, Spotsylvania, and Orange Counties will result in need for new schools. ...Since the nuclear plant may be a national priority, then possibly school construction grants can be provided by the Federal government to assist with new school construction. (SE-0003 3)

Comment: This major influx of new Louisa residents [from addition of new construction and operations employees] will have a major impact on schools requirements. Since the nuclear plan may be a national priority, then possibly school construction grants can be provided by the Federal government to assist with new school construction. (SW-0005 4)

Comment: It is a given that tax revenues will increase if two new reactors are built, but those taxes will not be forthcoming until each reactor is at least partially on line. In the interim, our schools will more than likely be impacted with a significant increase in student population and will invariably include many more students for whom English is a second language. ...in the interest of education and future nuclear power construction...we are asking the Virginia Department of Environmental Quality and the U.S. Nuclear Regulatory Commission to petition the federal government, on our behalf, for funding to allow us to minimize any adverse impact from this construction. (SE-0036 2)

Comment: The Draft Environmental Impact Study indicates that the impact on demography, housing, and education would all be “small” and “mitigation is not warranted”. We disagree with this assessment....The first problem we see is the possibility of providing services to a large increase in our student population in a relatively short time period. We currently have approximately 4,400 students in our system and our facilities are at capacity. An immediate increase of even 100-200 students will create a financial and educational burden. ...When the first two reactors were built...our student population increased by almost 21 % during that

construction period...At this time, three new subdivisions have already been approved by Louisa County for development in near proximity to the construction site...for a total of approximately 1800 potential homes that could be built in the next few years...With the much greater availability of housing during future reactor construction, we would have to anticipate an even larger percentage of increase in student population. (SE-0036 1)

Response: *The staff assumes that up to 1000 construction workers and their families could move into the region. The permanent operations workforce that would come later would be somewhat smaller. Louisa County likely would obtain considerable property tax revenue, some of which could be directed at construction of necessary education infrastructure, although timing of revenues might be a problem (they could be needed before they are available). The other counties would not receive such revenues. Because all three counties are growing anyway and will have to add schools in any event, the influx of plant-related personnel could accelerate this process. Depending on the specific circumstances, outside assistance may be deemed appropriate. Federal grant policy is beyond the scope of this EIS. The staff has already evaluated the impacts to schools in Sections 4.5.3.7 and 5.5.3.7. Accordingly, no changes were made to this EIS as a result of these comments.*

3.5.5 Property Values Related to Water Levels

Comment: Lower water levels will impact the lake ecosystems and could lower property values. (DW-0772 3)

Comment: Lower water levels will adversely impact the lake and could lower property values. (DW-MM1 5)

Comment: If I had known three years ago that there was a chance that the water abutting my lot would be that much warmer, I would not have purchased the lot. I believe that, if the proposal to use water from the lake to cool another reactor is approved, the value of real estate on the hot side will be greatly reduced from what it would be if the proposal is not approved. It may be true that the reactor will not be built until I am long gone, but I will be affected because the value of my property will be suppressed or reduced. If all real estate values on the hot side are reduced, county revenue will be reduced by the reduced property values. Thus, real estate taxes for the rest of the county will have to be raised to make up the difference. (DW-0190 2)

Comment: The impact on property values from increased periods of lower lake levels should be analyzed in the Final EIS. (DW-0437 9)

Comment: As a home owner, I'm concerned about my property values. (DT-0013 2)

Comment: That area of the lake has been pretty heavily populated. It's pretty heavily used for all kinds of recreation fishing. So I don't think the construction of these plants, if it creates

problems for people that live there, I don't think those problems can be ignored, and I hope that Dominion doesn't ignore them. The water temperature being what it is, it wouldn't take much of an increase to make that part of the lake unusable during certain months of the year: July, August, early September. If that happens or even if the public thinks it's going to happen, if there's a public perception that part of the lake is going to become unusable for the period of the year when most people want to use it, that's going to diminish property values quite a bit, including mine, and for a lot of other people also. (DT-0024 2)

Comment: What will happen to the local economy property values if reactors impair fishing and recreational uses of Lake Anna? (DT-0038 4)

Comment: No mention is made of the impacts of the project on property values in the Lake Anna Area. (DW-0594 14)

Comment: Lower lake levels lead to mudflats in the back yards of homes located around the lake, and could decrease property values. (DW-MM4 4)

***Response**: These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperatures relative to the existing discharge from Units 1 and 2 or the proposed Unit 3. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on lake temperature. The projected lake levels during periods of drought were evaluated based on the new proposed cooling system. If two new units are constructed, lower lake levels could occur during periods of drought. For example, during the period from October 2001 through December 2002, an extreme drought occurred in the region from Georgia to northern Virginia. It was the worst drought that had occurred since climate records have been kept in that part of Virginia. As a result of this climatic anomaly, Lake Anna experienced the lowest lake water levels and lowest estimated inflows in its history. Although the boat ramp at Lake Anna State Park remained usable throughout the drought period, some private boat ramps were not usable. Some residences located adjacent to the lake had mud banks adjacent to their homes because of low lake levels.*

The change to the proposed Unit 3 cooling system is projected to increase the consumptive use of water from Lake Anna and decrease the duration of lake levels above 75.6 m (248 ft) above MSL from 94 percent to 89 percent of the time (Section 5.3.2 of the EIS). Most of the increase in low-water days would take place in times of drought when lake levels otherwise would be low. There is expected to be almost no noticeable effect from Unit 3 on lake levels in non-drought years. Unit 4, which has dry cooling, would have no effect on lake levels.

During 2001 to 2002, lake levels were quickly restored when normal precipitation levels returned to the region. Overall, in terms of the historic record, the drought was a rare event and

temporary in nature. Based on the historical record, drought impacts are temporary and quickly reversible. Potential impacts on property values would not be permanent and would be reversed once normal precipitation patterns reappeared. Available mortgage data for census tracts touching Lake Anna does not indicate any property value decline as a result of the 2001 to 2002 drought (Section 5.5.3.4). In addition, several Federal, State, and local regulations (e.g.,VDEQ NPDES permit for the plant) would minimize possible impacts on the lake of plant operation.

The "warm side" of Lake Anna is currently licensed by the Commonwealth of Virginia as an industrial waste heat treatment facility and is regulated as such. Some of the lakefront property is located around this facility, and it does not appear that property values are harmed by the temperature of the water. The NRC staff determined that as a result of the changes in the Unit 3 cooling system, Unit 3 would not increase water temperature in the WHTF (Section 5.3.3 of the EIS). In view of the other factors affecting property values, such as population growth and the economy of the area, warm water temperature is not expected to have a significant effect on property values (Section 5.5.3.4). Section 5.5.3.4 was modified in response to these comments.

Comment: [Regarding Dominion's ESP application] Possibly raising the lake level 6 to 12 inches to retain more water in the lake so it would help in times of drought. ...Raising the lake level would create major hardships and destruction of private property to all adjoining landowners and businesses that have piers, boathouses, launching ramps, bulkheads, etc. It would also destroy many lake front business locations. (SE-0003 8)

Comment: Raising the lake level by 6 to 12 inches would create major destruction of personal property located at the water's edge. The expense and effort by property owners necessary to establish new bulkheads, docks, boat houses, etc., backfill with soil to meet the new height of the modified structures, and establish new landscaping is beyond calculation at this point. All waterfront properties would be effected and some properties would suffer significant loss in value! (SE-0012 1)

Response: *The staff analyzed the impact of raising the normal pool elevation as a possible mitigation consistent with NRC's role under NEPA. This specific mitigation was considered based on a request by the Commonwealth of Virginia to evaluate raising the lake elevation to maintain the current frequency at 20 cfs. Any decision to change the operating policies for North Anna Dam are responsibility of VDEQ and not NRC. Section 5.5.3.4 states that if the normal operating lake level were raised 6 to 12 inches, then modification of some residential and marina boat ramps might be necessary. This was described as a MODERATE impact on the basis that, although there might be considerable one-time expenses on the part of individuals and businesses to adapt, Lake Anna would continue to be used for recreation and lake front homes, docks, and businesses would continue to exist. Accordingly, no changes were made to this EIS based on these comments.*

3.5.6 Recreational Issues Related to Water Levels

Comment: Suggest that this DEIS statement describe the concern as during times of severe drought. [page 5-44, line 6] (DW-0423 35)

Comment: Suggest that this DEIS statement describe the impact as during multiple drought years like 2001-2002. [page 5-44, line 27] (DW-0423 36)

Response: *As stated in Section 5.5.3.4 of the EIS, during times of severe drought, such as the drought of 2001 to 2002, the staff expects that the usability of stationary boat docks may be impacted when the lake level drops below 76 m (248 feet) MSL. Lakefront houses temporarily could have mud-flat views instead of the preferred water views. However, the drought of 2000 to 2001 was a rare event, and none of these impacts from such an event would be considered permanent. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Water levels can be expected to drop and temperatures rise even further. This will also affect the lake's recreational appeal and value for the state's tourism industry. (DW-0623 4)

Comment: Construction and operation of the new facilities will …[damage] the environment and disrupting recreational uses of Lake Anna. (DW-0640 3)

Comment: The two reactors that are already operating at North Anna withdraw 1.9 million gallons of water per minute and then return hot water back into the lake. This utilization of water already has a damaging effect on... the residents of the lake…The additional nuclear reactors will undoubtedly have serious adverse effects on...the Lake Anna homeowners, and the people using the lake for recreation and fishing. (DW-0653 3)

Comment: Creation of Lake Anna has provided recreational opportunities for thousands of people - more than indicated in Section 2.8.1 of the Draft EIS. Unlike some utility and Corps of Engineers impoundments, Dominion Power only bought a small amount of shoreline and allowed shoreline usage rights to lake-front property owners. (DT-0029 7)

Comment: Lake Anna [is] a valuable area recreational facility - fishing, especially- and I am worried that the use of the water would adversely... impact the use of the lake recreationally. (DW-1151 2)

Comment: Lower water levels will adversely impact water-based recreational uses of the lake, for example by preventing access to boat launch ramps. (DW-MM4 3)

Comment: [Another reactor would affect] water based recreational uses of the lake, especially in drought years. (DT-0019 5)

Comments Within Scope

Comment: What will happen to the recreation on the [Pamu]nkey River downstream, such as kayaking and canoeing, which Lake Anna feeds into, when the low flows occur? (DT-0038 6)

Comment: This section fails to adequately consider the potential impacts on recreational use of Lake Anna from the operation of additional reactor units at the NAPS, which may significantly reduce the water levels in Lake Anna and, consequently, adversely affect river flow and aquatic life downstream. (DW-0437 29)

Comment: We definitely have enjoyed the last few years of increased rains, but we know that these have been unusual. We know that increased water withdrawals up to 60% over current conditions would impact recreation to an estimated 43,000 recreational users and also for home water usage during normal or drought conditions. During the 2002 drought, boats could not launch from many of the home and recreation sites so desired by our members. (DW-0857 3)

Comment: In the 2002 drought, the water level dropped to 245 feet above mean sea level. That doesn't mean much to me either, but this is about five feet lower than normal. Boats could not be launched from ramps on the lake. The back yards of homes around the lake were mud flats. (DT-0019 7)

Comment: By now we should all understand clearly that those impacts that were reported in the NRC report will affect some of us temporarily or permanently, and we need to weigh those impacts up against the goal. We need knowledge that those who live and enjoy recreation on the warm side of the lake will experience about a three percent increase in the temperature, and that change in temperature will be most noticeable during the hottest summer months. The lake level on the cold side is going to be lower, and it's going to last longer during periods of drought conditions. So what does that mean to me and perhaps to some of you? Well, maybe that year I won't be able to boat. Maybe I'll only boat 15 times rather than 30, but I personally feel that sacrifice is worth it to achieve the goal of independence. (DT-0011 5)

Comment: It seems like if it [using dry cooling for Unit 4] would eliminate the thermal impacts and the evaporation impacts, we should do it. What's important here is protecting the lake, for people to use their boats in the lake, to fish in the lake, to swim in the lake if people do that and to protect downstream people's ability to kayak and canoe and also the fisheries. (ST-0005 5)

Comment: [Regarding Dominion's ER] Par[agraph] 5.2.2.2 page 3-5-16 We disagree with the conclusion "Potential impacts would be greatest in the reach of the North Anna River extending below the North Anna Dam to its confluence with the South Anna River". Are there any uses of the water in this area? What about the property owners around the lake who can not use their boats, docks and the water? Aren't they impacted just as much? (SE-0004 26)

Comment: Section 5.3 mentions that water level changes will be heightened during the period July – September. Since this coincides with increased summer recreational use of the lake, even minor changes could have MODERATE or HIGH impacts. (SE-0045 21)

Comment: The Department of Conservation and Recreation has concerns about the impacts of the proposed addition of Unit 3 upon the water quality and quantity in Lake Anna and in the North Anna River below the dam. (a) Lake Anna. Lake Anna supports a significant amount of recreational activity from people getting to the lake from public and private lands. Lake Anna State Park is a particular example of the public investment in facilitating public use of the Lake. Proposed new generating facilities will deplete the water available for other uses.
(WC-0017 13)

Response: *Collectively, this group of comments make the following two points. One, the commenters indicate that recreational experiences at Lake Anna and downstream locations would be impaired by operation of new units at the North Anna site, particularly during times of drought. Two, the commenters indicate that Lake Anna has provided recreational opportunities for thousands of people and, unlike some U.S. Army Corps of Engineers (ACE) impoundments, Dominion bought only a small amount of shoreline and allowed shoreline usage rights to lakefront property owners. To expand upon this point, the commenters indicate that the operation of new units could change recreational use of the lake that could be exacerbated in times of drought (e.g., 15 boat trips a year versus 30).*

Management of water resources involves balancing tradeoffs among various and often conflicting uses. The U.S. EPA, U.S. Army Corps of Engineers, and the Commonwealth of Virginia have jurisdiction for regulating water use through Federal and State laws.
With respect to the first point, Lake Anna, which was created for the purpose of providing a cooling reservoir for the nuclear power plant, has become known for its fishing, water skiing, recreation, and boating. The values of homes around the lake have consistently increased since the lake was constructed as a cooling reservoir for NAPS, and, apparently, during the drought period of 2001 and 2002. The October 2001 through December 2002 extreme drought that occurred in the region from Georgia to northern Virginia was the worst drought that had occurred since climate records have been kept in that part of Virginia. As a result of this climatic anomaly, Lake Anna experienced the lowest lake water levels and lowest estimated inflows in its history. Although the boat ramp at Lake Anna State Park remained usable throughout the drought period, some private boat ramps were not usable. Some residences located adjacent to the lake had mud banks adjacent to their homes because of low lake levels.

Lake water levels quickly increased when normal precipitation levels returned to the region. The drought was an extremely rare event and was temporary in nature. Nevertheless, this period of extreme drought was considered as the critical period in the analysis for hydrological assessments and impacts to resident fisheries.

Comments Within Scope

With the change of the proposed Unit 3 cooling system to a closed-cycle system, the staff determined that additional heat discharged from Unit 3 to Lake Anna from the WHTF would be negligible, would not increase water temperature appreciably, and would not destabilize the native fish populations. During the summer when warmer temperatures exist near the discharge, most of the lake is unaffected by operations, and fish would be able to find sufficient habitable areas. Additionally, the fish found in the lake most frequently are prolific, exhibit a high reproductive potential, and modify behavior to offset losses.

The striped bass is a non-native species introduced into Lake Anna for recreational fishing; it is a thermally-sensitive fish species and may be the most vulnerable species to thermal stress of all of the fish species in Lake Anna. The striped bass population is sustained by annual stocking and provides a "put-grow-and-take" fishery. The staff determined that waste heat input to Lake Anna from the proposed Unit 3's combination wet and dry cooling system would be negligible and would not affect striped bass in the reservoir.

With respect to lake level and downstream flows, temporary impacts on recreation are possible to downstream recreational users during drought conditions and low flows to the Pamunkey River. The staff concluded that the water supply provided by Lake Anna is adequate to meet plant and current downstream water demands except during periods of severe drought, such as that experienced in 2001 to 2002. Through the Lake Level Contingency Plan (a condition of the NAPS NPDES permit issued by VDEQ), releases from Lake Anna Dam during the 2001 to 2002 drought were reduced to below the normal minimum of 1.1 m^3/s (40 cfs) to 0.57 m^3/s (20 cfs). If such low-flow conditions were imposed during a drought in the future, recreation below the Lake Anna Dam could be impacted. The staff concluded that the impacts of the operation of Unit 3 on downstream aquatic communities would be SMALL. Low water conditions in 2001-2002 were quickly reversed when normal precipitation levels returned to the region.

Consequently, the staff determined that the water use, from the proposed Unit 3 closed-cycle, combination wet and dry cooling system would not destabilize the fish populations. During the summer with warmest water temperatures near the discharge, most of the lake is unaffected by operations and fish would be able to find sufficient habitable areas. Although some private boat ramps were not usable during periods of drought, at least the boat ramp at Lake Anna State Park was. It is unlikely that there would be a significant long-term adverse economic impact on recreational use of the lake. Some residences located adjacent to the lake had mud banks adjacent to their homes because of low lake levels. Some of the lakefront property is located around the WHTF, and it does not appear that property values are harmed by the temperature of the water. Based on review of assessed values on Louisa County website and records of mortgage values issued for areas in Louisa County near Lake Anna, 2001-2002 Lake Anna property values were not adversely affected during the low lake water levels during the drought.

With respect to the second point, Lake Anna has provided recreational opportunities for thousands of people since its construction as a cooling reservoir for NAPS Units 1 and 2. The

lake has a reputation for its fishing, particularly for largemouth bass and striped bass, and other recreational pursuits. Recreational use during drought conditions may be temporarily, not permanently, impacted. Section 5.5.3.4 of this EIS was modified in response to these comments.

Comment: [T]he recreational lake...would not even be there if it wasn't for nuclear power nor would their lakefront property and astronomical property values. (ST-0020 6)

Comment: [H]ere we're dealing with a lake as far as I understand is your property, Virginia Power's property, and I'm also a big advocate of property rights. I don't want somebody coming and all of a sudden putting constraints on my property. But at the same time, I understand your wanting to be fair and treat the environment properly and I applaud you for that. (ST-0015 4)

Comment: [T]he recreational lake whose boat traffic is audible from great distances would not even be there if it wasn't for nuclear power. (ST-0020 5)

Response: *Lake Anna, which was created for the purpose of providing a cooling reservoir for the nuclear power plant, has become known for its fishing, water skiing, recreation, and boating. These comments offer no new information. Accordingly, no changes were made to this EIS as a result of these comments.*

3.5.7 Roads and Transportation

Comment: The traffic discussion on pages 2-59 and 4-25 regarding Spotsylvania roads is hard to understand and I am familiar with the local road network and plans. Presently, Courthouse Road is 208, not the Spotsylvania Parkway. The Spotsylvania Parkway is significantly north of route 606. (DW-0438 75)

Response: *A correction has been made to the text in Chapters 2 and 4.*

Comment: There is no planned Spotsylvania Turnpike exit from I-95 (Page 4-25 line 36). (DW-0438 106)

Response: *A correction has been made to the text in Chapter 4.*

Comment: Section 4.2.2 does not include detailed background transportation counts or LOS [level-of-service traffic designation characteristics, see Table 2-14, LOS-A through LOS-F, ranging from free flow to flow breakdown] projections which are typically used to assess transportation impacts. The suggested methodology is to do a 20-year traffic forecast as the baseline and then overlay the 2800 vtpd at several instances to assess the impact. (DW-0438 91)

Comments Within Scope

Response: *While the comment proposes a valid methodology, the staff believes that the level of analysis in the EIS is adequate to make an appropriate determination of the overall impact level on traffic congestion during construction. Accordingly, no changes were made to the EIS as a result of this comment.*

Comment: The drastic increase of traffic during construction of the power plants will crowd our highways and pollute our air. (DT-0047 5)

Comment: This makes no sense whatever [that the decision is made on current data], especially considering that the entire area around Lake Anna, but especially north towards D.C., is experiencing one of the highest rates of growth in the country. These localities are dealing with growth induced problems and financial crises in health, education and transportation right now, and it does not appear to me that these issues were taken into account by this study, in particular the transportation issue. Transportation is entirely inadequate for not only construction phase of the proposed facilities, but certainly in the event of the need for an evacuation. Virginia does not have the funds for any new transportation projects, and is only able to finance maintenance work at this time. Where is the money going to come [from to] plan and build the roads to support the 5000 construction personnel? (DW-0431 3)

Comment: [Regarding Dominion's Site Safety Analysis.] Section 4, 4.4.1.1.3 Roads - The transportation network in the Louisa County area is very well-developed, however, new construction and development in this area has hampered travel on many instances especially during the peak vacation time around the lake area and also during inclement weather as most roadways are two lane rural. Further investigation in to this information would be beneficial, especially with regard to route alerting should it be necessary for any reason during construction activities as the roadway network could be hampered during construction, should an emergency event occur. (DW-0191 6)

Comment: Roads and transportation – there are already real problems in the region and this project will only make them worse (especially during construction or god forbid if an evacuation is required). Projects of traffic and impacts generated within the 20-year window of the ESP are not addressed (VTRANS 2025). (DW-0432 2)

Comment: Construction activities associated with adding additional reactor units to the NAPS site would require an additional workforce of 5,000 (DEIS, § 4.2.2, line 26), bringing the total peak workforce at the site to 7,000 during reactor outages, requiring roughly 3,900 transport vehicles (ER, Part 3, Section 4.4.2.2.1(d)) – representing a "major increase in traffic" in certain places (draft EIS, page 4-24, lines 4-5). Despite this dramatic increase in traffic to and from the site, the draft EIS describes the transportation impacts of the proposed action to be "small" and proposes no additional mitigation measures beyond Dominion's traffic management plan (draft EIS, § 4.2.2, lines 5-8), which may not fully alleviate traffic congestion (page 4-23, line 35). There are no plans to build new roads or alter current roads, despite existing congestion on

roads around Lake Anna (draft EIS, page 4-19, line 17). Would not this dramatic increase in traffic alter the "rural character" of Louisa County that the Louisa County Board of Supervisors wants to preserve (draft EIS, page 4-17, lines 14-16)? (DW-0437 48)

Comment: [H]ow can the NRC claim to predict the sufficiency of existing regional roads to support construction activities, considering that the potential for a dramatic increase in population over the next 20 years (see draft EIS, Table 2-5), the duration of the ESP? (DW-0437 49 and DW-0437 50)

Comment: A measure propounded in the Draft EIS to mitigate traffic impacts from the construction of new reactors at the North Anna site is the widening of a country road, SR 700 (page 4-24, lines 30-32). For what section and length of roadway would this be required, and what environmental impacts would be expected? What would be the impact on property owners along the route? (DW-0437 51)

Comment: Page 2-5 line 30 rightfully states that "the land adjacent to Lake Anna is becoming increasingly residential as the area is developed." No new transportation routes (roads or railroad lines) or new industrial activities are currently planned in the vicinity…" The combination of increased population without increased transportation for emergency egress/ingress could be a recipe for disaster even without the proposed nuclear expansion. This DEIS statement itself is enough basis to reject the later conclusion that impacts on transportation and the human environment are small. (DW-0438 15)

Comment: Page 2-57 line 34 acknowledges that there are only two major freeways in the area. The impact on these thoroughfares and their feeder roads during an evacuation is not really addressed in Sections 4-7. (DW-0438 72)

Comment: Along the lines of the prior comment, Sections 4-7 does not address the impacts to the commuter roads listed on page 2-58 line 6. (DW-0438 73)

Comment: Page 2-58 line 13 acknowledges that the Thornburg area is getting congested. This is a major route to/from Lake Anna and there currently are no funds dedicated to the needed improvements. (DW-0438 74)

Comment: Section 4.2.2 states that Construction impact on transportation is SMALL. The text ("2800 vehicle trips per day" roadways would experience congestion, "five existing roads are expected to be impacted") does not support this conclusion and seems to indicate a LARGE local impact. (DW-0438 90)

Comments Within Scope

Comment: The conclusion of SMALL impact for Section 4.5.1.3 is not supported by the text or the actual situation in the region. There is little to no funding for road expansions. The VTRANS 2025 report shows that gridlock is expected on major roads and at major interchanges. (DW-0438 98)

Comment: In Section 4.5.1.3 local officials are cited as being of the belief that road alterations need to be evaluated "prior to construction." This does not mean that this issue should be deferred to the CP/COL stage – local access and the impacts on transportation are clearly site related issues and should be thoroughly evaluated at this time. (DW-0438 99)

Comment: The conclusion of SMALL impact for Section 4.5.3.2 is not supported by the text or the actual situation in the region. There is little to no funding for road expansions. (DW-0438 103)

Comment: The Spotsylvania road improvements on page 4-25 line 7 are not fully funded and thus may not occur or may be delayed. (DW-0438 105)

Comment: Page 4-25 line 39 acknowledges that the I-95/606 interchange is congested at "LOS D or worse." Line 13 acknowledges that SR208 from Blockhouse Road to Lake Anna (about 12.5 miles) is a minor two-lane road. Increased construction usage will have major impacts on these roads. If an evacuation is required during the construction interval when additional personnel are on site, the impact would be staggering. (DW-0438 107)

Comment: The assumption in 5.5.1.3 that "any needed upgrades in the road system would have been made" is flawed. This assumption leads to the DEIS conclusion that road impacts are SMALL. Funds for transportation in Virginia are seriously constrained. The analysis should be re-done without this assumption. (DW-0438 148)

Comment: The sentence starting on Page 5-43 line 39 is too speculative and should be deleted. (Also, road improvements undertaken to alleviate congestion during the construction phase of the project could alleviate or minimize any congestion around the lake as a result of new employees and their families.) (DW-0438 155)

Comment: The EIS basically says that all the road problems will be fixed to support transport of the huge number of construction personnel but there is no connection to the current reality in Virginia that there is limited or no money for roads. The VTRANS 2025 report is an unbiased view of the future of traffic and roads in the area and it predicts almost total gridlock along the I-95, US1 corridor within the life of the proposed project. (DW-0594 15)

Comment: According to the Virginia Department of Transportation (VDOT), the SDEIS makes reference to several plans and recommendations for roadway improvements in the Lake Anna area of Louisa County, and acknowledges that these plans are not tied to any time frame or funding source. (SW-0017 77)

Comment: VDOT does not now have any plan for improving the road network in the project area. The proponents of some developments are proposing road improvements; the largest of these is the Cutalong Club development, whose proponents hope to move the connection between Routes 208 and 652 to eliminate the skewed intersection and add the required turning lanes at the intersection. These plans are under design and are proposed for construction in the next several years, according to VDOT. (SW-0017 78)

Comment: VDOT indicates that it intends to work with Dominion, the applicant, to ensure that roads in the vicinity of the North Anna Power Station are maintained and that necessary improvements are in place prior to any major activities at the project site. VDOT has requested a traffic impact analysis from Dominion; this would compare the future background traffic in the area with future traffic including construction traffic ("total traffic"), and would identify areas of impacts. The impacts -- some of which would be temporary, from construction, and some of which would be permanent - are the responsibility of Dominion. The traffic impact analysis should also provide mitigation measures to reduce the impacts. (SW-0017 81)

Comment: The EIS basically says that all the road problems will be fixed to support transport of the huge number of construction personnel. This is contrary to the current reality in Virginia which is that there is limited or no money for roads and the needs are great throughout the region. (SE-0049 3)

Comment: Table 10-1 acknowledges that increased traffic congestion is unavoidable. This is not congruous with the SMALL impact determination. (SE-0045 42)

Comment: Table 10-2 should include an assessment of traffic similar to Table 10-1. Presently, this would also conclude that increased traffic congestion is unavoidable. (SE-0045 43)

Comment: The transportation section is totally deficient. There is currently insufficient infrastructure to support the construction workforce or handle an evacuation. (SE-0045 5)

Comment: We request that Virginia DOT upgrade the roads at the lake so that they are adequate for evacuation of the current and expected populations. We request that VDOT, Dominion, and the public develop a traffic management plan relevant to evacuation. (ST-0004 7)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…You have the impact of 5,000 – 7,000 new workers (construction, periodic maintenance, professional) employees for 5 years on local roads and schools... This will create the need for new expanded roads before the project begins because of the workers and the three newly approved Louisa County subdivisions for about 1800 new homes in close proximity to the plant. (SE-0022 25) (ST-0014 13)

Comments Within Scope

Comment: Too many workers & residents, with a small 2-lane road (Route 652 Kentucky Springs Road). Dominion plans to bring in 5,000 construction workers. for a five (5) year period for the new plant. ...They will add about an additional 720 permanent workers when the new third reactor is activated. ...Pro-offers should be made by Dominion and/or Federal Government to widen Route 652. . . [prior to beginning of construction or we will experience a traffic nightmare. (SW-0005 2) (SE-0003 1)

Comment: A more thorough EIS would tell us what the data is from VDOT on the level of service rating for the roads, what their carrying capacity is, and how the project laid over that would support or worsen the traffic situation. (ST-0036 5)

Comment: They [those opposing the ESP action on the basis of transportation impacts] forget that Rt. 652 was a dirt road before nuclear power. (ST-0020 7)

Comment: There's been no real analysis of transportation, whether for a construction workforce of 5,000...if you live in the area or read the newspaper, or even just drive on 95, you know that transportation congestion is one of the biggest problems in the region. There's little to no funding for new roads and improvements. (ST-0036 3)

Comment: [Regarding Dominion's ER] How would this large increase in work force and their families effect the traffic patterns on existing two lane roads around the lake? Particularly during the summer months when large boats and recreation trailers crowd the roads already. (SE-0004 16)

Comment: [Regarding Dominion's ER] Table 3.1-1 Number of people to operate plants 3 and 4 only is 1160 people. During construction what is the maximum number of people including operation type on board (ie max at any one time)? Could the indicated 5,355 construction workers overlap the 1160 operations people? (SE-0004 15)

Response: *Collectively, this group of comments makes six main points. First, the commenters state that the region is one of the fastest growing regions in Virginia and that Spotsylvania County, for example, has grown 25 percent in population from 2000 to the end of 2004. Second, the commenters indicate that many of the highway systems in the region are already crowded and that increased growth in transportation associated with population growth would only make conditions worse; the commenters suggest that adding 5000 construction workers to the existing 720-member operations workforce at NAPS Units 1 and 2 and to the 700 to 1000 temporary workers employed during refueling would only exacerbate the situation. The commenters also indicate that, during the peak vacation season, travel around Lake Anna is already hampered. Third, the commenters state that just because a road or highway is on a list to be upgraded in the future does not mean that it will happen. The commenters also indicate that funding for road improvements in Virginia is constrained. Fourth, the commenters indicate that the description of some of the highway construction plans for the area need to be updated to reflect the plans of the recently released "Virginia Transportation 2025" report (VTRANS*

2025). Fifth, commenters stated that projections of traffic impact through the 20-year duration of an ESP were not addressed. Sixth, the commenters suggest that the transportation system is not adequate now to handle an evacuation.

Regarding the first two points, the Richmond-to-Fredericksburg area is one of the fastest growing areas in the Commonwealth of Virginia. This means that some of the roads in the area are already congested and, absent any action to alleviate the congestion, will only get more congested. Consequently, action is necessary to alleviate the forecasted congestion independent of any additional traffic associated with the construction of any additional nuclear units at North Anna. The issue is whether the traffic from a construction workforce would significantly increase this congestion and result in a MODERATE or LARGE impact, rather than SMALL to MODERATE.

The staff evaluation shows that 5000 (maximum) commuting workers to the NAPS site would not significantly affect the transportation system in the region. There are several reasons for this conclusion. First, the staff estimates that 80 percent of the construction workforce already lives within the 80-km (50-mile) region. Therefore, a large portion of the workforce commuting pattern is accounted already in the existing traffic congestion. Second, several commuting routes to the NAPS site exist. It is highly unlikely that the entire construction workforce will use the same commuting route, especially the heavily traveled I-95 corridor. Third, the commuting pattern of the construction workforce would be distributed over the multiple shifts that would be staffed during a 24-hour period. Conservatively, assuming that there would be two 10-hour shifts and that all of the construction workforce drives separately, then a maximum of approximately 2500 automobiles would be traveling to the ESP site at any one time. In reality, the total number of automobiles on the road at one time would be less because the work shifts for numerous construction activities overlap, a proportion of the workers share rides, and all shifts do not begin at the same time for each construction activity. In conclusion, the impacts of the construction workforce traveling to and from the ESP site, given the expected conditions and for the reasons stated, are not expected to have a significant impact on the regional transportation system. This does not mean that there would be no additional congestion around the NAPS site entrance at shift changes or that traffic congestion is not a problem around Lake Anna during peak vacation periods. However, as stated in the EIS, the congestion can be mitigated using measures described in the EIS and in Dominion's ER.

On the third issue, the VTRANS 2025 report acknowledged that funding for road improvements in Virginia, now and in the future, is constrained. However, this does not change the conclusion that impacts of the commuting construction workforce on the regions transportation system would be SMALL for the reasons given in the previous paragraph.

Regarding the fourth issue, in the time frame that the Draft EIS was prepared for issuance, the VTRANS 2025 report and other supporting documents were not available. Subsequent to their release, this EIS has been updated to reflect the current Commonwealth of Virginia, Department of Transportation construction plans. For example, activity continues on construction preparation for SR 208 in Spotsylvania County, which is to be advertised for construction bids in July 2007.

With respect to the fifth issue, the staff projected the transportation impacts in Sections 4.5.3.2 for construction activities and in Section 5.5.3.2 for operational activities. The staff concluded that, if the planned upgrades and improvements to the road systems and Dominion's traffic management mitigation plans were implemented, then the temporary impacts of construction on traffic in the region would be SMALL to MODERATE. The permanent impacts of operation on traffic in the region could not exceed the temporary impacts of construction if mitigation plans were implemented.

Finally, while concerns about emergency evacuation are outside the scope of this EIS, to the extent that they relate to the ESP application and not to NAPS Units 1 and 2, they are addressed in the ESP Safety Evaluation Report (SER) (ML051250112).

Comment: This DEIS wording suggests that accessibility to the site would be restricted for heavy loads unless Route 700 is substantially upgraded. The condition of Route 700 between Route 652 and the site was discussed with the VDOT (Fluvanna and Louisa District) representative. This road has been upgraded with a fairly thick layer of asphalt that is capable of handling a number of heavy vehicles such as cement trucks, if needed. That is, it is not the same thin layer of asphalt/chips that is typical of local roads and that would easily be torn up with passage of a number of such trucks. Route 652 also has been upgraded with the heavier layer of asphalt. (Note that Route 700 west of the intersection with Route 652 is a typical local road.) [page 4-19, line 6] (DW-0423 25)

Response: *The condition of State Route (SR) 700 between SR 652 and the site has been substantially upgraded compared to SR 700 between SR 618 and SR 652; the SR 700 roadway between the SR 618 and SR 652 is the portion of the road that the staff identified as in need of an upgrade to handle heavy construction traffic. Section 4.5.1.3 of this EIS has been changed to reflect the upgrade of a portion of SR 700 and SR 652.*

3.5.8 Site Aesthetics

Comment: Lake Anna residents expressed concern about the aesthetics of the cooling towers. A visual simulation should be included as part of section 4.5.1.4 to address this concern. (SE-0045 20)

Comment: Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15 - 18 stories) in height. ...Current trees in area are approximately 50 feet to 75 in height, with a few going up to about 100 feet. …It is requested that the cooling towers be no higher then 80 feet (equivalent of an 8 story building) to...provide an esthetically pleasing profile of the adjoining skyline. (SE-0003 6)

Comment: [Regarding Dominion's ER] Same section as 4 [paragraph 3.1.2.2]. Unit 3 combined wet and dry cooling towers will be 180 ft tall. We were told the height would be much lower about 60 feet tall. During a formal presentation to the public and press by Eugene S. Grecheck, Vice President- Nuclear Support Services on January 6, 2006, we were told the cooling towers would be less than 75 feet tall for wet/ dry units and 50 feet for the dry only unit. Why did this change to 180 feet? Unit 4 dry towers will be 150 feet tall. (SE-0004 12)

Comment: As stated in Revision 7, combination wet and dry towers would be used for Unit 3 only. Dry towers would be used for Unit 4. The dry tower proposed for Unit 4 would be an expected 150 ft (46 m) tall. However, the combination wet and dry cooling towers for Unit 3 would have an expected maximum height of 180 ft (55 m). (SE-0050 7)

Comment: Towers extending above the tree line and up to 180 ft above ground level would represent site pollution to many residents of Lake Anna...The cooling towers should be kept to a height so as not to be visible from beyond the Dominion property line. (SE-0012 4)

Comment: Why is the building 100 feet taller than the current one? The buildings should not be higher than the current tree lines surrounding the property. (SE-0007 5)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Height of dry and wet cooling towers and facility buildings should not exceed the tree line to protect the rural esthetic atmosphere of the community as Dominion indicated in Jan 06 stakeholder meeting. (SE-0022 24) (St-0014 12)

Comment: These heights are too tall. The cooling towers should not exceed the 80 foot height of the tree lines surrounding the NAP for shielding them from view. (SE-0004 13)

Comment: Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15-18 stories) in height. ...A 180-foot (about an 18 story building) would be an eyesore. (SW-0005 5)

Response: *The North Anna site is zoned "industrial," and it is not expected that the visual impact would be appreciably different than the current visible structures onsite. There are no standards for visual intrusion of industrial structures. Section 5.5.1.4 in this EIS acknowledges that the cooling towers extend above the treeline, even though they are partially screened. This*

section also describes the visual impact of the steam plume from Unit 3. The impacts are described as MODERATE: they would be noticeable, but would not destabilize important aspects of the resource.

Comment: [Regarding Dominion's ER] Par[agraph] 3.1.2.2 New Unit Description. Please explain in detail "An operating unit or group of modules…..The structure would consist of between 1 and 8 reactors or reactor modules structured around a common support operations…. Are plants 1 and 2 structured like this now? Will there be up to eight concrete domes for each plant? (SE-0004 11)

Response: *The existing units consist of one reactor per unit. For the proposed ESP units, the PPE approach provides the flexibility for the applicant to select from a number of different designs. Some designs such as the ESBWR and AP1000 have one reactor per unit. Others such as the PBMR can have multiple reactors or modules per unit. The PPE limits a unit to a total thermal output of 4500 MW(t) and can include any number of reactors. The external design has not been selected; however, for bounding evaluation, the PPE limits the maximum height of the reactor building to 234 ft to accommodate the possible selection of the AP1000 reactor design. Other designs, including the modular designs, would likely be considerably shorter.*

3.5.9 Other Comments

Comment: These possible negative impacts [of construction and operation] will…[affect] the human community who call Lake Anna and Mineral home. (DW-0817 4)

Response: *The comment did not identify any specific deficiency or raise any specific question regarding the socioeconomic analysis. Sections 4.5 and 5.5 of the EIS address the socioeconomic impacts on the region surrounding the North Anna ESP site, including the Lake Anna and Mineral communities. The impacts were generally found to be SMALL, or at most MODERATE in a few cases. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-48 mentions Paramount's Kings Dominion. Have they been directly consulted about the likely impacts of the proposed project on their facility and its use? (DW-0438 63)

Response: *The NRC staff did not contact Paramount directly. However, information related to the number of visitors to the facility was useful in assessing the transient population in the region. Paramount's internet website was accessed to obtain information on park attendance (see Section 2.8.1.1). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-48 states that Kings Dominion usage rates "could" slow in the future. They easily "could" increase or remain stable, depending on the regional economy, the success of the Kings Dominion's marketing efforts, and any impact that the proposed project would have on the region. (DW-0438 64)

Response: *The source for the representation that the usage rates could slow in the future for King's Dominion is its public relations officer; this was stated in the Dominion ER. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-55 states that Louisa County would like to lessen its dependence on NAPS through diversification of the local economy. The proposed project would be counter to this local goal. What mitigation measures is the applicant proposing to foster the County's diversification goals? (DW-0438 68)

Response: *Dominion has not proposed any mitigation measures to foster Louisa County's diversification goals. The economic stability already afforded by the operation of NAPS Units 1 and 2 has allowed the County to build an industrial park and to begin an economic development program; any additional nuclear units would be expected to enhance the program. The most recent success of Louisa County's efforts to diversify the economy was its ability to attract the Wal-Mart distribution center at Zion Crossroads. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 4-24 line 9 states that mitigation measures would be required. These measures should be detailed now and included in the DEIS. (DW-0438 104)

Response: *Several mitigation measures are identified in Section 4.5.3.2 in the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Change the word "could" to "would" on Page 5-41 line 18. (DW-0438 152)

Response: *Dominion's participation in managing traffic congestion should be coordinated with the agencies of the Commonwealth of Virginia and local government authorities. The word "could" states Dominion's intent and provides flexibility for Dominion and other governmental agencies to consider and implement such mitigation measures that may be more effective in the future, in accordance with State and local laws. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The socioeconomic sections of the DEIS are unfortunately weak. The DEIS thus cannot be used as an effective decision-making tool. (DW-0438 56)

Response: *The comment did not identify any specific deficiency or raise any specific question regarding the socioeconomic analysis. Sections 4.5 and 5.5 of the EIS address the socioeconomic impacts on the region surrounding the North Anna ESP site, including the Lake*

Anna and Mineral communities. The economic analysis developed a baseline condition of the socioeconomic conditions in the region (80-km [50-mi] radius) using the most recent information available from official data sources, plus extensive information obtained from interviews with representatives of the local governmental and private sector during the conduct of the NRC review. This information is reflected in Section 2.8 of the EIS. Thereafter, analyses were performed to evaluate potential socioeconomic impacts of construction (Section 4.5) and operation (Section 5.5) at the North Anna ESP site. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Page 4-22 line 17 seems to indicate that the NRC consulted primarily with Dominion in assessing whether there is a sufficient labor force. Independent analysis should be done especially since the residential and commercial construction markets have taken off since the December 2003 survey. (DW-0438 102)

Response: *The NRC places the initial burden to represent current conditions and potential impacts that could result from the construction and operation of the facilities contemplated on the proponent of the action (in this case, Dominion). Upon receipt of the ESP application, the NRC staff independently assesses the applicant's representation, including developing independent sources and identifying new information that may be relevant to the staff's analysis of impacts. In its ER, Dominion asserted that a sufficient construction work force would be available in the region. Section 4.5.3.1 of the EIS states that "[T]hrough information obtained from the interviews conducted during the December 2003 site visit, the staff confirmed that a sufficient number of construction workers would be available to meet the expected demand." The analysis was based on published sources and the staff's interviews with local planning agencies in the area, county planning departments, and economic development organizations, and published sources. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Dominion Resources / Virginia Power gave up the right to fence off, or cause either of the reservoirs to become recreationally unusable short of a nuclear disaster. In fact Dominion Resources / Virginia Power encouraged the use of the reservoirs for recreation liberally allowing access, and individual investment and construction of marinas, homes, docks, boathouses etc both on the main lake and the cooling lagoons. (SW-0015 4)

Response: *Virginia Power and Old Dominion Electric Cooperative own all the land within the NAPS boundary, both above and beneath the water surface, including those portions of Lake Anna and the waste heat treatment facility that lie within the site boundary. They also own the land outside the NAPS boundary that forms Lake Anna, up to the expected high-water mark. The only projected adverse impact on recreation from the proposed Unit 3 is that the it could slightly exacerbate water level decreases during times of drought. The recreational impacts are discussed in Section 5.5.3.4 of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Towers extending above the tree line and up to 180 ft above ground level would...represent a possible hazard to aircraft as structures of 180 ft would probably be the tallest large structures in Louisa County. (SE-0012 5)

Response: *The Federal Aviation Administration has cognizance over the intrusions into navigable air space. Its regulations at 14 CFR Part 77, "Objects Affecting Navigable Airspace" deal with construction requiring notice to the Administrator prior to beginning construction. Notice to the Administrator in the event that an structure exceeds 200 feet above ground is included in the list of Authorizations and Consultations in Appendix L. Accordingly, no changes have been made to the EIS as a result of this comment*.

3.6 Historic and Cultural Resources

Comment: [W]hat is the nature of the communications with Native American tribes that have concluded the probable absence of any significant traditional properties or cultural resources? (DW-0437 54)

Comment: Why not stipulate the need for cultural resource assessments now (Page 4-35 line 37)? (DW-0438 112)

Comment: Parts of the North Anna site that would be used for new reactors and related facilities have been identified as having a "Moderate-to-High" potential for containing historic or cultural resources (EIS, page 4-35, lines 33-39). What is the basis for this assessment, and what sort of mitigation measures would be employed should such resources be discovered? (DW-0437 53)

Comment: Page 2-72 line 26 mentions that some undisturbed areas have some potential for cultural resources. I was unable to find in the DEIS a statement that these areas would be examined and cleared prior to any site work occurring there. (DW-0438 80)

Response: *Ground-disturbing activities for previously undisturbed land may never occur. Therefore, stipulating a cultural resource assessment is premature. However, as described in Section 4.6 of this EIS, Dominion recently commissioned an archaeological survey for the ESP site. With the exception of two previously recorded cemeteries, no artifacts, cultural features, or cultural deposits were identified during this field survey. The staff concluded that there would be no adverse effects upon historic and cultural resources resulting from construction and operation of the proposed Units 3 and 4 and assigned an impact level of SMALL. Previous studies leading to the assessment of lands with potential for unrecorded cultural resources at the North Anna plant site are referenced in Section 2.9.2 of this EIS. Dominion would consult with the Virginia Department of Historic Resources regarding the need for and types of cultural resource investigations prior to undertaking any ground-disturbing activities at the ESP site on land that was previously undisturbed. Any field survey, documentation and evaluation of*

cultural resources, and mitigation of potential impacts would occur prior to ground-disturbing activities. The existing NAPS site has a Work Procedure that would initiate a stop-work order during construction activities if a previously undetected cultural resource is discovered. The ESP applicant would adopt a similar procedure. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The Nuclear Regulatory Commission is consulting directly with the Department of Historic Resources pursuant to Section 106 of the National Historic Preservation Act (NRC 2005). The Department expects this consultation to continue. (DW-0439 28)

Comment: The Department of Historic Resources (DHR), which is the State Historic Preservation Office in Virginia, has previously advised NRC and the applicant that a Programmatic Agreement is necessary between NRC, DHR, and other consulting parties if the NRC does not wish to complete the identification and effect process pursuant to section 106 of the National Historic Preservation Act. (SW-0017 73)

Comment: The SDEIS indicates that an archaeological site assessment has been conducted on the project property in question (Voight, 2003), and that portions of the property appear to retain the potential to contain intact archaeological resources (pages 2-18 and 2-19, section 2.9). This suggests that NRC and the applicant wish to complete the section 106 process prior to permitting, rather than to address NRC's responsibilities programmatically. However, DHR had not, as of its August 9 letter to NRC (enclosed), received the report of the assessment and cannot, therefore, comment on the report's conclusions. DHR recommends that NRC submit this report to DHR to allow its comment on the need for further studies of identification and evaluation of archaeological resources. (SW-0017 74)

Comment: In the absence of an executed Programmatic Agreement or the completion of the section 106 process, as prescribed in the regulations at 36 CFR Part 800, the Department of Historic Resources finds the NRC's site redress plan to be insufficient to fully consider the project's effects on historic properties. Continued consultation, however, is expected to resolve the matter. (SW-0017 75)

Response: *Pursuant to 36 CFR 800.8, the NRC has completed its Section 106 consultation under the provisions of the National Historic Preservation Act (NRC 2005). Dominion has completed the archaeological field assessment for all lands included in the ESP area of potential effect [APE] at the North Anna Site. The field survey of this acreage revealed no historic properties that would be adversely affected by the proposed project activities. The final written report was submitted to DHR on September 21, 2006. During a follow-up teleconference on October 12, 2006 between NRC and DHR, DHR staff indicated that the survey report was sufficient to allow NRC to complete the Section 106 consultation responsibilities. Appropriate revisions discussing this survey have been made to Section 4.6 of the EIS. Documentation of the consultation process is included in Appendix F of the EIS.*

3.7 Environmental Justice

Comment: I appreciate the section on Environmental Justice in plant siting. How does the conclusion reached therein mesh with the statement on page 2-55 line 29 that Louisa County (where the project would be sited) has the second highest poverty rate and second lowest median income? (DW-0438 66)

Response : *For purposes of the staff's NEPA review, a low-income population is defined to exist if the percentage of low-income population within a census block group exceeds the corresponding percentage of low-income population in the State (if the 80-km [50-mi] radius from the site is entirely in one State) by 20 percent, or if the corresponding percentage of low-income population within a census block group is at least 50 percent. For counties and census block groups within an 80-km (50-mi) radius of the NAPS ESP site, the percentage of minority and low-income populations is compared to the percentage of minority and low-income populations in Virginia and Maryland, as applicable.*

In Louisa County, the estimated percent of the county population that falls into the poverty level is 10.2 percent compared with 9.6 percent for Virginia, based on Census 2000 data, thus falling below the applicable percentage for low-income population to be considered. No census block groups in Louisa County met the criterion for low income. Louisa County has the second-highest poverty rate of the nearby counties, but the rate is not particularly high. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [Regarding Dominion's Site Safety Analysis.] Section 4.4.3 - Environmental Justice Impacts - In this section the information only mentions the potential for disproportionately high and adverse human health or environmental impacts on minority and low-income populations that reside within an 80-km (50 mile) radius of North Anna during construction. This information could be construed as discriminatory. This implies that only minorities and low-income individuals reside within a 50-mile radius to the plant or that the implications and analysis was only performed on impact to low income residents located within this area and that other populations within this region were not considered. However, again the information mentioned in Section 2.5 is current data with regard to this information. I would suggest that the NRC take a very wholesome look at this population data and the potential effects on the entire population within this region of 80-km (50-mile radius) of the plant. With the increased development within this region some of the housing developments and homes around Lake Anna are valued up to and well over [$300,000]. There are also several very large housing developments and expensive farm operations within this area that do not seem to be considered in this evaluation in the areas of Louisa, Orange, Spotsylvania, Hanover, Montpelier, Charlottesville, and Goochland. (DW-0191 9)

Response: *As stated in Section 2.10 (Environmental Justice) of the Draft EIS, Environmental Justice refers to a Federal policy under which each Federal agency specifically identifies and*

addresses, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations, in addition to the evaluation that considers all affected populations. Minority categories are defined as American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, Black races, or Hispanic ethnicity; "other" may be considered a separate minority category. The CEQ has provided guidance for addressing environmental justice, and although the Commission is not subject to the Presidential Executive Order mandating environmental justice review, the NRC has voluntarily committed to consider environmental justice in its NEPA environmental reviews. This was recently affirmed in an updated Commission policy statement issued in August 2004 (69 FR 52040). In its environmental reviews, the NRC considers the demographic and economic circumstances of local communities where nuclear facilities are to be sited, and takes care to ensure that the license applicant mitigates or avoids special impacts attributable to the special character of these communities.

The impact analysis was not restricted to low-income and minority populations in the analysis of the North Anna ESP. For example, the entire population within a 50-mi radius is evaluated with respect to radiological health impacts of plant operations. The low-income and minority populations are specifically analyzed to ensure that they are not being disproportionately impacted, when compared to other population or income groups, by the plant's siting.

In its EIS, the staff recognizes that more expensive homes are located around Lake Anna and Lake of the Woods, and that some areas within Orange, Louisa, and Spotsylvania Counties are developing rapidly. The construction and operation of North Anna Units 3 and 4 would likely add to this development, putting upward pressure on home values within these communities, until new construction begins to fill any initial shortages of housing that might develop. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The data used in the determination of populations -of-Environmental-Justice concern is out dated. The assessment needs to be redone using the most recently available census information (2000 Census data). (SE-0030 11)

Response: *Because the description of environmental justice in Section 2.10 of this EIS clearly identifies the 2000 Census as the basis for analysis, the comment appears to be incorrect. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The Environmental Justice assessment provided in the document is vague. Little information of use is provided, and no documentation is presented to support conclusions. It is difficult to determine if the conclusions drawn in this document are valid based upon the scarce information provided related to potential impacts and target populations. (SE-0030 12)

Comment: [Comment assumed to relate to environmental justice due to order of comments] It is not clear as to the methods used to determine the level or degree of impact anticipated. What are the criteria upon which the conclusions are based? (SE-0030 14)

Response: *For purposes of the staff's NEPA review, Dominion followed the convention of including census tracts and employing census block groups in its assessment. The NRC staff reviewed Dominion's assessment and conducted its own review in conjunction with an evaluation of socioeconomic aspects of the region. The staff interviewed local government officials and the staff of social welfare agencies concerning potentially disproportionate impacts to low income and minority populations. The staff did not identify any location-dependent disproportionately high and adverse impacts affecting these minority and low-income populations. This description including maps of the minority populations and low-income populations are provided in Section 2.10 of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The listing of groups and organizations contacts lacks representative groups from the Environmental Justice and grassroots community. While a number of tribes were listed in the contacts list, the listing lacked local community-based organizations, local churches and other groups traditionally associated with the Environmental Justice movement. ...It is strongly suggested that a more comprehensive outreach and community involvement plan be instituted. (SE-0030 13)

Response: *The NRC publicizes every one of its public meetings through official means and is receptive to public participation. The NRC takes additional measures to ensure that all of the local communities have the opportunity to become aware of the public meetings to discuss the North Anna ESP application. For the environmental review, the first meeting was a scoping meeting in December 2003, the second was in February 2005 on the Draft EIS, and the third was in August 2006 on the SDEIS. In addition to the notice at the NRC website, in the Federal Register and the issuance of press releases, these meetings were widely advertised in newspapers throughout the region of interest (The Richmond Times-Dispatch, The Daily Progress, The Free Lance Star, and The Central Virginian), through flyers posted in Louisa and Orange Counties and through announcements on radio stations in the area. Known public interest groups were also alerted to the meetings by the meeting facilitators. The Draft EIS and Supplement have been available for public review at the Louisa Public Library and on the NRC website, and a copy of the Draft EIS and SDEIS were made available to anyone who requested it. The scoping meeting and the meeting on the Draft EIS and Supplement occurred during specified comment periods so that interested members of the public could attend and share their insights; even if a person could not attend either of these meetings, the official comment period remained opened for a period thereafter to afford the public the opportunity to share information with the NRC. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: What is the rationale of using national averages for the assessment of minority and low-income populations? The comparison of community data to national averages alone seems unreasonable. ...It is much more appropriate from a statistical point of view to use state and

county level benchmarks. ...In view of the fact that the poverty level differs from one state to another, it would seem more reasonable that the assessment would use state level data. (SE-0030 10)

Response: *For purposes of the staff's NEPA review, the NRC staff reviewed Dominion's assessment and conducted its own review of socioeconomic aspects potentially related to environmental justice in the region. The evaluation was conducted primarily within the 50-mile region surrounding the North Anna site. A description of the affected environment including maps of the minority populations and low-income populations are provided in Section 2.10 of this EIS where it is clear that state averages, not national averages, were the basis of comparison. Accordingly, no changes were made to this EIS as a result of this comment.*

3.8 Site Redress Plan

Comment: Dominion claims that it has made no decisions about building new reactors at North Anna. Yet, an ESP is a "partial construction permit," meaning that Dominion would be allowed to carry out large-scale construction operations, including site clearing, stream clearing, and excavation, as well as construction of permanent foundations, intake structures, and outfall structures. (DW-0437 3)

Comment: Abstract page iii line 10 et. seq. states "that the proposed action does not include any decision or approval to construct or operate one or more units." This is misleading since a lot of construction is permitted by the ESP. To the layman it seems that all but the nuclear reactor itself could be permitted by the ESP. (DW-0438 4)

Comment: The draft environmental impact statement fails to consider or to fully acknowledge numerous environmental issues that indicate that the North Anna site is not suitable for additional reactors. It has been said that these issues are not as critical now since the ESP would not permit full construction, but if the ESP is granted, "site preparation and preliminary construction activities" can be carried out, including site clearing, stream clearing, and excavation, as well as construction of permanent foundations, intake structures, and outfall structures. (DW-0401 2)

Response: *The EIS states that site preparation and preliminary construction activities are allowed if a redress plan is part of an approved application for an ESP. Allowable activities are enumerated in 10 CFR 50.10(e)(1) and authorized by 10 CFR 52.25 upon issuance of an ESP. The site preparation and limited construction activities that could be allowed with an ESP specifically do not include safety-related structures, such as the containment building housing the reactor. Therefore, certain activities would be permitted, as discussed in Section 4.11 of this EIS, so that, if the activities were actually undertaken, but the ESP expires before it is*

referenced, then redress carried out under the plan should achieve an environmentally stable and aesthetically acceptable site condition. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: This DEIS wording is inconsistent with 10 CFR 50.10(c)(1) which allows "changes desirable for the temporary use of the land for public recreational uses, necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site or to the protection of environmental values." Drilling for samples/monitoring wells or additional geophysical borings is not listed in Part 4, Section 1.1, of Dominion's ESP application or in DEIS Section 10.1. [page 4-45, lines 19-21, 38] (DW-0423 27)

Response: *There are a variety of activities that are undertaken to characterize the site as part of the ESP application process; some of these activities are performed for safety purposes and are addressed in the applicant's Safety Analysis Report and evaluated in the NRC staff's Final Safety Evaluation Report (FSER). Those site characterization activities that have a bearing on the environmental review were addressed in the applicant's Environmental Report and this EIS. The safety activities are not included in the EIS and are not included in the site redress plan. This item was deleted from Section 4.11 of the EIS.*

Comment: The Draft EIS indicated the potential risk of radioactive waste occurring on site after construction (pages 4-39, 4-40, 6-22, and 8-12). Any soil suspected of radioactive wastes or other contamination generated during construction-related activities (including site preparation) must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. [Reference to State and Federal laws provided.] (DW-0439 24) (SW-0017 62)

Comment: The discussion of the Site Redress Plan (Draft EIS, page 4-46) raises the potential for structures to be demolished or removed. These should be checked for lead-based paint and asbestos before any action takes place. If lead-based paints are found, NRC or the applicant must comply with the rules in the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-261); if asbestos-containing materials are found, compliance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640) is required. (DW-0439 25) (SW-0017 63)

Response: *The staff agrees with these comments from VDEQ, which provide information regarding regulations for wastes generated during demolition of new structures (for example, a warehouse) authorized under an ESP with an approved redress plan. The materials used for any new construction activity are expected to comply with applicable Federal, Commonwealth, and local requirements. No changes to the EIS were made as a result of these comments.*

Comment: Page 4-46 line 1 states that Dominion would post a $10 million guarantee. Given the recent risks in the utility industry, Dominion should be required to post a Letter of Credit from a bank rated A or better in the event that its own credit rating drops below investment grade. (DW-0438 120)

Response: *NRC regulations do not require an applicant to post a guarantee or obtain a letter of credit. Absent a regulatory requirement, the NRC cannot require an applicant to post a letter of credit. Accordingly, no change were made to this EIS as a result of this comment.*

3.9 Human Health (Nonradiological Impacts)

Comment: Discussion of the impulse noise level from construction activities may not be an appropriate comparative measure for operational noise impacts. [page 5-53, line 35] (DW-0423 37)

Response: *The EIS text provides a full range of sound intensities for common situations to permit readers to place the noise level in context. The noise levels given for plant operation are clearly below the construction noise levels. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Noise from the plant should meet the Louisa County Noise Ordinance as measured at adjacent non-Dominion properties. It is recognized that this will be a "white" noise. (SW-0004 11)

Comment: We believe that the noise issue is currently covered by the Louisa County Noise Ordinance, as measured at adjacent non-Dominion properties. (ST-0004 8)

Comment: The proposed noise level of the cooling fans is excessive. As a minimum the noise emitted should not exceed the current Louisa County noise ordnance of 55 DB at night. (SE-0012 6) (SE-0016 1)

Comment: [Regarding Dominion's ER] Dominion states "Public use of the lake is transient and is less sensitive to noise impacts." We do not agree with this statement, since we have approximately 10,000 residential lots surrounding the lake in 3 different counties. Over the water there is no noise abatement and noise levels travel unimpeded. ...Also please note that Louisa County has noise ordinances (Chapter 51 of the County Code). (SE-0007 6)

Comment: We're concerned about ...The noise concerns emitted from the 180 to 230 foot buildings that will travel long distances without having tree barriers to protection the sound from giant fans. (ST-0014 18) (SE-0020 30)

Comment: These cooling towers will have huge fans that are planned to emit noise levels at about 65 decibels 24 hours a day, 7 days a week. ...Noise travels long distances if not distorted by various barriers (trees, buildings, etc). Louisa Noise Ordinance says no more than 55DP (at night in residential neighborhoods. (SW-0005 6) (SE-0003 5)

Comment: [Regarding Dominion's ER] Par 5.3.4 page 3-5-69 a - With the addition of the new units 3 and 4, Cooling Lagoon residences are stated by Dominion as being "one of the areas possibly affected by the noise from the new cooling systems". ...What is the noise that can be expected from the turbine building? (SE-0007 4)

Comment: [Regarding Dominion's ER] These heights are too tall. The cooling towers should not exceed the 80 foot height of the tree lines surrounding the NAP for...noise abatement. (SE-0004 14)

Comment: [T]he noise levels are well below the country ordinance levels in residential areas. The amount of noise we're talking about is about the same as a refrigerator at that distance. So if you find your refrigerator annoying, then you would find the nuclear plants annoying. (ST-0020 2)

Response: *Louisa County adopted a new noise ordinance in May, 2004 (Louisa County 2006). That ordinance limits daytime noise levels in industrial zones to 75 dBA and nighttime noise levels to 65 dBA. The North Anna ESP site is zoned "industrial." Spotsylvania County has only a general prohibition of "unreasonably loud, disturbing and unnecessary noise." Noise customarily emitted from construction activities and industrial establishments is exempt from this prohibition during daytime hours (6 am to 10 pm) (Spotsylvania County 2006). The text 4.8.3 has been revised to reflect the change in the Louisa County ordinance.*

According to Dominion's ER, noise from the cooling tower for Unit 3 would be less than 65 dBA at the exclusion area boundary, and noise from the cooling tower for Unit 4 would be less than 60 dBA at the exclusion area boundary. At these levels, cooling tower noise at the exclusion distance from the cooling towers to the exclusion area boundary is about 700 ft, while the distance to the nearest residence is more than 3000 ft. Noise from the cooling towers is not likely to be noticeable at this distance. Accordingly, no additional changes were made to this EIS as a result of these comments.

Comment: Sentence fragment. [And verify the NESC limits at the COL stage for the transmission of electricity from Units 3 and 4.] This wording is inconsistent with ER Section 5.6.3 that describes the analysis results, which have already been confirmed by field verification. [page 5-54, line 24 (line 28 in hard copy version)] (DW-0423 38)

Response: *The sentence fragment was deleted because the text did not reflect that field verification had already been performed.*

Comments Within Scope

Comment: Since it is possible to make a reasonable estimate of the electric generation output from additional reactors at the North Anna site, why is Dominion allowed to wait until the COL licensing stage to determine whether transmission lines from the site meet the requirements of the National Electric Safety Code (NESC) regarding electrostatic effects from operation (DEIS, Section 5.8.4)? (DW-0437 71)

Comment: The maximum steady-state current allowed by the NESC is 5 mA root mean square (rms), and the current from Units 1 and 2 was found to range as high as 4.95 mA (§ 5.8.4, line 26), so is it reasonable to assume that increased capacity from two new units at the site would exceed NESC standards for electrostatic fields? If so, why is this issue not being addressed at this stage in the licensing process? (DW-0437 72)

Response: *New connections to the grid are subject to the rules and regulations of the Federal Energy Regulatory Commission (FERC) and the Virginia State Corporation Commission. Their requirements include numerous studies and reviews if new transmission lines are installed; Dominion has indicated that new lines are not necessary for any additional units at the NAPS site. Dominion considered the transmission line design features for its limiting-case scenario and field-verified the results with actual electric field measurements under energized transmission lines. Dominion concluded that none of the four transmission lines has the capacity to induce more than 5 milliamperes in a vehicle parked beneath the lines. The staff independently reviewed the information provided, and in Section 5.8.4, assumed that the transmission lines would meet the NESC criteria for electric shock. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: [T]he National Institute of Environmental Health Sciences (NIEHS) has determined that electromagnetic fields may pose a leukemia hazard in human populations (draft EIS, page 5-55, lines 1-3). Would a stronger electromagnetic field produced by increased voltage capacity on the transmission lines from the NAPS amplify this hazard? (DW-0437 73)

Response: *The NIEHS actually suggested that the level and strength of evidence supporting extremely low frequency - electromagnetic field (ELF-EMF) exposure as a human health hazard are not sufficient to warrant aggressive regulatory actions. The Institute did not determine that electromagnetic fields pose a leukemia hazard, but that such a hazard cannot be dismissed. The Institute did not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines; it suggested that passive measures, such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures, should be employed. The Institute suggested that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards. Therefore, it would not be appropriate to speculate about the possible effects of additional generation at the North Anna site with respect to such a hazard at this time. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: WHTF temperatures of 100°F or more will make the WHTF unsuitable for recreation, swimming, and aquatic life. In Table 5-12 of the ESP, hydrological alterations as presented will have an impact level of MODERATE and not SMALL as represented by ESP. (DW-0806 6)

Comment: I'm concerned about the water temperature and the water level. I swim in the back of my property in the months of August and July, sometimes early September. The water is pretty warm... During the drought year, the water was down very low, and so that would be a problem, too. (DT-0024 1)

Comment: My wife enjoys the lake more than I and enjoys the warmer temps provided by the discharge, allowing her to be on the lake early in April and late in December. (DT-0060 2)

Comment: What will happen to the fish and to humans as they recreate on the lake when the temperatures increase, causing possible harmful bacteria and algae to continue to live all winter long and not die off in a natural winter cycle? (DT-0038 7)

Response: *These comments were received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3 and its elevated discharge temperature relative to the existing discharge from Units 1 and 2. The proposed cooling system has since been changed to a closed-cycle, combination wet and dry cooling system, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on temperatures in the WHTF and Lake Anna. The WHTF was licensed by the Commonwealth of Virginia as an industrial waste heat treatment facility; as a result of that designation, the Commonwealth does not require that Dominion meet water quality standards within the WHTF. Operation of the proposed Unit 3 cooling system would not be expected to raise the water temperature of the WHTF by any appreciable amount. The nonradiological human health impacts of swimming in those isolated areas where the water temperature could exceed 40 °C (104 °F) was evaluated by the Virginia Department of Health (VDH 2005). The VDH recommended that people do not swim in areas where the water temperature is above 40 °C (104 °F) to be protective of persons who might be particularly vulnerable to the effects of submersion in hot water. Based on the use of a closed-cycle, combination wet and dry cooling system for proposed Unit 3 and its minimal effect on water temperature in the WHTF, the staff determined that the health effects from the operation of Unit 3 were SMALL. Section 5.8.1 of this EIS has been modified to reflect this assessment.*

Comment: What is the basis for the conclusion that the increased water temperature in Lake Anna caused by the additional cooling structures required for new reactor units at the site would not be sufficient to "create an environment conducive to the optimal growth of thermophilic organisms," which can cause primary amoebic encephalitis in humans (DEIS, Section 5.8.1)? (DW-0437 28)

Comments Within Scope

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Human health problems due to increased water temperatures and increased bacteria from increased water temperatures. (SE-0022 18) (ST-0014 9)

Comment: We have become increasingly concerned about the high temperatures on the cooling lagoon side of the lake and of the potential of detrimental bacteria flourishing in the warm water. ...This lake is an area of recreation, it is advertised as such, and the safety and well being of those using it need to be considered. (SE-0008 1)

Comment: Primary Amebic Meningoencephalitis (PAM)...should be tested for and monitored in Lake Anna Main Reservoir and the Cooling Lagoons. ...This is a public safety issue. (SW-0004 12)

Comment: Any increase in the temperature of the water entering Lake Anna would result in a significant health risk as defined by the Surgeon General of the United States. (SE-0012 3)

Comment: [Regarding Dominion's ER] Dominion suggests postal mail, signage, or Internet for Virginia agencies to inform the public. Since Dominion's power plants are the cause of the increased temperature that can cause the PAM problem, they solely hold responsibility and liability and not Virginia agencies. (SE-0007 8)

Comment: Insure that the Lake Anna cooling lagoon residents are provided the same protections for health, safety, welfare and water quality that are provided the Lake Anna users on the main reservoir. (SE-0015 1)

Response: *The first comment of those immediately above was received based on the evaluation in the Draft EIS of a once-through cooling system for Unit 3. The following six were received in response to the SDEIS, which evaluated the impacts of the proposed closed-cycle, combination wet and dry cooling system for Unit 3, which would have a substantially lower discharge temperature and would be expected to have a negligible effect on lake temperature. The bases for the staff conclusions reached are presented in Section 5.8.1, which summarizes the correspondence related to the operating license renewal of NAPS Units 1 and 2. The thermophilic pathogenic amoeba (Naegleria fowleri) found in freshwater throughout the United States, was found in the WHTF following startup of NAPS Unit 1 in June 1978. In 1981, Virginia Electric Power Company (VEPCo) environmental personnel met with the Virginia Epidemiologist to determine whether N. Fowleri at NAPS represented a public health risk. Following consultation with other State and Federal agencies, the risk of contracting primary amoebia meningoencephalitis (PAM) was determined to be too low to justify any action by VEPCo or state agencies (VEPCo 1985). The correspondence includes reference to Medical College of*

Virginia researchers isolating N. Fowleri from the WHTF. Dr. Miller, Virginia State Epidemiologist, determined that the potential risk from the amount of N. Fowleri in the WHTF was too low to justify any necessary action by Virginia Power or State agencies (VEPCo 2001, Appendix F). Additionally:

- *The summer water temperatures in the sampled locations (in Lake Anna and the WHTF) were found to be below those considered optimal for the growth of thermophilic forms (VEPCo 2001).*

- *Virginia Power recently upgraded the onsite sewage treatment plant to include disinfection processes that reduce coliform bacteria and other micro-organisms to levels that meet State water-quality standards. (On January 15, 2003, new bacteria standards in the Water Quality Standards Section 9 VAC 25-260-170.A became effective, as did the revised disinfection policy of 9 VAC 25-260-170.B. These standards replaced the existing fecal coliform standard and disinfection policy of 9 VAC 25-160-170 [VDEQ 2005]). This upgraded sewage treatment plant would be able to handle waste from the new units.*

- *At the North Anna ESP site, the addition of proposed Unit 3 and 4 would be expected to have a negligible effect on the temperature in Lake Anna and would not be likely to create an environment conducive to the optimal growth of thermophilic organisms. The Virginia Department of Health (VDH) assessed the public health effects of swimming in the WHTF. The risk of contracting PAM was determined by the VDH to be low (less than the risk of being struck by lightening).*

Dominion is working with VDH and VDEQ to establish a mechanism to communicate public health information to residents around the WHTF. Information from VDH about N. fowleri proliferation temperatures was added to Section 5.8.1 of the EIS.

3.10 Human Health (Radiological Impacts)

3.10.1 Comments Related to Regulatory Limits and Occupational Exposure

Comment: During construction of new units and during operation, construction workers and plant personnel would be exposed to radiation sources within the restricted area boundary of existing nuclear power plants. Exposure would occur via direct radiation, gaseous effluents and liquid effluents. The federal annual radiation worker limit is 5 rem which will result in excessive genetic defects, morbidity and mortality. The Nuclear Regulatory Commission's standard is more than double the standard set by the International Commission on Radiation Protection. The ICRP estimates that 5 rems of exposure would result in a 1 in 500 cancer death rate. The

Commission's standard [does] not conform to ALARA standards (As Low As Reasonably Achievable); rather, it is an illegal and unacceptable compromise which is based primarily on cost, not on the protection of worker health. (DW-1163 12)

Comment: The federal occupational radiation worker dose limit of 5 rem per year is arbitrary and capricious and would not protect worker health or safety — The NRC's 5 rem limit is based too heavily on economic factors, not medical knowledge. The NRC standard is more than double the maximum set by the International Commission on Radiation Protection. The NRC standard is illegal and unacceptable. (DW-1163 3)

Comment: [T]he Commission's annual radiation worker limit of 5 rem does not conform to the ALARA concept (As Low As Reasonably Achievable), adopted by the Commission in 1991. The 5 rem standard will result in excessive genetic defects, morbidity and mortality. The NRC standard is 150% higher than the standard set by the International Commission on Radiation Protection. The ICRP estimates that 5 rems of exposure would result in a 1 in 500 cancer death rate (20E+04). This is not ALARA; this is not legal; this is not acceptable. (DW-1163 15)

Comment: The federal occupational radiation worker dose limit of 5 rem per year is arbitrary and capricious and would not protect worker health or safety - The NRC's 5 rem limit is based too heavily on economic factors, not medical knowledge. The NRC standard is more than double the maximum set by the International Commission on Radiation Protection. The NRC standard is illegal and unacceptable. (DT-0034 4)

Comment: The federal occupational radiation worker dose limit of 5 rem per year is arbitrary and capricious and would not protect worker health or safety. The Nuclear Regulatory Commission's standard is more than double the standard set by the International Commission on Radiation Protection. The ICRP estimates that 5 rems of exposure would result in a 1 in 500 cancer death rate. The Commission's standard is not conform to ALARA standards (As Low As Reasonably Achievable); rather, it is an illegal and unacceptable compromise which is based primarily on cost, not on the protection of worker health. (DT-0034 14)

Comment: Dr. Stuart Bushong, Professor of Radiology, Baylor College of Medicine says, "The 5-rem standard is an administrative standard." In other words, it is the result of a compromise forced by economic factors, not medical knowledge. The U.S. Environmental Protection Agency estimates that tightening the worker radiation exposure standard by 70% would require the nuclear industry to hire 30,000 additional personnel and would cost hundreds of millions of dollars. (DT-0034 15, DW-1163 13, DW-1163 14)

Response: *The primary mission of the NRC is to ensure that authorized activities are conducted in a manner to provide adequate protection of public health and safety from the effects of the radiological hazards posed by nuclear reactor, materials, and waste facilities. The exposure limits for radiological protection are established by the NRC to protect workers and the public from the harmful health effects of radiation on humans. The occupational exposure limits*

are set to be protective of workers during their entire working career. The limits are based on the recommendations of standards setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (e.g., the International Commission on Radiological Protection [ICRP], National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative in ensuring that the public and workers at nuclear power plants are adequately protected; the NRC monitors the scientific studies of these organizations. The NRC radiation exposure standards are in 10 CFR Part 20, "Standards for Protection Against Radiation." In promulgating these standards based on the recommendations in ICRP 26 and 30, the NRC has determined that they are protective of human health; should additional information warrant changes in the exposure limits for radiological protection, then this would be reflected in the NRC rules.

The 5 rem annual limit is an upper limit separate from the "as low as reasonably achievable" (ALARA) objective that licensees are to apply to further reduce exposure to radioactive material. The ALARA requirements are specified in 10 CFR 20.1101. ALARA requires the licensee to use, to the extent practicable, procedures and engineering controls based on sound radiation protection principles to achieve occupational dose and doses to members of the public as low as is reasonably achievable. An annual occupational dose summary report issued by the NRC (NUREG-0713, Vol 25) showed that the average measurable total effective dose equivalent (TEDE) per worker for a recent 10-year period (1994-2003) ranged from 0.21 to 0.31 rem with a declining trend in recent years; this is indicative of the effectiveness of ALARA programs. This NUREG also showed that no worker at a commercial power reactor received more than 4 rem annually and only 18 of the 109,990 workers monitored exceeded 3 rem annually in 2003. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [T]he first step of the fuel cycle, extraction of uranium ore from the earth, involves a deadly exploitation of uninformed and unprotected miners. (DW-0411 2)

Response: *The staff evaluated the impacts of uranium mining assuming underground or strip mining techniques were used (see Chapter 6 of the EIS). This evaluation was derived from Table S-3 of 10 CFR 51.51, which was based on WASH-1248; in promulgating this rule, the Commission presented its conclusions of the environmental impacts of the fuel cycle. As discussed in Section 6.1.1 of the EIS, the primary method of uranium mining in the United States today is in situ leach mining. It involves injecting a solution into uranium ore to dissolve the uranium and pumping the solution to the surface for further processing. This process eliminates the dusty labor-intensive underground or open pit mining techniques. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: When it comes to our occupational exposure, our Unit 2 has the second lowest radiation exposure in the nation for our type of reactor and Unit 1 has the ninth lowest exposure. ...As for public dose, it's minimal. (ST-0022 2)

Comments Within Scope

Response: *The comment provides information on doses from the existing units and does not address the new units. Accordingly, no changes were made to this EIS as a results of this comment.*

3.10.2 Cancer and Health Effects

Comment: In particular, I want to start off, which I hope is a constructive criticism of the NRC, and that has to do, again, with [NRC's contractor, Project Team Leader] Maryann Parkhurst's comments about lack of harm of a radiation dose of ten rads, or 10,000 millirems. I mean, she chose to emphasize this, that there's no studies that show any health effects for exposure to 10,000 millirems, but she knows and I know that if Dominion Power reported that one of their workers at North Anna received 10,000 millirems, there would be an immediate investigation, and at the end of that process, there would be a considerable fine...So I think it's important for the NRC to rein in that sort of activity because, on the one hand, suggesting that radiation is harmless while their own policies which are designed to protect workers are based on the knowledge that radiation is not harmless. (DT-0002 2)

Response: *The NRC staff routinely inspects operational programs at nuclear power plants to ensure that they are effective in meeting regulatory requirements and NRC expectations. The NRC would follow up on any incident in which a worker received a dose that exceeded the NRC regulatory annual limit of 5 rem to determine whether it is indicative of a breakdown in radiological control practices at the plant. The 5 rem annual limit is an upper limit and licensees apply the ALARA principles to further reduce doses below the limits. Licensees typically establish administrative control limits that are less than the NRC regulatory limit of 5 rem. An annual occupational dose summary report issued by the NRC (NUREG-0713, Vol 25) showed that the average measurable total effective dose equivalent (TEDE) per worker for a recent 10-year period (1994-2003) ranged from 0.21 to 0.31 rem with a declining trend in recent years; this is indicative of the effectiveness of ALARA programs. This NUREG also showed that no worker at a commercial power reactor received more than 4 rem annually and only 18 of the 109,990 workers monitored exceeded 3 rem annually in 2003.*

A position statement entitled Radiation Risk in Perspective by the Health Physics Society (revised August 2004) puts the health impact into perspective. Key points addressed in the statement included:

1. *Radiological health effects (primarily cancer) have been demonstrated in humans through epidemiological studies only at doses exceeding 5 to 10 rem delivered at high dose rates. Below this dose, estimation of adverse effect remains speculative.*
2. *Epidemiological studies have not demonstrated adverse health effects in individuals exposed to small doses (less than 10 rem delivered over a period of many years).*

3. *In accordance with current knowledge of radiation health risks, the Health Physics Society recommends against quantitative estimation of health risks below an individual dose of 5 rem in one year or lifetime dose of 10 rem above that received from natural sources.*
4. *A person receives approximately 0.3 rem from natural background radiation each year which would accumulate to 5 rem in 17 years and 25 rem in an 80-year lifetime.*

Accordingly, no changes were made to the EIS as a result of this comment.

Comment: [Regarding the risk of cancer caused by radiation exposure at North Anna … [page 6-13], the report covers the assumptions made in calculating the risks: "The cancer risk factors, used in this analysis, are from the BEIR-V report, "Health Effects of Exposure to Low Levels of Ionizing Radiation" (National Research Council 1990). In this report, it is estimated that "if 100,000 persons of all ages received a whole body dose of 0.1 Gy (10 rad) [roughly equivalent to 10 rem] of gamma radiation in a single brief exposure, about 800 extra cancer deaths would be expected to occur during their remaining lifetimes in addition to the nearly 20,000 cancer deaths that would occur in the absence of radiation." Therefore, even with a large exposure (i.e., twice the annual dose limit for workers), the cancer mortality would change by less than a percentage point (i.e., from 20% to 20.8%)." My objection here is not how the calculations were arrived at, but how the results are considered. Granted, less than one percentage point sounds low on paper, but one must consider the size of the population. (DW-0426 10)

Comment: [T]here is a huge difference between considering less than one percent when one is thinking about profit margin and when one is considering the number of new cancer cases. Supposing you do have a population of 100,000 people. What sort of justification is it to say, Well, 20,000 of them are going to get cancer anyway, so what's another 800." We are talking about 800 additional families suffering from preventable tragedies. In this light, less than one percent is unacceptable. (DW-0426 11)

Comment: Now, the report did say that this is assuming an amount of radiation that is twice the annual dose limit for workers. However, let's consider that workers will work at the plant for many years. How does that change the radiation exposure and subsequent risk of cancer? I also realize that the plant will not have 100,000 workers. But let's also consider the small possibility that more radiation escapes the plant than we optimistically expect, either because calculations are wrong, or because of a plant malfunction. Then you are dealing with a potential population of much greater than 100,000 people, depending on which direction is downwind. I cannot accept that even a small percent of my neighbors would get cancer or worse so that I can turn on my air conditioner in the summer. Can you? (DW-0426 12)

Comment: We can figure out better ways to boil water that do not come with...the destruction of DNA for thousands of years or cancer. (DW-0861 3)

Comments Within Scope

Comment: [A]s someone who was born and raised near the Hanford Nuclear Reservation, I have seen the reality of nuclear contamination on the human body: It's so ugly. Watching people die slowly and painfully from contaminated water and air and soil--no one wants that on their conscience. I know you don't. (DW-0453 2)

Comment: My sister in law who lives in Berlin had thyroid cancer which was caused by the Chernobyl accident. Which shows how far away people are affected. (DW-1074 2)

Comment: One of my concerns is that I've seen and heard about a study or more than one study that has shown that if you live within 50 to 100 miles of Lake Anna, you have statistically a higher rate of cancer, and now maybe somebody else in this room can talk more about that. I'm not an expert, but that's a great concern to me as a parent. (DT-0013 1)

Comment: The DEIS fails to address negative impacts on human health caused by historic radiation releases from existing North Anna nuclear reactors--In the ten counties nearest the plants, the breast cancer mortality rate increased 73% in the decade after the reactors began operation; the increase in the counties nearest the plant was triple the statewide increase. (DT-0034 3 and DW-1163 2)

Comment: The public record contains evidence that North Anna has not and will not meet the requirements under 10 CFR §100.21(c)(1). In the ten counties nearest North Anna, the breast cancer mortality rate increased 73% in the decade after the reactors began operation, an increase made more significant by the fact that the combined rate for all counties within 100 miles of the plant is only 4% higher. Moreover, the increase in the counties nearest the plant was triple the statewide increase in breast cancer mortality during that period. ["The Enemy Within," Jay Gould et al, 1996, Appendix B, p. 244] In human terms, 172 more women died from breast cancer during the decade after North Anna 1 and 2 opened than in previous decades in Goochland, Fluvanna, Albemarle, Louisa, Orange, Greene, Cumberland, Buckingham, Powhatan, and Nelson counties. Airborne emissions of radioactive gases at North Anna during the decade after Unit 1 reached criticality in 1978 was on average 8,900 Curies per year. Emissions to water during this same period was on average 2.16 Curies per year. ["The Enemy Within," Jay Gould et al. 1996, Appendix C, p. 310] (DT-0034 13, DW-1163 11)

Comment: Then there is the carefully concealed fact that breast cancer rates rise around such facilities, and I'm sure other types of cancer do too. (DW-0198 6)

Comment: Dominion and the DEIS failed to investigate impacts caused by the addition of two or more reactors at its North Anna nuclear station including but not limited to the risks of cancer from ionizing radiation, birth defects (congenital anomalies), infant mortality, infant cancer incidence, heart disease, and neurological effects. (DW-1163 7) (DT-0034 7)

Comment: Dominion and the DEIS failed to investigate impacts caused by the addition of two or more reactors at its North Anna nuclear station including but not limited to the risks of cancer from ionizing radiation, birth defects (congenital anomalies), infant mortality, infant cancer incidence, heart disease, and neurological effects.

Comment: The Blue Ridge Environmental Defense League calls upon the Nuclear Regulatory Commission for a comprehensive health study before the federal government issues an early site permit for new nuclear plants at North Anna. BREDL recommends death and disease studies be done in Albemarle, Culpeper, Fluvanna, Goochland, Green, Louisa, Madison, Orange, Spotsylvania Counties, and Charlottesville because of data showing significantly higher death rates in the nine-county area. Records show that death rates rose sharply soon after Dominion Virginia Power's North Anna nuclear reactors began operation, and those effects continue to the present time. (DT-0034 1)

Comment: On the Blue Ridge Environmental Defense League Website, Lou Zeller claims the death rate for children age one to 14 almost doubled in the surrounding counties after North Anna started up. He claims the data suggest these children were harmed by radioactive emissions from the plant. Mr. Zeller referenced the CDC Website as his data source. So I went on line myself to check out the numbers, and I encourage all of you to do the same. While the Blue Ridge Website says the death statistics exclude accidents, homicides and suicides, what I saw at wonder.cdc.gov proved otherwise. Zeller's before numbers did correctly exclude accidents, but his after numbers did not. This is how Lou makes these numbers appear to actually double...What's truly alarming here is your [Mr. Zeller's] sloppy use of statistics and your clear attempt to scare these people into thinking that North Anna is killing our children. (DT-0031 2)

Comment: I was a little surprised to hear that you don't know of any studies that show radiation health effects under ten rads...I'd point to Alice Stewart's studies in the 1950s that showed fetal effects, leukemia increases from X-rays given to pregnant women. (DT-0001 3)

Comment: You said that there have been no studies that would indicate that 10,000 millirem would induce cancers in the population, and according to the linear no threshold theory that's simply not true. (DT-0002 1)

Comment: There is no such thing as a safe dose of radiation, and background natural radiation does exist and we can't do anything about it, but knowing that exposure to radiation causes cancer and that cancer rates have increased since the power station came on line, why would we want to expose ourselves further? (DT-0036 9)

Comment: Contrary to what many nuclear power advocates claim I do not agree that it [nuclear power] is a clean energy source. That is such a selfish and shortsighted conclusion. What kind of legacy are we leaving behind for our children? Are you familiar with the effects of

exposure to even the smallest amount of radiation?... it is a horrific blight to cast upon our future generations for our immediate comforts. (DW-0404 2)

Comment: According to a study I learned about…after the construction of the first two reactors at North Anna, breast cancer in white women increased by 73%. Also, the rates of stillborns went up by 28%. It is a well known fact that even low levels of radiation (which the two reactors already periodically emit) can cause cancer and genetic dysfunction. There is no smoking gun that points directly to the North Anna reactors as culprits for the rise of cancer and other problems in the area. However, looking at the circumstantial evidence, do we really want to build two new reactors that would increase risks? (DW-0408 3)

Comment: The discussions of potential radiation hazards to humans living near Lake Anna are not clear enough in the EIS. The document simply sites studies that are in the interest of Dominion without a discussion of why these particular studies are more scientifically credible than those indicating that nuclear reactors do cause radiation damage to the human community around a reactor. It is not scientifically appropriate to simply choose a particular set of studies without showing why. (DW-0630 5)

Comment: It really doesn't matter how great a place this is to live if our children and our world are being exposed to radiation and to the potential of catastrophic nuclear disasters. (DT-0037 7)

Comment: Contrary to NRC's assertions, "low-level" is NOT low-risk in terms of environmental damage and the public's health and safety. (DW-1154 7)

Comment: And like someone mentioned before, a lot of them [radioactive isotopes] act as analogues to nutrients so that they end up in our bodies. (DT-0018 4)

Comment: Closer to home, an anti-nuclear group claimed that cancer rates had risen near North Anna. But inspecting their work showed that they had compiled their data rather strangely. While they took the data from some counties far away from the plant, they ignored the data from Spotsylvania County right across the lake. Why did they do that? Because it didn't support their claims. (ST-0012 5)

Comment: In October 2004, Mr. Lou Zeller, on the Blue Ridge Environmental website, cited a study by Joseph Mangano, which claimed the death rate for children almost doubled in the nine counties closest to North Anna. The study examines causes of death in a 30-mile radius from the plant. This first map shows those nine counties and the 30-mile radius. Let me show this to you for a second. The nine counties closest to the plant in a 30-mile radius that the study considered. Note that Caroline and Hanover Counties to the east and southeast were not included, even though they're within 10 miles from the plant. Green County to the west was included, although it's completely outside the 30-mile radius. The black dot to the west is the

City of Charlottesville. It was included, but it's also outside the 30-mile radius. Richmond is the same distance as Charlottesville to the southeast, but was excluded, as was Fredricksburg, which is only 25 miles from the plant. Five months later in March 2005, Mr. Zeller, in written comments to the NRC, cited yet another flawed health study. This one claimed women's deaths from breast cancer increased 73 percent in the ten counties closest to North Anna. If you thought this new study added Caroline or Hanover Counties in as the tenth county, you'd be wrong. This next map shows the differences in green. The second study dropped Madison and Culpeper Counties to the northwest, but added Nelson, Buckingham, Cumberland, and Palatan Counties to the southwest. Nelson County is 50 miles from North Anna, yet they still ignored Hanover and Caroline Counties only 10 miles away. Strangest of all, and Lisa mentioned this, they ignored Spotsylvania County in the study, which is right across the lake from North Anna. Spotsylvania has more people than any of the ten counties included in the study. Does hand-picking counties and cities like this bias the results of the study? You bet it does. (ST-0026 2)

Comment: After the public meeting last year, Mr. Zeller wrote the NRC saying I falsely accused him of misusing public health data. I wish to clarify. They aren't just misusing public health data, as you can see, they're playing shell games with women's and children's death statistics. It's a shameful scare tactic. This misinformation is still on the Blue Ridge website today. (ST-0026 3)

Comment: [I]f you want to talk about the health effects on a community population, then you need to be fair, what kind of issues you're evaluating. You're not looking fairly at, for example, the medical sources of radiation, which we've already heard this evening are tremendously higher for the impact on the population than the impact from the radiation that comes from a nuke station. (ST-0025 3)

Response: *Health effects from exposure to radiation are dose-dependent, ranging from no effect at all to death. Above certain doses, radiation can be responsible for inducing diseases such as leukemia, breast cancer, and lung cancer. Very high (hundreds of times higher than a rem), short-term doses of radiation have been known to cause prompt (or early, also called "acute") effects, such as vomiting and diarrhea, skin burns, cataracts, and even death. When radiation interacts within the cells of our bodies, several events can occur. First, the damaged cells can repair themselves and permanent damage does not result. Second, the cells may die, much like large numbers of cells do every day in our bodies, and dead cells may be replaced through normal biological processes. Third, the cells may either incorrectly repair themselves (resulting in a change in the cells' genetic structure), they can mutate and subsequently be repaired without any effect, or they can sometimes form precancerous cells that may become cancerous.*

Radiation is only one of many agents with the potential for causing cancer, and cancer caused by radiation cannot be distinguished from cancer attributable to any other cause, such as

chemical carcinogens. The chances of getting cancer from a low dose of radiation is not known precisely because the few effects that may occur cannot be distinguished from normally occurring cancers. The normal chance of dying from cancer is about one in five.

The actual amount of radiation any member of the public receives from activities at nuclear power facilities is so small that scientists have been unable to make empirically based estimates of radiation risk with any precision. There are many difficulties involved in designing research studies that can accurately measure the projected small increases in cancer cases that might be caused by low exposures to radiation when compared to the rate of cancer resulting from all other causes. In the absence of a clear answer, the U.S. Nuclear Regulatory Commission conservatively assumes that any amount of radiation may pose some risk for causing cancer or having some hereditary effect and that the risk is higher for higher radiation exposures. This is called a linear, no-threshold dose-response model and is used to describe the relationship between radiation dose and the occurrence of cancer.

This model suggests that any increase in dose above background levels, no matter how small, results in an incremental increase in risk above existing levels of risk. Although the U.S. Nuclear Regulatory Commission has accepted this hypothesis as a "conservative" (i.e., cautious) model for determining radiation standards, the U.S. Nuclear Regulatory Commission, like other authoritative bodies, recognizes that this model will probably over-estimate radiation risk. The association between radiation exposure and the development of cancer are mostly based on studies of populations exposed to relatively high levels of ionizing radiation (for instance, the Japanese atomic bomb survivors and the recipients of selected diagnostic or therapeutic medical procedures).

Although radiation can cause cancers at high doses and high dose rates, currently there are no data to establish unequivocally the occurrence of cancer following exposures to doses at or below about 10 rem. The average annual dose to a member of the public from a nuclear power facility is in the range of less than 1/1000th rem (1 millirem) per year. This is compared to the 10 rem (10,000 millirem) discussed previously. At doses above 10 rem, a relationship between radiation and cancer can be observed. Although there is a statistical chance that radiation levels that small (i.e., less than 10 rem) could result in a cancer, it has not been possible to calculate with any certainty the probability of cancer induction from a dose this small. Because many agents cause cancer, it is often not possible to say conclusively whether the cancer was radiation-induced cancer.

Authors of various reports have stated or implied that there are cause-and-effect relationships in the statistical associations between cancer rates and reactor operations. While it is true that cancer rates vary among locations, it is very difficult to ascribe the cause of a cluster of cancers to some local environmental exposure, such as radiation from a nuclear power facility. Statistical association alone does not prove causation, and well-established scientific methods must be used to determine causation. For example, a person could say, "In the winter I wear

boots, and in the winter I get colds." While there is a strong statistical association between wearing boots and getting colds, it would be inappropriate to say that wearing boots causes colds.

The scientific community adheres to several principles of good science that need to be employed before a cause-and-effect claim can be made. These principles include whether the study can be replicated, whether it has considered all the data or was selective (e.g., in the population or in the years studied), whether it evaluated all possible explanations for the observations, whether the data were valid and reliable, and whether the conclusions were subjected to independent peer review, evaluation, and confirmation.

A number of studies that conformed to these principles have been performed to examine the health effects around nuclear power facilities.

- *In 1990, at the request of Congress, the National Cancer Institute conducted a study (NCI 1990) of cancer mortality rates around 52 nuclear power plants and 10 other nuclear facilities. The study covered the period from 1950 to 1984 and evaluated the change in mortality rates before and during facility operations. The study concluded there was no evidence that nuclear facilities may be linked causally with excess deaths from leukemia or from other cancers in populations living nearby.*

- *Investigators from the University of Pittsburgh found no link between radiation released during the 1979 accident at the Three-Mile Island nuclear station and cancer deaths among nearby residents. Their study followed more than 32,000 people who lived within 8 km (5 mi) of the facility at the time of the accident.*

- *In January 2001, the Connecticut Academy of Sciences and Engineering issued a report on a study around the Haddam Neck nuclear power plant in Connecticut and concluded that exposures to radioactive material were so low as to be negligible and found no meaningful associations to the cancers studied.*

- *In 2001, the American Cancer Society concluded that, although reports about cancer clusters in some communities have raised public concern, studies show that clusters do not occur more often near nuclear plants than they do by chance elsewhere in the population. Likewise, there is no evidence linking the isotope strontium-90 with increases in breast cancer, prostate cancer, or childhood cancer rates.*

- *In 2001, the Florida Bureau of Environmental Epidemiology reviewed claims that there are striking increases in cancer rates in southeastern Florida counties caused by increased radiation exposures from nuclear power plants. However, using the same*

data to reconstruct the calculations on which the claims were based, Florida officials did not identify unusually high rates of cancers in these counties compared with the rest of the state of Florida and the nation.

- *In 2000, the Illinois Public Health Department compared childhood cancer statistics for counties with nuclear power plants to similar counties without nuclear plants and found no statistically significant difference.*

In summary, there are no studies to date that are accepted by the nation's leading scientific authorities that indicate a causative relationship between radiation dose from nuclear power facilities and cancer in the general public. The amount of radioactive material released from nuclear power facilities is well measured, well monitored, and known to be very small. These comments did not result in a change to the environmental impact statement.

Comment: The Blue Ridge Environmental Defense League (BREDL) requested that an attached press release from U.S. Congressman Ed Markey (Massachusetts) entitled, "New Study Suggests Spike in Infant Mortality Associated with Radiation from Nuke Plants" be added to the BREDL comments. Mr. Markey referenced an article, a study, and a data set from Illinois suggesting higher incidences of cancer in populations living near nuclear power plants and asked that the NRC study the connection between serious health risks and radiation released from nuclear reactors. (DW-1163 20)

Response: *In a letter dated March 7, 2005, the NRC responded to Congressman Markey. The NRC discussed the levels of radioactive release and doses at the edge of the Dresden Nuclear Power Station (referred to in Congressman Markey's letter) as being less than 10 percent of the dose from natural background in the country. In its letter, NRC notes that it routinely reviews information from studies and evaluations of the health effects of radiation exposure conducted by national and international radiation protection experts. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: It is relevant to this EIS to understand that the off gassing of the radioactive waste occurs to this community's air and water before so-called "disposal." The noble gases of radioactive xenon and krypton with half lives of minutes and hours decay into radioactive fallout of strontium and cesium particulate with half lives on the order of decades and millions of years. It is the surrounding community that is the cumulative "disposal" grounds for these radioactive isotopes. More reactors means more long lived radioactivity deposited onto the land and into the water, where it biomagnifies eventually to humans. Yet this human health concern is casually dismissed by NRC and industry. (DW-1154 1)

Comment: A greater worry is the prospect of an environmental and health disaster. Even IF everything goes right with the construction, testing and operation of this untried new design, there will be increasing routine releases of radiation into the lake and air, as well as dramatically increased amounts of nuclear waste traffic from the plant. (DW-0614 9)

Comment: A new reactor will further contaminate this area. How much is cleaned up depends on the political clout of the community and a place to send the radioactive contamination. (DW-1154 10)

Comment: And as I understand it, there are five annual releases of radioactivity every year, which we're not told about, and the results of that I'm not sure we're aware of. (DT-0018 2)

Comment: I don't know if the people who even run these power plants know what they're doing to the environment because it just seeps through the ground and gets to people's backyards and other animals and beings. (DT-0008 2)

Response: *All nuclear power plants are licensed with the expectation that there will be routine very low-level releases of radioactive material to the environment through airborne and liquid releases from the facility and that these releases may be detectable offsite. All releases of radioactive material each year are reported in the licensee's annual radioactive effluent release report. The NRC requires that nuclear power plant licensees monitor their liquid and gaseous effluents and report on them in an Annual Radioactive Effluent Release Report. Each licensee has an Offsite Dose Calculation Manual that designates effluent release limits in addition to the limits for calculated doses to the public. The licensee must maintain effluent releases to unrestricted areas ALARA as defined in 10 CFR Part 50, Appendix I.*

As discussed in Section 5.9.2 of this EIS, calculated doses to the public that would result from operation of the proposed new units are well within regulatory limits. In addition, the licensee would monitor the environment for radioactive material releases as discussed in Section 5.9.6 of the EIS. Environmental monitoring program results for NAPS Units 1 and 2 are reported in the Annual Radiological Environmental Operating Report - North Anna Power Station. The Annual Radiological Environmental Operating Report - North Anna Power Station for calendar year 2004 showed no plant-related radioactive material in the airborne pathway, well water, shoreline sediments, milk, and the direct exposure pathway. One of 25 vegetation samples showed detectable cesium-137 activity, which was attributed to fallout from nuclear weapons testing. Tritium was found in the surface water in Lake Anna and downstream in the river at levels below EPA drinking water standards. Xenon and krypton releases from NAPS Units 1 and 2 are monitored upon release from the plant via stack monitors and in the environment by environmental thermoluminescent dosimeters (TLDs). Environmental TLD results for the existing units have remained within the range of preoperational TLD results. Certain xenon and krypton radioisotopes decay into strontium and cesium radioisotopes. For example, xenon-135 decays to cesium-135, a low-energy beta emitter, and it contributes little to dose. Still other noble gases decay to stable nuclides that are not radioactive. Accordingly, no changes were made to the EIS as a result of these comments.

Comment: I also want to mention the idea of radioactivity and, again, forgive me because I'm not an expert, but I think that it is disingenuous to suggest that the radioactive environment is natural because, as I understand it, there are over 200 radioactive isotopes that are created in the process that do not exist in nature, and so these are outside of our natural world. (DT-0018 3)

Response: *Although there are numerous human-made isotopes and other sources of human-made radiation (such as medical x-ray equipment), these sources of radiation are responsible for approximately 0.60 mSv (60 mrem) of the average annual dose to an individual. NCRP Report No. 93 reported the average dose for an individual in the United States is 360 mrem annually; of this amount, approximately 300 mrem result from natural background radiation. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The dose assessment on page 4-40 line 28 ignores potential overtime hours. (DW-0438 115)

Response: *The number of hours used for the calculation of direct exposure to a site preparation worker was estimated to be 2080 hours. This would average to a 40 hour week for 52 weeks in a year. It is not expected that any worker would actually work every week of the year in a radiation environment, so even though overtime is not specifically called out, the estimation of average hours worked in a radiation environment during a year is probably high. Overtime hours are not likely to increase the annual dose significantly. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Why were samples taken to the west when the prevailing winds are to the northeast (page 4-41 line 30)? (DW-0438 116)

Response: *The locations were not sampling locations, rather they were geographical points for calculating doses. The calculation represented the location of the construction workers and the gaseous effluent dose estimate was based on an atmospheric dispersion factor between the operating units and the construction site. The location of the NAPS ESP site is to the west of the operating units, not to the northeast of the operating units. Accordingly, no changes were made to this EIS as a result of this comment.*

3.10.3 Opinions and Statements

Comment: We already have pollution - we don't need a bigger possibility of radiation. (DW-0798 3)

Comment: For those of us who live in the 30 mile radius and/or in the wind-shadow of the North Anna Nuclear Plant, it is only our lives, our health and our well-being that are at stake. (DW-0823 4)

Comment: I live only a few miles from the existing plant, and have always had concerns about my safety and health from living so close to a nuclear plant. (DW-0900 2)

Comment: Nuclear energy is harmful to our environment, the radioactive waste produced by nuclear energy is harmful, not only to us, but future generations. (DW-0429 2)

Comment: [T]he nature of working with radioactivity is extremely hazardous. (DW-0173 3)

Comment: We deny that any process that produces waste so toxic that it remains a threat to human health for tens of thousands of years is clean. (DT-0041 3)

Comment: I would remind you that the birth rate of normal children within a radius of Chernobyl is below fifteen percent. As a firefighter and EMT, I am well aware of the health concerns if there is a failure. (DW-0309 3)

Comment: All of those countries I mentioned [Sweden, Norway, Germany, Spain, Denmark, Austria, Australia, Portugal, United Kingdom, Ireland, Greece, and Italy] have infant mortality rates less than the United States and life expectancy that is greater than the United States. (DT-0002 3)

Response: *The comments reflect views and opinions, but do not provide new information about the proposed project and will not be evaluated further. Accordingly, no changes were made to this EIS as a result of these comments.*

3.10.4 Supportive of Nuclear Power as It Relates to Human Health

Comment: If I could lend an outside perspective, I believe that the health risks associated with a nuclear reactor should be brought to the forefront. If a comparison between coal burning power plants and nuclear power plants were ever fully debated there would be no question to which one is more environmentally friendly. Be proactive and inform as many people as possible. (DW-0858 4)

Comment: It [nuclear power] is the one option that I consider to be the most environmentally friendly and the least hazardous to my health, my family's health and the health of the general population of central Virginia and all the surrounding areas. (DW-1167 2)

Comment: I have two children. I am very concerned about their well-being growing up. If I thought nuclear power was not the right way to go, by golly, I wouldn't be in this industry. I'd be doing something else. (DT-0049 2)

Comment: Some critics have yelled about Strontium-90 dangers to neighbors of power plants, but the facts are quite the opposite. The biggest source of Sr-90 in the environment is from weapons testing, and a large fraction of the remaining 1% was from Chernobyl. The total annual release of Sr-90 from all 103 commercial nuclear power plants in the U.S. is 1/1000 of a curie, or lower than the minimum detectable activity of equipment placed within 30 miles of any of the plants. (DT-0063 3)

Response: *The comments reflect views and opinions, but do not provide new information about the proposed project and will not be evaluated further. Accordingly, no changes were made to this EIS as a result of these comments.*

3.10.5 Plant Emissions and Environmental Transport

Comment: Brian Smith,...a bright young man who appears to be in physics from MIT, found a rather startling defect in the EIS, and I brought some baby food for the contractor, four bottles here, for the contractor, for the NRC staff, for the administrative judges, and for the Commission because it says here on page 5-61 that no infant doses were calculated for the vegetable or meat pathway as infants do not consume these foods...I also looked at the NRC guidance, NRC Regulation 1.109. I looked at the EPA guidance. I looked at the NCRP reports, and all of them admit that infants consume considerable amounts of vegetables and meat. (DT-0001 4)

Comment: This table that infants don't eat vegetables is directly from Dominion. That may be Dominion's opinion, but it shows a shocking lack on the part of NRC and its contractor that they have not paid attention to EPA, NRC, or any of the rules in evaluating the NRC site application, and I am very skeptical that the safety analysis which claimed that confirmatory and independent evaluations have been done, have actually been done, and we would like to see all of the input data, the runs, the output date, in electronic and hard copy files. (DT-0001 7)

Response: *As outlined in NRC Regulatory Guide 1.109, an "infant" is considered to be a newborn up to one year of age. NRC Regulatory Guide 1.109, which provides acceptable methods for an applicant or licensee to use in calculating annual radiation doses to humans from routine effluents, does not provide usage factors for an infant for (1) fruits, vegetables, and grains, (2) leafy vegetables, (3) meat and poultry, and (4) fish and other seafood (see, Table E-5, Regulatory Guide 1.109) for the reasons discussed below. This Guide is used to evaluate compliance with 10 CFR Part 50, Appendix I.*

In addition to their mothers' breast milk and packaged formula, infants consume cereal, cow's milk (notably, there are no milk cows within 5 miles of the ESP site), and canned/bottled baby food products such as fruits, vegetables, and meat. Prepared foods products generally would have been grown in areas away from the ESP site. It is unlikely, but possible, that infants would consume meats, fruits, and vegetables from the livestock and gardens near the ESP site. The bottled baby food offered by the commenter provide an illustrative example of this; the

manufacturer has processing facilities in Freemont, MI, Fort Smith, AR, and Reedsburg, WI, with production fields throughout the U.S. Oversight of the safety of the food supply through the 50,000 food manufacturers, processors and warehouses in the U.S. is performed by the Food and Drug Administration.

Although infant ingestion dose factors (i.e., mrem per pCi ingested) would be higher for most radionuclides compared to child ingestion dose factors, the dose to an infant from ingestion of vegetables and fruits would still be bounded by the dose to a child. This is because an infant's annual consumption of vegetables and meats is expected to be less than that of a child's. Section 5.9.2 of the EIS was revised to include this information.

Comment: I'd just like to say that there is release of radioactivity from these two existing plants on a daily basis in the form of tritium, if I'm pronouncing that correctly, the radioactive isotope that goes into the water and comes out as part of the process. (DT-0018 1)

Comment: Radioactive tritium, an isotope of hydrogen, is released every day into the warm side of the lake and the air above it in the form of water and water vapor. The North Anna Power Station uses 2,736,000 gallons of water per day. Airborne tritium can be inhaled and absorbed, and tritiated water is incorporated into the food chain. Radioactive corrosion products stick to the interior of the reactor vessel and slough off into the cooling water, which is then released into the lake. Fission products also enter the cooling water from leaks in the fuel rods which are allowed by government regulations and which contain the equivalent radioactivity of 1000 Hiroshima bombs. (DT-0036 8)

Comment: Saying it's clean ignores the routine release of radioactive gases that build up inside the reactor building. Filters catch some of these, but some gases get through, like Xenon 135, which decays into Cesium 135, which is an isotope with a three million year half-life. (DT-0036 7)

Response: *The EPA drinking water concentration limit for tritium is 20,000 pCi/L (40 CFR 141.16). Tritium is released from NAPS Units 1 and 2 and it is found in the Lake Anna surface waters and at downstream locations in the North Anna River; this was reported in the Annual Radiological Environmental Operating Report – North Anna Power Station, January 1, 2005 to December 31, 2005. No plant-related tritium was found in ground water. Average tritium levels for 2005 were less than 20 percent of the EPA standard (3137 pCi/L in the surface water and 3170 pCi/L at 5.8 mi downstream in the North Anna River). These concentrations compare to pre-operational tritium concentrations in surface water and lake water in the range of 90 to 250 pCi/L. The licensee calculated the maximum dose to a hypothetical individual at the station boundary resulting from liquid and gaseous effluents released during 2005, including the tritium releases, to be 0.38 mrem compared to approximately 360 mrem received from background radiation and from man-made sources (2005 Annual Radiological Environmental Operating Report for North Anna [VEPCo 2006]). Fission product releases to the environment are*

monitored and were reported in Annual Radioactive Effluent Release Reports as well; fission products are also monitored for in the environment as part of the licensee's Radiological Environmental Monitoring Program. The Annual Radiological Environmental Operating Report North Anna Power Station for calendar year 2005 did not identify detectable radioactive material in the atmosphere from North Anna. The 2005 Report did not identify detectable radioactive material in well water, shoreline sediments, vegetation, milk, and the direct exposure pathway from North Anna as well (VEPCo 2006).

Xenon-135 does decay to cesium-135. Cesium-135 is a fission product that emits a low-energy beta particle and does not contribute significantly to dose. The applicant did not report any cesium-135 being released. This is consistent with current releases from NAPS Units 1 and 2 (see Annual Effluent Monitoring Reports).

Similar to the programs at the NAPS Units 1 and 2, radiological effluents from any new units on the North Anna ESP site will be monitored. The radiological environmental monitoring program will also include the results from any new units. Dose estimates from radioactive effluents and environmental sample data from NAPS Units 1 and 2 are within regulatory limits. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: And the draft environmental impact statement has trivialized the known and potentially harmful environmental impacts of nuclear waste generation... The report states at Section 6.1.1.6, radioactive wastes, and to boil it down really quick, they say that there's no release to the environment that's expected. It is worth noting that in this same section the staff has admitted that, quote, "It has been assumed that all of the gaseous and volatile radionuclides contained in the spent fuel are released to the atmosphere before the disposal of the radioactive waste. (DT-0040 1)

Response: *Gaseous and volatile radionuclides contained in the spent fuel will decay and some of it may be released during storage in the spent fuel pool. Any releases from the fuel would be subject to NRC's monitoring and annual reporting requirements. There are no gaseous or volatile radionuclides released from the spent fuel after it is removed from the spent fuel pool. For example, there are no airborne releases during storage at interim locations such as at the independent spent fuel storage facilities. Nor would there be any airborne releases following disposal at a waste repository. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 2-18 line 18 states that this DEIS tiers off the preoperational environmental radiation monitoring program. Since the two units have been operational for some time, the baseline should be re-established via a new study. (DW-0438 33)

Response: *Section 2.5 describes the current radiological environment at the NAPS site. Baseline environmental conditions established prior to Units 1 and 2 becoming operational*

will continue to be the appropriate baseline upon which to compare impacts from continued operation of Units 1 and 2 and the operation of the proposed ESP Units 3 and 4. The preoperational monitoring period was conducted between July 1974 and March 1978 (Unit 1 became operational in 1978) (2004 Annual Radiological Environmental Operating Report for North Anna Power Station [VEPCo 2005]). Since then, the Radiological Environmental Monitoring Program for Units 1 and 2 has continued to provide for collection and analyses for the NAPS site. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Page 2-18 line 33 states that the NRC concluded that radiation doses were small. Since a DEIS is intended to be a public document, data of this type should be summarized and included in the DEIS along with the staff conclusions derived there from. (DW-0438 34)

Response: *The Draft EIS stated that doses to the maximally exposed individuals around NAPS were calculated to be a small fraction of the limits specified in Federal (NRC and EPA) environmental radiation standards, 10 CFR Part 20; 10 CFR Part 50, Appendix I; and 40 CFR Part 190. Section 2.5 of the EIS was revised to update the public dose estimates from the 2005 Annual Radiological Environmental Operating Report for North Anna Power Station (VEPCo 2006). The maximum dose to a hypothetical individual at the station boundary resulting from liquid and gaseous effluents released during 2005 was calculated to be 0.38 mrem compared to approximately 360 mrem received from background radiation. Appendix H, which provides supporting documentation on radiological dose assessment, was added to the final EIS.*

Comment: Page 3-7 line 27 refers to the "PPE concept" to define the boundaries of liquid radioactive effluents and system performance but no summary of the data is included. (DW-0438 87)

Response: *The staff believes the citation should read "page 3-9 line 27" instead of "page 3-7 line 27." The applicant's Environmental Report provides tables of the bounding liquid and gaseous effluents. References to where the tables can be found in the Environmental Report are found in Section 5.9.2 of the EIS. The final EIS added tables of the bounding liquid and gaseous effluents into Appendix H.*

Comment: Maximum organ dose from liquid effluents is to the liver of a child. [page 5-62, line 22, Table 5-10] (DW-0423 39)

Response: *This comment is no longer applicable as the revised PPE liquid effluent source term from the power level increase to 4500 MW(t) results in the maximum organ dose being to the child bone. The text in the EIS reflects this change.*

Comment: The dose of 18 person-rem/yr calculated using GASPAR II is for the gaseous effluent pathway. [page 5-63, line 22] (DW-0423 40)

Response: *Section 5.9.3 in the EIS was revised to change "… liquid effluent.." to "…gaseous effluent.."*

Comment: The DEIS wholly incorporates the calculations and analyses of Dominion regarding the expected routine level of radiation exposure to construction workers building new reactor units and their appurtenant facilities at the NAPS. Has the NRC staff conducted independent reviews to verify the accuracy of Dominion's calculations? (DW-0437 55)

Response: *The NRC staff conducted an independent review to evaluate the projected doses to workers who may be involved in the construction of any additional units. The staff considered the bases for Dominion's calculation. As stated in Section 4.9.1 of the Draft EIS, Dominion used thermoluminescent dosimeters (TLDs) and dose rate surveys at locations in and around the NAPS protected area to estimate construction worker dose from direct radiation from NAPS Units 1 and 2. The staff concluded that the use of TLDs was an acceptable method to estimate doses to construction workers because it relies on actual measured dose within the protected area. Use of information from the TLD measurements is expected to be conservative because construction activities for the proposed ESP units would be conducted at a distance further from Units 1 and 2 than the protected area boundary (~0.25 mi) (where the TLD measurements were recorded). Dominion also estimated the contribution to worker dose from a fully loaded independent spent fuel storage installation. The staff reviewed this calculation and concluded that actual doses to construction workers would be bounded by the calculated doses. The staff independently reviewed the Dominion approach to estimate the dose from direct radiation and determined that it was acceptable for the purposes of this impact analysis. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Chapter 7, Section 7.8 - The statement that the impacts of operating the new units is 'well below the estimated effects from natural radiation' misses the point. The public has no control over natural radiation, but the point of this DEIS is to evaluate the impacts of citing 2 new nuclear units so that an informed decision can be made as to its merit. (DW-1272 13) (SE-0030 25)

Response: *The primary mission of the NRC is to ensure that authorized activities are conducted in a manner to provide adequate protection of public health and safety from the effects of the radiological hazards posed by nuclear reactor, materials, and waste facilities. The exposure limits for radiological protection are established by the NRC to protect workers and the public from the harmful health effects of radiation on humans. The Draft EIS did evaluate the radiological impacts of operating the proposed new units in Section 5.9.3 of the EIS. Specifically, it stated that site boundary dose to the maximally exposed individual from the existing Units 1 and 2 and the two proposed ESP Units 3 and 4 combined were well within the regulatory standards of 40 CFR Part 190. Section 7.8 of the EIS was revised to include this information.*

Comment: Chapter 3, Pg 3-9, Line 18 - Please explain why radioactive waste management systems have not been identified. (DW-1272 6a) (SE-0030 19)

Response: *As stated in Section 3.2.3, Radioactive Waste Management System, Dominion did not specify radioactive waste management systems, but used a PPE concept as described in the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: This is not a discrepancy with respect to Application Rev 6 (as referenced in SDEIS) but the value [for the release point dilution factor in Table I-2] changed in Rev 8. (SE-0050 24)

Comment: The SDEIS table [Table H-1] shows the parameters used by the NRC in its confirmatory calculation of liquid effluent doses using LADTAP II. In accordance with Application Rev 7 and earlier, it shows a discharge flow of 10,000 gpm (22 cfs) and a dilution factor of 10. These two parameters change in Rev 8 but, as indicated in Dominion's letter to the NRC transmitting Rev 8, the LADTAP II results are unaffected. (SE-0050 21)

Response: *In Section 5.4.11 and Table 5.4-6 of Revision 8 to its ER, Dominion revised the discussion on liquid effluent discharges to clarify the technical basis assumptions. Revision 8 refers to a plant effluent discharge rate of 100 gpm with a dilution factor of 1000, which yields a dilution flow of 100,000 gpm. In previous revisions to the ER, Dominion considered a plant effluent discharge rate of 10,000 gpm with a dilution factor of 10, which also yields a dilution flow of 100,000 gpm. Because both of these descriptions result in the same dilution flow, radionuclide concentrations at the discharge location would be the same, and therefore, calculated doses to the public and biota would be the same. Accordingly, no changes were made to this EIS as a result of these comments.*

3.10.6 Other Issues

Comment: The ABWR should be included in this DEIS statement. [page 5-64, line 15] (DW-0423 41)

Response: *The commenter is referring to the Dominion analysis of alternatives (Study of Potential Sites for the Deployment of New Nuclear Plants in the United States dated September 27, 2002). This document does not specifically state that the Advanced Boiling Water Reactor (ABWR) has an annual estimated occupational dose of 150 person-rem, but references the Safety Analysis Report for the ABWR. Accordingly, no changes were made to this EIS as a result of this comment.*

3.11 Uranium Fuel Cycle

3.11.1 Permanent Waste Storage and the Proposed Yucca Mountain Repository

Comment: To create nuclear waste and put it on the earth is an unconscionable act. There is no permanent, safe way to deal with it. The science to render it harmless is immature and incomplete. (DT-0006 2)

Comment: The highly radioactive spent fuel from the projected two new nuclear reactors at North Anna would most likely be stored on the site; where else would this high level nuclear waste go since the Yucca Mountain repository, if ever built, has a capacity limited to the waste from nuclear plants existing through 2012? (DW-0196 3 and DW-0744 3)

Comment: I do not see how any environmental impact statement is complete without addressing waste and how that waste will one day be reintegrated into the environment. Because it can not be contained forever. The Yucca Mountain proposal is still just a possibility (court cases are pending), and even if it were created as a national disposal it would soon fill. (DW-0165 3)

Comment: [Q]uestions about... the issues of waste generation and its safe, permanent isolation…are ignored. (DW-MM2 5)

Comment: [Q]uestions about...issues of waste generation and its safe, permanent isolation [have been ignored]. This is especially important to address considering additional waste created by new reactors at North Anna would have to remain onsite for an indefinite period of time. (DW-0401 5)

Comment: Another reactor or two at North Anna will each create annually between 100 and 150 metric tons additional irradiated fuel to the site. Despite the NRC's Waste Confidence Decision, the only site under consideration, Yucca Mountain in Nevada, is far from a done deal… Even if Yucca Mountain is opened, the site cannot hold the high-level radioactive waste that will be generated by existing reactors after 2010. Therefore, in addition to the waste generated by existing reactors, waste created by new reactors at North Anna would also have to remain onsite for an indefinite period of time… The environmental impacts of indefinite storage must be thoroughly evaluated in the Final EIS. (DW-0437 34)

Comment: Nuclear power plant sites contain and store large amounts of the most deadly substance known to man, nuclear waste. There is no known safe method of containing nuclear waste. This waste will eventually leak and poison our beautiful lakes, oceans, and land, destroying many ecosystems and causing many diseases. (DT-0008 6)

Comment: An authentic environmental impact statement must take into account waste. There is no suitable site for nuclear waste, and as such, there is no suitable site for nuclear reactors. I don't want the additional tons of radioactive [stuff] stored in my back yard. I don't want it stored in an American Indian reservation in Utah. I don't want unsafe radioactive waste lasting thousands of years and posing new terrorist targets to be in anyone's back yard. You can do better than this. Don't create something you can't make safe. (DT-0035 3)

Comment: And yet it's very disturbing to me that the way we get all of our power, from our lights in our living rooms to our freezers at Food Lion, is at a nuclear plant that's continually producing toxicwaste that we have no permanent, safe way to deal with... If our power source is creating waste that's going to be harmful to the earth for the next hundred thousand years, then I think we need to find a new power source. (DT-0037 2)

Comment: There are many unresolved …waste issues. (DW-0188 3)

Comment: The waste from nuclear power plants is an environmental poison and a deadly health hazard. There is no safe place to store nuclear waste, and the deadly effects of it last for tens of thousands of years. (DW-0193 3)

Comment: Waste by-products from nuclear fission of uranium and plutonium is incredibly toxic, radioactive and long-lived, lasting for tens of thousands of years at least…How can you add to an already huge, dangerous problem like this when you haven't bothered to figure out a real solution? (DW-0194 2)

Comment: The radioactivity from spent nuclear material continues. (DW-0384 3)

Comment: I want the NRC to wake up and see the horrible nightmarish junk we are leaving behind for our children to deal with. (DW-0404 5)

Comment: I am writing to express my great concern about the possibility of the NRC granting Dominion Power an Early Site Permit to construct new nuclear reactors at Lake Anna in Louisa County, Virginia. I believe that to do so would be exceedingly premature, since one very serious issue [waste] was not dealt with in Dominion Power's Environmental Impact Statement (EIS). I urge you not to grant Dominion Power an Early Site Permit to add new reactors to the Lake Anna power plant until this crucial problem has been solved. (DW-0414 1)

Comment: The problem of what to do with spent fuel rods has not been adequately addressed in the EIS. Radioactive waste remains radioactive, and thus a threat to the environment and to human health for thousands of years. Radioactive waste can contaminate the soil, the water, and the air. Studies show higher incidences of cancer among human populations living near radioactive materials. Nobody wants a nuclear waste dump anywhere near where they live. The people living in Nevada don't want radioactive waste at Yucca Mountain...The unsolved

problem of how to handle nuclear waste is serious enough...to preclude the building of any new nuclear reactors until we have a genuine solution. (DW-0414 2)

Comment: [W]e still do not have a sane or safe plan for handling nuclear waste from nuclear plant. Until we can handle our waste properly, we should avoid making it. (DW-0482 2)

Comment: I wish to state that no more nuclear plants should be built until we find a way to solve the tremendous waste problem it [leaves] us and generations far beyond us. (DW-0793 1)

Comment: There is still no viable solution to this waste problem, and it would be grossly irresponsible for the NRC to grant ANY approval for ANY permit (no matter how early) in the process of building new plants at North Anna; plants that would produce more waste for our children and their children to deal with. Until waste and other important issues are fully addressed, the NRC SHOULD NOT grant an ESP. (DW-0808 3)

Comment: The problem this toxic mass [nuclear waste] poses seems to me insoluble under real world conditions; and yet it is one that grows worse daily, as the mass increases and the containers age. (DW-0825 1)

Comment: My argument against building the plant is…Nuclear power creates waste, of which no one has any idea on what to do with. …the waste is toxic. (DW-1089 2)

Comment: [The ESP application does not consider] the fact that the U.S. still has no permanent solution to the problem of storing nuclear waste materials. (DW-1140 2)

Comment: Numerous concerns have been raised by PEC and others over the lack of or inadequate plans for storage, transportation and disposal of nuclear waste. (DW-1157 2)

Comment: Currently, there is no national policy on nuclear waste storage. Should the spent fuel rods from North Anna be kept on site, or should they be shipped to another site, I believe that they would pose a threat to the environment and local communities. (DW-MM1 7)

Comment: I am also worried about…the lack of a plan for spent reactor fuel. (DW-1151 5)

Comment: There are very many issues that are not getting adequate study, such as the waste issue. We have tons of nuclear waste in our backyard, only less than 100 yards away from our precious Lake Anna, and this waste is unlikely to be taken away anywhere because Yucca Mountain repository is mired in lawsuits. It's a political hot potato. (DT-0007 3)

Comment: I don't believe you when you say the issue of nuclear waste will not be an ongoing and increasing problem. None of the waste from these new reactors will go to Yucca Mountain, which is already full beyond its capacity. There is no other permanent high level waste dump site even being considered at this point, much less built. So the highly toxic and dangerously radioactive waste will stay in our county, yet the problem of nuclear waste transport from North Anna actually gets worse day by day since the nuclear waste steadily increases and must somehow, some day be removed. Expanding the plant by two reactors would double this problem and increase the risk to all of us, many generations from now included. (DT-0017 3)

Comment: I don't know where in the process that the spent fuel issue is going to be treated, but I think it's essential in your new staged process, but I think it is essential that issue be treated within the context before an early site permit is given because it's a major issue for the site because, in effect, and as some other speakers have referred to, because of the problems with Yucca Mountain, we are now instead of just -- nuclear reactors in general, and North Anna in particular, will now instead of just becoming temporary holding areas before they ship the waste off to a permanent repository, are going to become semi-permanent repositories. (DT-0021 3)

Comment: And so you have to look at the process of citing a reactor here now as a process of generating a semi-permanent [spent fuel storage]; we don't really know how long, but certainly for many decades, many decades before there will be another solution, a repository for high level radioactive waste. Right now that is not in the environmental impact statement. (DT-0021 4)

Comment: My questions about nuclear waste still remain. Since we all want a cleaner earth and a cleaner environment, and yet we have this waste that we have to contain...No amount of money, no amount of jobs, no amount of tax breaks for Nevada has convinced them that nuclear energy is profitable. So if it's not good enough for them, I don't see how or why it is good enough for us here...we need to see North Anna as a nuclear repository site. Envision this because it's very possible that nuclear waste will never leave Lake Anna. (DT-0026 1)

Comment: It means the search for new sacrificial zones and the prospect of the Lake Anna site itself becoming a de facto permanent radioactive waste dump. (DT-0040 9) (DW-1154 14)

Comment: There is no approved plan for the disposal of highly radioactive spent fuel that will be generated by new power plants. It will most likely be stored at North Anna indefinitely in spent fuel pools and dry casks, and these will pose a serious health and security risk for the people of Virginia. (DT-0047 6)

Comment: I read recently that nuclear waste generated in the state of Virginia will not be permitted storage space in Yucca Mountain, Nevada (should that site be approved). I don't like

the thought of nuclear waste being stored anywhere, because I don't think it's ever 100% safe, but I especially do not like the idea of having it in my backyard. (DW-0415 3)

Comment: [I]ts output would add the present mountain of nuclear waste of which we already have trouble disposing. (DW-0306 4)

Comment: We have NO safe way of disposal of waste. (DW-0309 5)

Comment: [W]e are no closer now than we were 40 years ago to finding a safe and permanent mode of nuclear waste disposal--radioactive waste that has accumulated by the thousands of tons that will remain dangerously toxic for hundreds of thousand of years...and the temporary storage methods now in use or being suggested for use generate multiple questions concerning duration, stability, adequacy and guardianship of the stored material. (DW-0411 3)

Comment: The same problem of disposing of the spent fuel rods still exists today as it did in 1997. There is no new technology for this. In fact, more and more states do not want radioactive material shipped across state lines. (Yucca Mtn. does not want it). (DW-0413 3)

Comment: Nuclear waste storage and disposal – we don't seem to have any permanent options yet for existing nuclear waste stockpiles. (DW-0432 6)

Comment: And what are you going to do with the waste for the next 10,000,000 years?! (DW-0470 2)

Comment: We have been making nuclear waste for over 40 years and still do not know how to get rid of it. And poisoning other people or other generations are not an option. Therefore we are putting this cost on future generations while we use the energy. (DW-0528 2)

Comment: It is unconscionable that any person or any group of people on this planet would ever be allowed to foist off onto future generations the problem of dealing with undisposable dangerous radioactive waste. I realize the precedent has been established with waste from military weapons and previous electricity generating plants, but that is no excuse to continue down this non sustainable path. (DW-0648 1)

Comment: No additional permits for nuclear power generation should be issued for the North Anna site until a permanent location for the disposal of high level nuclear waste generated by the current and future generating plants has been approved and constructed. (DW-0800 1)

Comment: [T]here is no way to dispose of its waste, endangering our entire planet. (DW-0811 3)

Comment: In my opinion, it is irresponsible to create more dangerous radioactive nuclear waste when there is no safe disposal method or location. What is your plan for the radioactive waste? (DW-0827 2)

Comment: Now they ask to build more reactors and they still have not built a permanent burial site…Stop thinking of short term profits, and be responsible to our children, your grandchildren, let us not leave a mess behind. (DW-0931 3)

Comment: Among my concerns are: Nuclear waste disposal is an ongoing problem that is difficult if not impossible to solve. Where will it all go? This is a big country, but not big enough that safe and suitable places can be found to bury the waste that will be generated in years to come if these plants continue to be built. Waste from new plants will require new repositories. Meanwhile, all the highly-radioactive irradiated fuel from the plants will continue to be stored on-site--not a good thing for Virginians, or anyone for that matter. (DW-0998 5)

Comment: What will be done about nuclear waste disposal? This certainly has an environmental impact. Dealing with nuclear waste is still unresolved and since the '50s the nuclear industry has not had a clue what to do with it. We have about 70,000 metric tons of waste stored at slightly fewer than 100 sites around high-population areas of the United States. (DW-1181 3)

Comment: There is at this time no solution to the problem of nuclear waste, and constructing new reactors will only worsen that problem. The proposed Yucca Mountain repository in Nevada will not open until 2010 at the earliest, but even industry experts feel 2015 is a more realistic best-case scenario. That doesn't count the remaining scientific questions about the suitability of the site, and the half-dozen lawsuits currently pending – any of which could send the U.S. Department of Energy back to the drawing board. Even if the facility were to open as scheduled, it's not large enough to hold even the amount of waste expected to be generated by currently-operating plants. Waste from new plants will require a new repository. Meanwhile, all the highly-radioactive irradiated fuel from the plants will continue to be stored on-site. (DW-MM4 15)

Comment: There is no plan for the disposal of the waste from routine operations and eventual decommissioning of the proposed reactor. What this means is that some community somewhere will be asked and maybe forced to take this dangerous and long lasting waste. (DT-0040 6)

Comment: We do not have a safe depository for waste. (DW-0173 2)

Comment: [W]hat is more important is the cost of the waste to our society. Yucca Mountain doesn't have capacity for the waste, so where is it going to go? (DW-0181 4)

Comments Within Scope

Comment: Where would the waste go from two reactors since Yucca Mountain, if ever built, has capacity only through 2012? (DW-0187 4)

Comment: Where would the waste go - Yucca Flats, still unbuilt will only hold current plant waste to 2012? (DW-0195 3)

Comment: How can you even think about building new reactors when we don't even have a place for the waste that we have? Even if Yucca Mountain is built, - and that's not a certainty - that facility will only hold the waste that is currently in existence. (DW-0333 1)

Comment: [T]here remains no real plan for dealing with the vast amounts of highly radioactive waste that will be produced with two new reactors. Where will all the waste go? (DW-0408 5)

Comment: Containment of nuclear wastes is a major problem and not a proven factor. (DW-0412 3)

Comment: My concerns about increasing Virginia's and America's reliance on nuclear energy are based on … the need for foolproof, long-lasting waste containment. (DW-0426 6)

Comment: I would hope that no additional plants would be built until Yucca Mountain has gone from being a potential site for new waste to an approved, ready-for-use site, so we would not be generating additional waste only to find we have nowhere to put it. (DW-0426 13)

Comment: I don't believe you when you say the issue of nuclear waste will NOT be an on-going and increasing problem. NONE of the waste from these new reactors will go to Yucca Mountain, which is already full beyond its capacity - with already existing waste in the U.S. There is NO other permanent high level waste dump site even being considered at this point, much less built -- and this process takes decades to complete. So the highly toxic and dangerously radioactive waste from North Anna will STAY IN OUR COUNTY at an ever increasing risk of disaster. (DW-0614 3)

Comment: And perhaps the most important argument against nuclear power is the generated waste, which is piled up at every nuclear power plant. There is no safe place for this waste to be stored, and if the Nevada storage site is eventually opened, there is not enough room for the current supply of waste, let alone additional stockpiles. (DW-0641 5)

Comment: [T]here are no safe means to store spent fuel since the waste products of nuclear reactors will pose a threat to our existence for hundreds of years. That danger is unimaginable! (DW-0653 5)

Comment: Where is the waste to be stored? (DW-0729 4)

Comment: [T]he world still has not found a safe, effective way to deal with the huge quantities of deadly radioactive waste that are produced by nuclear energy (Yucca Mountain even if it were to be approved is breachable by virtue of its physical characteristics (seismic and salty) and too small to hold all the waste we have produced and continue to produce). (DW-0741 2)

Comment: [T]here is no safe way to store or dispose of nuclear waste. (DW-0797 1)

Comment: There is nothing we can do with it [nuclear waste] but store it here at home or store it in a nuclear landfill such as Yucca Mountain. If Yucca Mountain opens, it will not even hold all the nuclear garbage we have stored around the United States. (DW-0823 2)

Comment: Nuclear Power should not be used because: Secure storage of the waste for tens of thousands of years cannot even be imagined. (DW-0829 5)

Comment: This type of power is unsafe and produces waste that cannot be stored safely. Currently, as I understand it, there is no location for storage of spent fuel. (DW-0831 2)

Comment: For Sierrans the nuclear waste storage issue is unresolved, additional plants would only exacerbate this national problem. (DW-0857 4)

Comment: A new reactor means... that the proposed reactor has no legal or scientifically accepted place to send the “high-level” radioactive waste it would generate that is in excess to the timeless poison already here with a doubtful future. (DW-1154 13)

Comment: We don’t want them [descendents] to get hurt by spent nuclear fuel. From a World Watch Institute bulletin, I found that a major constituent of nuclear waste is Plutonium 239 that can cause harm to living tissue for a quarter of a million years or 12,000 generations. (DT-0012 1)

Comment: The Yucca Mountain repository, if it ever truly opens, will have cost over $60 billion. Forbes Magazine wrote in February ‘85 -- I’ll just continue the quote that was mentioned earlier -- “only the blind or the biased can now think that most of that money has been well spent.” That’s money spent on the nuclear industry. (DT-0036 4)

Comment: Saying that it’s clean ignores the fact that it creates hundreds of thousands of pounds of highly radioactive waste that must be safely stored for tens of thousands of years. If we are to use Yucca Mountain, all of these tons of waste must be transported across the country, but any new reactors can’t use Yucca. It will be at capacity before it even opens. (DT-0036 6)

Comment: The EPA notes that Yucca Mountain is on an active seismic region with several volcanic cones and at least thirty-three earthquake faults in the vicinity. With the half life we are

dealing with, we are asking our descendants for many generations to come to manage our waste and pay the price if it does leak. I do not want to place that burden on future Americans. Can we really be sure that Yucca Mountain is as sound as we think it is for thousands of years to come? (DW-0426 14)

Comment: Additionally, the issue of nuclear power's waste has not been resolved, one does not need to be an expert to know there we do no have enough storage space (or any adequate permanent storage space, Yucca Mountain) and that the transportation techniques are imperfect. (DT-0061 3)

Comment: This DEIS has some serious deficiencies. It does not adequately discuss, analyze, or acknowledge important and potentially important environmental impacts. It also does not include discussion of the consequences of storing additional radioactive spent fuel wastes at the site from addition of new reactors: in effect, North Anna is being turned into a semi-permanent high level waste repository. [We also were unable to find any discussion of spent fuel storage impacts in the portions of the SER available online.] Because of the deficiencies of the DEIS and the potential for serious environmental consequences from the project, the Virginia Chapter of the Sierra Club disagrees with the staff's preliminary recommendation that the ESP should be issued. (DW-0589 1)

Comment: The Draft EIS fails to evaluate the environmental impacts...of indefinitely storing the additional irradiated fuel that will be generated by the proposed reactors onsite. In view of problems with the Yucca Mountain repository, there is no guarantee if or when another permanent repository ever will be available. Lake Anna would become a semi-permanent, if not permanent high level waste repository. (DW-0589 7)

Comment: When I came in tonight I saw signs that apparently Dominion had put up saying "clean power," and to talk about nuclear power with nuclear waste the most dangerous substance that we can possibly have on this earth, and it's a substance that we don't know what to do with it, and to talk about that is clean makes me think I cannot believe anything that Dominion Power has to say to me. (DT-0013 4)

Comment: I am against new power plants...because of unresolved waste disposal issues. Plutonium 239, a major constituent of irradiated spent fuel from nuclear power plants, has a half life of 24,400 years, and is harmful to living tissue for 250,000 years, or 12,000 human generations. Contemplating intentionally leaving a legacy of harm for 12,000 human generations, in exchange for a small amount of electricity for 1 or 2 generations now, is unkind and unreasonable. (DW-0669 2)

Comment: Then there is the issue of waste management, there is a finite area that can be used for nuclear waste, I feel that other options must be looked at first. (DW-0802 4)

Comment: There's a lot of bureaucratese that was used to talk about it, but it boils down to what the plant puts out is garbage. We don't have those breeder reactors. It's a nice dream. It's not going to be realized for a long time, if ever. So in the meantime nuclear plant garbage is highly concentrated, highly reactive, and will be dangerous for 10,000 or more years. (DT-0050 1)

Comment: The North Anna site is not appropriate for expansion. Plans for storage, transport and long term management of nuclear waste are inadequate. (DT-0054 1)

Comment: The description of the high level waste storage facility, security of this facility and the monitoring (frequency and type) are not addressed. (DW-1272 6b) (SE-0030 20)

Comment: No successful long-term solution for containing nuclear waste exists. NRC has essentially ignored the issue of waste in the ESP process. (SE-0034 5)

Comment: The Draft EIS fails to evaluate the environmental impacts…Lake Anna would become a semi-permanent, if not permanent high level waste repository. (SE-0038 8)

Comment: The reactors will create approximately 20 MT/year of nuclear waste. It is imprudent to issue an ESP until detailed plans for safe waste management, transport, and disposal are in place. This is not elaborated in Section 6 (SE-0045 35)

Comment: [W]aste and security are things that are basically taken off the table. ...each reactor at North Anna produces about 20 metric tons of waste per year and about over 56,000 metric tons already exist around the country and we have no near-term solution. I know that people commonly say there's that mountain in Nevada. Aren't we going to take it there? I can tell you by looking thorough at that the problem is it's not a good mountain. I mean there might be a mountain somewhere, but that mountain is not a good mountain. So no time soon are we going to have a safe place to secure this waste. (ST-0005 6)

Comment: There's no real plan for waste disposal. ...you propose to more than double the amount of nuclear waste at Lake Anna, and no one has a secure long-term plan. ...Where is this waste going to go? Who's going to pay for it? Who's going to protect it for the tens of thousands of years? (ST-0036 6)

Comment: 3.11.1-S. The other end of it is even messier and sloppier, and it's still garbage disposal. ...And yes, "garbage" can be a resource in future generations, but garbage is such a euphemistic term for something that is one of the most poisonous substances on the face of the earth. It is so poisonous, it is so nasty that it is the only power industry that has 24/7 security. (ST-0038 3)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Spent nuclear fuel (where stored, terrorist attack protections, etc.) (SE-0022 28) (ST-0014 16)

Response: *The NRC's Waste Confidence Rule, found in 10 CFR 51.23, states:*

> *The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.*
>
> *In its Statement of Considerations (preamble) for the 1990 update of the Waste Confidence Rule (55 FR 38472), the Commission addressed the impacts of the disposal of spent fuel discharged from the current fleet of nuclear reactors operating under existing (including renewed) operating licenses and from a new generation of operating reactors. Therefore, the current rule covers new reactors and can be used in the staff's review of an ESP or a COL application. The rule was last reviewed by the Commission in 1999, when it reaffirmed the findings in the rule (64 FR 68005, dated December 6, 1999). Furthermore, the Atomic Safety and Licensing Board presiding over the proceeding on the Dominion application affirmed that the Waste Confidence Rule and its subsequent amendments clearly include waste produced by a new generation of reactors. (Dominion Nuclear North Anna, LLC, Early Site Permit for North Anna ESP Site, LBP-04-18, 60 NRC 253, 269 [2004]). Accordingly, no changes were made to this EIS as a result of these comments.*

3.11.2 Need for Reprocessing Spent Fuel

Comment: We did come to one agreement, some common ground, in short, to build a fuel reprocessing plant. Now, I understand this does not fall within your purview. I argue that it does. Presently the abundance of spent fuel is hazardous to my nation's well-being. You are charged with protecting me. Protect me from that. (DT-0006 6)

Comment: So first develop a [re?] processing plant. Get the technology right before you build any more power plants. The power plants would be far more palatable to people like me. (DT-0006 7)

Comment: Used nuclear fuel recycling should be implemented to provide energy for hundreds of thousands of years. Unlike other energy generating processes that put waste directly into the air, water, and on our surfaces, nuclear power wastes are contained, accounted for, and managed. (DT-0014 7)

Comment: None of us are proud of the fact that there's 70,000 metric tons of radioactive nuclear waste stored on sites all over the nation. It's not the way things were supposed to be, but of course, the best plans often go awry...There was a very well thought out fuel cycle [with fuel reprocessing] that was to be implemented, which was unfortunately derailed by fears, uninformed fears, that occurred in political arenas in the late '70s. (DT-0039 1)

Comment: Nuclear power can and will be a renewable power source. The original vision was that we would mine a sufficient amount of uranium to feed a nuclear fuel cycle, which would eventually become self-perpetuating. The vision was that after a certain period of time we would be able to stop mining natural uranium because we were developing technologies which generated their own fuel. (DT-0039 2)

Comment: [C]ontinued government interest in reprocessing, combined with the failure to establish a national repository for irradiated nuclear fuel, should compel the NRC to consider the impacts of spent fuel reprocessing in the Final EIS. (DW-0437 35)

Comment: Nuclear fuel has been in the earth since it was created and continues to decay in the environment today. By utilizing it in the nuclear power plant, some of it is turned into energy and removed from the environment--a cleaning up of the planet. The nuclear waste that is created by burning the nuclear fuel could be recycled into another nuclear fuel if that process is ever approved. (DW-1007 6)

Response: *During the Carter administration, the Nuclear Nonproliferation Act of 1978, P.L. 95-242, was enacted; it significantly impacted the disposition of spent nuclear fuel by deferring indefinitely the commercial reprocessing and recycling of plutonium produced in the U.S. commercial nuclear power program. While the ban on the reprocessing of spent fuel was lifted during the Reagan administration, economic circumstances changed, reserves of uranium ore increased, and the stagnation of the nuclear power industry provided little incentive for industry to resume reprocessing. With interest in deploying new nuclear power plants in recent years, during this Bush administration, the Energy Policy Act of 2005, P.L. 109-58, was enacted; it authorized the DOE to conduct an advanced fuel recycling technology research and development program to evaluate proliferation-resistant fuel recycling and transmutation technologies that minimize environmental or public health and safety impacts. Consequently, while Federal policy no longer prohibits reprocessing and interest is increasing, additional work is needed before commercial reprocessing and recycling of plutonium produced in the U.S. commercial nuclear power program is likely.*

Nevertheless, Table S–3 from 10 CFR 51.51 does include impacts from reprocessing. As outlined in Section 6.1 of the EIS, the contributions in Table S–3 for reprocessing, waste management, and transportation of wastes are maximized for either of the two fuel cycles (uranium only and no recycle); that is, the cycle that results in the greater impact is used. As discussed in the EIS, 10 CFR 51.51(a) requires that the applicant use Table S–3 as the basis for evaluating the contribution of the environmental effects of the uranium fuel cycle for light-water reactors. Section 6.1 of the EIS was modified to indicate that Federal policy does not prohibit spent fuel reprocessing.

3.11.3 Expiration of Low-Level Waste Pact with Barnwell

Comment: The NRC is equally dismissive in its treatment in the EIS for the disposal of so-called low level radioactive waste, and I think it's important to get to the point here that Virginia will lose its queue in disposal of this so-called low level radioactive waste at Barnwell, South Carolina, year 2008. So effectively the current units will have all of this orphaned waste and nothing is planned for the waste for the three and four. It's not even contemplated. So how is it that the EIS reduces this concern [waste] to small and acceptable when, in fact, it doesn't even fully evaluate the uncertainty associated with not having any place to put even the low level radioactive waste. (DT-0040 5)

Comment: A new reactor means more radioactive waste with NO proposed permanent disposal site after 2008 for Virginia's so-called "low-level" radioactive garbage. (DW-1154 12)

Comment: Right now, this so-called "low level" radioactive waste from the North Anna reactors is being shipped to South Carolina and Utah and dumped in soil trenches. Some is stored on site but the waste is generally shipped to Barnwell, SC or Envirocare, UT for disposal. The Lake Anna community should be aware that Utah citizens are fighting the expansion of that dump there which takes a portion of the nuclear waste generated by nuclear power. (DW-1154 8)

Comment: NRC's dismissive treatment in the EIS of the absence of disposal capacity for so-called "low-level" radioactive contamination issues is even more egregious. (DW-1154 3)

Comment: [F]ederal regulations allow for burial of this waste in unlined ditches with only 100 years of institutional control. All of the six U.S. burial sites for so-called "low-level" radioactive wastes have leaked and four are closed. There is no way to permanently isolate so-called "low-level" radioactive waste from the environment. (DW-1154 6)

Comment: How are environmental concerns and consequences created by Virginia's potentially orphaned radioactive waste stockpiles being casually dismissed? These issues are conspicuously missing from the North Anna EIS. Please provide the analysis on how the

so-called “low level” radioactive waste will be responsibly managed for new reactors in the absence of a low level radioactive waste facility. (DW-1154 9)

Response: *Starting in 2008, the Barnwell, South Carolina, low-level waste disposal facility will only accept low-level waste from the Atlantic compact states (Connecticut, New Jersey, and South Carolina). Virginia is in the Southeast compact. Because other waste generators (e.g., hospitals that generate radioactive waste from medical treatment and diagnostic tests) in the Southeast compact rely on the Barnwell disposal facility, an alternate waste disposal location would need to be negotiated prior to 2008.*

NRC’s Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437 [Section 6.4.4.2]) is instructive in evaluating environmental impacts associated with power reactors and can be used for other licensing purposes (e.g., ESP applications) as well. In NUREG-1437, the staff concluded that there should be no significant issues or environmental impacts associated with interim storage of low-level waste generated by nuclear power plants with renewed licenses. Interim storage facilities would be used until these wastes could be safely shipped to licensed disposal facilities. NUREG-1437 (Section 6.4.4.5) also discusses an evaluation of the impacts of extending on-site storage of low-level waste. Extended storage was assumed for 20 years, the length of the license renewal period. Extended storage is also covered by the existing regulatory framework. Accordingly, no changes were made to this EIS as a result of these comments.

3.11.4 Opposition to Generation of Additional Waste

Comment: It means more nuclear waste that will be dumped, incinerated or potentially recycled into consumer goods. (DT-0040 10)

Comment: [A new reactor] means more nuclear waste that will be dumped, incinerated or potentially recycled into consumer goods. (DW-1154 15)

Comment: [T]here is the radioactive material left to be disposed of. (DW-0151 3)

Comment: I don’t want more radioactive waste anywhere, let alone in my backyard. (DW-0165 6)

Comment: [We are opposed to nuclear expansion] until science has discovered a way to neutralize the waste. It is patently immoral to poison our Earth to this degree. (DW-0192 2)

Comment: Nuclear waste is another problem. I do not want nuclear waste passing through my town, and yet, I fear this is already happening across America to unsuspecting citizens. In Utah, where nuclear energy supporters wish to send the waste, there is a strong opposition, and

I would be opposed as well if it were designated for Virginia. Nuclear waste is not safe nor is it clean, the standing argument for expansion of nuclear energy. (DW-0822 3)

Comment: We don't need the toxic, radioactive waste these plants will bring. (DW-0967 2)

Comment: Nuclear waste is the worst kind of waste, and we don't need any more of it. (DW-1069 3)

Comment: Disposal of the waste product generated by nuclear power should be enough to make use of this power source only as a last resort. (DW-0407 5)

Comment: Please compel Dominion to use the money they would have used for building these reactors to research safer methods to handle the byproducts of current production. (DW-0616)

Comment: [H]ave you considered the environmental impact of more nuclear waste? (DW-0846 3)

Comment: We still have not adequately cleaned up waste from previous plants. (DW-0867 2)

Comment: These are not "acceptable" or "small" consequences and it is irresponsible of NRC to allow this new source of radioactive waste generation and contamination to be sited, constructed or operated. (DW-1154 16)

Response: *The NRC staff considered the generation and processes to ensure the safe handling of additional radioactive waste. More waste would be generated, but the low-level waste would be handled and disposed of in accordance with current Federal and State regulations. Regarding disposal of spent fuel, the NRC's Waste Confidence Rule, found in 10 CFR 51.23, states:*

> *The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.*

In its Statement of Considerations (preamble) for the 1990 update of the Waste Confidence Rule (55 FR 38472), the Commission addressed the impacts of the disposal of spent fuel

discharged from the current fleet of nuclear reactors operating under existing (including renewed) operating licenses and from a new generation of operating reactors. Therefore, the current rule covers new reactors and can be used in the staff's review of an ESP or a COL application. The rule was last reviewed by the Commission in 1999, when it reaffirmed the findings in the rule (64 FR 68005, dated December 6, 1999). Furthermore, the Atomic Safety and Licensing Board presiding over the proceeding on the Dominion application affirmed that the Waste Confidence Rule and its subsequent amendments clearly include waste produced by a new generation of reactors. (Dominion Nuclear North Anna, LLC, Early Site Permit for North Anna ESP Site, LBP-04-18, 60 NRC 253, 269 [2004]). Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [T]his is an environmental study, correct? Do you take into consideration your waste products while you are in construction and through the next 20 or 30 years into a landfill?...[radioactive and non-radioactive waste will be generated during the construction process] because you are going to have low-level radiation at every reset -- like even when you clean your floors, you have low-grade radiation going into our landfill. (ST-0003 1)

Comment: Regarding the production of more nuclear waste that was not present on the planet before humans arrived, it is immoral to create this waste for people to deal with 75,000 years from now, when we do not have a clue as to how to guarantee the safety of storage of waste for that period of time. (SE-0010 3)

Response: *The NRC staff considered the generation and processes to ensure the safe handling of additional radioactive waste. More waste would be generated, but the low-level waste would be handled and disposed of in accordance with current Federal and State regulations. Accordingly, no changes were made to this EIS as a result of these comments.*

3.11.5 Support for New Units

Comment: I prefer an energy source that makes solid waste that is easily identifiable, quantifiable, and retrievable. And that energy source is nuclear. (DW-1148 11)

Comment: Currently, there is a national policy on nuclear waste storage that is being held hostage by politics. (DW-0370 6)

Comment: I would like to add that as an engineer who has years of experience working and performing research in the management of nuclear waste, I can say with confidence that the problems of transportation and disposal are political and not technical. (DT-0020 5) (ST-0012 4)

Comment: [S]hould the spent fuel from North Anna be kept on site, or shipped to another site, I believe that they would pose little threat to the environment and local communities. Spent fuel cask technology is well-developed and well-regulated. There is little proliferation risk associated with the spent fuel under current regulations. (DW-0370 7)

Comment: Disposal of radioactive waste is not an environmental or technical problem. Both North Anna and Surry Power Stations safely store used fuel at their sites. (DT-0014 6)

Comment: The second thing that has struck me recently is the progress being made in waste management. I worked on the Yucca Mountain project from 1993 until 2001, and those were tough years. We grappled with a lot of issues about disposal of nuclear waste...It was a lot of work, and that work is finally coming to fruition this year with the DOE scheduled to submit a license application to the NRC before the end of 2005. (DT-0032 4)

Comment: [O]ne of the biggest complaints of the public with nuclear power is the waste that creates, and I just wanted to take a minute to put it in the scope, put it in scope what this waste is for all of you. ...All of the nuclear waste I would generate in my entire life time is the size of my wallet after it's vitrified. (ST-0027 1)

Comment: The byproducts of nuclear power are the most manageable of energy waste products, being totally contained, retrievable, and reusable. (SE-0025 3)

Comment: If we run out of space up at North Anna to put fuel, I have 30 acres down at Goshen. You can live down there. I don't have any problem with that. (ST-0015 2)

Response: *These comments provide general information supporting the belief that radioactive waste can be disposed of safely. They do not provide information specific to this EIS. Accordingly, no changes were made to this EIS as a result of these comments.*

3.11.6 Other Comments

Comment: The issue of storing radioactive spent fuel rods. Well, this is my take on it. We’ve heard some this evening and probably will hear more, but these rods are not really “spent.” They are just not efficient anymore. They’re still radioactively hot. So they must be stored in pools of water to keep them cool. As more and more of these rods are stored, the pools get crowded, and the danger of exposed rods increases. Exposed rods can spontaneously ignite, and the resulting fire spreads radioactive particles into the air. Also, low water levels increase this danger. The Spotsylvania County Planning Board is right to be concerned about this, and so are we. (DT-0009 2)

Response: *When fuel rods are removed from a reactor, they are moved into a nearby spent fuel storage pool via a transfer canal to allow for radioactive decay of short-lived radionuclides. The pool contains racks into which the spent fuel assemblies are placed and remain underwater. The racks are designed such that fuel assemblies can only be placed in a specific configuration to prevent inadvertent nuclear criticality. The racks also contain neutron absorbing materials to maintain the fuel assemblies in a subcritical condition. A postulated accident that could lead to loss of cooling and in turn could lead to a fire of the zirconium cladding, could occur under unique circumstances, but ignition would not be spontaneous. It takes a considerable period for spent fuel to reach the point where the cladding can ignite. After the fuel has been out of the reactor for several years, it no longer generates heat that could lead to ignition. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The draft EIS lacks a consideration of the environmental and public health impacts resulting from military applications of depleted uranium (DU), a byproduct of the enrichment process of the fuel cycle. (DW-0437 36)

Comment: [T]here is not a complete consideration of the impacts of managing this substance as a waste. There is no repository established for the permanent disposition of depleted uranium, but the impacts of such a hypothetical facility should be considered. (DW-0437 37)

Response: *While the fuel cycle results in depleted uranium, there is no relationship between the proposed action and any decision on how to use depleted uranium. Therefore, the environmental and public health impacts resulting from military applications of depleted uranium and deposition of depleted uranium waste are beyond the scope of the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The draft EIS estimates that, for the reference reactor-year (a 1000-MW(e) LWR), 1.09 Million MT of raw ore would be required to produce 1200 MT of yellowcake for ultimate use as fuel after conversion, enrichment, and fabrication (DEIS, Section 6.1.2.5). Over time, as worldwide uranium ore supplies are depleted, requiring exploitation of less pure deposits of ore, would this ratio of ore to yellowcake increase? If so, would the environmental impacts of mining and milling become greater? (DW-0437 38)

Response: *If less pure ores are used, the ratio of raw ore to yellowcake would increase and the associated environmental impacts would increase proportionally. This also assumes that no new high purity ore deposits are found and no fuel is reprocessed. The environmental impacts in the EIS were taken from Table S–3 of 10 CFR 51.51(a), which assumed conventional underground and strip mining of uranium ore. Two factors that will offset this increased impact are (1) the increased reliance on in situ leach mining for uranium and (2) increased reliance on foreign sources for uranium. In situ leach mining has fewer environmental impacts compared to underground and strip mining of the ore because (1) the dusty ore crushing process is not needed and (2) extensive waste tailings are not generated. All steps in the in situ leach mining*

operation have the uranium in a less dispersible liquid form. Foreign-origin uranium accounted for 83 percent of the uranium purchases for U.S. civilian nuclear power plants in 2005 (EIA 2006). Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Chapter 6, Pg 6-10, Line 33 - Please justify that the thermal effects from the use of all units would be negligible. (DW-1272)

Response: *As discussed in the EIS, thermal impacts were derived from NUREG-1437 which in turn were derived from Table S–3 of 10 CFR 51.51(a) and WASH-1248 (Environmental Survey of the Uranium Fuel Cycle). The principal use of water in the uranium fuel cycle is to remove waste heat from the power stations supplying electrical energy to the enrichment facilities. Impacts evaluated in the EIS assumed use of gaseous diffusion plants to enrich the uranium. Assuming use of the gaseous diffusion plants, water thermal discharges are only 4 percent of a 1000-MW(e) LWR-scaled model using cooling towers. The use of centrifuge uranium enrichment technology would result in smaller thermal effects. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Equally as startling is the move by the nuclear industry, NRC, EPA, and other federal agencies to deregulate radioactive contaminated materials - that is to pretend it is not radioactive at all and dump it in regular landfills, hazardous (not radioactive-licensed) landfills, incinerate it with regular trash, and worse yet redefine it as a retrievable resources to be recycled into everyday consumer goods. (DT-0040 8 and DW-1154 11)

Response: *Nuclear reactor licensees are authorized to dispose of licensed material in accordance with NRC's regulations under 10 CFR Part 20. The commenter is likely referring to a rulemaking activity under the title "Controlling the Disposition of Solid Materials," Rulemaking Identifier Number (RIN) 3150-AH18. Future generic rulemaking on controlling the disposition of such solid materials is beyond the scope of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: In addition to the highly radioactive irradiated fuel, there is a steady stream of radioactive liquids, solids, gasses, sludges emitting from reactors that remain radioactively and biologically hazardous for hundreds, thousands, literally millions of year. ...All of these are now "low-level" radioactive wastes. As NRC has acknowledged these same radionuclides are routinely released from nuclear power reactors into the surrounding environment. Others are captured in filters, sludges, resins, evaporator bottoms that can give a lethal dose of radiation in just 20 minutes, yet still categorized as "low-level." Isn't it peculiar that as long as these poisons stay in the fuel rods they are considered "high level" radioactive waste. But when they leak out of the fuel rods (a common occurrence) into the water that circulates throughout the reactor, when they are filtered from that water, when they get into the pores of the concrete base mat

and containment dome, when they concentrate in pipes, they are suddenly called “low-level” radioactive waste. The same plutonium contamination that is “high level” in the fuel rod is dubbed “low-level” when it leaks out. (DW-1154 5)

Comment: Now, some of this uncertainty has to be taken into account about the excess to Yucca Mountain. It has been referenced here, but we did a “back of the envelope” calculation, and with North Anna 1 and 2 alone, the excess to Yucca Mountain with a 60-year license is 1162 metric tons excess to Yucca Mountain. With the addition of North Anna 3 and 4, and that’s with a 40-year license on those two units, it goes up to -- well, that’s 2346. So we’re talking about an excess here of 3508 metric tons...isn’t it peculiar that as long as these poisons stay in the fuel rods, that they are considered high level, but when they leak out of the fuel rods, which is a common occurrence, into the water that circulates around the fuel and throughout the reactor and they’re filtered from that water and they go into the pores of the concrete base mat and they irradiated and activate the metal that surrounds that. Then they become so-called low level radioactive waste. The same plutonium contamination that is high level in the fuel is dubbed low level when it leaks out, and these are the kinds of uncertainties that should not be accepted and, in fact, this community needs to stand with the communities around the country that are tired of being dumped on by the operation of these reactors. (DT-0040 4)

Response: *Wastes are categorized according to the half-lives and concentrations of the key radionuclides. In accordance with 10 CFR Part 61, low-level waste is classified as A, B, C, or greater than Class C, with more stringent disposal methods going from A to C. Licensed low-level waste disposal facilities must protect the general population from release of radioactive material, protect workers, protect inadvertent intruders after institutional controls cease, and ensure disposal site stability. In accordance with a 1989 rulemaking (54 FR 22578), the NRC requires that greater than Class C waste be disposed in a deep repository unless disposal elsewhere has been approved by the Commission. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: On the topic of waste disposal ... [page 6-15], the report states, “For high-level and transuranic wastes, the Commission notes that these are to be buried at a repository, such as the candidate repository at Yucca Mountain, and that no release to the environment is expected to be associated with such disposal, although it has been assumed that all of the gaseous and volatile radionuclides contained in the spent fuel are released to the atmosphere before the disposal of the waste.” I am alarmed that volatile radionuclides will be released into the atmosphere as a matter of standard practice. (DW-0426 17)

Response: *A certain quantity of gaseous and volatile radionuclides contained in the spent fuel may be released during storage in the spent fuel pool. These releases are part of the routine releases reported to the NRC; the spent fuel is monitored. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The impacts also have the potential to affect a much greater area in the case of facility performance failure/problems and waste generation and disposal. (DW-0817 5)

Response: *The EIS evaluated the environmental impacts of postulated accidents in Section 5.10 for facility operation and Section 6.2 for transportation. Facility operation accidents included both design-basis accidents and severe accidents. While the effects of transportation accidents, based on Table S–4 (10 CFR 51.52), were evaluated for high-level wastes and spent fuel en route to a high-level waste repository, postulated accidents at a Federal waste repository were not evaluated. Accidents at a repository would be evaluated as part of another licensing action and are outside the scope of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I'd like to address the source of the uranium ...[page 6-4], "Another change is the elimination of the U.S. restrictions on importation of foreign uranium. The economic conditions of the uranium market now and in the foreseeable future favor full utilization of foreign uranium at the expense of the domestic uranium industry. These market conditions have forced the closing of most U.S. uranium mines and mills, substantially reducing the environmental impacts in the U.S. from these activities." This statement raises two concerns. First, if we build additional facilities at North Anna, we are exacerbating our dependence on foreign fuel, merely replacing oil with uranium. This will not allow us the upper hand we strive to have in foreign policy. (DW-0426 8)

Comment: [Refers to comment WC–0427 8] Second, the statement says that using foreign sources of uranium substantially reduces the environmental impacts in the United States. This means that we are simply shipping environmental problems to other countries for other people to deal with. If the negative environmental impacts of uranium mining are not something we wish to impose on our own citizens, we should not feel comfortable imposing them on other members of the human race. This is callously conveying disrespect for the health and quality of life desired and deserved by all human beings. Additionally, it will lead to another reason for people in other countries to resent the United States of America, creating more antagonism, and therefore more difficulties in foreign policy. (DW-0426 9)

Comment: My concerns about increasing Virginia's and America's reliance on nuclear energy are based on the effect of mining for uranium on the environment and on foreign policy. (DW-0426 3)

Response: *Dependence on foreign sources of uranium is linked to market forces and the price of uranium. If uranium prices remain the same or decrease, U.S. suppliers likely will not be able to compete with foreign providers. If uranium prices increase, there will be a point at which U.S. suppliers believe they can be price competitive. Uranium mining has its own unique worker protection issues. If the U.S. suppliers can be price competitive with the additional interest in new plants and with operators of existing plants renewing their operating licenses, then in*

resuming mining operations, they must comply with U.S. occupational protection standards. Foreign sources of uranium have to comply with their own national occupational protection standards. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [B]oth ends of the nuclear industry are sloppy and messy. The mining part of it creates a kind of pollution that's kind of deadly downstream, and is kind of bad for the miners. (ST-0038 2)

Response: *Uranium mining is regulated separately from nuclear power plants. OSHA has authority over worker protection issues, and mine tailings are regulated by the EPA through the Resource Conservation and Recovery Act (RCRA–Public Law 94-580, October 22, 1976). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: According to DEQ's Waste Division, the Draft EIS/SDEIS addressed solid waste issues and sites to some extent, but did not address hazardous waste issues or sites, or include a search of waste-related data bases. [Two websites were provided in this comment letter from VDEQ.] (DW-0439 22) (SW-0017 61)

Comment: The draft EIS indicates that solid waste would be handled in compliance with appropriate state and federal regulations (page 3-10, Section 3.2.4). (DW-0439 23)

Comment: Chapter 3, Pg 3-10, Line 15 - Enough information is available to definitively [The SDEIS should] state the State and Federal regulations that apply [to nonradioactive effluent and solid waste releases]. (DW-1272 8) (SE-0030 22)

Response: *Hazardous wastes are discussed in general terms in Section 3.2.4 of the EIS. Health impacts are discussed in Section 4.8 for construction and Section 5.8 for operations. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: DEQ's Waste Division did a cursory review of its data files and did not find any [solid or hazardous] waste sites that would affect, or be affected by, the proposed project. (SW-0017 61b)

Response: *This comment provides confirmation that the proposed ESP would not affect or be affected by solid waste or hazardous waste sites. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The draft EIS further states for the high level radioactive waste that, quote, "There is some uncertainty with respect to the regulatory limits for the off-site releases." And they go on to say that we assume that these limits are developed. And I would point out the word "assume." And they go on to say that the waste confidence decision with that assumption that a repository can and likely be developed which will comply with such regulations. Now, they say

that the consequence will be acceptable and small, but I submit that while this may look good on paper, it is not based in reality. The EIS fails to quantify the uncertainty which they have identified, which continues to plague this industry and the nuclear waste question since the first couple, maybe cannot be considered small or acceptable when talking about the permanent contamination of our air, land, water, and gene pool. (DT-0040 3)

Comment: The draft EIS further states that for high-level waste and the irradiated fuel disposal, "there is some uncertainty with respect to regulatory limits for offsite releases of radioactive nuclides for the current candidate repository site. ...Staff goes on to say that despite this uncertainty they are able to conclude that the impacts to this community and communities into the distant future are "acceptable" and "small." This might look good on paper to some, but unfortunately it is not based in reality. The EIS fails to quantify the "uncertainty" which continues to plague the nuclear waste question since the first cupful was generated over a half century ago. "Maybe" can not be considered "small" or "acceptable" when talking about the permanent contamination of our air, land, water, and gene pool. Please quantify the identified uncertainty in the DEIS. (DW-1154 2)

Response: *The primary mission of the NRC is to ensure that authorized activities are conducted in a manner to provide adequate protection of public health and safety from the effects of the radiological hazards posed by nuclear reactor, materials, and waste facilities. The exposure limits for radiological protection are established by the NRC to protect workers and the public from the harmful health effects of radiation on humans. The regulatory limits for offsite releases from a Federal repository will be established by the EPA and the NRC as part of rulemaking activities. Since the rulemaking is not yet complete, the regulatory limits have not been finalized. Rulemaking RIN 3150-AH68 is titled "Implementation of a Dose Standard After 10,000 Years" and will not be completed by the time this EIS is issued. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Section 6.0 should include an analysis of nuclear waste disposal. (DW-0438 168)

Response: *Section 6.1.1.6 of the Draft EIS entitled "Radioactive Wastes" includes an analysis of nuclear waste disposal. Accordingly, no changes were made to this EIS as a result of this comment.*

3.12 Transportation of Waste

Comment: Let's say you do find a safe place to bury the waste. Then you have to transport it out of North Anna and other plants by rail…I have no faith that there won't be a nuclear spill at some point…There's only one way to handle it: DON'T DO IT! And certainly don't add to the risk by building more plants that create the waste! (DW-0194 3)

Comment: And how is it possible to transport the waste from the site in a safe and inexpensive way? All forms of transport are also possible terrorist targets, not to mention the possibility of an unfortunate accident! (DW-0408 7)

Comment: My concerns about increasing Virginia's and America's reliance on nuclear energy are based on … risks relating to transportation of radioactive material to and from the plant. (DW-0426 5)

Comment: The problem of nuclear waste TRANSPORT from North Anna ACTUALLY gets worse each day, since the nuclear waste steadily increases and MUST sooner or later be somehow removed. This proposal to expand the plant by two reactors will double this currently hidden problem and increase the risk to everyone in this room, their children, and many generations beyond. DON'T make it worse than it already is. (DW-0614 10)

Comment: One of the nuclear engineers who spoke in favor of the permit said in a dismissive tone that concerns over the transporting of highly radioactive nuclear waste across the country were a political issue, not a scientific issue. ...Its political nature does not diminish its terrible damage. (DW-0410 3)

Comment: If transported by rail or truck across the United States, there is the ever-present possibility of an accident…A rail accident is an even greater risk because nuclear waste shipping containers are not required to undergo full physical safety testing for collisions, and the ability of the containers to withstand a high impact rail collision (especially one involving fire) is therefore not fully known. (DW-0196 5 and DW-0744 5)

Comment: Such an accident [transportation of waste accident] would leave a legacy of cancers and other debilitating diseases in affected communities. (DW-0196 6 and DW-0744 6)

Comment: This section [Section 6.2] and the accompanying Appendix G of the Draft EIS do not give adequate weight and consideration to the possibility and consequences of severe accident scenarios resulting from the transportation of spent nuclear fuel. The possibility of extreme accidents, while slight, exists, as evidenced by recent incidents such as the Baltimore train tunnel fire of 2001 and the more recent accident in Graniteville, South Carolina in January, where a violent train crash and release of chlorine killed nine people, sent hundreds to the hospital, and required thousands to evacuate their homes. (DW-0437 39)

Comment: I would think that the recent train crash and subsequent chlorine spill in South Carolina would make some people stop and think about putting a nuclear power plant in North Anna. What if that train was carrying nuclear waste? The people in Graniteville have been able to return to their homes (after only about a week) and only about 9 were killed. Had that been nuclear waste being transported the area would be uninhabitable for decades or centuries. (DW-0729 2)

Comments Within Scope

Comment: Our concerns are for insurance and bonding against costs of a major nuclear accident and the dangers of transportation of this spent fuel. Our concerns are for security and safety of our members and citizens of Virginia. Washington, D.C. is only 90 miles down wind and less than forty from Richmond, Fredericksburg, and Charlottesville where many of our members reside. (DW-0857 5)

Comment: No credence can be put into Section 6.2.4 and the conclusion that the impacts are SMALL given the starting statement of "considering the uncertainties in the data and computational methods." (DW-0438 167)

Response: *The NRC and U.S. Department of Transportation (DOT) regulate the transport of radioactive materials in the United States. The NRC is primarily responsible for establishing performance requirements for transportation packages (Type B and fissile material packages, including spent fuel shipping casks) containing higher-risk radioactive material packages. The DOT establishes design requirements for all other radioactive material packages, including Type A, industrial, and excepted packages. The DOT also establishes other transportation requirements, including classification of materials, external radiation levels, route selection, communications (e.g., marking, labeling, placarding), vehicle safety, and driver training and qualifications. Waste transportation packages are designed to withstand a series of tests that simulate normal conditions of transport and hypothetical accident conditions.*

The NRC conducted several studies to evaluate the risks associated with the transportation of radioactive material. The NRC issued Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes, NUREG-0170, which was published in 1977, to support the 10 CFR Part 71, "Packaging and Transportation of Radioactive Material" rulemaking. Based on the NRC staff's recommendations in NUREG-0170, the Commission concluded that the transportation regulations are adequate to protect the public from the risks associated with the transportation of radioactive materials, including spent fuel. The NRC sponsored another study in the 1980s titled Shipping Container Response to Severe Highway and Railway Accident Conditions, NUREG/CR-4829, which was published in 1987, also known as the "Modal Study." Based on the results of NUREG/CR-4829, the NRC staff concluded that NUREG-0170 overestimated spent fuel accident risks by about a factor of three. In the 1990s, the NRC initiated a spent fuel study titled Reexamination of Spent Fuel Shipment Risk Estimates, NUREG/CR-6672, which was published in 2000. NUREG/CR-6672 focused on the risks of a modern spent fuel transport campaign from reactor sites to possible interim storage sites and/or permanent geologic repositories. This study concluded that accident risks were much less than those estimated in NUREG-0170 and that more than 99.99 percent of transportation accidents are not severe enough to cause a release of radioactive material from a NRC-certified spent fuel cask. While very severe accidents could cause cask damage, the studies show that releases of material would be small and pose little risk to the local population/public. The most severe accidents might cause greater releases, but their likelihood is so remote that the NRC considers the risk to public health to be low.

The NRC has sponsored studies to analyze the consequences of specific accident scenarios on rail and truck transportation casks carrying spent fuel. For example, the NRC undertook an investigation of a July 2001 accident that involved a freight train carrying hazardous materials that derailed and caught fire while passing through the Howard Street railroad tunnel in downtown Baltimore, Maryland, to determine the possible regulatory implications of this particular event for the transportation of spent fuel by railroad. NRC assembled a team of experts from the National Institute of Standards and Technology (NIST), the Center for Nuclear Waste Regulatory Analyses (CNWRA), and the Pacific Northwest National Laboratory (PNNL) to determine the thermal conditions that existed in the Howard Street tunnel fire and to analyze the effects of this fire on various spent fuel transportation cask designs. The staff concluded that the likely spent fuel transportation casks analyzed would withstand a fire with thermal conditions similar to those that existed in the Baltimore tunnel fire event. No release of radioactive materials would result from exposure of the casks analyzed to such an event.

NRC review and certification of transportation package designs, fabrication in accordance with NRC-approved quality assurance programs, shipment controls, implementation of security measures, and inspections help assure the safe and secure transport of spent fuel and other high-risk radioactive materials in the United States. Based in part on NRC's regulatory oversight of radioactive materials in transport, the transportation of high-risk sources such as spent nuclear fuel and radioactive wastes has an exemplary safety record in the United States. Since 1964, there have been more than 2700 shipments of spent nuclear fuel in the United States, and although a few accidents involving these spent fuel shipments have occurred, there was no release of radioactive materials. The NRC conducts periodic evaluations to determine the effectiveness of transportation requirements and whether there is any need for new regulations, policies, or technical improvements to ensure continued protection of public health and safety, and the environment.

Changes were made to Section 6.2 and Appendix G of the EIS as a result of these comments.

Comment: What is the rationale for not using the PPE in the transportation analysis (Page 3-4 line 37)? Mixing methodologies weakens the conclusions that can be drawn. (DW-0438 83)

Response: *Dominion chose not to develop a PPE for transportation. Rather, Dominion conducted a detailed analysis of the environmental effects of transportation of fuel and waste to and from the reactor in accordance with 10 CFR 51.52(b). NRC regulations do not preclude the approach taken by Dominion and, furthermore, a PPE for transportation is not required by NRC regulations. Dominion's analysis was judged by the NRC staff to be reasonable, yet bounding, and confirmatory reviews conducted by the NRC staff concluded that Dominion's results were similar to those developed by the staff. Accordingly, no changes were made to this EIS as a result of this comment.*

3.13 Decommissioning

Comment: Decommissioning experience at reactors around the country reveals that radioactivity will remain at the sites long after the reactors are shuttered and the operating company has left town with its liability. A new reactor will further contaminate this area. How much is cleaned up depends on the political clout of the community and a place to send the radioactive contamination. (DT-0040 7)

Comment: [T]he final decommission cost is outrageous. (DW-0198 3)

Comment: I am also concerned about the costs of cleanup of these power plants if the companies that own them go bankrupt - which will happen eventually. This will mean that taxpayer money will be used to clean up the irresponsibility of another industry. Don't you think one Superfund was enough? (DW-0807 2)

Response: *These comments are not related specifically to the decommissioning impacts of the North Anna ESP units. The environmental impacts from decommissioning a permanently shut down commercial nuclear power reactor are discussed in Supplement 1 to NUREG-0586, Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, which was published in 2002. For most environmental issues, the impacts from decommissioning activities are considered small. NRC requirements establish a framework to ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely matter and that funding will be available for this purpose. Each licensee is required by the provisions of 10 CFR 50.75 to establish a Decommissioning Trust Fund to assure that sufficient funds will be available to cover the cost of radiological decommissioning. NRC monitors the accumulation of funds in the trust fund. Industry experience to date indicates that licensees have obtained sufficient money to conduct decommissioning. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Section 6.3 mentions that decommissioning would eventually be required and "reduction of residual radioactivity to a level that permits termination of the NRC license". Has this been successfully done anywhere in the US? What financial security does the operator post to assure successful decommissioning? (SE-0045 36)

Response: *Decommissioning has been completed at a small number of sites as a part of the decommissioning process. Examples are the Fort St. Vrain Nuclear Generating Station and the Shoreham Nuclear Plant. NRC requirements establish a framework to ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely matter and that funding will be available for this purpose. Each licensee is required by the provisions of 10 CFR 50.75 to establish a Decommissioning Trust Fund to assure that sufficient funds will be available to cover the cost of radiological decommissioning. NRC monitors the accumulation*

of funds in the trust fund. Industry experience to date indicates that licensees have obtained sufficient money to conduct decommissioning. Accordingly, no changes were made to this EIS as a result of these comments.

3.14 Postulated Accidents

3.14.1 General Comments Based on Potential Accident Risks

Comment: Even a "minor" accidental discharge could have serious effects due to the densely populated suburbs of Washington. (DT-0054 4)

Comment: I understand that the technology to extract electricity from nuclear energy has been designed so that the risk of an accident is calculated to be very low. However, the results of such an accident would be so devastating that to me it falls in the category of risks that are not worth taking. (DW-0426 2)

Comment: A major nuclear accident could leave an area the size of Pennsylvania uninhabitable for decades. The area around the Chernobyl nuclear plant, site of a major accident in 1986, is still closed to public access and radiation levels are still high. (DW-MM4 12)

Comment: As a resident of Lancaster, PA, at the time of the near-meltdown of the Three Mile Island Nuclear Plant in 1979, I am more than usually sensitive to hazards of nuclear power and what can happen in a population when an accident occurs. Believe me, the risk far outweighs the benefits. (DW-0877 2)

Comment: Three Mile Island, Chernobyl, there is always a lurking possibility that it could happen again. Humans make errors and so do their machines, look at the disasters of our space program. (DW-0822 2)

Comment: I do not want to take the off chance that we could have another Three Mile Island or a Chernobyl with the killing of thousands of animals and people and contaminating the landscape for thousands of years to come. (DW-0398 3)

Comment: I was in college at a Penn State branch campus of Mont Alto (50 miles from TMI) I know how everyone reacted--scared. (DW-0931 2)

Comment: Please do not raise the risk of a Chernobyl event in Virginia. (DW-1091 2)

Comment: Should we not forget Three Mile Island, or worse, Chernobyl? (DW-802 5)

Response: *The comments concerning Three Mile Island and Chernobyl have been considered in the body of severe accident analysis guidance. These comments are general in nature and provide no new information relevant to the EIS. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: A common-language summary of section 5.10.2 is required. (SE-0045 33)

Comment: The section on emergencies [Section 5.10] and radiation impacts [Section 5.9] is not understandable by lay persons. A summary is required that clearly sets out (a) expected radiation impacts in the study area, and (b) the possible radiation impacts from an emergency. Emergency situations should include terrorist attacks. …Given that "radiation experts conservatively assume that any amount or radiation exposure may pose some risk of causing cancer or a severe hereditary effect", a common language summary is required that clearly sets out expected radiation impacts in the study area. (SE-0045 7)

Comment: There should be a Section 7.8.B that discusses the cumulative radiologic impacts of emergency situations (accidents and terrorism). Casual discussion in 7.8 of normal operations is insufficient treatment for this potentially devastating situation. (SE-0045 37)

Response: *In the EIS, the staff has attempted to explain the evaluations of radiation impacts and severe accidents in terms that can generally be understood. However, these are complex subjects, which the staff understands are challenging for readers outside the industry. The staff believes that preparing a true "plain language" version of these sections would invariably introduce technical inaccuracy and related problems. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: We all benefit and take on some risk by living that close to a nuclear power plant. Adding third and fourth reactors does increase, and I realize the risk is low, the risk of something catastrophic happening there. Any time you have four independent operating things, your risk increases twofold versus two independent operating things. I realize that risk is minuscule and that the issues that we've had worldwide have been slim to none. (ST-0001 5)

Response: *The core damage frequencies and population dose risks estimated for the postulated new reactors are small compared to the precision of the core damage frequencies and population dose risks estimated for the existing reactors. Thus, although the risks increase, the total risk of four units is not significantly greater than the risk associated with the current units. To make this point more obvious, the core damage frequency and population dose risk for the current reactors at the North Anna site has been added to Table 5-22.*

Comment: Section 5.10 should include a worst case analysis for low-probability events. (SE-0045 32)

Response: *Section 5.10 of th EIS evaluates the impacts of events with an extremely low probability of occurrence. The severe accidents evaluated in Section 5.10.2 include worst case events. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Please clarify the statements in page 5-57 line 35 et. seq. Does the SDEIS say that the project would create "730 fatal cancers, nonfatal cancers, and severe hereditary effects per 10,000 person"s? (SE-0045 30)

Response: *ICRP Publication 60 (ICRP 1991) lists a normal probability coefficient for estimating fatal cancers, nonfatal cancers, and hereditary effects from population radiation doses. This coefficient is 730 occurrence per 10,000 person-Sv. This sentence has been deleted from the text because it applies to background radiation.*

3.14.2 Design-Basis Accident Calculation

Comment: Time-dependent *X*/Q values are not included in ER Section 2.7.2 and the DEIS Table 5-14 values were not provided by Dominion. The ER accident analysis is based on a single 50-percentile *X*/Q value for each location (EAB and LPZ). There is no time-dependency associated with 50-percentile *X*/Q values. [page 5-70, lines 5-6, 11, Table 5-14]. (DW-0423 43)

Response: *The first sentence in the comment is correct. The EIS has been revised to state that only the 0 to 2 hr exclusion area boundary (EAB) and 0 to 8 hr low population zone (LPZ) atmospheric dispersion factor (X/Q) values were provided by Dominion in ER Section 2.7.4 and found to be acceptable by the NRC staff. The 8 to 24 hr, 1 to 4 day, and 4 to 30 day LPZ X/Q values were derived by the NRC staff in its independent analysis of the meteorological data provided by Dominion.*

NRC guidance related to evaluation of design basis accidents indicates that the evaluation should be based on the five time periods listed above (one for the EAB and four for the LPZ) and that the X/Qs should be specific to each time period. Dominion did not follow that guidance. Instead Dominion used the 0 to 8 hr X/Q values for all periods at the LPZ as a conservative estimate; while this may be true, it could inappropriately establish a higher bounding analysis outcome. Typical values should be used for NEPA purposes rather than conservative values. Accordingly, the results of the staff's X/Q analyses are presented in the EIS and are used to calculate the doses for design basis accidents in Tables 5-15, 5-16, and 5-17. The EIS text was revised to clearly state that the design basis accident doses are based on the results of the staff's analysis.

Comment: It is not clear what is meant by "the scaling was performed on doses and not on the source term." If this implies that the activity releases in the ER are not scaled to 4386 MWt, then that is not correct. [page 5-71, line 7]. (DW-0423 44)

Response: *The ER states "... the ABWR doses are scaled up from a power level of 4005 MW(t) (102 percent of 3926 MW(t), as specified in the design certification) to 4386 MW(t) (102 percent of 4300 MW(t), the power proposed for a new ABWR unit at ESP site)." The doses calculated for design certification were scaled up by the ratio of the power levels to derive the doses presented in the ER rather than recalculating the source term for the higher power level. The EIS was changed for clarification.*

Comment: [H]as Dominion or the NRC contemplated accident scenarios and their potential affect on a construction workforce that could be as large as 5000 people? (DW-0437 56)

Response: *Neither Dominion nor the staff have evaluated the potential impacts of postulated accidents at NAPS Units 1 and 2 on the construction workforce for new units at the site. However, prior to the start of construction, the emergency plan for NAPS Units 1 and 2 would need to be updated to account for the presence of the construction workforce. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The SDEIS table [Table 5-14] shows the results of NRC's confirmatory calculations. Although it is not a quote from the ER, the exponent of the dose value is incorrect. The dose should be 6.85 x 10-8 Sv. (SE-0050 20)

Response: *The value in question has been corrected in Table 5-17 [corresponding to Table 5-14 in the SDEIS] of this EIS.*

Comment: This [set of PPE table numbers] is not a discrepancy with respect to Application Rev 6 and associated RAI responses (as referenced in SDEIS) but the tables [Appendix I-8 Table I-2, line 10, source term atmospheric values] were revised in Rev 7. (SE-0050 23)

Response: *This comment from Dominion references a change to be made to the PPE as a result of a source term value revised in Revision 7 of its application. The new ER table references have been added to Appendix I of this EIS.*

3.14.3 Severe Accidents

Comment: When I read a summary of this [severe accidents], it said the risk is small, and I said this is a pretty simplistic. This is kind of like a yellow code or an orange code or one of these codes that we heard so much about last summer. It's pretty simplistic. Where do they come up with this? And then I read further, and it said, well, the risk is less than one year in a million that there would be an accident in a reactor like this, and I said this doesn't make sense...if your data doesn't make sense, look at your data again. If your analysis doesn't fit with reality, take another look. Look for obvious mistakes. Reexamine your assumptions. And the

assessment that a severe accident is likely in less than one in a million years does need reexamination. The biggest problem with probabilistic risk assessments is when you overlook factors that, in fact, are real and don't think are factors that prove to be important risks. (DT-0010 2)

Comment: [W]hat are the compounding effects on safety and the environment of the proximity of other reactors? The description of the affected environment correctly emphasizes the presence of NAPS Units 1 and 2 on the site (paragraph 2-1); however the possible interactions between existing reactors with the proposed reactors do not appear to be addressed where they would need to be, for example in Chapter 5.10.1, Design-Basis Accidents, in Chapter 5.10.2, Severe Accidents; or Chapter 6, Fuel Cycle, Transportation and [De]Commissioning, especially Section 6.1.1.6, Radioactive Wastes. What, for example, will be the effect of these additional reactors on the safety of the two existing reactors? (DW-0685 2)

Comment: The assessment that a severe accident in the proposed reactors is likely in less than one in a million years needs re-examination. It is widely recognized that the biggest problem with probabilistic risk assessments is when you overlook factors that are real and don't think of factors that prove to be important risks…Any system of risk analysis that overlooks human error is overlooking an important part of reality. Lack of attention to human error in the consideration of nuclear reactors is a threat to our security and a danger to our well-being. (DW-0685 7)

Comment: [I]t seems that the methods used to determine the possibility of severe accidents are simply not adequate to answer the most relevant questions, either in the short-term operation of the proposed reactors, or especially in respect to the long-term management of hazards created, either within the foreseeable future decades, or within the centuries and millennia over which the waste must be secured. (DW-0685 10)

Comment: Much more than a missing pressure gauge and unexpected challenges in cooling the reactor core, the major cause of all major nuclear accidents, the major, inescapable, clearly identified cause, including Three Mile Island, Chernobyl, the reactors that have gone bad in Japan is human error. Not only human error has been the cause, but overlooking human error was identified as a persistent pattern by both the NRC and the nuclear industry in the forced core meltdown analysis of Three Mile Island Reactor 2...I can't find human error as a factor specified in this probabilistic risk assessment. Why human error should be left out mystifies me. (DT-0010 3)

Response: *The accident at Three Mile Island Unit 2 changed the character of NRC's analysis of severe accidents. Investigations of the accident and research following the accident have led to the development of the detailed methods cited in this EIS and used to estimate core damage frequencies and consider their uncertainties. Tables 5-18, 5-19, and 5-20 of this EIS provide core damage frequencies rigorously estimated for the ABWR and AP1000 reactor designs as part of the design certification process. Accident frequency estimation is described in* <u>*Severe*</u>

Accident Risks: An Assessment for Five U.S. Nuclear Power Plants, NUREG-1150, which was published in 1991. Accident frequency estimation explicitly considers both pre-accident and post-accident human errors. As a result of these comments, Section 5.10.2 of the EIS has been clarified to indicate the source of the core damage frequencies in the tables and to state that human error was one of the uncertainties that has been considered in estimating the frequencies.

Comment: In regard to severe accidents, I want to call your attention to an apparent flaw in the reasoning behind Table 5-20, Comparison of Environmental Risks from Severe Accidents.... Here, you are making predictions of the frequency of severe accidents likely in new reactors by comparison to other reactors. The reactors you have selected to use for your comparison are "current plants undergoing operating license renewal." From the wording of this table and its footnote B, the American reactor with the most severe accident, and therefore the reactor most important to consider in this risk assessment, Three Mile Island Reactor # 2, has been excluded from your analysis. I hope you have not actually made this mistake in your analysis, and that, instead, you have simply mislabeled the table and mis-stated your criteria in footnote B. (DW-0685 8)

Response: *Table 5-22 [formerly Table 5-20] does not predict accident frequencies; it compares estimates of core damage frequencies made for the reactors considered at length in the EIS with core damage frequencies that have been estimated for current generation reactors. Three Mile Island Unit 2 is not among the current generation reactors included in preparation of Table 5-22 because it is no longer in operation. Nevertheless, the accident at Three Mile Island Unit 2 has been factored into the core damage frequency estimates for all of the reactors. That accident changed the character of NRC's analysis of severe accidents. Investigations of the accident and research following the accident have led to the development of the methods used in estimating the core damage frequencies cited in this EIS. The comment does not provide new information. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I believe an application concerned specifically and exclusively with the site and its relevance to future construction and operation permits cannot be accepted without thorough consideration of possible interaction effects in case of accidents. (DW-0685 6)

Response: *Existing requirements provide assurance that the probability of simultaneous accidents at multiple units would be substantially less (e.g., more than an order of magnitude) than the probability of accidents involving a single unit. For example, 10 CFR Part 50, "General Design Criterion 5, Sharing of structures, systems, and components," requires that structures, systems, and components important to safety not be shared unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, an orderly shutdown and cooldown of the remaining units. Also, any application for design certification or for a COL under 10 CFR Part 52 must contain a probabilistic risk assessment (PRA).*

The consequences associated with an accident involving multiple units (e.g., a multiunit, core-melt accident) could reasonably be expected to be only marginally greater than for a single unit event. For example, given the same accident release characteristics for both units, the total releases from two reactor cores (and associated accident consequences) would be, as a first-order-of-magnitude approximation, about twice that for a single unit. The substantially lower frequency of a multiple unit accident would more than offset the potentially greater consequences of the multiple unit accident. Thus, the risk associated with multiple, simultaneous accidents would be a negligible contributor to the overall risk from all units on the site. Accordingly, the staff did not address multiunit simultaneous accidents as part of the ESP review and no changes were made to this EIS as a result of this comment.

Comment: Page 5-2 line 35 mentions that air quality impacts of "routine" releases would be limited. The document does not include a good analysis of the "non-routine" releases. It would be helpful to understand the potential magnitude of these releases even if they have a low probability of occurrence. (DW-0438 124)

Response: *The releases discussed under air quality are the non-radiological releases from generators and boilers. The staff has not considered "non-routine" release from these sources. The staff considers "routine" radiological releases in Section 5.9 and "non-routine," low probability radiological releases in Section 5.10 of the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: [N]o assessment of worst case releases is included. (DW-0438 32)

Comment: Section 4.9.4 gives a mean forecast. What about potential upset conditions? Shouldn't a worst case analysis be included for low-probability events? (DW-0438 117)

Comment: Sections 5.9 and 5.10 do not provide sufficient analysis on the impact of upset conditions. Even though these are low probability occurrences the impacts would be large. (DW-0438 160)

Response: *The "worst case" analysis concept in NEPA analyses was eliminated by the President's Council on Environmental Quality (CEQ) in 1986 (see 51 FR 15618). Federal agencies governed by CEQ regulations (the NRC is not one of those agencies) are still expected to evaluate the reasonably foreseeable significant adverse impacts of an action. The "rule of reason" was to ensure that "... common sense and reason are not lost in the rubric of regulation." The legal bases for the CEQ's determination to eliminate "worst case" analyses included cases involving the NRC's predecessor; i.e., the Atomic Energy Commission. Therefore, NRC's environmental review practices include an analysis of reasonably foreseeable significant adverse impacts. Section 5.9 of the EIS deals with environmental impacts of normal operations. Section 5.10 of the EIS deals with postulated accidents. The accidents considered cover design basis accidents that range from relatively high probability of occurrence with*

relatively low consequences to severe accidents of relatively low probability of occurrence with high consequences. The environmental impacts of severe accidents are also considered. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Sections 5.5.3.4 and 5.5.3.5 should assess the impact on recreation and local housing if there is a nuclear accident at the facility. (DW-0438 156)

Response: *Sections 5.5.3.4 and 5.5.3.5 of the EIS discuss the impacts of normal plant operation on recreation and housing, respectively. The impacts of postulated accidents are discussed in Section 5.10. Impacts discussed in that section are generally related to health effects, i.e., doses, to compare with site safety criteria found in 10 CFR 50.34(a)(1) and NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants. NRC regulations and the defense-in-depth philosophy behind the regulations are intended to ensure that engineered safety features are adequate to minimize the offsite consequences of design basis accidents. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: "The probability of a severe accident without the loss of containment" mentioned on page 5-74 line 22 is just slightly less than the probability of winning the Lotto South jackpot. (DW-0438 163)

Response: *The comment does not provide any information relevant to the EIS and was not evaluated further. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Additional reactors can only worsen this problem [lake levels], increasing the chance of an accident at the plant. (DW-0614 5)

Response: *Lake level as a site safety or as an operational issue is fundamentally different than its consideration as an environmental issue. The addition of reactors is likely to increase the frequency and duration of periods of low water. However, the lake level in Lake Anna does not affect the water supply needed to shut down the reactors nor to cool the reactors while they are shut down; consequently, it is not relevant to the accident analyses. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The statement on page 5-69 line 40 that "alternatives to mitigate severe accidents are not resolved" is incongruous with the SMALL impact determination. Since the ESP is designed to address site-specific issues, these must be resolved now, not at the COL stage as is suggested by page 5-70 line 2. (SE-0045 34)

Response: *The staff determined that the impacts of severe accidents are SMALL. However, because a specific design has not yet been selected, it is not yet possible to determine whether there are any cost-beneficial alternatives to mitigate severe accidents. (Even with SMALL impacts, it is sometimes possible to find cost-beneficial changes to further reduce the impacts.)*

Therefore, if an applicant for a construction permit or combined license references this ESP, it would have to evaluate severe accident mitigation alternatives, and the staff would have to review the issue and resolve it. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: If the cooling water supply for the nuclear reactors is depleted by draining Lake Anna, then hopefully another TMI [Three Mile Island] event could not occur at North Anna where the reactor continued to heat the reactor coolant. ...Although the NRC issued two new regulations as a result of TMI, neither regulation appeared to take into account the lack of water from the primary cooling source with a small watershed providing the cooling waters for the lake that was estimated to take 2 to 3 years to fill. ...It is essential that both the NRC and VDEQ consider the above scenario prior to approving an Early Site Permit or a Federal Consistency Certification for a 3rd nuclear reactor that would depend on any additional water from Lake Anna. (SE-0033 3)

Comment: What happens if everything, everything, everything doesn't work the way it is supposed to and those towers can't be cooled the way it seems very important to everybody that they be cooled? (ST-0006 1)

Response: *Dominion has proposed using Lake Anna as the source of normal cooling water for proposed Unit 3. Unit 4 would use a system of dry cooling towers. However, neither of the proposed units relies on these normal cooling systems in the event of an accident. If the normal systems were available, they would be used. But if they were not available, an emergency cooling system would cool the plant down. The source of cooling water for the emergency system is called the ultimate heat sink (UHS) and is discussed in Section 3.2.2 of this EIS. Accordingly, no changes were made to this EIS as a result of these comments.*

3.15 Mitigation Measures and Controls

Comment: Please define the term “best management practices,” which occurs throughout the draft EIS. (DW-0437 70)

Response: *A Best Management Practice (BMP) is one or more recommended site management, maintenance, or monitoring activities usually based on an approach that has been shown to work effectively for the purpose intended. The EPA uses BMPs to specify standards of practice where regulations may not be sufficiently descriptive and states that a BMP should be as inexpensive as possible and the equipment or technology should be readily available. Two EPA websites providing further information are http://www.epa.gov/region02/waste/leadshot/ and http://www.epa.gov/region02/waste/leadshot/brochure.pdf. A definition of BMPs was added as a footnote in Section 4.3.1 of the EIS.*

Comments Within Scope

Comment: The mitigation measures mentioned on page 4-37 line 35 [regarding minimization of fugitive dust and odors from paving disturbed areas, water suppression, and reduced material handling] should be stipulated to by the applicant. "Developing a plan" at a later stage as mentioned in Section 4.10 is not adequate. (DW-0438 113)

Comment: The mitigation measures listed on page 5-84 should be stipulated to. (DW-0438 164)

Comment: The measures outlined in Section 4.10 are a good start but additional detail is required now to understand the likely site impacts. (DW-0438 118)

Response: *A COL applicant would be required to meet VDEQ regulations for minimizing fugitive dust and odors, and the staff assumed such compliance (see Section 4.10). In its comments on the Draft EIS, VDEQ staff stated the following requirements with respect to Virginia (comment DW-0439 5):*

> *During construction, the applicant shall keep fugitive dust to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. In addition, burning of construction or demolition material must meet requirements of regulations for open burning (VAC 5-40-5600 et seq.), and the applicant must determine if a permit for open burning is required by Louisa County (comment DW-0439 6).*

Appendix J was added to the final EIS and includes commitments, assumptions, and proposed license conditions.

Comment: DEQ encourages NRC and the applicant to implement pollution prevention principles in all construction activities. This includes reducing wastes at the source, re-using materials, and recycling waste materials. Generation of hazardous waste should be minimized, and hazardous waste should be handled appropriately in keeping with the [federal and state rules; Resource Conservation and Recovery Act and Virginia Waste Management Act]. (DW-0439 26) (SW-0017 64)

Comment: DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source. We have several pollution prevention recommendations that may be helpful in constructing or operating this project if it goes forward: 1) Consider development of an Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and

achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program. (DW-0439 50) (SW-0017 65)

Comment: Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts. (DW-0439 52)

Comment: Consider contractors' commitments to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals. (DW-0439 53)

Comment: Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things. (DW-0439 54)

Comment: Integrate pollution prevention techniques into facility maintenance and operation, to include the following: inventory control (record-keeping and centralized storage for hazardous materials), product substitution (use of non-toxic cleaners), and source reduction (fixing leaks, energy-efficient HVAC and equipment). Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventive maintenance. (DW-0439 55)

Comment: During construction (and pre-construction activities, and site redress implementation if that is the case), fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following: 1) Use, where possible, of water or chemicals for dust control; 2) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials; 3) Covering of open equipment for conveying materials; and 4) Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion. (DW-0439 5) (SW-0017 67)

Comment: In addition, if project activities include the burning of construction or demolition material or land-clearing debris, this activity must meet the requirements of the Regulations for open burning (9 VAC 5-40-5600 et seq.), and it may require a permit. ... The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. The applicant should contact appropriate local officials to determine what local requirements, if any, apply to open burning. [Example model ordinance provisions are provided.] (DW-0439 6) (SW-0017 68)

Comment: If the activities to be pursued under the Early Site Permit involve one or more of those listed here, the applicant must apply to DEQ for a permit. Except in compliance with a

VWP permit, no person shall dredge, fill, or discharge any pollutant into, or adjacent to surface waters, or otherwise alter the physical, chemical, or biological properties of surface waters, excavate in wetlands, or ... conduct the following activities in a wetland: 1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions; 2. Filling or dumping; 3. Permanent flooding or impounding; or 4. New activities that cause significant alteration or degradation of existing wetland acreage or functions. ...It should be noted that certain water withdrawals are exempt from permitting (see the State Water Control Law, Virginia Code section 62.1-44:15.5.G). The proposed Unit 3 does not appear to qualify for this exemption, according to DEQ's Division of Water Resources (Hassell/Ellis/Irons, 9/8/06). (DW-0439 8) (SW-0017 42)

Comment: Erosion and Sediment Control; Stormwater Management. (a) Erosion and Sediment Control Plans. If any activities pursuant to the Early Site Permit will disturb 10,000 square feet or more, the property owner is responsible for submitting a site-specific Erosion and Sediment Control Plan to the affected County for review and approval pursuant to the local Erosion and Sediment Control ordinance, according to the Department of Conservation and Recreation. All regulated land disturbing activities associated with the project, including on- or off-site access roads, staging areas, or spoil or borrow areas, must be covered by an approved Plan. The Plan, in turn, must be prepared and implemented in accordance with the Virginia Erosion and Sediment Control Law (Virginia Code section 10.1-563), the Virginia Erosion and Sediment Control Regulations (see 4 VAC 50-30-30, 4 VAC 50-30-100), and the Virginia Erosion and Sediment Control Handbook, which aids the project proponent in meeting the legal and regulatory requirements. … (b) Stormwater Management Plans. Depending on local requirements, a separate Stormwater Management Plan may also be required for land-disturbing activities. Stormwater Management Plans must be prepared and implemented in accordance with the Virginia Stormwater Management Law (Virginia Code Section 10.1-603.3) and the Virginia Stormwater Management Regulations (4 VAC 3-20-90 through 3-20-141). General information on recent changes to stormwater management requirements is available at the Department of Conservation and Recreation's web site. (DW-0439 27)

Comment: In response to the discussions of terrestrial impacts (SDEIS, page 4-8, section 4.4.1) and unavoidable adverse impacts (SDEIS, page 10-4, section 10.1), DGIF recommends avoiding and minimizing adverse impact upon wetlands and streams to the maximum extent possible. Particulars [related to] i. Compensation for unavoidable wetland and stream impacts. ii. Stream enhancement or preservation-only mitigation. iii. Conduct of in-stream activities [are offered in the VDEQ SDEIS comment letter.] (SW-0017 58)

Comment: To minimize adverse effects to the aquatic ecosystem, DCR recommends that the applicant implement an erosion and sediment control plan in areas excavated along the creek. DCR also recommends that the applicant protect emergent vegetation adjacent to the creek. (SW-0017 72)

Response: *The pollution prevention and other mitigation recommendations above were provided as guidance by VDEQ to Dominion for prospective construction and operation of additional units at NAPS. The staff agrees with many of the recommendations. Dominion summarizes the measures and controls it would take to limit adverse impacts during construction of a new nuclear power plant in Section 4.6 and Table 4.6-1 of its ESP application and during operation in Section 5.10 and Table 5.10-1 of its application. The staff assumes that Dominion would comply with all applicable regulatory requirements (see Section 4.10). Appendix J includes commitments made by Dominion that the staff relied upon during the preparation of the EIS. Accordingly, other than the addition of Appendix J, no changes were made to this EIS as a result of these comments.*

Comment: [T]he mitigations listed in Section 10 are insufficient. Items such as "consider" plume abatement measures are just one example. Plume abatement should be implemented. Major contributions to construction of a reliable road network are required. Financial contributions to neighboring counties to alleviate the housing, school, and health care burdens of the project should be implemented. (SE-0045 44)

Response: *Dominion summarizes the measures and controls it would take to limit adverse impacts during construction of a new nuclear power plant in Section 4.6 and Table 4.6-1 of its ESP application and during operation in Section 5.10 and Table 5.10-1 of its application. The staff assumes that Dominion would comply with all applicable regulatory requirements (see Section 4.10). Appendix J includes commitments made by Dominion that the staff relied upon during the preparation of the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The cooling tower will shift much of the thermal load from Lake Anna to the atmosphere. Shouldn't mitigation be required to minimize heat island and climate change impacts? Such mitigation could include tree planting and similar regional measures. (SE-0045 45)

Response: *The minute, localized climatic changes related to the operation of the Unit 3 cooling towers would be undetectable, and mitigation is not warranted. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Impacts upon [herring, shad, and smallmouth bass] fisheries and other aquatic resources can be minimized by use of the dry tower to reduce consumptive water losses. Accordingly, DGIF recommends that the Maximum Water Conservation (MWC) mode be implemented in keeping with the following rules.

- In March and April, the MWC mode should be implemented when flows are less than 225 cfs. Flows are in the lower quartile, and water conservation savings can result in significant habitat savings and return flows to near existing conditions. These flows are

particularly important for herring, shad, migratory striped bass, and resident sucker and minnow spawning.

- In May, the MWC mode should be implemented when flows are less than 175 cfs. These flows are important for smallmouth bass nesting. The addition of Unit 3 would reduce flows by 30% from pre-Lake conditions.
- In June, the MWC mode should be implemented when flows are less than 120 cfs. This value is close to the average value and will enhance smallmouth bass spawning success, and subsequent catch for anglers.

From July through October, the MWC mode should be implemented when flows are less than 90 cfs. High flows are important for the habitat requirements of resident fish species that do best in wet years. Without water conservation in wet years, those optimal habitat conditions cannot be achieved. Wet years are also important for producing strong year classes of American shad in the Pamunkey River. (SW-0017 47)

Response: *This guidance by VDGIF for cooling system operation is acknowledged. Should the ESP and a COL be granted, the applicant will want to take this information into consideration in developing its cooling strategy. Accordingly, no changes were made to this EIS as a result of this comment.*

3.16 Cumulative Impacts

Comment: [W]hat are the compounding effects on safety and the environment of the proximity of other reactors? The description of the affected environment correctly emphasizes the presence of NAPS Units 1 and 2 on the site (paragraph 2-1); however the possible interactions between existing reactors with the proposed reactors do not appear to be addressed where they would need to be, for example ...Chapter 6, Fuel Cycle, Transportation and [De]Commissioning, especially Section 6.1.1.6, Radioactive Wastes. (DW-0685 2b)

Comment: Neglecting to address the potential interaction-effects [including safety from the proximity of other reactors] at this site in this Environmental Impact Statement raises the question of what has really been accomplished in this 724-page draft report, which could not have awaited a more complete proposal to be considered. (DW-0685 5)

Response: *Cumulative impacts are discussed in Chapter 7 of this EIS. The potential interaction effects of new units at the North Anna ESP site with the existing NAPS Units 1 and 2 is a site safety interface issue that would be considered in the design of the reactors to ensure that an accident at one of the existing units would not adversely impact the operation of the new units. However, the likelihood of severe accidents at an existing unit or at any new unit are small. The likelihood of simultaneous severe accidents at more than one unit is extremely unlikely and does not warrant environmental evaluation. The Commission expects that the risk associated with severe accidents for new reactor designs would be small compared to the risk*

associated with current reactor designs. For the purposes of comparison, from Table 5-22, the core damage frequency (CDF) for NAPS Units 1 and 2 is calculated to be 3.5 x 10^{-5} yr^{-1} and for a surrogate ESBWR at NAPS is calculated to be 2.9 x 10^{-8} yr^{-1}. The corresponding population dose risk is calculated to be 2.5 x 10^{-1} person-Sv R(reactor) $year^{-1}$ for NAPS Units 1 and 2 and 3.3 x 10^{-5} person-Sv R yr^{-1} for each additional surrogate ESBWR. Because the 1 and 2 reactors would not be interconnected with any new units, addition of two units would not change the risk profile by even one percent. Consequently, the staff expects that the potential consequences of a postulated accident at any new unit is bounded by that from any existing unit. Therefore, adding the risk from two new units to the risks from the existing units would result in a total risk for the site that is only slightly more than the risk for the current units. The impact of an accident at potential new units is bounded by the impact of a potential accident at the existing units. Section 7.9 was added to address cumulative impacts of the fuel cycle, transportation, and decommissioning.

Comment: Dominion provided DEQ's Division of Water Resources (DWR) with the output of a simulation model with which Division staff is able to make some comparisons of true pre- and post-project conditions. Prior to the lake, the North Anna River at the dam site had an average flow of about 286 cubic feet per second (cfs). This is based on the flow records from 1929 to 1971 at the Doswell gauge, proportionately reduced to reflect the smaller drainage area at the dam. According to the NRC water budget analysis, the two existing units account for 50 cfs in evaporation and the third unit would account for 26 cfs in evaporation. The cumulative impact on the average flow of just the power plants (not including lake evaporation) is therefore estimated to be 76 cfs or 26% of the historic average flow. Such a large loss of the normal flow to consumptive uses is unprecedented in Virginia and other mid-Atlantic states. The U.S. Geological Survey (USGS) estimates that the average percentage of surface water lost to consumptive use in the mid-Atlantic states is 1.6% of average flow. (USGS, 1984, National Water Summary). (DW-0439 15) (SW-0017 22)

Comment: The Department of Game and Inland Fisheries and DEQ's Division of Water Resources requested the applicant to perform an Index of Hydrologic Alteration (IHA) analysis of pre- and post-project flows below the dam (see Draft EIS, page F-122 through F-125 and the tables on pages F-126 through F-133). The two state agencies had pre-dam conditions in mind when they addressed "pre-project" conditions in their earlier discussions with the applicant. However, the tables on pages F-126 through F-133 do not evaluate conditions and therefore cannot be considered complete. Table 1 ([Draft EIS] pages F-126 and F-127) demonstrates significant shifts in frequency of lower flows and needs to be expanded to address conditions prior to the creation of the lake. The Division of Water Resources and the Department of Game and Inland Fisheries clarify that by "pre-project," it meant no dam and no reactors; by "post-project," it meant the lake and three once through cooling units. This Indicators study was requested in order to assess the cumulative impact of the existing and proposed project activities on the North Anna River. (DW-0439 13) (SW-0017 20)

Comments Within Scope

Comment: [As stated in the letter by the Department of Water Resources,] the "pre-project" conditions should be based on the condition of the area before the lake and dam were constructed in the 1970s. Table 1 in Appendix F ([Draft EIS] pages F-126 and F-127) is one example of this; it demonstrates significant shifts in frequency of lower flows and needs to be expanded to address conditions prior to creation of the lake. (DW-0439 32) (SW-0017 33)

Comment: A cumulative analysis of impacts of the project does not start, in our judgment, with the existing lake conditions (i.e., the lake and two reactors) and then add, incrementally, the effects of operation of the proposed third reactor (so that the "post-project" condition is the lake and three reactors). However, the Nuclear Regulatory Commission has accepted this approach, which means that a finding of no more than "moderate" impacts of the third unit (page 5-10, Section 5.3.2, lines 7-13) is not surprising even if cumulative impacts have not been analyzed. (DW-0439 14) (SW-0017 21)

Comment: The NRC analysis is implicitly predicated on the assumption that the current environmental impacts of Units 1 and 2 are themselves an acceptable environmental baseline, when such operations have already resulted in excessive temperatures in the main body of Lake Anna (i.e. well outside of the cooling lagoons), and produced many days of reduced flows into the lower reaches of the North Anna River. A more credible baseline for analysis, and for estimating cumulative environmental impacts, would be the temperatures, flows and fauna in the North Anna river system before the river was impounded to form Lake Anna. (SE-0040 11)

Comment: (related to Draft 439-13/14 p. 10) The cumulative impact analysis should start before the existing two reactors were put into operation and the impacts analyzed with the sequential addition of Units 1 and 2 followed by the addition of Unit 3. (SW-0017 12)

Comment: We have two existing units. ...Has the evaporation rate of warmer water, because we have higher temperatures in the summers, been studied? Have downstream flows been evaluated? Has the effect of decreased downstream flows, higher evaporation rates, previous to constructing or even thinking of constructing a third unit been evaluated in the course of the last few years? What's this doing to our flora, our fauna in the downstream of the York River water shed, which impacts our bay? (ST-0002 7)

Response: *The NRC staff, in the EIS, evaluated the incremental impact on the environment of the proposed action when added to other past, present, and reasonably forseeable future actions. This evaluation conforms to the CEQ guidance set forth in a "Memorandum to Heads of Federal Agencies" dated June 24, 2005. The CEQ guidance states, in part:*

> *The environmental analysis required by NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decisionmaking regarding the proposed action... Based on scoping, agencies have discretion to determine whether, and to what extent, information about the specific nature, design or*

> *present effects of a past action is useful for the agency's analysis of the effects of a proposal for agency action and its reasonable alternatives.*
>
> *Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. Agencies retain substantial discretion as to the extent of such inquiry and the appropriate level of explanation. (Citation omitted.) Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past action without delving into the historical details of individual past actions.*

As described below, the NRC staff evaluation is consistent with the CEQ guidance.

An evaluation of the cumulative effects of building and operating two new units at the North Anna ESP site on the area's resources, in general, and the North Anna River, in particular, by its nature, begins with the existence of Lake Anna and existing NAPS Units 1 and 2. Adding the incremental effects of construction and operation of the new units to the effects of Lake Anna and the currently existing NAPS Units 1 and 2 results in a description of the cumulative impacts on the area's resources and the river. In particular, the aggregate effects of the construction and operation of the dam on the North Anna River are reflected in the differences between current conditions and pre-dam conditions, the most important of which were:

- *Lake Anna did not exist*
- *Flow rates in the North Anna River varied greatly by season*
- *Aquatic life in the North Anna River was severely impacted by pollution from Contrary Creek*

The existing flow rates and thermal conditions described in the EIS include the impacts of not just the existing NAPS Units 1 and 2, but all past and present effects on the North Anna River, including the effects of the dam. Therefore, there is no reason for the NRC staff to delve into the historical details pertaining to installation of the dam.

Nonetheless, as a result of the comments, the staff explored whether using pre-dam condition as the starting point for cumulative impacts analyses was reasonable. The creation of Lake Anna, however, has altered the environment such that an analysis of impacts starting with pre-dam conditions would be meaningless in the decision-making process. Specifically, neither the granting of the requested action before the NRC nor its denial would result in restoration of the North Anna river to pre-dam conditions. Further, the dam would not be removed and Lake Anna would not be destroyed even if the existing units were decommissioned (assuming no new units are built). In short, the dam has utility independent of the existing units and any ESP that might be granted. Accordingly, the NRC staff concludes that the pre-dam condition is not an appropriate starting point for the analysis. Notwithstanding the above, in response to these and other comments, the NRC staff has changed the Final EIS Section 7.3 to more clearly describe

the cumulative impacts on the area's resources, including the North Anna River, resulting from construction and operation of new units at the North Anna ESP site.

Comment: Although Section 5.4.2.3 concludes that entrainment impacts would be SMALL, the cumulative effects of impingement, entrainment, radiation, and other aquatic hazards should be assessed and described (Section 5.4.2.7). (DW-0438 147)

Response: *The NRC staff considered the potential cumulative effects of entrainment, impingement, and other operational effects. For the purposes of this analysis, past actions were those related to fish at the time of the baseline case; i.e., current conditions. Future actions are considered to be those that are reasonably foreseeable through the end of decommissioning the proposed Unit 3. Therefore, the analysis considers potential impacts through a complete operating term, including a license term, any renewal operating license term(s), and the allowable time for the plant owner to complete decommissioning. The geographical area over which past, present, and future actions could contribute to cumulative impacts is Lake Anna and the river downstream of the dam. The proportions of the Lake Anna aquatic organism populations that may be impinged, entrained, or otherwise impacted during operation of the existing two units using once-through cooling systems, one proposed unit using a closed-cycle, combination wet and dry cooling system, and one proposed unit using a dry cooling system is not expected to result in any change in the balance of animal and plant species. The cumulative impacts from power plant operations to Lake Anna would be SMALL. Based on this comment, the description in the EIS was expanded.*

Comment: Cumulative impacts of the current and future units on downstream hydrology and biology need to be quantitatively evaluated before any determination can be made that effects of the proposed addition of reactors to the site are "small" (page 5-10, Section 5.3.2, line 9). Two options exist to reduce the significant impacts on downstream resources, according to the Department of Game and Inland Fisheries [DGIF]: 1) Change the trigger level of elevation (248 ft) to some lower elevation that has a recurrence interval of once every 8.7 years, or 2) Have Unit 3 operate under dry cooling conditions, as is proposed for Unit 4. (DW-0439 12)

Comment: (related to Draft 439-12 p. 13 and #11 on p. 8) Cumulative impacts of the current and future units on downstream hydrology and biology need to be quantitatively evaluated before any determination can be made that effects of the proposed addition of reactors to the site are "small." ...Three options exist to reduce the significant impacts on downstream resources, according to the Department of Game and Inland Fisheries:

- Change the trigger level of elevation (248 feet) to some lower elevation that has a recurrence interval of once every 8.7 years;
- Increase storage by raising the lake level seasonally; or
- Have Unit 3 operate under dry cooling conditions, as is proposed for Unit 4. (SW-0017 11)

Response: *The NRC staff agrees that lowering the trigger level would reduce the frequency and duration of low flows downstream of the dam. The reservoir could be operated to maintain normal flow conditions downstream. However, such changes in reservoir operating policy would result in more frequent and deeper drawdowns in the lake, and the VDEQ Lake Anna Level Contingency Plan would need to be revised for operating the dam in this manner. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Even though the proposed water withdrawal has decreased with the new cooling methods, yet the withdrawals remain significant with this small watershed. At a minimum NRC and VDEQ must provide an analysis of the cumulative impact taking into consideration worst-case scenario that includes the 2001-2002 drought. (SE-0022 10)

Response: *The staff's analysis of the impacts related to water resources considered a range of conditions including the 2001 - 2002 drought. The staff used the period from June 2000 through April 2003 as the critical period in its analysis as discussed in Section 5.3 and Appendix K of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The introduction to Cumulative Impact section states on Page 7-1 line 22 that "if a resource is regionally declining or imperiled, even a SMALL individual impact could be important it if (sic) contributes to or accelerates the overall resource decline." This situation certainly applies to regional transportation and roads, yet this is ignored in the DEIS. (DW-0438 169)

Response: *Transportation impacts by their very nature are cumulative. Among the issues of concern is whether the addition of construction workforce traffic would significantly degrade traffic conditions or air quality. The NRC staff estimated that most of the construction workforce would come from workers living in the region within 50 miles of the site. Therefore, the regional workforce is already contributing to traffic congestion. Two additional factors add context to the impact analysis. First, it is highly unlikely that all of the workers would use the same commuting routes, and second, the workers would be distributed among two or three shifts. Thus, any impact would be distributed both spatially and temporally. Additional mitigative measures are discussed in the EIS and Dominion's ER. A discussion of transportation issues has been added to Chapter 7.*

The Virginia Transportation 2025 (VTRANS 2025) report describing the plans of the Virginia Department of Transportation was released after the transportation sections of the Draft EIS were written. The EIS has been updated to reflect the construction plans of the Virginia Department of Transportation.

3.17 Alternatives

3.17.1 No-Action Alternative

Comment: In Table 10-3 the impacts listed for the No-Action Alternative should be "NONE" not "SMALL." (DW-0438 173)

Response: *NRC has established a standard of significance for impacts using Council on Environmental Quality (CEQ) guidance (40 CFR 1508.27). Impacts that range from none to small are categorized as being of SMALL significance in accordance with the significance categorization scheme used in 10 CFR Part 51, (see, for example, 10 CFR Part 51, Subpart A, Appendix B). The staff does not use an impact level of "NONE." Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: It is clear in the DEIS that the no-action option was not seriously considered. The document basically summarizes it this way: There is no real environmental impact to an early site permit because an early site permit doesn't allow for the building of a nuclear reactor, therefore, a no action option is equally harmful to choosing a site. If this indeed is true, that an ESP doesn't allow for any environmental damage, why did you have one completed and waste taxpayer money and paper to prepare such a document. Either an ESP has an environmental impact or it doesn't. If it does, then you must more seriously consider the no action alternative. (DW-0630 6)

Response: *While issuing an ESP has no significant environmental effects (or no significant environmental effects that could not be redressed), the Commission, in 10 CFR 52.17 and 10 CFR 52.18, directed that an ESP ER and ESP EIS, respectively, focus on the environmental effects of construction and operation of a reactor or reactors that have characteristics that fall within the postulated site parameters. Following this process allows for early resolution of environmental impacts and timely resolution of any significant issues that may arise. The disclosure of the environmental impacts is required for the NRC to fulfill its NEPA responsibilities. As discussed in Section 8.1 of the EIS, there are no environmental impacts associated with the No-Action alternative (i.e., not issuing the ESP). Therefore, in accordance with the staff's definition of impact levels, the impacts of the no-action alternative are SMALL for all impact areas. However, as discussed in the EIS, the no-action alternative also does not allow any of the benefits of the ESP, the underlying purpose for the action, to be realized. Section 8.1 was modified for clarification. The No-Action alternative to construction and operation of a new or multiple new units would be evaluated in the EIS prepared in connection with a COL or CP/OL application.*

Comment: No where that I can find in this huge document does it explore the environmental impact of NOT building new nuclear capacity. The need for future energy supplies, by even the most conservative estimates does not show that we will need less energy in the future. Since

the alternative, viable forms of base-load energy generation are far more detrimental to the environment, failing to build new nuclear generation would have serious negative environmental consequences. Therefore, the environmental impacts of failing to build a non-carbon emitting energy source should be considered as part of the Final EIS. (DW-0820 2)

Response: *The need for power and alternative energy sources that may be considered to meet the demand would be considered at some time in the licensing process if an applicant seeks to construct and operate a new nuclear power plant. The NRC regulations under 10 CFR 52.18 specify that the EIS prepared for an ESP need not include an assessment of the benefits, including the need for power, of the proposed action and the Commission has determined that alternative energy sources could be deferred to the time of the COL application [www.nrc.gov/reactors/new-licensing/esp/generic-esp-issues.html]. The benefits assessment of constructing and operating one or more nuclear units would be evaluated in the EIS prepared in connection with an application for a COL or a CP.*

3.17.2 System Design Alternatives

Comment: [A]mong the major alternatives that should be considered in detail in Chapter 8 are the retrofitting of a cooling tower to Units #1 and/or #2, and the application of a dry cooler to Unit 3. Factors in the analysis such as capital and operating costs and operating efficiencies should be detailed. (SE-0045 39)

Comment: The list of alternatives did not include life extension of the existing two plants, retirement of those plants, detailed analysis of the use dry coolers on Unit #3, or the retrofit of a cooling tower on Units #1 and 2. (SE-0049 4)

Response: *Retrofitting the existing units to dry cooling is beyond the scope of this review and is not considered. This EIS did not consider life extension for the existing plants or retirement of those plants. Evaluation of the existing plants was conducted during the license renewal process of their operating licenses. Units 1 and 2 are licensed to operate through 2038 and 2040, respectively, so license renewal (extension) does not represent an additional option to meet power demands in the near term. Retiring the operating units was also evaluated in the license renewal process, but would exacerbate the need for power in the region and is not a viable option. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Shouldn't Chapter 8 include an assessment of a zero discharge option as is used in many other power plants? (SE-0045 16)

Response: *No. The NRC evaluated the impacts to radiological discharges using PPE values to perform an alternative site review. The NRC staff has proposed a permit condition in the*

Safety Evaluation Report that would require an applicant referencing an ESP design to equip any new unit's radwaste systems with features to preclude any and all accidental releases of radionuclides into any potential liquid pathway (NRC 2006b). Accordingly, no changes were made to this EIS as a result of this comment.

3.17.3 Alternative Sites

3.17.3.1 General Alternative Sites Comments

Comment: [In] general, it would be helpful to provide all data for the North Anna and alternative sites in common tables so that the public can see the basis information the staff is using to reach its conclusions. (DW-0399 9)

Response: *Tables with the data for all four sites are provided in Chapter 9 summarizing the impact levels. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The lack of significant variance among the alternatives in Table 9-1 make the impact analysis process and quantification scale suspect. (DW-0438 172)

Comment: One of the sites has fewer impacts than the site at North Anna and yet the DEIS recommends that the ESP be granted to Dominion. I fail to understand how this could be the case. If the point of the EIS is to determine if North Anna is the least damaging place to allow for an ESP, why would you recommend approval when there is an alternative site that would have fewer deleterious effects. (DW-0630 7)

Comment: The NRC's Site Comparison Methodology is Flawed and Obscures Important Environmental Advantages of Alternative Sites. We are far from persuaded by the NRC staff determination that another site is not "obviously superior" on environmental grounds to the North Anna site...Since the NRC staff employs inherently fuzzy qualitative – "SMALL," "MODERATE," and "LARGE" – rather than quantitative criteria to compare environmental impacts at the alternative sites, this allows important differences between sites to be obscured by choosing "MODERATE" to describe harmful impacts at the Proposed Site that are actually environmentally significant, while "offsetting deficiencies" at alternative sites. (SE-0040 14)

Response: *The NRC's guidance on site selection (NUREG-1555; NRC 2000) is intended to result in the selection of strong candidate sites for potential nuclear power plants. Dominion states in its ER that it followed this guidance in its site selection process in which it identified North Anna as its preferred site and Surry, Portsmouth, and Savannah River as its alternative sites. As described at pages 8-1 and 9-1 of the EIS, the NRC uses a two-part examination to determine whether any alternative ESP site is obviously superior to the proposed site. The NRC defines an environmentally preferred alternative site at p. 9.3-1 of NUREG-1555, Vol. 1 as "a site for which the environmental impacts are sufficiently less than for the proposed site so*

that environmental preference for the alternative site can be established." The first stage evaluates whether there are any environmentally preferable alternative sites. If one or more of the alternative sites is determined to be environmentally preferable, the staff would conduct further analysis to determine if the site(s) were obviously superior to the proposed site. Tables 9-1 and 9-2 in the EIS compare the staff's characterization of the environmental impacts of construction and operation at the North Anna ESP site to the three alternative ESP sites.

While there are some differences in the environmental impacts of construction and operation at the four sites, the staff concludes that none of these differences is sufficient to determine that any of the alternative sites is environmentally preferable to the proposed North Anna site. In addition, NEPA principles do not require that a nuclear plant be constructed on the single best site or the "least damaging place" for environmental purposes. Rather, NEPA requires that alternative sites be considered and that the effects on the environment of building the plant at the alternative sites be carefully studied and factored into the ultimate decision. Other considerations, however, may outweigh the environmental preferability of an alternative site over the proposed site. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Page 1-5 states that an EIS must include an evaluation of alternative sites to determine whether there are any obvious superior alternatives. Although Chapter 9 determines that there are none, it also does not show that the Lake Anna site is clearly superior to many of the alternatives. (SE-0045 41)

Response: *The staff is required to determine whether any of the alternative sites is obviously superior to the proposed site (see 10 CFR 52.18). The staff is not required to determine whether the proposed site is obviously superior to the alternative sites, and it did not make any attempt to do so. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Dominion states that North Anna was ranked the highest when compared to the four possible locations. Please provide the criteria for the "weighting factor"? (SE-0004 6)

Response: *The full explanation for the ranking on which Dominion based its ESP application is documented in, "Study of Potential Sites for the Deployment of New Nuclear Plants in the United States," conducted under the U.S. Department of Energy Cooperative Agreement No. DE-FC07-021D1431, and available at http://np2010.ne.doe.gov/ESP_Study/ESP_Study_Dominion.pdf. These are briefly described in Section 8.3.2 of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

3.17.3.2 Brownfield Alternative Sites

Comment: In respect to potential brownfield alternative sites (Chapter 8.3.3), not enough information is given to indicate that this option has been adequately explored. (DW-0685 14)

Response: *The CEQ advises that when there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in an EIS (46 FR 18027; March 23, 1981). The staff has determined that the site selection process and the proposed site and its three alternative sites were analyzed in detail in the EIS; a site that already hosts one or more nuclear power reactors can be considered a "brownfield" site. The staff concluded that the slate of alternative sites considered represented a reasonable number of sites and was consistent with the staff's review guidance in NUREG-1555, Section 9.3 (NRC 2000). Section 8.3.3 of the EIS points out that a brownfield site that did not host major industrial activities already would likely result in large land area disturbances to construct the plant and related infrastructure such as a new transmission line. This construction would likely have significant land use, ecological, and aesthetic impacts compared to new construction at sites with existing nuclear power plants or other nuclear facilities. Therefore, the staff did not further evaluate the need for additional brownfield sites that did not already support an industrial complex because the environmental impacts would likely be greater than developed sites. Accordingly, no changes were made to this EIS as a result of this comment.*

3.17.3.3 Surry Plant Site

Comment: DEQ's Division of Water Resources believes that the Surry site is "superior" (as described in the Draft EIS) to the North Anna site based on the following reasons: (1) the limited water resources in the North Anna River watershed; (2) the amount of those resources that are already being consumed by lake evaporation and the forced evaporation from the existing two reactors; and (3) the competition for those resources downstream. It appears that water availability would not be an issue on the tidal James River at Surry. The draft EIS says, "The consumptive use of water to support mechanical draft cooling towers would be undetectable relative to the supply in the estuary." (DW-0439 18)

Comment: Division of Water Resources believes that the Surry site is "superior"...Based on the information provided in the Draft EIS, the two most important disadvantages of the Surry site (aesthetics and impingement and entrainment) are not substantiated. The Surry site seems "superior" (as described in the DEIS) to the North Anna site for the following reasons: "the limited water in the North Anna watershed;" the amount of water already being consumed by lake evaporation from the existing two reactors; and " the competition for water resources downstream. ...It appears that water availability would not be an issue on the tidal James River at Surry. According to the Division of Water Resources, the Draft EIS says, "The consumptive use of water to support mechanical draft cooling towers would be undetectable relative to the supply in the estuary." (SW-0017 2)

Comment: [B]ased on the information provided, two of the most important disadvantages of the Surry site (impingement and entrainment, and aesthetics), are not substantiated, while the main disadvantage of the North Anna site (water availability) appears extremely problematic. DEQ's Division of Water Resources and the Department of Game and Inland Fisheries would

have no concerns about this project if both the fourth and third reactors at North Anna were air cooled. (DW-0439 21) (SW-0017 32)

Comment: Has the NRC's tailored alternatives analysis unreasonably failed to identify one of Dominion's alternative sites – such as the existing Surrey Plant on the lower James River – as "obviously superior" to the proposed North Anna site, when both the impacts of heat dissipation and water withdrawal at the Surrey site, and possibly other sites, are clearly less than they are at North Anna? (SE-0040 16)

Response: *Water use is only one of the impacts that is used in the assessments of alternatives. Impingement, entrainment, and aesthetics at the Surry site are discussed in Section 8.5 of the EIS. The staff believes that although the Surry site would have fewer operational impacts in drought years than the proposed North Anna site, the incremental difference in impacts are not sufficiently less to render the Surry site an environmentally preferred site.*

All four sites (the proposed site and the three alternative sites) appear to have strong potential for future nuclear development. The proposal of North Anna rather than Surry for an ESP was a decision made by Dominion, not the NRC. Dominion's basis for this decision likely was the result of an analysis conducted by Dominion Energy, Inc. and Bechtel Power Corporation as documented in their Study of Potential Sites for the Deployment of New Nuclear Plants in the United States (Dominion and Bechtel 2002). This report ranks the four sites along with a site at the Idaho National Laboratory. North Anna received the highest merit score based on economic, engineering, environmental, and sociological factors. The Surry site was ranked slightly lower in each of these four categories. In Section 8.5 of this EIS, the staff analyzed the environmental impacts of constructing and operating additional units at the Surry site. Additions to Section 8.5 were made to this EIS as a result of these comments.

Comment: At two meetings with DEQ staff (prior to the submission of the Commonwealth's comments on the Draft EIS, March 3, 2005), NRC officials were asked why North Anna rather than Surry was being proposed for an early site permit. On both occasions, NRC staff cited aesthetics and the fact that the plant might be visible from Jamestown. However, the draft EIS, in its discussion of aesthetics (pages 8-32 and 8-33), does not indicate that there is any problem with aesthetics at Surry. In fact, the Draft EIS states that the Surry plant's "current structures are not visually obtrusive from any vantage point, even from across the James River. However Units 1 and 2 are visible from the highest amusement rides at Busch Gardens" (Draft EIS page 8-32). The concerns about aesthetics are not supported by statements in the Draft EIS. (DW-0439 19) (SW-0017 30)

Response: *All four sites (the proposed site and the three alternative sites) appear to have strong potential for future nuclear development. The proposal of North Anna rather than Surry for an ESP was a decision made by Dominion, not the NRC. Dominion's basis for this decision likely was the result of an analysis conducted by Dominion Energy, Inc. and Bechtel Power*

Corporation as documented in their Study of Potential Sites for the Deployment of New Nuclear Plants in the United States (Dominion and Bechtel 2002). This report ranks the four sites along with a site at the Idaho National Laboratory. North Anna received the highest merit score based on economic, engineering, environmental, and sociological factors. The Surry site was ranked slightly lower in each of these four categories. The staff's independent analysis of the environmental impacts of constructing and operating additional units at the Surry site is described in Section 8.5. After receiving comments to the Draft EIS, the staff revisited the Surry site and met with the Colonial National Historic Park Service. This visit led to additions to Section 8.5.5.3 (Aesthetics and Recreation) including this text: "Based on the high level of historical significance attributed to the Jamestown historical features and the fact that current views of the Surry Power Plant range from full to partial, from both the island and the Colonial Parkway, even more visible plant structures and the added cooling towers and condensation plumes would constitute a major visual intrusion from this significant historic property....In the context of an ESP with a building height of 234 ft at the Surry site, the visual impacts to Colonial NHP and the Jamestown National Historical Site would be considered clearly noticeable and would be sufficient to possibly destabilize the viewshed."

Comment: Impingement and entrainment issues ... would be a greater problem at the Surry site than at Lake Anna. This is because the James River is an estuary at the Surry site. However, the alternatives section of the Draft EIS states that reactors at Surry would be cooled with cooling towers (page 8-15, Section 8.5). As such, the impingement and entrainment problem would be less than if once-through cooling were to be used. On April 4, 2001, Dr. John Olney of Virginia Institute of Marine Resources wrote to Mr. Tony Banks of Dominion Power on the subject of impingement and entrainment at Surry while commenting on the re-licensing of the plant. In the letter Dr. Olney states, "Further, the available information on abundance and distribution of fishes at the site suggests that there is a low probability that water withdrawals at the plant are causing declines in federally managed species." Since Dr. Olney does not express concerns about a large once-through cooling water withdrawal, it appears that a cooling tower withdrawal, orders of magnitude smaller, would also not be a concern. (DW-0439 20) (SW-0017 31)

Response: *The water withdrawal for the proposed ESP units at the proposed or alternative sites would be in addition to the water withdrawal for any existing units. With regard to the Surry site, the staff analyzed impingement and entrainment and determined that the impact would be SMALL. The staff characterized the aquatic ecosystems impacts for plant operation as SMALL at both the Surry and North Anna ESP sites (see Table 9-2 of the EIS). Accordingly, no changes were made to this EIS as a result of this comment.*

3.17.3.4 Savannah River Site

Comment: The assessment in the report did not credit the extensive environmental and geotechnical database that exists at the SRS. …The very high level of environmental assessment and characterization of SRS was not accurately credited. SRS has been described

as one of the most characterized sites in the Department of Energy (DOE) complex [additional detail of reports provided]. ... A review of the Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site, NUREG-1811 shows that several factors within its scope did not adequately consider available information that if properly credited would demonstrate that all environmental impacts associated with the Savannah River Site are either small or beneficial. (DW-0416 1)

Comment: Delete the statement, "The alternative sites have not undergone a comparable level of detailed study." The statement is not appropriately crediting the very high level of environmental assessments and characterizations that exist for the SRS. In the case of the Savannah River Site, the environmental impacts have been well characterized and are indeed SMALL. … Also for SRS, offsite impacts would be limited to currently existing transmission right of ways, and the impacts are expected to be small. (DW-0416 15)

Response: *The statement quoted from page 9-1 of the EIS reflects the review process for consideration of alternative sites. By design, the alternative site evaluation is a high-level evaluation and is limited to a reconnaissance level review, whether or not more detailed information was available and developed for other purposes. The preferred site must undergo a detailed evaluation and the NRC staff performed such a detailed evaluation of the North Anna ESP site. While the Savannah River Site (SRS) has undergone significant characterization by the Department of Energy for other purposes, the staff review of alternative sites considered the project as the construction and operation of new commercial reactors and associated transmission lines. This does not discount the viability of SRS as a site to host nuclear power plants; however, consistent with the NRC's environmental review practices, the SRS was not determined to be "obviously superior" to the NAPS ESP site. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I am surprised that one of the conclusions of the Staff is that "there are no environmentally preferable or obviously superior sites". My review of the data presented in NUREG-I811 reaches a different conclusion. It appears to me that the Staff is overlooking a number of factors which are indeed different among the various sites and, if considered, are discriminators which would identify the Savannah River Site as an obviously environmentally preferable site. (DW-0399 3)

Response: *This comment does not provide specific information regarding SRS information sources that the staff should have consulted during preparation of the EIS or how the staff's review did not conform to Section 9.3 of the ESRP (NUREG-1555). The staff used reconnaissance-level information that was relevant to the alternative analysis presented in the EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The statements of generic impacts quoted below cannot be supported without further analyses - the results of which may show a clear preference for one or another of the proposed sites. Each of these impacts is dependent upon the nearby population density and

distribution, and should therefore be different for each site. The Savannah River Site, with its large controlled access area, relatively isolated location, and low nearby population density may have a distinct advantage. [page 9-4, lines 28-32] (DW-0416 16)

Comment: Note that if corrections of nearby population density are needed, then impacts of both routine and accident releases will need to be recalculated. (DW-0399 8)

Comment: These factors (air quality, health impacts, and radiation exposures) are not inherently the same at each site under consideration. While emissions may be assumed equal at all sites, the impact of air pollution and radioactive emissions is dependent on the exposure of the population to these emissions. This exposure is governed primarily by two factors: population density in the area surrounding the plant site, and distance to the plant boundary. The four sites are obviously different in nearby population density and distance of the proposed reactor to the site boundary. I would suspect that the Savannah River Site has both the longest distance to the boundary and the lowest nearby population of the sites under consideration; therefore would have the lowest impact. The EIS should be modified to evaluate the impact of these emissions at each site and consider both the nearby population and distance, as well as local meteorological effects. (DW-0399 4)

Comment: The assessment did not credit the relatively isolated location of SRS and the low nearby population density relative to the other candidate sites when discussing generic environmental impacts to all sites. The generic environmental impacts listed in the report (air quality, nonradiological and radiological health impacts and environmental impacts from postulated accidents) are dependent on the nearby population density and distribution, and should, therefore, be different for each site. (DW-0416 6)

Response: *The staff considered population density and distribution in its analysis of impacts at North Anna and the alternative sites. The staff concluded that the environmental impacts of the construction and operation of new reactors at the North Anna ESP site would be of small significance for issues discussed in Section 8.4. Assuming the same releases at the Savannah River Site or the other alternative sites, the staff concluded that the significance of the environmental impacts at those sites would also likely be small. The staff concluded that there would be little gained by conducting a more detailed analysis of the alternative sites, because the significance of environmental impacts at the North Anna site are already small. The purposes of NEPA are not served well by expending resources trying to differentiate between alternatives based on issues that have environmental impacts that are of small significance. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: I am surprised that the numerous examples of other environmental impacts of the proposed action at the North Anna site were not more closely compared with potentially lesser impacts at alternative sites. For instance: 1) Conversion of land to housing developments (page 4-2), 2) Alteration of two ephemeral streams and possibly one-or more wetlands (4-5), 3) Dredging resulting in suspension of sediment (4-5), 4) Depression of the water table (4-6),

5) Degraded water quality (4-12), 6) Fishery habitat changed (4-12), 7) Resuspension of heavy metals from Contrary Creek (4-12), 8) Increased turbidity and reduced light penetration in Lake Anna (4-13), 9) Overcrowding of Lake Anna and lessened recreational experience (4-28), 10) Doubling the time Lake Anna levels will be low, impacting recreational use (5-8), 11) Economic consequences to the three counties surrounding the lake. The more immediate impacts would be to the marinas and commercial businesses that earn revenue... (5-44). Each of these should be considered and compared to a similar assessment for the alternative sites before the Staff draws a conclusion that there are no environmentally preferable or obviously superior sites. (DW-0399 6)

Comment: Impacts to nearby public service facilities also need to be considered and are likely to be a differentiator among the facilities under consideration. The EIS notes that construction and operation of a new reactor at the proposed site will result in 1) Traffic congestion (page 4-19 & 4-23), 2) Reduced housing-availability/increasing-rents (4-29), 3) Public water and server "concerns" (4-30,) 4) Needed expansion of police and fire capability (4-32), 5) Increased demand for social services (4-32), 6) Significant impact on already overcrowded schools (4-33), 7) Concern with water and sewer infrastructure in Louisa and Orange counties (5-45), and 8) Additional burden on already overcrowded Louisa county schools (5-47). The impact of the proposed action needs to be evaluated for its impact at each of the proposed sites to determine the differences that exist. I might point out that the employee population at the Savannah River Site has decreased by almost 15,000 people since the early 1990s and the existing public infrastructure may be much more capable of absorbing Dominion's construction and operational workforce with minimal impact. (DW-0399 5)

Response: *Section 8.7 of the EIS contains the staff's analysis of the Savannah River site. In Table 8-6 of the EIS, the staff characterized impacts during construction as SMALL to MODERATE for ecological impacts on terrestrial ecosystems and threatened and endangered species. In Table 8-7, the staff characterized impacts during operation on threatened and endangered species as SMALL except with regard to transmission lines, in which case impacts were characterized as SMALL to MODERATE. The staff characterized the impacts during construction and operation as SMALL for water use and quality and as SMALL to LARGE BENEFICIAL for socioeconomic issues. None of these characterizations render the Savannah River Site unsuitable for new nuclear power plants nor is it obviously superior to the North Anna ESP site. The introduction to Chapter 9 of the EIS points out that the staff's analysis of alternative sites is not as detailed as the analysis of the proposed site; it is that way by design. The introduction goes on to point out that a proposed North Anna ESP site may be rejected in favor of an alternative site not when the alternative is "marginally better" than the proposed site, but only when it is "obviously superior." NEPA does not require that a nuclear power plant be constructed on the single best site for environmental purposes. Rather, NEPA requires that alternative sites be considered and that the effects on the environment of building the plant at the alternative sites be carefully studied and factored into the ultimate decision. The staff has done just that in this EIS. While there are some differences in the environmental impacts of construction and operation at the North Anna and SRS sites, the staff concludes that non of*

these differences is sufficient to determine that the SRS site is environmentally preferable to the proposed North Anna site. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Construction and operation impacts for some environmental impacts were overstated as "small to moderate" because the author(s) assumed that the detailed routing of the transmission line right-of-ways are not known at this time. Power from the SRS will be transmitted using existing right-of-ways on and off the site and; therefore, the environmental impacts would be "small." (DW-0416 2)

Comment: Construction and operation impacts for transmission lines were overestimated and would be SMALL. Although transmission lines on the Savannah River Site may need to be upgraded, the transmission lines would use existing right-of-ways, and any construction impacts would be minimal. Offsite, 500-kV transmission lines and switchyards already exist at Plant Vogtle (adjacent to the site and directly across the Savannah River). The 500-kV transmission lines at Plant Vogtle connect to the regional grid so that no additional right-of-ways would be needed. Construction, if any, would merely add additional capacity to the existing lines and a switchyard at the SRS depending on the power being transmitted. Assuming the power from the SRS may be transmitted to a location 60 miles to the west is not realistic because right-of-way and permits may be excessive and time consuming to obtain. This assumption creates unnecessary conservatism in the environmental impacts presented in the report for the SRS. (DW-0416 3)

Comment: In contrast to the many environmental and societal impacts (albeit small or moderate, and potentially mitigable) NUREG-1811 describes for constructing a reactor at North Anna, the only identified environmental impact of locating the proposed reactor at SRS is the potential for land clearing if a new transmission line right of way is required. Since SRS is already tied to the regional grid with four primary feeders in differing directions, it is highly unlikely a new right of way will be needed. Except in the area immediately adjacent to the new reactor to reach an existing line, extensive clearing should not be necessary. Even if some clearing is needed, SRS is expected to be a government reservation in perpetuity, and on-site clearing would have no public impact. (DW-0399 10)

Comment: Delete the current paragraph [page 9-6, lines 19-25] and replace with: "The adverse impacts of construction at the Savannah Rive[r] Site alternative are SMALL for all impact categories. Beneficial impacts ranging from SMALL to MODERATE were noted in the community characteristics category, primarily as a result of beneficial economic impacts in Barnwell County." The current paragraph is based on two observations, which are invalid in light of further information. First, the staff concludes that new transmission right-of-ways may be needed, necessitating new construction and possible adverse impacts. In fact, the SRS site selection process would ensure that the location of any new facility would be accessible to existing rights-of-ways, and any upgrades would have negligible impact. (DW-0416 17a)

Comment: Delete the current paragraph [page 9-7, lines 11-16] and replace with: "The adverse impacts of operations at the Savannah River Site alternative ESP site are SMALL for all impact categories. Beneficial impacts ranging from SMALL to MODERATE were noted in the community characteristics category, primarily as a result of beneficial economic impacts in Barnwell County." The current paragraph is based on the observation that new transmission right-of-ways may be needed, necessitating new construction and adversely impacting operations and maintenance. In fact, the SRS site selection process would ensure that the location of any new facility would be accessible to existing right-of-ways, and any upgrades would have negligible impact. Offsite, existing 500-kV transmission right-of-ways would be used as is, or would require an upgrade in capacity only; operation impacts would be minimal. Assuming the power from the SRS may be transmitted to a location 60 miles to the west is not realistic because right-of-way and permits may be excessive and time consuming to obtain. This assumption creates unnecessary conservatism in the environmental impacts presented in the report for the SRS. [The following six comments are associated with this comment.] (DW-0416 18)

Comment: Change the impact of operation on threatened and endangered species to "SMALL" (from "SMALL to MODERATE") [on page 8-67, line 11] (DW-0416 9)

Comment: Change the T&E Species impacts for the Savannah River Site to "SMALL" (from "SMALL to MODERATE") [page 8-81, Table 8-6, line 14; page 8-82, Table 8-7, line 14; page 9-3, Table 9-1, line 14; and page 9-4, Table 9-2, line 16] (DW-0416 13)

Comment: Change the impact of construction on terrestrial resources (including threatened and endangered species) to "SMALL" (from "SMALL to MODERATE") [on page 8-67, line 6] (DW-0416 8)

Comment: Change the Terrestrial ecosystems impacts for the Savannah River Site to "SMALL" (from "SMALL to MODERATE") [page 8-81, Table 8-6, line 12 and page 9-3, Table 9-1, line 12] (DW-0416 12)

Comment: Change the transmission system impacts to "SMALL" (from "SMALL to MODERATE)" [on page 8-63, lines 30 and 37] (DW-0416 7)

Comment: Change the Transmission corridors impacts for the Savannah River Site to "SMALL" (from "SMALL to MODERATE") [on page 8-81, Table 8-6, Line 6 and page 9-3, Table 9-1, line 7] (DW-0416 11)

Comment: Delete "and the Savannah River Site has significant unknown impacts associated with the transmission line rights-of-way (could be anywhere from SMALL to MODERATE)" [page 9-7, lines 25-26]. This phrase is based on the observation that new transmission right-of-ways may be needed, necessitating new construction and adversely impacting operations and maintenance. In fact, the SRS site selection process would ensure that the location of any new

facility would be accessible to existing right-of-ways, and any upgrades would have negligible impact. Offsite, existing 500-kV transmission right-of-ways would be used as is, or would require an upgrade in capacity only; operation impacts would be minimal. Assuming the power from the SRS may be transmitted to a location 60 miles to the west is not realistic because right-of-way and permits may be excessive and time consuming to obtain. This assumption creates unnecessary conservatism in the environmental impacts presented in the report for the SRS. (DW-0416 19)

Response: *It is the staff's view that the new reactors would require at least 230-kV or 500-kV transmission lines. Therefore, the new plant's transmission lines would have to be routed into a transmission system with the proper voltage, either on site or offsite. The SRS is a power consuming location, not a power producing location; consequently, the transmission system on the site consists of only 115 kV transmission lines. In any case, additional transmission lines leaving SRS would be needed. The NRC staff evaluated the proposal provided by Dominion. The siting study provided by Dominion (Dominion and Bechtel 2002) included the option of tying into an existing 500-kV transmission line located 60 mi west of SRS. Although the siting study indicates that right-of-way and permit acquisition could involve a significant effort for this routing alternative, it did not eliminate the alternative from consideration and, therefore, it cannot be discounted. The comments provide no new information that would lessen the uncertainty associated with this routing alternative. Therefore, the staff affirms its initial determination that the impacts could be SMALL to MODERATE, depending on the specific routing of the transmission lines. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: Transportation impacts were overstated in community characteristics as "small to moderate" because the assessment did not credit the site as having an infrastructure on and off the site that has already accommodated a workforce of 25,000. This maximum workforce of 25,000 employees is approximately 40% below the projected workforce required for the facility. The environmental impact would be "small." (DW-0416 4)

Comment: Transportation impacts were overestimated and would be SMALL. The assessment did not credit the fact that the existing infrastructure on and in the vicinity of the site is designed and constructed to accommodate a much larger workforce than will exist at the site during the construction and operation phase of the proposed nuclear plant. The assessment does not credit the fact that, even with the 38% increase, the site workforce would still be ~40% below its 1993 peak of ~25,000 employees. (DW-0416 5)

Comment: [Delete the current paragraph (page 9-6, lines 19-25) and replace with]: "The adverse impacts of construction at the Savannah River Site alternative are SMALL for all impact categories. Beneficial impacts ranging from SMALL to MODERATE were noted in the community characteristics category, primarily as a result of beneficial economic impacts in Barnwell County." The current paragraph is based on two observations, which are invalid in light of further information. Second, the staff concludes that the construction workforce would

substantially increase the SRS workforce thereby moderately impacting transportation. In fact, the SRS workforce, including the construction work force, would be significantly less than recent SRS staffing levels and would be easily accommodated by existing transportation infrastructure. (DW-0416 17b)

Comment: Change the transportation impacts of the construction workforce to "SMALL" (from SMALL to MODERATE") [on page 8-73, line 13] (DW-0416 10)

Comment: Change the Community Characteristics impacts for the Savannah River Site to "SMALL" (from "SMALL to MODERATE") [page 8-81, Table 8-6, line 18 and page 9-3, Table 9-1, line 19] (DW-0416 14)

Response: *The staff based its impact level of SMALL to MODERATE on expected traffic congestion during construction in the event of a 38 percent increase from existing employment levels at SRS. While congestion exists on some of the roadways both onsite and offsite in the vicinity of SRS, the comment notes that the roadways surrounding the site successfully accommodated a larger workforce at peak employment in 1993. Dominion's siting study (Dominion and Bechtel 2002) in Part 2 (Section 5.7.3) notes that SRS has implemented changes to remedy congestion at site access points and that with traffic mitigation measures, the construction and operation of new nuclear power facilities at the preferred location within SRS will result in "minimal" impacts on existing traffic patterns, workforce commuter traffic, and rail/truck delivery of materials. The staff reevaluated the issue of transportation. Given the mitigative measures already in place, the staff concludes that a level of SMALL is more representative of the transportation impact level. This change is also reflected in the community characteristics category, which is now represented as SMALL in the EIS.*

Comment: The EIS states that population dose within 80 km (50 mi) of those alternative sites that are closer to major population centers (e.g., Savannah River) could be higher than for the proposed North Anna EDP [ESP] site; (page 8-12). I would like to see the data supporting this statement, as I do not believe the population within 50 miles of SRS exceeds that of the North Anna site. The 50 mile population of the North Anna region is reported as 1,538,156 in 2000 and expected to grow to 2,160,921 in 2020 (page 4-20). NUREG 1767, EIS on the Construction and Operation of a Proposed Mixed Oxide Fuel Fabrication Facility the Savannah River Site issued in January 2005 lists the population of the SRS Region of Influence as 475,095 in 2000 and 489,000 in 2002 (projected). The Region of Influence may not be exactly the same as 50 miles but it is similar. Please review this information in the draft. (DW-0399 7)

Response: *The statement on page 8-12 of the Draft EIS actually related to the population and associated doses within a 16-km (10-mi) radius of SRS rather than a 80-km (50-mi) radius. The statement was removed from the EIS as a result of this comment. However, note that for both North Anna and SRS, the impacts of population doses would be SMALL.*

3.18 References

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy*, Part 52, "Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants."

10 CFR Part 100. Code of Federal Regulations, Title 10, *Energy*, Part 100, "Reactor Site Criteria."

40 CFR Part 141. Code of Federal Regulations, Title 40, *Protection of Environment*, Part 141, "National Primary Drinking Water Regulations."

40 CFR Part 1508. Code of Federal Regulations, Title 40, *Protection of Environment,* Part 1508, "Council on Environmental Quality, Terminology and Index."

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4.0 ESP Process, NEPA Compliance, and Comments Supporting or Opposing the ESP

In this chapter, the U.S. Nuclear Regulatory Commission (NRC) staff responds to comments received on NRC's administrative process for treating early site permit (ESP), combined construction permit (CP), operation license (OL), and combined license (COL) applications, and on matters regarding compliance with NRC regulations. Commenters expressed concern with the NRC processes for considering ESP applications and COL applications that reference an ESP. Several commenters questioned the scope of the environmental review that would be required for a COL application that references an ESP. In particular, one commenter questioned how issues relating to plant construction and operation could be finalized for the 20-year duration of an ESP, because the environment might change and alter the conclusions drawn in the environmental impact statement (EIS). Several commenters indicated that more time was needed for public meetings, and sought a clearer understanding of how the ESP process works. Commenters stated that the Draft EIS issued by NRC in December 2004 (NRC 2004) and the Supplement to the Draft EIS (referred to as the SDEIS) (NRC 2006) failed to consider all the issues and deferred some issues to the COL stage. One commenter remarked that the ESP process encouraged judgment that was inherently flawed. Other commenters made the general statement that the Draft EIS did not address all the issues.

Several comments were related to the level of detail of design information included in the ESP application submitted by Dominion Nuclear North Anna LLC (Dominion). By way of background, an applicant for an ESP need not provide a detailed design of a reactor or reactors and the associated facilities that might be built at the proposed ESP site. Rather, in lieu of detailed design information, an ESP applicant may reference a plant parameter envelope (PPE) as a surrogate for a specific plant design. That is, the applicant may provide bounding values of design parameters for a plant that might be built at the site and assess the environmental impacts associated with those bounding values.

Analysis of environmental impacts based on a PPE approach permits an ESP applicant to defer the selection of a reactor design until the CP or COL stage. Several comments were received that questioned whether the PPE contained enough design information for other-than-light-water reactors, especially as it applied to postulated accidents and gas-cooled reactors. The U.S. Environmental Protection Agency (EPA) recommended that the NRC consider issuing an additional EIS when such information becomes available.

Comments were received expressing general support of or opposition to the NRC's ESP process. Some commenters stated that the Title 10 of the Code of Federal Regulation (CFR) Part 52 licensing process involving an ESP and a COL is undemocratic. Some commenters challenged the division of the ESP and the COL licensing processes. Some commenters expressed lack of trust in the government. Some commenters expressed concern that

unresolved issues might lead to abuses of the process. Some commenters expressed dissatisfaction with the location and conduct of public meetings associated with the application.

Commenters requested that certain additional matters be addressed in the EIS including a review of Dominion's Environmental Report (ER) (Dominion 2006); a discussion of energy alternatives; an assessment of the benefits of the proposed action; a discussion of mitigation steps; irreversible and irretrievable impacts, relative costs, and benefits of alternatives; and a more developed purpose and need.

4.1 ESP Process

Comment: I am writing first because I am very concerned that this ESP process is so disjointed that it is very difficult for the public to follow either the process itself or the actual specific details of the North Anna proceedings. It almost appears to be designed to be confusing. (DW-0431 1)

***Response**: With respect to environmental matters, the NRC's ESP process is as follows: The NRC regulations governing an ESP application require that an applicant for an ESP must provide the NRC with an ER that meets the requirements of 10 CFR 51.45 and 51.50. As described in 10 CFR 52.17, the contents of an application must focus on the environmental effects of construction and operation of a reactor or reactors that might be built at the proposed site, even though an ESP does not authorize such construction and operation. Additionally, Section 52.18 requires that the staff prepare an EIS on the application that focuses on the same matters. Both the ER and the EIS must include an evaluation of alternative sites to determine whether there is any obviously superior alternative to the site proposed. Certain issues, however, such as the benefits of the action and alternative energy sources, may be deferred to a later licensing stage, and other issues may not have sufficient information to be resolved at the ESP stage. Issue resolution is a licensing matter, not a National Environmental Policy Act of 1969 (NEPA) matter.*

For the ESP, the NRC prepares an EIS that resolves numerous issues based on existing environmental site characteristics, as well as values of power plant design parameters set forth in the application. These issues are subject to issue preclusion in a proceeding on an application referencing the ESP (i.e., such an issue would not be subject to litigation in a later licensing proceeding). If an applicant chooses the PPE approach, as Dominion has done here, the application postulates bounding values for these plant design parameters.

NRC licensing regulations allow an ESP applicant to defer an issue (e.g., the benefits assessment) as Dominion elected to do, but requires that a COL applicant referencing such an ESP address the issue in its application. An application for a CP or COL referencing an ESP must also demonstrate that the design of the proposed facility falls within the parameters

specified in the ESP. In addition, an application referencing an ESP should indicate whether the site is in compliance with the terms of the ESP. Such an application should also identify whether there is new and significant information on any issue resolved in the ESP proceeding.

The environmental review performed in connection with a COL application referencing an ESP will tier off the ESP EIS. If no new and significant information is identified on an issue, then the COL EIS will summarize the conclusion reached in the ESP EIS and state that new and significant information was not identified with respect to that issue. If new and significant information is identified, then a conclusion will be reached based on the analysis of the new and significant information. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: [With] respect to the no-action alternative (Chapter 8.1), at what point in this process, and for what reasons, could it be decided not to grant Dominion the authorization to construct and operate additional nuclear reactors at North Anna? (DW-0685 13)

***Response**: As described in Chapter 2 of this volume, the NRC conducts a two-pronged review of an ESP: the safety review and the environmental review. An ESP can be denied based on either safety or environmental issues. From an environmental perspective, should the Commission determine that an alternative site is obviously superior to the proposed North Anna ESP site, then the Commission could deny the ESP application. Denial of the application (i.e., selection of the no-action alternative) would avoid the impacts associated with site preparation and preliminary construction activities allowed pursuant to 10 CFR 52.25(a). While 10 CFR 52.17(c) and 52.18, respectively, require that the ESP ER and EIS focus on the environmental effects of construction and operation of a reactor, or reactors, at the proposed site, an ESP would not authorize such construction and operation. Rather, a CP or COL application referencing the ESP could authorize construction and operation, and an EIS on the CP or COL application would include a discussion of the no-action alternative in relation to the effects of reactor construction and operation. In addition, if new and significant information is identified with respect to matters resolved in the ESP proceeding, the Commission could reach a different conclusion in the CP or COL proceeding. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I have a problem with the ESP, a fundamental problem with it. It's a fixed and static permit that's going to be there for 20 years for a completely fluid situation. It doesn't seem that you would want something fixed when what it's regulating is changing. Let's look on both the environmental and safety basis. How many things have changed in the last 20 years and will change significantly in the next 20? For example, the population growth right around the lake, the water usage, the road usage for evacuations, all of these things have changed. They don't know how they're going to change again. We've seen an explosion at the lake, and we don't know what's going to happen. If it continues like this, we're going to be confronted with continuous problems, and here they want to give a blank permit for 20 years. (DT-0015 1a)

Comment: I feel really frustrated with this process. The fact that we're giving Dominion the protection of a 20-year bank on a site and so much changes in 20 years. (DT-0035 1)

Comment: EPA has concerns that the twenty-year horizon allotted under the proposed ESP does not have any protective assurance that unforeseen population growth and/or additional stressor on the air or water resources will be accounted for. Typically an action that has not occurred within three years of an EIS requires at a minimum a supplemental EIS. (DW-0422 4 and SE-0030 5)

Comment: [B]y creating a twenty year window for the action, the ESP process makes conclusions about the Site and its environment, that are likely not to be true soon after the ESP is approved. The window is too large given the narrow amount of data that is being provided to the public and interested local governments. (DW-0594 2b)

Comment: [E]ven if the whole picture [ESP process] were clear and complete, it would only be so based upon today's data, and not the facts, whatever they may be, at the time the decision is made to build the additional facility(s). (DW-0431 2)

Comment: Putting off some of the issues, as other people have referred to, to the time of the COL, the construction license, could be disingenuous, and you have a new process you're doing here, the staged process that's being tried out. Now, that could have some benefits to it doing it that way, but if it's used in a manner that varies certain issues, if you get a site permit before you're really addressed all the important issues that go into site suitability, that could be viewed as undermining that whole process. (DT-0021 7)

Comment: My general comment is about the relevance of this Environmental Impact Statement for an Early Site Permit at the North Anna Site, since this is a new type of EIS and its purpose is not fully clear; and, if we accept the value of the assessment of the Early Site Permit, with the acceptability of this particular analysis. Many issues needed in a complete EIA are deferred in this EIS for an Early Site Permit, and it is difficult for me to see the benefit of what appears to me to be an incomplete assessment. (DW-0685 1)

Comment: As described in NEI's [Nuclear Energy Institute] February 10, 2005 letter (ML050530439), for any issues deferred from ESP to COL, the NRC could issue a supplemental EIS documenting its evaluation. [pages 8-1 and 9-8, line 42 and line 14] (DW-0423 45) [page 9-8, line 17] (DW-0423 48)

Response: *For an ESP, the NRC prepares an EIS that can resolve numerous issues based on existing and projected environmental site characteristics, as well as bounding values of power plant design parameters postulated in the application. These issues are subject to issue preclusion in a proceeding on an application referencing the ESP (i.e., such an issue would not be subject to litigation in the later licensing proceeding). NRC regulations allow an ESP*

applicant to defer an issue (e.g., the benefits assessment) as Dominion has elected to do, but also require that a COL applicant referencing such an ESP address the issue in its application. An application referencing an ESP must also demonstrate that the design of the facility falls within the parameters specified in the ESP. In addition, the application should indicate whether the site is in compliance with the terms of the ESP.

For example, in this EIS, the staff presented population growth estimates and reached certain conclusions based on those estimates. If the Commission issues the requested ESP and it is later referenced in a CP or COL application, the staff would consider then-current (new) population information to determine whether that information is significant. If that new population information is significant, the staff will revisit the conclusions in the ESP EIS that are based on population growth estimates. If the new information is not significant, then the conclusions documented in the ESP EIS that are based on population growth remain valid with respect to the estimates, and the COL or CP EIS will tier off the conclusion reached in the ESP EIS.

To summarize, if the Commission issues the requested ESP and it is later referenced in a CP or COL application, then that application should identify whether there is new and significant information on any issue resolved in the ESP proceeding. In its review of a CP or COL application, the staff will consider any new and significant information that has been identified. Absent new and significant information, issues resolved in an ESP proceeding need not be reconsidered at the COL stage even though the ESP is valid for a 20-year period.

EPA stated that "Typically an action that has not occurred within three years of an EIS requires at a minimum a supplemental EIS." However, in this case, issuance of an ESP completes the proposed action. If an ESP is granted and an application to construct a nuclear power reactor on the North Anna ESP site referencing the ESP is submitted, the staff will prepare an EIS on that application. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Page 1-1 states that the safety characteristics and emergency planning are to be analyzed separately from the EIS process. NEPA clearly states that an EIS is required for "any major federal action significantly affecting the quality of the human environment." Since safety and emergency planning are elements of the human environment, a NEPA EIS should address these points directly. The EIS is intended to be a primary source of impact information (both positive and negative). Besides the legal shortcomings of the current approach, how can the public and local governments be well-informed about the project if the basic data, analysis, and conclusions are spread across a variety of proceedings? This unfairly disenfranchises stakeholders. (DW-0438 5)

Comment: The Executive Summary page xxi, line 38 states that the ESP application (and thus by extension an EIS on an ESP) must address "site safety, environmental impacts, and emergency planning." Complete information on all three of these points is lacking in the EIS. (DW-0438 3)

Comment: And let's address risk for a moment. We can't talk about waste. We can't talk about terrorism because it's not addressed in your EIS. We can't talk about significant mitigation design alternatives, which is required by law because they don't have a design. (DT-0033 3)

Comment: Why are citizens told that they cannot raise issues on nuclear reactor security and nuclear waste? (DT-0038 3 and DW-0187 6)

Comment: Why are we not allowed to make any comments on the safety and waste issues??? (DW-0431 6)

Comment: Dominion is leading a consortium that plans to apply for a combined construction and operation license (COL) in 2008. Thus, if granted an ESP, Dominion could be permitted to begin an extensive construction operation while numerous, important issues, such as the need for power and the indefinite storage of additional waste onsite, have not been addressed. Simply declaring that NRC is not required to look at these issues does not make them go away. (DW-0437 4)

Comment: It's fundamentally wrong in this permitting thing to exclude security and terrorism, the ultimate waste disposal, the waste storage on site, alternative sources, and the need for power. (DT-0015 1b)

Comment: [T]he ESP process takes away citizens rights to get a complete look at the proposed action. The ESP EIS only looks at certain things, the Safety Report (which was barely made available to the public) looks at others, the COL will look at others. This is not the way the National Environmental Policy Act and its implementing regulations require the system to work. Citizens and government reviewers need to be able to get a look at the big picture of a proposed action in order make informed judgments and provide input. For example: Exclusion of considerations like terrorism and nuclear material transport are major flaws in the process. DW-0594 2a)

Response: *The Atomic Energy Act of 1954, as amended, and the Energy Reorganization Acts of 1974, as amended, establish the specific mission of the NRC to protect the public health and safety in permitting the utilization of nuclear material. NEPA directs all Federal agencies to ensure that environmental values are considered in fulfilling the missions. The NEPA process focuses on potential environmental impacts resulting from the proposed action rather than on issues related to safety. That said, certain issues that are analyzed as part of the safety review*

are relevant to the environmental review because they could potentially result in environmental impacts; this is why, for example, the environmental effects of postulated accidents are considered in the EIS.

Some issues have been resolved generically by the Commission, such as the environmental impacts of the uranium fuel cycle, the impacts of managing waste, and transporting spent fuel and waste; consequently, because they have been resolved and codified in NRC rules and regulations, they need not be analyzed further unless the rules do not apply to a particular situation, such as for other-than-light-water reactors.

Some issues, such as terrorism and security, are not discussed in the EIS because the Commission has determined that NEPA does not require such a discussion. See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002). Since that decision, the Court of Appeals for the Ninth Circuit ruled that an evaluation of terrorism was required in an environmental assessment for an independent spent fuel storage installation at a reactor site. See San Luis Obispo Mothers for Peace v. NRC, 449 F.3d 1016 (9th Cir. 2006). In its decision, the Court of Appeals did not agree with the rationale for the Commission's decision that the impacts of terrorism need not be considered under NEPA. However, inasmuch as the licensee in the Mothers for Peace case has filed a petition for a writ of certiorari with the United States Supreme Court, the Ninth Circuit's decision may yet be modified or reversed. Given the ongoing nature of these developments, the Commission has not altered its position regarding evaluation of the environmental impacts of a terrorist attack. Finally, the Mothers for Peace decision applies only in the Ninth Circuit. Accordingly, the NRC staff position on this matter is still controlled by the Commission decisions ruling that the impacts of terrorism need not be addressed in the context of NRC environmental reviews under NEPA. The rationale for these decisions is set forth below.

First, the Commission does not currently have a method or theory with which to perform a meaningful analysis of the environmental impacts of terrorism with respect to a particular facility. Second, in the absence of specific information indicating that a terrorist attack on a specific facility is likely to occur, NEPA does not require consideration of postulated terrorist attacks. Third, the public aspect of the NEPA processes conflicts with the need to protect certain sensitive information because (1) a review of terrorism under NEPA would involve examination not only of how terrorist attacks could cause maximum damage but also how they might best be thwarted, and (2) confidentiality in this area protects against the risks that terrorism poses to public health and safety.

Emergency planning is a fundamental element of the Commission's defense-in-depth safety philosophy. The NRC will not issue a license to operate a nuclear power reactor unless it finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency (see 10 CFR 50.47). This is a safety finding under the NRC's Atomic Energy Act responsibilities. Safety issues are generally outside the scope of the

environmental review because the NEPA process focuses on the environmental impacts of the proposed action rather than on issues related to safety. This is discussed in greater detail in the introductory remarks to Chapter 5 of Volume II of this EIS.

Accidents involving radioactive material can have environmental impacts. Consequently, the impacts of postulated accidents are analyzed in Section 5.10 of Volume I of this EIS. Under NEPA, the analyses are to reflect "reasonably foreseeable" consequences even though the likelihood of accidents is low. In its evaluation of severe accidents, for example, the staff considered incident response principles. The stylized analysis using the MACCS2 code takes into account a delay time prior to simulating the relocation of the affected segment of the population. These analytical assumptions are not intended to be linked to specific elements of detailed and site-specific emergency plans for a nuclear power reactor, but are intended to reflect the reasonable expectation that action will be taken to protect the public.

Other issues are not addressed in this EIS, such as the benefits assessment (e.g., need for power), alternative energy sources, and severe accident mitigation alternatives, because they may be more appropriately considered at the time an applicant selects a design and requests a CP or COL. Except for selected activities considered in a site redress plan, if approved, construction cannot begin until a CP or COL is issued. A CP or COL cannot be issued until all environmental issues have been evaluated.

Safety issues and emergency preparedness are addressed in the North Anna ESP Safety Evaluation Report (ADAMS Accession No. ML052710305) issued in September 2005 (NRC 2005a). This report is available on the NRC's website at www.nrc.gov. Any safety issues that are raised during the environmental review are forwarded to the appropriate NRC safety project manager for consideration and appropriate action. In view of the above, no changes were made to this EIS as a result of these comments.

Comment: [Referring to Dominion's Site Safety Analysis Report in the ESP] [M]uch of the data used in these evaluations and analysis seem to be the same data used during earlier planned construction at the North Anna Power Station. With the increased technology available, the most current data should be analyzed for a project of this magnitude that could have potential significant effects on the safety protection and welfare of a large area the population in this region during this time of heightened awareness toward security. (DW-0191 11)

Response: *The rationale for the two-pronged ESP reviews was provided in the previous response. Siting and environmental information used to characterize the site and to evaluate impacts comes from a variety of sources. With today's technologically advanced tools, the NRC environmental review team used resources available from the Internet and Geographical Information Systems to complement site-specific information provided by Dominion. As outlined in its denial of a petition for rulemaking, the Commission stated its expectation that, to the extent practicable, applicants for ESPs and COLs would "... rely on previously filed siting and*

programmatic information, as is permitted under existing NRC regulations. ... Existing information may be referenced; however, applicants need to demonstrate the information is technically applicable to the prospective licensing action." (68 FR 57383). Accordingly, no changes were made to this EIS as a result of this comment.

Comment: The purpose of an early site permit is supposedly, quote, to assess whether a proposed site is suitable for a nuclear reactor. Yet the draft EIS for the North Anna ESP fails to consider or to fully acknowledge numerous environmental issues that indicate the site is not suitable for additional reactors. (DT-0019 1)

Response: *The comment lacks specificity in what environmental issues were not considered or fully acknowledged in the staff's evaluation. The scope of issues involved in the EIS for an ESP was discussed in RS-002 (ML040700094) (NRC 2004), and it relies on the NRC's Environmental Standard Review Plan for Environmental Reviews of Nuclear Power Plants (ESRP), NUREG-1555 (NRC 2000). This EIS is consistent with the review standard. Therefore, the comment was not evaluated further, and no changes were made to this EIS as a result of this comment.*

Comment: The ESP process itself encourages judgment which is inherently flawed. The Supreme Court addressed a similar two-step regulatory process in 1961 regarding the AEC [Atomic Energy Commission] permit for the Fermi reactor. Though the court approved, Justices William O. Douglas and Hugo Black in their dissent wrote "When millions have been invested, the momentum is on the side of the applicant, not on the side of the public." Douglas and Black further criticized the Commission's approval of the reactor permit before resolution of safety issues as "a lighthearted approach to the most awesome, the most deadly, the most dangerous process ever created." [Power Reactor Development Company. International Union of Electrical, Radio and Machine Workers, AFL-CIO et al. 367 US 396 (1961)] (DT-0034 10)

Response: *The dissenting opinion of Justices Douglas and Black addressed the Atomic Energy Commission (AEC) 10 CFR Part 50 licensing process allowing a nuclear power plant to be built pursuant to a construction permit (CP) before considering a request for an operating license (OL) for that plant. The Justices were explicit in their disbelief that the AEC could review the OL application without regard to the investment committed to the plant under the CP. See PRDC, 367 U.S. at 417. The majority of the Court did not find fault with the AEC's procedures. Under the 10 CFR Part 52 alternate licensing process, however, the final licensing decisions on siting and design are made before the plant is built. The ESP process resolves siting and certain environmental issues early. Rather than being similar to the old CP/OL process criticized by Justices Douglas and Black, Part 52 could not be more different. The comment provides no new information, and accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Page 5-1, line 13 states that the operating period for the proposed project would be 40 years. Is the applicant prepared to stipulate that? If not, would another EIS be required for an extension of the COL? (DW-0438 122)

Response: *The NRC issues permits and licenses for fixed terms established by statute or regulation; the NRC is also authorized to renew permits and licenses. The COL will contain terms and conditions consistent with the relevant statute or regulation, including a limit on duration. As outlined in 10 CFR Part 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants, an operating licence may be renewed for a period of 20 years. The NRC prepares an EIS for the renewal of an operating license. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The NRC and applicant should stipulate that there will be no extension of the 20 year ESP window under any circumstances. Otherwise, statements like those on page 4-47, line 2 are worthless and the DEIS analysis becomes even more detached from actual conditions. (DW-0438 12)

Response: *NRC regulations (10 CFR 52.29) permit an applicant to apply for the renewal of an ESP. The duration of the renewal may be for not less than 10 years or more than 20 years. Any renewal request is another licensing action; an environmental review would be conducted as part of the staff's evaluation of a renewal request. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: In the EIS meeting at the Louisa County Middle School, the NRC gave the North Anna Nuclear Plant site a clean bill of health and said it met all the criteria they were instructed to deal with. And that's where the biggest problems are. The White House recently changed the criteria so a nuclear plant EIS does NOT include dealing with nuclear garbage and does NOT include any security questions. (DW-0823 1)

Response: *The NRC presented the preliminary results of its analysis of environmental impacts at the public meeting (February 17, 2005). The comment is factually incorrect; the White House has not changed any of the NRC regulations. The ESP process is covered in 10 CFR Part 52, promulgated in 1989 using the NRC's rulemaking process, which includes public participation. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The DEIS should include a statement of the amount of government funds that are available for the North Anna ESP process. (DW-0438 166)

Response: *The amount of government funds available for the North Anna ESP process has no bearing on the NRC environmental review and, therefore, is not included in this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: And can you identify for me the sections in the draft environmental impact statement that were listed or close to listed without clear attribution from the early site application directly into the DEIS? (DT-0001 1)

Comment: I mentioned the problem of plagiarism, and I did ask our librarian, the professional librarian, whether there was plagiarism [with regard to words from Dominion ER related to aquatic ecology and migrant labor] in this report, and you can correct me if I am wrong...I would like to know whether you actually start with the permit application in the computer and edit it in certain parts or whether the draft environmental impact statement is a fresh look at the environmental impacts of the proposed plants. In the one place where -- there are no citations [to the ER] here. (DT-0001 6)

Comment: As a local resident, I was unimpressed that the NRC team had done a decent job in their draft proposal (some of the language was plagiarized from other sources!). I am highly unclear and suspicious of the relationship between Dominion and the NRC of a government clearly committed to revamping the nuclear industry in the U.S. as a whole – and is clearly prepared to do anything or tell any lie to get their way (e.g., their certainty that "weapons of mass destruction" existed in Iraq led us into an expensive, illegal, murderous, ruinous war). (DW-0830 2)

Response: *Dominion's ER was submitted under oath or affirmation as part of the application for an ESP. Applicants use the body of NRC regulatory guidance (e.g., Regulatory Guides, Review Standards, and Standard Review Plans) and take advantage of approaches and methods that are acceptable to the NRC to analyze environmental impacts. The staff relied upon the ER as a source of basic information about the plant parameters, the site, the region, and the environment; this is by design, and the ER submitted by the applicant is intended to be the starting point for the staff's independent review. The applicant and the NRC are not required to have alternate positions on the significance of environmental impacts; nevertheless, at times there are different conclusions reached based on different methods and assumptions. Subsequent to the acceptance of the application, the staff visited the site; consulted with local, State, and Federal agencies; and conducted its own independent review. The EIS is the result of the staff's review and properly includes material from various sources including the ER. In the end, the NRC is responsible for the reliability of all of the information used in its EIS. If, as part of its independent review, the NRC determines that information presented in the ER is useful and the NRC confirms its accuracy, then the NRC may use the information and analyses in its EIS. The EIS has been reviewed and revised, as appropriate, to ensure that sources of information are clearly identified and ER authorship is properly attributed.*

Comment: An EIS is supposed to be prepared by an independent multi-disciplinary team. To what extent did the NRC commission any independent environmental reviews above the data presented in Dominion's ER? This is not clear from Appendices A and B and the cited references. (DW-0438 174)

Response: *Appendix A contains a list of the contributors to the Draft EIS and specifies their areas of expertise. The areas of expertise cross the physical, biological, social, and radiological disciplines comprising a multi-disciplinary team. Where independent analyses were determined to be necessary to support the NRC conclusions, they are described in the EIS including Appendix G, which provides the supporting documentation related to the impacts of transportation. In addition, more details of the water budget assessment (Appendix K) and radiological dose calculations (Appendix H) were added to the EIS.*

Comment: We also have one generic comment concerning identification of parameters used in the environmental review. The NRC staff has provided an ESP template indicating that the parameters that are used in the Environmental Report and that form the basis for the EIS will be identified (listed) in the ESP. Presently, these parameters are scattered throughout the EIS making it difficult to determine which parameters the ESP applicant should expect to be identified in its permit. We recommend that the North Anna EIS and future DEISs include a tabulation of the parameters used in support of the staffs environmental reviews for ESP. (DW-0435 3)

Response: *The parameters included in the PPE are enumerated in Appendix I of the EIS. In addition to the parameters contained in Appendix I, the staff made assumptions and relied on Dominion's representations made in its ER to reach its conclusions. These assumptions and technical bases are now listed in a new Appendix J of this EIS.*

Comment: We think that the draft environmental impact statement, while it is voluminous and treats many issues in detail, nonetheless has some very serious deficiencies in that it doesn't treat some issues adequately. (DT-0021 2)

Comment: The ESP is part of a new "streamlined" licensing process meant to reassure investors that past regulatory delays will not occur again. However, this will prevent citizens from raising crucial safety problems that have been at the root of past delays. The process has gone forward rapidly with little effort on behalf of the U.S. Nuclear Regulatory Commission (NRC) or Dominion to involve members of the public, either locally or nationally, despite its profound implications. (DT-0053 5)

Comment: The draft environmental impact statement fails to consider or to fully acknowledge numerous environmental issues that indicate that the North Anna site is not suitable for additional reactors. It has been said that these issues are not as critical now since the ESP would not permit full construction, but if the ESP is granted, "site preparation" and preliminary construction activities" can be carried out, including site clearing, stream clearing, and excavation, as well as construction of permanent foundations, intake structures, and outfall structures. (DW-0401 2)

Comment: Based on the above review, I believe that the document is substantially flawed and request that these comments and others be fully addressed and that another DRAFT EIS be released. Unless such an action is taken, concerned citizens and local governments (and indeed the NRC since it is supposed to be relying on the DEIS for decision-making) cannot make informed decisions about the proposed project. (DW-0438 176)

Comment: The flaws in the document do not provide the scientific, legal, or policy background to support a finding to recommend the ESP. (DW-0438 177)

Response: *The NRC process for evaluating the environmental portion of ESP applications was embodied in its Environmental Standard Review Plan for Environmental Reviews of Nuclear Power Plants (ESRP) (NUREG-1555), which was issued in 2000 after it was subject to public comment. The ESRP forms the basis for the environmental portion of RS-002 (ML040700094) (NRC 2004). This ESP EIS conforms to the review guidance and is sufficient to fulfill NRC's NEPA responsibilities. The comments do not specifically identify which portion of the NRC review does not conform with NRC's published review guidance. The staff has determined that another Draft EIS does not have to be issued. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: In sum, the DEIS fails to undertake an adequate analysis and assessment of the environmental impacts of two additional units at the current North Anna Power Station. There is insufficient discussion of the impacts that two additional reactors would have upon compliance with the designated use of Lake Anna and the North Anna River for aquatic life, and with the numeric water criteria for maximum temperature within both waters. The DEIS leaves unresolved several critical, site-specific environmental issues at the very proceeding that is designed to determine the environmental suitability of the site for additional units. It is impossible to declare this a suitable site based on the data and analysis contained in the DEIS. (DW-1122 15)

Comment: The impact analysis deferral [regarding hydrologic operational practices and procedures] on page 5-7, line 11 is objectionable. (DW-0438 135)

Response: *Water related impacts are thoroughly discussed in Section 5.3, and aquatic impacts in Section 5.4.2 of the EIS. Additional discussion related to the impacts on aquatic life in the North Anna River has been added to the EIS.*

Comment: The important factors [excluded from the process] are too numerous to list in a brief communication – but you know what they are anyway! (DW-1037 2)

Response: *The public was afforded the opportunity to provide comments on the Draft EIS and supplement. This comment lacks specificity and was not evaluated. There are areas that were not evaluated at this stage in the licensing process, including the benefits assessment (need for*

power, cost of power) and alternative energy sources. In addition, the safety evaluation report evaluated safety issues including emergency planning, security, and seismic issues. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: In addition, many of the necessary analyses about mitigating these potential impacts are being postponed to the COL stage, the combined construction and operation license stage. For example, Dominion did not have to provide any information on the practices and procedures to minimize the impacts of adding additional hot water to the lake. Other decisions are left until after the NRC has already granted the ESP, such as whether the State of Virginia or the Commonwealth of Virginia, rather, would permit Dominion to even increase its effluent discharges into the lake. (DT-0019 3)

Response: *Measures and controls to limit adverse impacts during construction and operation that were considered are discussed in Sections 4.10 and 5.11, respectively, of the EIS. At the COL stage, the staff will tier off the ESP EIS and identify and assess new and significant information including, as stated in Section 5.3.1, practices and procedures to minimize the adverse impacts resulting from hydrological alterations. The Commonwealth of Virginia has the regulatory authority under the Clean Water Act to regulate the non-radiological discharges to receiving waters. In fulfilling its NEPA responsibilities, the NRC discloses the impacts of the effluent discharges, but does not have the regulatory authority to set the limits. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Also we are concerned that the U.S. Nuclear Regulatory Commission admitted two of the arguments – that Dominion had failed to analyze the environmental impact if they took no action at all, and that Dominion had failed to fully analyze the impact of new reactors on the striped bass population in the lake. (DW-0857 6)

Response: *The NRC staff evaluated the no-action alternative (Section 8.1) and analyzed the impacts of new reactors on the striped bass population in the lake (Section 5.4.2.5). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The 10 CFR Part 52 framework provides finality for previously resolved issues that is fully consistent with the requirements of NEPA. There is no requirement for NRC to re-review previously resolved issues or to prepare an EIS for a subsequent COL proceeding regarding impacts that were considered at ESP. Under NEPA, ESP and COL are “connected actions” because the EIS prepared for ESP considers the potential environmental impacts of constructing and operating one or more new nuclear plants at the proposed site. The environmental review at the COL stage (when an ESP is referenced) would therefore be limited to a showing that the specific design chosen falls within the parameters specified in the ESP and to consideration of other significant environmental issues, if any, not considered in the previous

proceedings. For any issues deferred from ESP to COL, the NRC could issue a supplemental EIS documenting its evaluation. This position is fully discussed in NEI's February 10, 2005 letter to NRC. (ML050530439) [page xxi, line 35 and other DEIS locations] (DW-0423 1)

Comment: The environmental impacts of construction and operation are evaluated in the DEIS. The environmental review at the COL stage (when an ESP is referenced) would therefore be limited to a showing that the specific design chosen falls within the parameters specified in the ESP and to consideration of other significant environmental issues, if any, not considered in the previous proceedings. [page 1-3, line 33] (DW-0423 2); [page 2-21, line 2] (DW-0423 8.2)

Comment: The environmental impacts of operation are evaluated in the DEIS. The environmental review at the COL stage (when an ESP is referenced) would therefore be limited to a showing that the specific design chosen falls within the parameters specified in the ESP and to consideration of other significant environmental issues, if any, not considered in the previous proceedings. [page 5-7, line 19] (DW-0423 30); [page 5-10, line 28] (DW-0423 33)

Comment: The environmental impacts of construction and operation are evaluated in the DEIS. The environmental review at the COL stage (when an ESP is referenced) would therefore be limited to a showing that the specific design chosen falls within the parameters specified in the ESP and to consideration of other significant environmental issues, if any, not considered in the previous proceedings. As discussed in NEI's February 10, 2005 letter (ML050530439), updated meteorological data may not be needed. [page 5.69, line 37] (DW-0423 42)

Comment: There is one major generic concern, the finality of matters reviewed and resolved at the ESP. This is the subject of ongoing discussion with the NRC staff and is described in NEI's February 10, 2005, letter to Dr. William Beckner (enclosed). An ESP and a future combined license (COL) referencing the ESP are "connected" federal actions within the NEPA framework. This means that once reviewed for ESP, an environmental issue need not be reviewed again at the COL stage. Mirroring the intent of connected federal actions within environmental regulations are the finality provisions of 10 CFR 52.39. These finality provisions state that in a COL review, the NRC shall "treat as resolved" those matters in that were resolved in the ESP. (DW-0435 2)

Comment: If, once the new reactors are installed, a devastating effect in lake levels or temperatures, or noise levels manifests, Dominion will merely say "oops". There will be nothing that can be done, even by the NRC or State. The only hope we have for equity and fairness in this matter is that your commissions can ensure that Dominion's impact analyses are wholly accurate and realistic NOW, before approval is given. (SE-0020 2)

Response: *The actions of issuing an ESP and a COL for which the application references the ESP are not connected in the sense that a single EIS is required to evaluate the impacts of both actions. Rather, the NRC is free to evaluate the matters that are ripe for consideration at the ESP stage separate from those matters that become ripe at the COL stage. An ESP proceeding includes the preparation of an EIS addressing the environmental impacts of reactor construction and operation. The environmental issues resolved in that EIS are sufficient to take the action on the ESP and, absent new and significant information, are deemed to be sufficient to be considered resolved at the COL stage. The ESP proceeding, however, need not resolve those matters that are not yet ripe for consideration. Insofar as the actual design selected may contain new information or unexpected environmental changes may occur during the intervening years, the NRC staff will determine whether the new information is significant.*

The COL applicant must address any significant environmental issue not considered in any previous proceeding, such as those issues deferred from the ESP stage to the COL stage (e.g., the benefits assessment) and should address whether there is new and significant information on an issue that was previously resolved.

If a COL application referencing an ESP is submitted, the environmental topics resolved in an ESP EIS will be reviewed if new and significant information exists. The NRC staff, in the context of a COL application that references an ESP, defines the term "new" in the phrase "new and significant" as any information that was both (1) not considered in preparing the ESP environmental report or EIS (as may be evidenced by references in these documents, applicant responses to NRC requests for additional information, comment letters, etc.) and (2) not generally known or publically available during the preparation of the EIS (such as information in reports, studies, and treatises). This new information may include specific design information that was not contained in the application, especially where the design interacts with the environment, or information that was in the ESP EIS, but has changed by the time of the COL application.

In its ER for the North Anna ESP application, Dominion did not assess the benefits of the construction and operation of new units at the North Anna ESP site, nor did it assess alternative energy sources. Therefore, if the NRC grants the application and the ESP is referenced in a COL application, the COL applicant must address the benefits of the requested COL and energy alternatives in the COL ER. The NRC will then prepare a supplement to the ESP EIS to evaluate these matters.

References were made to NEI's letter of February 10, 2005 (ML050530439); the NRC responded to that letter on July 6, 2005 (ML051050031).

No changes were made to this EIS as a result of these comments.

Comment: [W]hat [are] the meanings of those categorizations small, moderate, et cetera that we have seen through the presentation and also in published literature. (ST-0001 1)

Comment: In the revised environmental statement, impact is listed as "small" fairly often. It seemed that "large" would be equally valid and would allow us all at least to look squarely at the problems caused by what we do. Destruction of habitat is destruction of habitat. (SW-0014 1)

Response: *As outlined in the Draft EIS and its supplement, to guide its assessment of environmental impacts of a proposed action or alternative actions, the NRC has established a standard of significance for impacts using the President's Council on Environmental Quality (CEQ) guidance (40 CFR 1508.27). Using this approach, the NRC has established three significance or impact category levels – SMALL, MODERATE, or LARGE – which are defined below:*

SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The technical analyses performed by the staff were focused on the resource and the assessment of the impacts of the proposed action on the resource.

Comment: I think the NRC, if you are truly an honest broker, should assure that Dominion's assumptions and calculations are, in fact, actual, correct, and realistic. ...We respectfully ask that ALL CALCULATIONS/ASSUMPTIONS used in Dominion's Engineering proposals (impacting lake water levels, temperatures, etc.) be thoroughly reviewed and independently verified by a qualified and disinterested engineering firm BEFORE Dominion's proposal is approved. (SE-0016 2)

Response: *The NRC and its contractors independently evaluate the assumptions and calculations made by the applicant for reasonableness. In certain cases, the staff conducts its own analysis as was done, for example, with the water budget calculations in this EIS. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: It makes no sense to certify the suitability of a site before it is clear whether there are viable and satisfactory solutions for issues such as storage of spent fuel and provision of

water for cooling. That could lead to abuses of the staged process in which excessive momentum is developed favoring final approval irrespective of whether there is strong evidence that alternatives and solutions exist for issues left unresolved during the ESP process. (SE-0038 10)

Comment: [B]y creating a twenty year window for the action, the ESP process makes conclusions about the Site and its environment, that are likely not to be true soon after the ESP is approved…Please go back to the analysis process, do a thorough review, and issue a complete Draft EIS. (SE-0049 6)

Comment: Another related issue is the approach in the DEIS of postponing several key site-related issues to the COL process. We believe that violates the spirit, if not the letter of the NRC's staged process for approval of new reactors. It makes no sense to certify the suitability of a site before it is clear whether there are viable and satisfactory solutions for issues such as storage of spent fuel and provision of water for cooling. That could lead to abuses of the staged process in which excessive momentum is developed favoring final approval irrespective of whether there is strong evidence that alternatives and solutions exist for issues left unresolved during the ESP process. The current ESP applications for North Anna and several other reactors constitutes the first real test of how the NRC will implement the new staged process and whether it intends to protect the public interest or subvert the process to avoid or obfuscate important issues. (DW-0589 5)

Comment: Page 2-9 line 1, Sections 3.3, 4.1.2, 5.1.2, 5.8.4, etc., discuss transmission access, a critical component of determining site suitability. The document asserts that no transmission expansion would be required at any time any place within the region within twenty years after receipt of the ESP and that the entire electrical output of two new nuclear generators can be transmitted. I have three problems with the approach: (A) The conclusion is suspect – rules of thumb (no details where given on the line configurations) indicate that the three lines would have a combined capacity of about 1,750 MW so the lines would be above capacity with the four nuclear units. (B) The methodology is flawed – the EIS says that the line capacity is available and that the load flow study (to verify the assertion) would be done later!! That is not a scientific approach suitable for a DEIS. If the load flow study is done later (or conditions on the line change) and it is determined that additional lines are required, the DEIS conclusions about the site would be voided. (C) The "bubble concept" requires that any new transmission lines be analyzed in the DEIS. If Dominion stands by its assertion that no new transmission is required, Dominion could stipulate that as a condition of the ESP. Otherwise, a detailed transmission assessment and a study of the related impacts must be done now and incorporated into the DEIS. This should include a 20-year load flow forecast. (DW-0438 18)

Comment: The NRC staff is assuming that "the existing transmission lines are adequate and new transmission lines will not be needed" (page 5-2, line 1-11). This is yet another example in the Draft EIS of putting off important analyses, in this case a load flow study, until the COL

stage. Determining whether there is sufficient capacity on the existing transmission lines is crucial for analyzing whether the land-use impacts to offsite areas will be significant – obviously an important siting issue. (DW-0437 61)

Response: *For an ESP, the NRC prepares an EIS that can resolve numerous issues based on existing and projected environmental site characteristics, as well as bounding values of power plant design parameters postulated in the application. These issues are subject to issue preclusion in a proceeding on an application referencing the ESP (i.e., such an issue would not be subject to litigation in the later licensing proceeding). NRC regulations allow an ESP applicant to defer an issue (e.g., the benefits assessment) as Dominion has elected to do, but also require that a COL applicant referencing such an ESP address the issue in its application. An application referencing an ESP must also demonstrate that the design of the facility falls within the parameters specified in the ESP. In addition, the application should indicate whether the site is in compliance with the terms of the ESP. If the ESP is granted, and an application to construct a nuclear power reactor on the North Anna ESP site referencing that ESP is submitted, the staff will prepare an EIS on that application. New information (e.g., the results of a transmission line load study) would be reviewed by the staff to determine if it is significant. The Executive Summary and Chapter 2.0 of this volume include an explanation of the ESP process and the interaction between the ESP EIS and the environmental review at the COL stage if the requested ESP is granted and is referenced in a COL application.*

The staff has evaluated water use for cooling in Chapter 5 and Appendix K of this EIS and determined that the impact levels are SMALL during years with normal precipitation and MODERATE during drought years.

In the Waste Confidence Rule 10 CFR 51.23, the Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

No changes were made to the EIS as a result of these comments.

4.1.1 Plant Parameter Envelope (PPE)

Comment: Here the site permit regulation [10 CFR 100.21] which Dominion must adhere to is predicated on the type of nuclear power unit. But since "Dominion has not selected a particular reactor design," the power unit is as yet undetermined. In order to evaluate the radiological dose consequences as stipulated in 10 CFR § 100.21(c)(2), the NRC must have the preliminary safety analysis report (PSAR) which would be submitted with Dominion's application for a construction permit. (TR-0034 11)

Response: *The NRC review of either an ESP application or a COL application has both safety and environmental components. The 10 CFR 100.21 requirements apply to safety reviews, not environmental reviews. The applicant provides safety analysis information that must be contained in the ESP application as specified in 10 CFR 52.17, "Contents of applications." From an environmental perspective, the staff evaluated the radiological dose consequences of design basis accidents in Section 5.10.1, "Design-Basis Accidents," of the EIS. Additional information on the safety review of the radiological dose consequences of design basis accidents can be found in Section 15.1, "Technical Information in the Application" of Chapter 15, "Accident Analysis," in Supplement 1 to the Safety Evaluation Report for Early Site Permit (ESP) at the North Anna ESP site, issued in September 2006 (ML062160207). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The fact that none of the reactors that Dominion is using to set its design parameters have ever been built in the U.S. should be explicitly stated in the Final EIS. (DW-0437 63)

Response: *The facts that the plant parameters may be drawn from a design certified by the NRC or that no reactor with such parameter values has been built in the United States are not disqualifying. The staff found that the values proposed for the consideration of analyses and assessment of impacts were not unreasonable as required by Review Standard RS-002 (NRC 2004). Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: It would be helpful to provide comparisons for Plant Parameters to the existing two units. (DW-0438 85)

Response: *There is no action related to the North Anna Power Station (NAPS) Units 1 and 2 in this ESP application that would warrant the staff to compare Units 1 and 2 plant parameters to the PPE to complete its environmental review. The proposed action does not involve the consideration of construction or operational impacts of reactor units that are comparable to NAPS Units 1 and 2. The environmental impact of the existing two units was evaluated as part*

of a license renewal in November 2002. The impact of the two existing units is considered in the staff's evaluation of cumulative impacts in Chapter 7 of this EIS. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: Dominion utilizes and the NRC accepts a plant parameters envelope, or PPE, in lieu of an actual reactor design to estimate safety impacts of the ESP… Dominion's ESP application posits a PPE which is filled with qualifiers and escape clauses. PPE date is not site-specific, not from the ESP site, and bounds only 85% of existing sites. The application states: "Site specific information is not listed on these tables. The data in this table is not to be taken as final design specific information. In some cases, where designs are not mature, the data supplied is based on engineering judgment, prior experience, or a calculation based on non-site specific assumptions." (emphasis added) [ESP Application Part 2-Site Safety Analysis Report, Section 1.3.3, page 2-1-13, Sept. 2003] Dominion's assertion that these data "can be used until site-specific design data is available" is unsupported. The NRC cannot permit the company's educated guesses to substitute for the data requirements of federal law. (TR-0034 8 and DW-1163 8)

Response: *The safety impacts are evaluated in the ESP safety evaluation report. The ESP safety review was a site suitability review, not a design review. At the COL stage, the applicant has the option of selecting a certified design, for which the design information has been reviewed, or submitting a design that is not certified for the NRC to review. Under either option, the design information required by the regulations has been or will be submitted and reviewed. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The consequence of these deficiencies [in the PPE approach] is that one cannot verify the impacts of the new reactors. This is a failure of omission which prevents the NRC and the general public from properly assessing the impact of new reactors at North Anna and ascertaining the accuracy of Dominion's analyses. (DT-0034 9) (DW-1163 9)

Comment: Since the ESP is an optional early stage process devised primarily for the convenience of the applicant, and the environmental impacts of Dominion's continually evolving proposal are at this point still defined by a general "plant parameter envelope," comprised of nominal operating values rather than those pertaining to a site-specific detailed plant design, we see no advantage, and significant disadvantages, to VDEQ offering its concurrence (or conditional concurrence) at this time. (SE-0040 1)

Response: *The PPE approach can be used as an acceptable surrogate for an actual reactor design. The PPE values were used to evaluate the impacts, but will be compared to the design selected at the CP/COL stage. If the design selected at the CP/COL stage is outside the bounds of the PPE, then the significance of exceeding the bounds will be evaluated. The advantages or disadvantages to VDEQ concurring on Dominion's Coastal Zone Management*

Act certification are not relevant to the NRC's EIS. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: The proxy plant approach that is used to define the Plant Parameters in Section 3 and elsewhere is hard to follow. Min, average, and max values for each key parameter should be clearly identified. (DW-0438 81)

Response: *The PPE values were used in the staff's analyses to determine the environmental impacts for the ESP action. Therefore, minimum, average and maximum values for each parameter are not needed. The PPE values that were used in the staff's analyses are included in Appendix I. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Chapter 3, page 3-7, line 17 - Generally speaking, the design basis for the new units will reject ½ as much heat to the environment as each of the existing units. Is there a rationale for this, and for which designs does this apply? (DW-1272 5)

Response: *The relevant text in Section 3.2.2.1 states, "During low water conditions, the existing NAPS Units 1 and 2 are allowed to operate until the lake level elevation reaches a minimum level of 73.8 m (242 ft) above MSL." However the preceding paragraph states in part:*

"Dominion states that the heat rejection rate to the environment for each unit is bounded by 2800 MW (9.7 x 10^9 BTU/hr). Unit 3 would withdraw water from Lake Anna and discharge the heated effluent to the discharge canal, which is the same as for the existing NAPS Units 1 and 2, except for the difference in flow rates."

The sentence stating that the discharge canal "... is the same as for the existing NAPS Units 1 and 2," referred to withdrawing water from Lake Anna and discharging the heated effluent to the discharge canal, and was not meant to imply that proposed Unit 3 would discharge the same amount of heat as the combined heat output of Units 1 and 2. The text in the EIS was changed to clarify this point.

Comment: Chapter 3, page 3-9, line 22 [Chapter 3, page 3-14 , Line 20 in SDEIS] - If adequate design information is only available to accurately estimate liquid and gaseous effluents for 3 reactors, then this DEIS should only apply to those reactors. The usefulness of the information included in this DEIS is limited to those plants used as a design basis for the PPE. Otherwise, problems will arise when a PPE has been established, but a new design must [be] "shoe-horned" into the parameters established by the PPE (which were based on other reactor designs). (DW-1272 7 and SE-0030 21)

Comment: Chapter 6, page 6-20, line 6 - Note the admission that the impacts of gas-cooled reactors would need to be assessed at the CP or COL stage, when more data is available on the design. (DW-1272 11 and SE-0030 23)

Comment: The document is too broad in its consideration of potential plant designs. The document intends to allow for the citing of 7 potential designs for nuclear units. While adequate design information exists for a few of the designs, by the admission of the NRC (see Chapter 3, page 3-4, lines 31 and 32, lines 39 and 40, lines 40 and 41) there is inadequate design information available for some of the proposed units from which to make accurate environmental assessments of the impacts. The document should limit its scope to those nuclear plant designs for which reasonable data existed for assessing environmental impacts. If the NRC continues to consider those reactor units as viable it should develop a supplemental EIS or an additional EIS when environmental information becomes available. Based on a review of the DEIS, the document should be limited to the following units: ACR-700, Advanced Boiling Water Reactor, Advanced Pressurized Water Reactor (Surrogate API000), and the Economic Simplified Boiling Water Reactor. (DW-1272 1 and SE-0030 15)

Comment: Chapter 6, page 6-22, line 21 - Note that the document states that there exists significant uncertainty in the final design of any gas-cooled reactors. Thus, the DEIS [and SDEIS] should be limited to exclude the design of these reactors until specifics on the design are known. Same comment for page 6-38, line 25. (DW-1272 12 and SE-0030 24)

Response: *The ER and Dominion's responses to requests for additional information provided some information unique to other-than-light-water reactors. However, because of the uncertainty in the final design of the other-than-light-water reactors and the change in technology that could be applied to the uranium fuel cycle activities, if an other-than-light-water reactor is chosen, additional reviews would be needed at the CP or COL stage in the following areas: fuel fabrication, enrichment, and solid low-level waste operation during decontamination and decommissioning. If an applicant for a COL selected a type of reactor other than a light-water reactor or one whose characteristics are not bounded by PPE values, then the applicant would have to submit any related new and significant information in its COL application, and the NRC would evaluate the impacts in the COL EIS. Because staff preparing an EIS at the CP/COL stage would evaluate the impacts of the new information of designs other than the surrogate ESBWR, AP1000, and the ABWR and determine whether the information is significant, there would not be any "shoe-horning" of designs to fit within the staff's evaluation contained in the ESP EIS. The language in Section 5.10.3 was clarified in response to these comments.*

Comment: Chapter 1, page 1-2, line 13 - The document states that a detailed design of the reactor or reactors is not needed at this time. However, there should be enough design information or data available on any reactor design to accurately bound the environmental impact. For several of the desired plant designs, this information is either not available or not provided as part of the DEIS in order to substantiate Plant Parameter Envelope information. (DW-1272 2 and SE-0030 16)

Comment: Chapter 3, page 3-3, paragraph - The approach to develop a plant parameter envelope, while valid, is much more useful for developing a generic environmental impact statement. The approach proves less useful when referring to a specific action at a site. This approach is less credible when used to encompass reactor designs for which no accurate design parameters exist (the gas cooled reactors; and the IRIS next generation pressurized water reactors). (DW-1272 3 and SE-0030 17)

Response: *Plant parameters cannot be unreasonable estimates and, therefore, may not bound all circumstances. However, they are expected to bound a reasonable range of values from a variety of reactor designs. The ESP does not allow the construction (other than certain site preparation and preliminary construction activities) or operation of reactor(s). The ESP can be referenced in a COL application requesting authority to construct and operate reactor(s). The NRC does not subscribe to an approach that would lead to a generic EIS for a reactor design for an unnamed location.*

For North Anna, the NRC will prepare an EIS at the COL stage. The EIS at the COL stage will tier off the EIS prepared for the ESP. The staff will evaluate new design information to determine whether it is significant. If the new design information is not significant, the conclusion reached in the ESP EIS will not be revisited. If the new design information is significant, the staff will evaluate the new and significant information to determine its impact. The staff expects there to be less potential for new and significant information about light-water reactors than about gas-cooled or other advanced reactor designs. The interaction between the environmental review performed for the ESP EIS and the environmental review that will be performed for a COL application referencing an ESP is explained in more detail in Section 2.1 of this volume.

Comment: What is the rationale for not using the same plant values in the DEIS and the safety review (page 3-3, line 18)? It seems like bad science. (DW-0438 82)

Response: *The safety review and the environmental review have distinct regulatory objectives. For some analyses that address similar issues, the analyses differ. For example, in the evaluation of dose assessment, the safety review uses "worst case" 95th percentile atmospheric dispersion factors while the environmental review uses realistic case 50th percentile values. The rationale for not using the same values in the safety and environmental review is that in environmental reviews, the staff presents a realistic evaluation of impacts, and in safety reviews, the staff uses conservative assumptions to protect public health and safety. Realistic values are used in environmental reviews to provide a consistent standard for weighing alternatives and evaluating appropriate mitigation measures. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: I'm very concerned about this entire process. It's a new process the government has initiated. It's a streamlined process. These two reactors that Dominion is applying to build are the first to be applied for under this process, and I believe this is an abrogation of the democratic system. (DT-0007 1)

Comment: [T]he need for a "Site Redress Plan" (Section 4.11), which addresses the activities required to return the North Anna site to its present state if infrastructure construction activities are truncated and the breadth of the facilities that can be constructed under the ESP (listed on page 4-46 of the DEIS) is an indication of the bizarre and arbitrary division between the ESP and the COL processes. Clearly, the specific site and the specific reactor are one in the same project, and the division into the ESP and COL licensing process is completely arbitrary. (DW-0437 2)

Response: *The licensing process in 10 CFR Part 52 was developed through a rulemaking that was completed in 1989. The rulemaking process invites public comment and participation. Accordingly, no change was made to this EIS as a result of these comments.*

4.1.2 Public Participation

Comment: The powers to be had said that they have put the information out there for all to see and participate in. Not so. My community ... lies approximately 15 miles from the current power plant. None of the people living in this area have been approached or asked or given any information about the current application for and ESP at north Anna. I do not want this neighborhood left out because there are lots of minorities that live here. The Jackson district pays taxes in this county. They should be allowed the facts on the impact of this proposed nuclear reactor building. (DW-0626 1)

Response: *The NRC publicizes every one of its public meetings through official means and is receptive to public participation. The NRC took additional measures to ensure that all of the local communities had the opportunity to become aware of the public meetings to discuss the North Anna ESP application. For the environmental review, the first meeting was a scoping meeting in December 2003, the second was in February 2005 on the Draft EIS, and the third was in August 2006 on the SDEIS. In addition to the notice at the NRC website, in the Federal Register and the issuance of press releases, these meetings were widely advertised in newspapers throughout the region of interest (The Richmond Times-Dispatch, The Daily Progress, The Free Lance Star, and The Central Virginian), through flyers posted in Louisa and Orange Counties and through announcements on radio stations in the area. Known public interest groups were also alerted to the meetings by the meeting facilitators. The Draft EIS and SDEIS were available for public review at the Louisa Public Library and on the NRC website, and copies of the Draft EIS and SDEIS were made available to anyone who requested them. The scoping meeting and the meeting on the Draft EIS and SDEIS occurred during specified comment periods so that interested members of the public could attend and share their insights;*

even if a person could not attend either of these meetings, the official comment period remained opened for a period thereafter to afford the public the opportunity to share information with the NRC. Information regarding the NRC environmental review, as demonstrated by the above, has been widely available to the public. Accordingly, no changes were made to this EIS as a result of this comment.

Comment: If there are so many people that still want to speak, can I suggest that perhaps you set up a second, third, and maybe a fourth public hearing in areas that are in Central Virginia so that people may make comments and this session could continue? Because I think that this is not only important for Central Virginia, but I think it's important for Virginia...I think we should have hearings in Charlottesville. I think you should have them in Richmond. I think you should have them in Fredericksburg. (DT-0030 1)

Comment: And if the only say that citizens of this county have about the radioactive waste being created here and stored in our community is three minutes to speak at one hearing or two hearings where no decisions are made and some questions aren't going to get answered, then I think we need a new process. (DT-0037 4)

Comment: Please change this process so that everyone can be heard from. (DT-0037 9)

Comment: For a project of this magnitude it seems that one public hearing in one location is insufficient to provide the public an opportunity to get educated and provide comments. I know that I personally was unable to attend the revised hearing date due to work requirements. I again restate my request for another public hearing on the DEIS. (DW-0438 175)

Comment: The public hearing, delayed by snow and rescheduled, needs to be repeated. The hearing on February 17th did not afford time for all who wished to present testimony and conditions were very bad for all constituents. The format was not well controlled and executed. Please hold another public hearing in a better venue. (DW-0454 2)

Comment: I attended the public meeting the night of February 18, and stayed until 11:45 pm. I was very disappointed that even though I had registered to speak over a month ago, I did not get the opportunity to do so, even though speakers who live much farther away were afforded this opportunity, often with comments that were not relevant to the EIS. It wasn't until after the meeting that I found out that I had to "sign-in" again the night of the meeting to speak. (DW-0820 1)

Comment: There are two comments I have for future sessions of this nature. One would be to address the issue of repetitive comments. I would recommend that in the future to make an announcement beforehand that if, when a member of the public's name has been selected to comment, that if their views have already been expressed, then they should briefly indicate what those were and to provide a full written comment after the meeting, or at a later date. This

would provide more time for a greater number of issues and would have been particularly beneficial at this meeting where probably 90% of the comments didn't actually pertain to issues raised in the Draft EIS, but instead boiled down to a debate for or against nuclear power in principle. I am sorry that you did not have more constructive comments pertaining to the subject at hand. (DW-1148 2)

Comment: I'd like to refer back to what you've mentioned, the safety evaluation review. The opportunity for public comment on the safety evaluation review is February 23rd, I believe, and then March 2nd and 3rd. Now, in order for the public to make comments on this critical aspect of the application Dominion is putting forth, one would have to leave one's job and go up to Washington, D.C., and that's exactly what I intend to do, and I'm, frankly, very resentful of having to do that, and I think it's very indicative of this whole process. Once a year we get a time to talk among the community about this important issue, and I don't think it's enough. (DT-0007 2)

Comment: I do believe that this process is a farce. The NRC has streamlined it for the purpose of limiting public participation. That's why hearings about a new reactor in Mineral, Virginia, are more likely to occur in Rockville, Maryland. That's why important issues like nuclear waste and terrorism are left out of the discussion. (DT-0036 1)

Comment: I am gratified of the number of people who have taken the time to go through the ESP and make relevant comments, comments I think that the NRC needs to go back and review and understand, and I believe come to a proper answer to [the ESP application]. (DT-0049 1)

Comment: I am thankful for the opportunity to participate in this democratic process. (DT-0045 1)

Comment: My second comment pertains to the filtering I perceived by the moderator in selecting who would get to speak at the meeting. If that filtering was in search of other affiliations so that a diversity of opinions could be expressed at the meeting, I understand and accept that. However, I also did feel that certain members of the public were given a special consideration to speak over others, even though they did not state anything that wasn't previously presented. This to me seemed unfair and disrespectful. What right do these people have over others in the audience to speak? Please address this issue in future meetings. (DW-1148 3)

Comment: For the record, I would like to add that the NRC's moderator at the February 17th public hearing in Mineral did an excellent job. Throughout the meeting, Mr. Cameron was courteous, respectful, and professional. (DW-1163 19)

Comment: I was told time and time again at the EIS public meeting that this issue was very complicated and that I would not understand all of the issues. I think that this is a very dangerous attitude. (DT-0061 1)

Comment: If public meetings are being conducted, there should be no done deals, there should be room at any point in this process to change, to acknowledge that we have made an error based on the idea that actually we need to be stewards at our environment, not just the environment. (DT-0051 1)

Comment: I may not be an expert, but I know not to trust the "experts" when they say "trust us." (DT-0061 5)

Response: *NRC staff activities to fulfill its NEPA responsibilities are governed by the NRC's rules and regulations (see 10 CFR Part 51) and its body of regulatory guidance. Development of the framework and conduct of regulatory activities are performed in open and transparent forums.*

Apart from the requirements to establish a scoping process to seek input and the issuance of the Draft EIS for public comment, the NRC elected to conduct a public meeting during each of these phases. These meetings did not short-circuit the formal scoping period or the comment period. These meetings were scheduled at intermediate points within the scoping and comment periods so that members of the public could obtain additional background information and provide their insights. The NRC transcribed the meetings to provide convenient platforms to accept comments from members of the public who were prepared to make comments during the meetings. If the public had the interest to provide additional comments after the meetings, then they were provided with the specific information necessary to communicate with the NRC on this project.

More than 300 people took advantage of the NRC's public meeting opportunity on the Draft EIS held on February 17, 2005. The public meeting was scheduled from 7:00 to 10:00 p.m. with an informal "open house" from 6:00 to 7:00 p.m. The "open house" period began shortly after 5:00 p.m. because the public arrived early, and the formal meeting did not end until nearly midnight to afford the opportunity for as many people to share their views as possible. About 300 people attended the public meeting on the SDEIS held on August 15, 2006. The public meeting and "open house" were widely attended.

Rather than conducting a public comment period for the 45 days required by NRC regulations, the NRC staff included the equivalent of two 15-day extensions on the Draft EIS and granted a 15-day extension on the SDEIS. This was to afford the public as much time as practicable to contribute in a meaningful manner.

During the public meeting on the Draft EIS, the NRC facilitator accommodated as many presenters as possible and anyone who attended the public meeting and wanted to offer comments on the SDEIS. The NRC did not constrain the content of comments offered, whether or not they were within the scope of the environmental review; the content was within the prerogative of the presenter. The facilitator does assume that the proponent of the application (Dominion) and governmental officials can present their comments first, but thereafter, the facilitator has the discretion to schedule the presenters. The goal of the facilitator was to allow as many people as possible to express their views without any bias as to the speakers' viewpoints.

For ESP matters outside of the environmental review, the NRC has opportunities for public observation and participation. Public meetings may be conducted in the site vicinity or in other locations, including NRC headquarters in Rockville, Maryland. Interested members of the public can obtain the schedule for NRC public meeting times and locations from the NRC website: www.nrc.gov. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [Comment on Dominion's ESP application rather than the SDEIS] [There are] too many supplemental confusing documents, using inconsistent terminology to insure that all items have been reviewed to protect the public's interest. There are also many supplemental Requests for Information and Responses from Dominion with in some cases unclear responses. The NRC is planning to issue a supplemental draft environmental and supplemental draft safety report. How is the public going to keep track of all these changes? ...It is recommended that both the state and federal agencies have one only joint hearing and invite all associated federal and state departments that may play a role in this major project, so the public is not confused on whom to report what issues to and expect a reasonable response. (SE-0003 12)

Comment: [Comment re letter from Dominion in response to NRC questions dated April 13, 2005 (i.e., Dominions Application Revision 6)] Will there be a joint Coastal Management and NRC public hearing on this major revision to the ESP Application by Dominion for the North Anna Units 3 and 4 including DEQ, Fish and Game, Health Department, and surrounding counties? (SE-0004 1)

Comment: The current public comment period should be extended to permit the public to have adequate time to review and comment on Revision 7 and Revision 8 which were just issued after the supplemental draft environmental impact statement was issued in July just a few weeks ago. (ST-0014 24 and SE-0022 37)

Comment: We appreciated the opportunity to participate in the August 15 hearing. However VA DEQ held a hearing on the project on the following day. This presents a time burden on affected individuals to participate in both processes. Would it be possible to hold a combined

public hearing that addresses all jurisdictional issues in the future? This would facilitate public participation (which is one of the goals of the NEPA process) rather than be divisive. (SE-0045 9)

Comment: [Y]ou issued the supplemental draft environmental impact statement on the 7th of July. Isn't it unusual to have a public hearing so quickly after the issuance of a supplemental draft environmental impact statement? Shouldn't there be more of a period of time for the public? In addition, it is August and a lot of people are on vacation. (ST-0002 1)

Comment: The NRC has either deliberately devised or negligently allowed the ESP process to evolve in a way that overtaxes and bamboozles the public and even state regulators with a continuing and chaotic blizzard of ever-changing project documentation. ...We would hazard a guess that the logistical, analytical, and sheer time demands of keeping up with the NRC's chaotic permit review process have deterred many citizens from participating in it at all, and discouraged others as soon as they became aware of its daunting demands and perverse complexity. The process effectively excludes anyone from meaningful participation who does not have the patience, time, and particular skill set to wade through the documentary swamp the NRC has generated. (SE-0040 13)

Comment: The NRC should evaluate all of the applicant's documents and ensure that they are complete before completing its analysis of the issues and issuing the documents to the public or the commonwealth for review. Once the NRC and the applicant have finalized the requested ESP application, then and only then should the documents be issued for public and commonwealth review. (SE-0022 7)

Comment: The NRC continues to accept many changes to the ESP, without automatically extending the public comment period each time a change is issued. ...While the Draft Environmental Impact Statement (DEIS) is still under review, Dominion continues to make revisions to issues that are analyzed. Hence our review of the DEIS is a moving target, without the NRC automatically extending the public comment period and giving the public sufficient time to review the changes (SE-0022 6)

Comment: And the NRC continues to accept many changes to the ESP without automatically extending the public comment period time with these changes and issues. Recently, we've reviewed just thousands of pages and within the last few weeks, a revision seven and eight were issued and the public comment period has not been extended for that there. The current ESP resembles a three ring circus without having the ring master to direct all of the acts, but the timekeeper is making sure that the public audience moves out of the big top so the next scheduled performance can begin. (ST-0014 3b)

Comment: Has the NRC's shoddy ESP process violated citizen's due process rights under the Administrative Procedures Act, the National Environmental Policy Act, and NEPA's implementing regulations? (SE-0040 15)

Comment: The public should be involved in both the Safety Evaluation Report, as well as the Environmental Impact Statement. The NRC does not provide for any public scrutiny of a draft Safety Evaluation Report prior to its issuance. The public's safety should be the primary focus of any government agency. The public's review of any safety projects is essential. (SE-0022 3)

Response: *Because the application is electronically filed, the entire application is assigned a new revision number even if only a few pages are changed. Dominion's ESP application is an electronic filing; as such, every revision or amendment reflects the most updated version of the application. The NRC develops two documents to record the results of its reviews, an EIS and a SER. The EIS is to fulfill the NRC's responsibilities under NEPA. The SER is to fulfill the NRC's responsibilities under the Atomic Energy Act. These documents have different purposes and different review standards. Similarly, NEPA, the CZMA, and other environmental statutes have differing purposes and procedural requirements. At times, particularly in this case where the applicant elected to make a substantial change to the proposed action, the NRC may have to issue a supplement to its document; consistent with its regulations at 10 CFR 51.72, the NRC invited the public to comment on its supplement to the Draft EIS before it was finalized. The NRC supplemented its safety evaluation report as well. The public comment period on a draft EIS is a minimum of 45 days from the date that the EPA publishes the Federal Register notice that the EIS was filed; the draft EIS cannot be filed with EPA until it has been distributed to known interested parties. An applicant may make subsequent revisions or amendments to the application. Insubstantial changes may be made to an application without a supplemental EIS being issued, therefore having little or no effect on the review schedule. If the staff determines that the revision is a substantial change, then the NRC could issue a supplemental EIS, as it did in the change to the cooling system.*

In addition to the Federal review and consultations, the Commonwealth of Virginia also has statutes and regulations that relate to the ESP application and that have to be met. For example, the Commonwealth must either object to or concur with a certification that a proposed action is consistent with the Commonwealth's plan under the Coastal Zone Management Act (CZMA). The public is an important stakeholder in all of these processes; individuals have the opportunity to determine whether they have an interest to participate in these different regulatory processes. Staff of the NRC and the Commonwealth have been responsive to stakeholder concerns in each of the different regulatory forums, but the goals and objectives of each do not uniformly overlap and should not be conducted jointly; furthermore, public meetings and public hearings have different legal effects. Specifically, the NRC conducts "hearings" to compile a record for the agency to use in making a decision on the application, and which may ultimately be reviewed by a court. In contrast, a "public meeting" is a means to obtain information from members of the public to assist the NRC in addressing public concerns,

improve the quality of the review documents informed by those concerns, and satisfy legal requirements (such as in NEPA) for obtaining public input. To the degree that the NRC and other organizations can cooperate to avoid duplication, the NRC has established Memoranda of Understanding or used NEPA principles to work cooperatively. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: [P]art of the NRC's mission is to protect our interest. It's also to allow us to educate ourselves by gaining information. I advocate for more hearings around the state. (ST-0002 8)

Comment: We are very disappointed at Dominion's apparent approach in trying to influence the NRC and VDEQ public hearings held on 15 and 16 August. ...over 50% of the public speakers at both hearings were Dominion employees, retirees or contractors, all of which had only positive comments about the proposed 3rd and 4th reactors. ...The meeting room in the Louisa Middle School held about 300 persons, of which about 150 plus were Dominion employees/retirees/contractors. ...With this type of an apparent attempt by Dominion to influence both the NRC and VDEQ public hearings, how can the National Environmental Goals which are expressed by the National Environmental Policy Act (NEPA) of 1969 public law 91-190, 83 Stat. 852 receive a fair and impartial public hearing . ...How can the NRC and VDEQ prevent this from happening in future public hearings? (SE-0033 1)

Comment: For a project of this magnitude it seems that one public hearing in one location is insufficient to provide the public a real opportunity to get educated and provide comments. Limiting the public hearings to evening hours excludes the participation of those who work evenings. Limiting the public hearings to the Louisa location makes it difficult for those who live in other localities within the affected area to attend. (SE-0045 48)

Comment: A more thorough EIS would have multiple public hearings at different times. (ST-0036 11)

Response: *The NRC has established numerous means for the public to become aware of actions pending before the agency so that the public can determine whether it has the interest to participate. Apart from the required notices published in the Federal Register, the NRC maintains a website that lists every public meeting and information on various licensing programs, such as for new reactors, with the detailed licensing schedule and information sources on the application, specifically, and brochures and information in general. The NRC believes that an informed public can determine whether it wants to participate in the licensing process and have an appreciation for the schedule that will be followed to determine how to plan for participation.*

For the environmental review, the NRC undertakes the additional effort to provide platforms during the NEPA scoping process and on the draft EIS for the public to engage with the staff in meetings close to the site. The public comment period on a draft EIS is a minimum of 45 days

from the date that the EPA publishes the Federal Register notice that the EIS was filed; the draft EIS cannot be filed with EPA until it has been distributed to known interested parties. The NRC may elect to hold one or more public meetings during the public comment period. These meetings are not required, but the NRC believes that they are important opportunities for members of the public to participate, if they elect to do so, with the staff in a meaningful manner either to obtain information to formulate their comments or to share information and views on the proposal before the agency or the staff review. The earlier in the public comment period that the NRC holds the public meeting, if it elects to hold one, the greater the likelihood that interested parties will obtain the information that they need to develop comments and insights that will inform the work of the NRC. Public meetings are not hearings and the licensing action is not subject to a referendum. Hearings have particular meaning for the NRC and are held before an adjudicatory body, the NRC's Atomic Safety and Licensing Board (ASLB), on certain types of licensing actions, such as an ESP. The ASLB also has the discretion to provide the public the opportunity for limited appearances.

Interested parties have taken these opportunities to share their views on the issues. If they cannot attend the public meeting, that does not foreclose their opportunity to participate; in the case of formal public comment periods, they can submit material to the NRC even after the public meetings have been held and it will have the same standing as if presented at a public meeting where a transcript was taken. If a member of the public elects to share her or his view that he or she is in favor of the action or against the action, but does not provide detailed information on an environmental issue considered in the EIS, that is her or his prerogative, but it cannot inform the staff's review and it will not affect the analysis or conclusion. If a public interest group, an industry interest group, or an applicant encourages public participation in the process and, as a result, members of the public engage in the process, then it serves the goals of NEPA. If no one elects to engage in the process, then the NRC can finalize its EIS without modification even if analyses prove to be incorrect; such a situation does not serve the goals of NEPA. The general public needs to understand that at an NRC environmental public meeting, the applicant's proponents, indeed the applicant, is just another member of the public in the eyes of the NRC. Accordingly, no changes were made to this EIS as a result of these comments.

Comment: I do support the process that you're going through and in a profession I've focused, my career is process management, so it's nice to see it in action and that I can be a part of it. (ST-0019 1)

Comment: I also support the ESP process as the means to warrant an open and thorough evaluation of future nuclear projects, involving all the stakeholders and ensuring the timeliness and predictability of the process. I really think that this process works and this is why we are all here today. We all have the opportunity to voice our concerns with Dominion's plans and thorough discuss them. Dominion was very proactive to revise the proposal to address the

concerns that were raised in this meeting and are coming for additional meetings and this is also the reason why we are here today again. (ST-0013 4)

Comment: The NRC staff has performed a rigorous review of the potential environmental impacts associated with the operation of additional reactors at the North Anna site. (SW-0013 4)

Comment: It seems that the SDEIS, like the DEIS, was not performed by an unbiased interdisciplinary team as is required by NEPA. ...Page 1-6 states that "Dominion did not or was unable to provide information and analysis for certain issues sufficient to allow the NRC staff to complete its independent analysis". Thus the issues "are not resolved". The NRC should have commissioned independent sources to develop the required data. It is imprudent to conclude a recommendation to approve an ESP where major issues "are not resolved". (SE-0045 10)

Comment: I respectfully ask that your commissions require A Full Technical Analysis and Certification of Dominion's Engineering Studies, Assumptions, Estimates and Mathematical Calculations By Competent Disinterested and Independent Engineering Firms Before the ESP is Approved [quoted from SE-0016 1]. We do not believe that an impartial, qualified "honest broker" has technically analyzed in depth or substantiated Dominion's impact assertions. ...Over time, as the EIS process has forced Dominion to confront the concerns of other Counties and State Agencies, its rhetoric has grown more diplomatic, its manner polite, its demeanor sincere and the potentially disastrous impacts have all but faded away in their presentations. (SE-0020 1)

Comment: The NRC staff has performed a rigorous review of the potential environmental impacts associated with operation of additional reactors at the North Anna site. I commend the agency staff for its meticulous review of Dominion's ESP application and support its conclusions contained in the supplemental draft environmental impact statement. (SW-0002 4)

Comment: The NRC scientists should be embarrassed. They also approved this plan the first time. All of this information was out about the water temperature on the warm side of the lake. It was there, and they said…they liked it. (ST-0024 5)

Comment: [W]hat we're talking about here is a federal action that has potentially serious regional consequences that have not yet been properly analyzed and documented. I hope that the NRC takes corrective action sooner rather than later, and gives the public additional information. (ST-0036 13)

Comment: [I]t is confusing for the reader whether the SDEIS is addressing just the cooling changes or the entire project. Without a clear understanding the reader cannot form an educated opinion about the project impacts…[Because of this] a new DEIS could be issued that

provides a comprehensive analysis including addressing many of the shortcomings of the original DEIS. (SE-0045 8)

Comment: It's unclear to me whether the supplement is strictly about the cooling system change, or the whole project. A more thorough draft document would show what the changes are in each section. (ST-0036 8)

Comment: I believe that the SDEIS is substantially flawed and request that these comments and others be fully addressed and that another DRAFT EIS be released. Unless such an action is taken, concerned citizens and local governments...cannot make informed decisions about the proposed project. The flaws in the SDEIS and DEIS do not provide the scientific, legal, or policy background to support a finding to recommend the ESP. (SE-0045 49)

Comment: I also support the ESP process as the means to guarantee an open and thorough evaluation of future nuclear projects, involving all the stakeholders, while ensuring the timeliness and predictability of the process. (SE-0025 5)

Comment: We support the ESP process as a means to facilitate an open and thorough evaluation of future nuclear projects, while ensuring the timeliness and predictability of the process. (SW-0009 3)

Comment: [W]e support the ESP process as for the means to guarantee an open and thorough evaluation of future nuclear projects, while ensuring the timeliness and predictability of the process. Tonight's public meeting demonstrates the benefits of the new process. That is that safety, environmental and licensing issues are resolved before large capital investments are made. ...When Virginia DEQ nearby residents raised concerns about the impact on lake temperature that a third unit would have, as a result of this public process, Dominion modified its proposed design to include a cooling tower for a third unit to address the concerns, exactly what the process was intended. (ST-0012 2)

Response: *The ESP licensing process was established in 10 CFR Part 52 and was promulgated in 1989 (see 54 FR 15386). In 2000, the NRC staff finalized the environmental procedures to guide its environmental review, published as the Standard Review Plans for Environmental Reviews for Nuclear Power Plants (ESRP), NUREG-1555 (NRC 2000). The ESRP and Part 52 were issued for public comment to ensure that all interested parties had the opportunity to provide insights on the NRC's approach to comply with its NEPA review responsibilities before the NRC conducts its reviews and develops its EISs. The NRC's Draft and Final EISs are developed using these environmental review procedures and an interdisciplinary team of environmental specialists comprised of NRC staff and its contractors. The ESP application includes the applicant's representation of environmental impacts and it*

serves as a starting point for the staff's independent assessment; in the end, the NRC is responsible for the reliability of all information it uses in its EIS, even if information or analyses were provided by the applicant.

In the situation where an EIS is supplemented before it is finalized, the supplemental EIS is to focus on the issues that changed from the original proposal and the effects of such changes on the various sections of the Draft EIS. This is clearly articulated in the NRC's Notice of Availability published in the Federal Register regarding the availability of the supplement as well as in the introductory matter of the supplement, which was intended to guide the public's attention in developing their comments. In fact, sections that were unaffected by the applicant's change in the proposal were so identified. The fact that an acceptable approach or design is modified can be the result of any of numerous technical or policy decisions. The NRC's approach for inviting the public to participate in the environmental review is entirely consistent with NEPA principles; however, the NRC provides for additional opportunities for public participation on most actions that require an EIS to ensure that all interested stakeholders can participate effectively.

An ESP is valid for up to 20 years and can be renewed. By itself, an ESP does not result in the construction and operation of a nuclear power plant. If an ESP is referenced in a COL application, then the COL applicant must demonstrate that the facility proposed at the COL stage falls within the parameters contained in the ESP. If new and significant information is revealed in the subsequent licensing action, then the issue in question will be revisited at the time of the COL. An issue that was not resolved in the ESP proceeding because, for example, it could be deferred in accordance with NRC rules or insufficient information was available at the time the ESP application was considered, must be resolved in the COL proceeding. Examples of issues that can be deferred include the benefits assessment/need for power assessment can be deferred until the COL under 10 CFR 52.18 and the Commission has determined that the alternative energy analysis.

4.2 NEPA Compliance

Comment: The Commission can and, we contend, should require Dominion to submit information in accord with NEPA to allow an independent and fully informed evaluation as required by NEPA, including the no-build option. (DT-0034 18)

Comment: The Purpose and Need of the Draft EIS does not include an assessment of the energy needs for the addition of two nuclear power units at the North Anna facility, nor does it assess other energy alternatives. The focus of the Purpose and Need was restricted to simpl[ify] the suitability of citing two nuclear power units at the facility. It is EPA's understanding of the NRC's two-step streamlining permiiting process would require an energy needs analysis which would include energy alternatives assessment in a second EIS in accordance with

10 CFR Part 50. EPA has concerns with this approach since it ignores the justification for the power plant addition in the early stage of project development as well as biases the subsequent energy alternative analysis toward nuclear power under the second EIS since the NRC would have approved the suitability under the ESP. (DW-0422 1)

Comment: The Dominion Environmental Report (ER) is referenced extensively … Many of the Draft EIS conclusions are based on this document. Further the Dominion ER is not part of the Draft EIS nor was it submitted to EPA as part of the Draft EIS submittal. EPA believes that a review of the ER is an important element of the evaluation of the Draft EIS and should [be] included as an attachment. (DW-0422 2)

Comment: The science behind many sections of the DEIS seems fuzzy. The conclusion of SMALL impacts doesn't logically flow from the discussion and often is unsubstantiated. The policy analysis specifically with regard to regional socio-economic measures is very weak. I request that the DEIS be prepared in accordance with the intent of NEPA and re-issued. (DW-0432 1)

Comment: Page 1-3 states that the ER does not need to include discussion of energy alternatives. A NEPA-compliant EIS, on the other hand, does need to. (DW-0438 6)

Comment: Page 1-3 states that the EIS does not include an assessment of the benefits of the proposed action. It is thus not a NEPA-compliant EIS. (DW-0438 7)

Comment: There appear to be three major flaws with the process and the project and we are hopeful that the NRC will go back and do the appropriate research and reporting, perhaps via a revised Draft EIS that meets the intent of the National Environmental Policy Act. It appears that information about this proposed action is incomplete at this point in time and that the public has not been provided with important information that they would need if they were to be able to make relevant comments. This would be the same information that the agency would use to make an informed decision. ...I urge you to produce as complete a record as you can and suggest that only then do we have a legitimate process to receive public input on this proposal. We thus request that the NRC issue a supplemental DEIS and defer the decision making process until the record is complete. (DW-0594 1)

Comment: The EIS is not a true NEPA document – it does not include mitigation steps and clear discussion of irreversible and irretrievable impacts. (DW-0594 13)

Comment: Dominion's Environmental Report does not contain a sufficient discussion of the purpose and need for the proposed action, the environmental impacts, or the relative costs and benefits of alternatives. (DT-0034 16 and DW-1163 17)

Comment: The Commission can and, we contend, should require Dominion to submit information in accord with NEPA to allow an independent and fully informed evaluation as required by NEPA, including the no-build option…. Before granting a permit, the NRC has the duty to comply with the National Environmental Policy Act (NEPA) to the fullest extent possible… In Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972) the court held that reasonable alternatives must be considered, even if the alternatives are not within the scope of the agency. (DW-1163 18)

Comment: I concur with the assessments on the DEIS which have been presented to you by the Blue Ridge Environmental Defense League, and strongly state that, overall, the NRC's analysis of the potential environmental impact has significantly underestimated the potential negative impacts that granting an ESP would bring to the quality of the air, water, and land of the region. ... I would ask the NRC to withdraw its current Draft Environmental Impact Statement and redo its analyses so that proper attention is given to the negative impacts that the new nuclear reactors would bring were the NRC to grant Dominion an Early Site Permit. (DW-1176 1)

Comment: In general, the North Anna ESP DEIS provides a thorough evaluation and well founded conclusions on the Environmental Report provided as part of the Dominion ESP application. The evaluations and conclusions are consistent with the requirements of NEPA and 10 CFR Part 51. (DW-0435 1)

Comment: We repudiate the Commission's (NRC) and heavily subsidized industry's efforts to license new nuclear power plants despite unresolved safety and waste issues which include immunizing plant operators from liability in the event of a massive nuclear accident. (DW-0187 1)

Comment: [T]he DEIS does not inform the public that private insurance will not provide total coverage for this kind of facility and that, in fact, taxpayer funds are used to self insure. Is the public informed that much of the cost of security and waste disposal is also paid for not by investors but through their tax dollars? Are we willing to provide the information to the public so they can comment on it? The NRC can waiver provisions to provide this information but it cannot waiver the legitimate rights of the public to know this information especially if you invite them to comment on the proposal. (DW-0594 4)

Response: *Section 102 of NEPA directs that an EIS is required for major Federal actions that significantly affect the quality of the human environment. The NRC has implemented Section 102 of NEPA in 10 CFR Part 51. Subpart A of 10 CFR Part 52 contains the NRC regulations related to ESPs. It is the NRC EIS rather than the applicant's ER that is used as the basis for the decision on the ESP application. Therefore, no further action is planned on comments on the ER.*

The Council on Environmental Quality (CEQ) regulations state that tiering is appropriate when it helps the agency "to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe." See 40 CFR 1508.28(b). As set forth in 10 CFR 52.17, the ESP applicant must submit a complete ER focusing on the environmental effects of construction and operation of a reactor or reactors; however, in accordance with 10 CFR 52.17, the applicant need not include an assessment of the benefits (e.g., need for power), since such matters may not be ripe for consideration at the ESP stage. Similarly, in its denial of a petition for rulemaking, the Commission stated that the consideration of alternative energy sources may be deferred until the COL stage (68 FR 55905). These Commission determinations are consistent with the CEQ regulations in 40 CFR 1508.28(b). The ER is intended to assist the Commission in complying with Section 102 of NEPA. The ER may be used extensively by the NRC staff as a starting point in its review. However, the NRC staff independently evaluates information contained in the ER and develops its own bases and analyses. Ultimately, the NRC staff is responsible for the reliability of any information used.

As set forth in 10 CFR 52.18, the Commission has determined that an EIS will be prepared during the review of an application for an ESP. An applicant for a CP or COL for a nuclear power plant or plants to be located at the site for which an ESP was issued can reference the ESP. A CP or COL to construct and operate a nuclear power plant is a major Federal action that requires an environmental review in accordance with 10 CFR Part 51. The NRC process for evaluating the environmental portion of ESP applications was embodied in its Standard Review Plans for Environmental Review of Nuclear Power Plants (ESRP) (NUREG-1555) (NRC 2000), which was subject to public comment. The ESRP forms the basis of RS-002 (ML040700094) (NRC 2004), which was also subject to public comment. This ESP EIS conforms with the review guidance and is sufficient to fulfill NRC's NEPA responsibilities.

Among the areas included in the EIS, the NRC staff considered the no-action alternative or denial of the ESP, mitigation measures to further reduce environmental impacts, alternative sites, unavoidable adverse environmental impacts, irreversible and irretrievable commitments of resources, the relationship between short-term uses and long-term productivity, cumulative impacts, construction impacts, and the impacts of operation.

Accordingly, no changes were made to this EIS as a result of these comments.

Comment: Chapter 9, Page 9-1, Line 31 - NRC has cited NEPA Section 102(2)(c)(iii) as requiring an analysis of alternatives to the proposed action. EPA believes this to include an analysis of a wide array [of] alternatives not just alternatives of different sites. Furthermore, EPA believes this interpretation is reinforced by Section 102(2)(E) that requires all agencies of the federal government to "study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternatives uses of available resources." (DW-1272 14)

Response: *The NRC determined and informed prospective ESP applicants by letter that evaluation of alternative energy sources did not need to be covered in an application for an ESP. This determination is included on the NRC's web site at http://www.nrc.gov/reactors/new-licensing/esp/generic-esp-issues.html. NRC's position on this issue is further explained in a proposed change to 10 CFR Part 52 that was published in the Federal Register on July 3, 2003, (68 FR 40025) and on March 13, 2006 (71 FR 12782). If an applicant is granted an ESP and has not addressed alternative energy sources in its application, and if the applicant subsequently elects to apply for a construction permit or a combined license, then the applicant would be required to include an analysis of energy alternatives in its application. In conjunction with its evaluation of the application at that time, NRC would prepare an EIS that would evaluate energy alternatives to construction and operation of new nuclear generating units at the ESP site. The comment may also be referring to alternatives to systems, structures, or components of a new nuclear unit that might be constructed and operated at the North Anna ESP site. To the extent that such alternatives could change the new unit's environmental impacts, the staff has considered such alternatives, for example, alternative cooling systems.*

Comment: The draft and supplemental draft don't seem to me to be NEPA-compliant documents. They should be re-done with more thorough analysis, and circulated for review and comment. (ST-0036 10)

Comment: The Purpose and Need provision of [the] SDEIS does not include an assessment of the energy needs that the addition of two nuclear power units at the North Anna facility would be intended to satisfy. The focus of the Purpose and Need was restricted to simply the suitability of siting two nuclear power units at the facility without any assessment of the need for the two additional units. EPA believes an energy needs assessment should be included in the NRC's NEPA review at a point in the process when such an assessment – including an assessment of options other than construction of additional units – would be meaningful. This is especially a concern because the NRC apparently has not yet resolved issues related to the interface of the ESP with the combined construction and operating license, combined license (COL) process. See http://www.nrc.gov/reactors/newlicensing/esp/generic-esp-issues.html. It is unclear whether the energy needs analysis will be included under the NRC's Construction Permit/operating license EIS. (SE-0030 1)

Comment: The SDEIS only evaluates alternative sitings for nuclear power plants and does not evaluate alternative energy sources. ... It is unclear whether alternative energy sources will be included under the NRC's Construction Permit/operating license EIS. (SE-0030 2)

Comment: Shouldn't Appendix F or L or the socioeconomic section of the text include mention of the resolution passed by Spotsylvania County against the project and the ESP? (SE-0045 47)

Response: *The ESP licensing process was established in 10 CFR Part 52 and was promulgated in 1989 (see 54 FR 15386). In 2000, the NRC staff finalized the environmental procedures to guide its environmental review, published as the Standard Review Plans for Environmental Review for Nuclear Power Plants (ESRP), NUREG-1555 (NRC 2000). The ESRP and Part 52 were issued for public comment to ensure that all interested parties had the opportunity to provide insights on the NRC's approach to comply with its NEPA review responsibilities before the NRC was called upon to do so for an ESP. The NRC's Draft and Final EISs are developed using these environmental review procedures and an interdisciplinary team of environmental specialists comprised of NRC staff and supported by its contractors. The ESP application includes the applicant's representation of environmental impacts and it serves as a starting point for the staff's independent assessment; in the end, the NRC is responsible for the reliability of all information it uses in its EIS, even if information or analyses is provided by the applicant.*

The resolution issued by Spotsylvania County did not provide any technical information that would affect the staff's environmental review and is treated as a comment letter in this appendix.

In accordance with NRC regulations and guidance, the staff's review at the ESP stage is focused on the impacts of construction and operation of a reactor or reactors that have characteristics that fall within the site parameters and the evaluation of alternative sites. At a minimum the applicant must demonstrate, and the staff must determine, whether there is an obviously superior alternative site. Some issues (e.g., the benefits assessment, including the need for power), may not be ripe for consideration at the ESP stage, and the NRC's regulations specifically allow deferral of consideration of these issues to the construction permit or combined license review See 10 CFR 52.17(a)(2). In addition, the staff's review guidance for an ESP recognizes that design-specific information may not be available at the ESP stage, and directs the staff to use its experience and judgment in such cases. See Attachment 3 to Review Standard (RS)-002, "Processing of Applications for Early Site Permits" (NRC 2004).

Issues that are deferred or not resolved in the ESP review must be addressed and resolved in the review of an application for a CP or a COL referencing an ESP, if granted. This is the structure of the NRC's review in accordance with its regulations. For the North Anna ESP, the applicant chose to defer its evaluation of (1) the benefits of construction and operation (including the need for power) and (2) alternative energy sources, and these issues will be evaluated in the context of a CP or COL application referencing the ESP, if granted. Accordingly, no changes were made to this EIS as a result of these comments.

4.3 Editorial Comments

Comment: Per ER Figure 3.1-3, this DEIS figure should identify the Unit 3&4 discharge structure as existing. [page 3-2, Figure 3-1] (DW-0423 15)

Response: *Figure 3-1 was modified to indicate that the discharge structure for future units already exists.*

Comment: Per ER Figure 3.1-3, this DEIS figure should identify that the existing training building would be expanded. [page 3-2, Figure 3-1] (DW-0423 16)

Response: *Figure 3-1 was modified to indicate that the existing training building would be expanded.*

Comment: DSER page 2-61 states 251 km^2 [versus 250 km^2] and 119 km^2 [versus 120 $km^{2]}$, respectively. [page 2-21, lines 21-22 and 29-31] (DW-0423 56)

Response: *Unlike the safety evaluation report, unit conversions in the EIS are generally provided with the same number of significant digits as in the original units. In this case, the areas discussed were documented in the literature as being 97 and 46 mi^2, respectively. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: Percichthyidae, Morone americana, and Morone saxatilis are the correct scientific names. Morone americana and Morone saxatilis are correct in accompanying DEIS text. [page 2-36, lines 10-12] (DW-0423 58)

Response: *These scientific names were corrected in Table 2-3 in the EIS as a result of this comment.*

Comment: Alasmidonta heterodon is the correct scientific name. [page 2-43, line 9] (DW-0423 59)

Response: *The spelling of this scientific name was corrected in Table 2-4 in the EIS as a result of this comment.*

Comment: The correct value is 9.7 x 10^9 Btu/hr. [page 5-6, line 21] (DW-0423 60)

Comment: Page 5-6, line 22 is missing data in the parenthesis “9.7 BTU/hr” is not correct). (DW-0438 133)

Response: *These values are no longer in the document because of the changes to the cooling system.*

Comment: ABWR value is 2.4E-11 [versus 2.3E-11]; AP1000 value is 1.2E-10 [versus 1.1E-10]. [page 5-78, lines 10 and 12, Table 5-19] (DW-0423 61)

Response: *These numbers were corrected in Table 5-19, now Table 5-20, in the Final EIS.*

Comment: AP1000 value is 2.4E-07 [versus 2.7E-07]. [page 5-80, line 12, Table 5-20] (DW-0423 62)

Response: *This number was corrected in Table 5-20, now Table 5-21 of the Final EIS.*

Comment: Reference should be to Section 7.5. [page 7-2, line 15] (DW-0423 63)

Comment: Also an apparent typo, on page 7-2: "Cumulative thermal effects are discussed in Section 7.4." I believe you intended Section 7.5, since the aquatic ecosystem is more likely to experience thermal effects than the terrestrial ecosystem. (DW-0827 3)

Response: *The reference was corrected to Section 7.5 in the EIS.*

Comment: The paragraph on page 5-70, line 14 would benefit from simpler language. (DW-0438 161)

Response: *This paragraph in Section 5.9 of the EIS was rewritten for greater clarity.*

Comment: Flow rates are confusing in the report. Some liters/second, meters^3/second, ft^3/second, and gallons/minute are used. I suggest that the same units be used throughout the ESP report. (DW-0806 1)

Response: *The staff agrees that the use of various volume units can be confusing. However, the units used throughout the EIS are typical of engineering standard units, which differ by discipline. Accordingly, no changes were made to this EIS as a result of this comment.*

Comment: The correct monthly snowfall is 28.5 inches [versus 28.3 inches]. [page 2-11, line 27] (DW-0423 52)

Response: *The monthly snowfall was corrected to 28.5 inches in Section 2.3.1 of the EIS.*

Comment: The correct percentage is 90.09 [versus 90.9]. [page 2-15, line 16] (DW-0423 53)

Response: *The percentage of data recovery rates from the meteorological monitoring system was corrected in Section 2.3.1.6 to 90.09 percent.*

Comment: The dispersion factor should be shown as X/Q. [page 2-15, line 23; and other DEIS locations] (DW-0423 54)

Response: *The symbol used for the "chi" in Section 2.3.1.6 (x) was replaced by the symbol χ, which is the capitalized version of "chi" in Arial font. This version of the symbol now appears throughout the EIS.*

Comment: Correct value is 2.45 x 10^5 acre-ft [versus 2.45 10^5. [page 2-19, line 15] (DW-0423 55)

Response: *The flood control storage volume was corrected to 2.45 x 10^5 acre-ft in the EIS.*

Comment: [page 5-17, line 17] should state, "In the area above the State Road 208…" (SE-0050 18)

Response: *The sentence was changed to correctly indicate the location.*

Comment: The D/Q exponent [in Table I-1, line 19] is incorrect. It should be 6.0 x 10^{-9}. (SE-0050 22)

Response: *This number was corrected in Table I-1 of the FEIS.*

Comment: [T]he SDEIS makes reference to the shortnosed sturgeon as being listed as endangered by the National Marine Fisheries Service and by Virginia. It also appears on the Virginia Department of Cultural Resources List of "Extinct and Extirpated Animals of Virginia." (SDEIS, page 8-29, section 8.5.4). There is no "Virginia Department of Cultural Resources." Perhaps the reference is to the Department of Historic Resources, which does not have responsibility for endangered species. (SW-0017 59)

Response: *The correct reference should have been to the Virginia Natural Heritage Program under the Virginia Department of Conservation and Recreation, which maintains a list of rare animals. In that list, the shortnose sturgeon is listed as "LE" or "Listed Endangered," by Virginia. Section 8.5.4 was modified to clarify this.*

4.4 Comments Supporting or Opposing the ESP

The Congress has authorized the NRC to implement the Atomic Energy Act of 1951, as amended, and the Energy Reorganization Act of 1974, as amended, in regulating the nuclear power industry. NRC's implementing regulations are published in 10 CFR Parts 1 to 199. The NRC's environmental protection regulations are located at 10 CFR Part 51, and the regulations governing an early site permit are located in 10 CFR Part 52.

The Congress has developed national goals regarding Federal energy policy in the Energy Policy Act of 2005. It is the purview of the President and the Congress to establish the energy policy of the United States, not the NRC. The Energy Reorganization Act of 1974, which created the NRC from the regulatory arm of the abolished Atomic Energy Commission, ensured that the NRC would not have a promotional role regarding nuclear power; that is now the domain of the U.S. Department of Energy.

The ESP process is not a public referendum or vote. Rather, it is a process designed to assure that applicants meet applicable NRC safety requirements before a permit is granted. In addition to ensuring that applicants conform to safety requirements under the Atomic Energy Act and NRC regulations, the ESP process also ensures that the NRC complies with the requirements of NEPA. The NRC's environmental review process for this EIS ensures that the public can participate effectively following established guidelines. The public was given the opportunity to participate in the development of NRC regulations and the body of work that makes up regulatory guidance. This EIS is subject to public scrutiny and the hearing before the Atomic Safety Licensing Board. The NRC's Safety Evaluation Report (September 2005, Accession No. ML052710305) is subject to the scrutiny of the Advisory Committee on Reactor Safeguards and the hearing before the Atomic Safety Licensing Board. Subject to certain safeguards and security requirements, the reports and the information and bases leading up to the reports are readily available to every member of the public.

The ESP process is one of many licensing processes implemented by the NRC and authorized by the Congress. Certain environmental issues that must be considered before the NRC could authorize construction and operation of a new nuclear power plant (e.g., the benefits assessment) may not be ripe for consideration at the ESP stage, and need not be resolved with the issuance of an ESP. Certain issues are not appropriate for consideration in any environmental review (e.g., malevolent acts of terrorism). Certain issues have been generically resolved (e.g., fuel cycle environmental impacts for light-water reactors). Certain issues (e.g., whether a license should be issued for a spent fuel and high-level waste repository) are not part of the ESP review.

The following comments, which either support or oppose the North Anna ESP, do not provide new information, and no changes were made to the EIS as a result of these comments.

4.4.1 Support for the ESP

Comment: We think that the environmental review that has been done has been done well. It is done adequately. We appreciate the NRC's detail review. (DT-0004 7)

Comment: I appreciate the opportunity to take part in this environmental impact assessment discussion, and I'd like to point out that these environmental impact assessments are valuable to us probably more than most of us realize…And these environmental impact assessments at this point are under some danger of disappearing from our communication, and I think that as much as anything we're concerned about we need to be paying attention to the openness of communication about our reality. So I do appreciate all of the information that the NRC has provided us this evening. I appreciate the viewpoints on both sides of this issue. (DT-0010 1)

Comment: I speak in support of the conclusions reached by the draft NRC EIS for the North Anna early site permit with comments. (DT-0014 1)

Comment: Furthermore, the local NAYGN is here to show our support for the ESP process as a means to guarantee an open and thorough evaluation of future nuclear projects while insuring the timeliness and predictability of the process. In particular, as nuclear professionals and as concerned local citizens, we concur with the NRC's conclusion that environmental impacts would not prevent issuing an early site permit for the North Anna site. (DT-0020 2 and SW-0009 1)

Comment: I cannot really understand how any serious environmentalist after thoroughly reviewing the facts can realistically dismiss the measurable, positive contribution of existing nuclear power plants and the potential in the future role of new nuclear power towards the sustainable development of humankind. I insist I am talking about the unbiased review of facts, not wandering (phonetic) half truths and out of context, misinterpreted data. (DT-0025 2)

Comment: I also support the ESP process as a means to warrant the open and thorough evaluation of future nuclear projects while insuring the timeliness and predictability of the process. (DT-0025 5)

Comment: There are other companies in the energy industry that are pursuing early site permits and testing other NRC licensing processes to build new reactors in the future. And these efforts are broadly supported by the public, by policy makers, Republicans, Democrats, independents alike, as Mr. Sloane said, by leading environmentalists across the world. (DT-0027 4)

Comment: I want to thank the NRC staff for having this, coming here tonight and hold this public comment hearing. It demonstrates that the NRC is interested in obtaining the citizen input into environmental, as well as the safety issues regarding the proposed regulatory action. (DT-0029 1)

Comment: We concur with the NRC's conclusion that environmental impacts would not prevent issuing an ESP for the North Anna site. (DT-0052 1)

Comment: We support the ESP process as the means to guarantee an open and thorough evaluation of future nuclear projects, while ensuring the timeliness and predictability of the process. (DT-0052 3)

Comment: A well conformed EIS will tell us (the people by the way, not Virginia Power, Public Citizen, or the NRC) whether North Anna can safely support more nuclear plants. (DW-0360 2)

Comment: Today, the time necessary to obtain a permit has grown so long that it becomes difficult to justify a plant financially based on the permitting process. By getting the early site permit, a timely study of electric power needs can be done to determine when the new units should be built. (DW-1007 4)

Comment: I felt the NRC staff present did an excellent job presenting the reason for being there that evening and for summarizing its findings of the draft EIS. I felt the staff were well composed, professional and did not indicate a bias one way or the other to the comments offered. I felt that the public present were grateful for the opportunity to speak their minds on this important topic. (DW-1148 1)

Comment: I think the NRC draft EIS does a good job of covering the issues pertinent to this part of the process and commend the team for the draft report (NUREG-1811) and their handling of the local comment meeting as well. (DW-1167 7)

Comment: As you heard, we do not have any plans at the moment to build a nuclear plant at North Anna. What we're doing here is keeping the option open. We are looking forward toward where the energy that Virginia is going to need in the future is going to come from, and as we look at the various options, one of those options is nuclear. (DT-0004 1)

Comment: We've been operating plants for 30 years. We have a great deal of experience with that, and so between the safety of our existing operations and our environmental record, this is something that we feel very confident with. This is something that we feel we've developed a long experience and relationship with the local communities. So we'd like to continue them. (DT-0004 2)

Comment: At this point we are not announcing or we are not saying that we're going to build. We are trying to maintain an option. (DT-0004 6)

Comment: As a customer of Dominion Power and to the men and women who work there, thank you for beginning this long and arduous process and necessary process. (DT-0014 10)

Comment: The environmental report of Dominion's ESP application and the NRC's draft environmental impact statement demonstrate in great detail what has become patently obvious in an area of increasing concerns about global warming, air pollution, environmental protection and industrial safety. (DT-0020 3)

Comment: I have found the management to be uncompromising when it comes to safety and ethics ... Even if addressing my concerns meant schedule delays or additional costs, even if at the end my concern was unfounded, I have always have the support of my management in pursuing questions of safety, design, and ethics ... If there was something seriously wrong with the plant, it would take only one person to shut it down. (DT-0020 7)

Comment: I commend Dominion for the interactive draft in planning for expected increases in energy demand over the coming years, while considering sources that minimize the environmental footprint, as well as the economic burden on Dominion's estimates ... And finally, I want to voice my support to granting Dominion Resources an early site permit to construct new nuclear reactors at its North Anna site. (DT-0025 4)

Comment: I'd like to applaud Dominion for pursuing an early site permit at North Anna, for its efforts to preserve the options to make prudent future choices for our electricity, not only today, the electricity challenges we have today, but also the challenges our future generations are going to have. (DT-0027 1)

Comment: Simply put, it makes sense for Dominion to take this step to explore options for serving millions of customers in Virginia, including my family who's going to depend on reliable, affordable, and clean electricity. (DT-0027 5)

Comment: I have concluded that any environmental impacts associated with the preparation and preliminary construction activities -- and I'm emphasizing that -- allowed by 10 CFR 50.10 -- you know the rules -- are minor and will not result in any adverse environmental impact, and I really recommend the draft be issued as a final. I meant to emphasize that that conclusion only has to do with, as you said, the increased or the impacts associated with the pre-construction ones. (DT-0029 3)

Comment: It's good to see that there is some new interest by utilities to pursue possible consideration of additional nuclear power plants. (DT-0029 10)

Comment: Based on my experience, I have complete confidence in the safety of nuclear power facilities and particularly those operated by Dominion Power. (DT-0029 13)

Comment: There are numerous other reasons which I'll only mention here since I have limited time. Fossil fuel prices rising recently. Increased electricity demand. Air pollution.

Comment: For me, all of these events, all of these developments point to one thing. It's time for us to build a new generation of nuclear plants. Approving an early site permit for the North Anna site is an important step in that direction, and I think that it should be done. Let's do it. (DT-0032 5)

Comment: I have reviewed the draft environmental impact statement for the North Anna early site permit. I have found it thorough, well written, with sound conclusions, and see no basis for not approving the environmental impact statement and the early site permit. (DT-0045 2)

Comment: I agree with the draft environmental impact statement that concludes that there are no environmental impacts from the possible future construction and operation of a nuclear power plant in North Anna that should prevent issuing an early site permit. (DT-0046 4)

Comment: I applaud Dominion for taking the steps necessary to insure nuclear energy remains an option. (DT-0046 5)

Comment: [I'm here tonight to voice my support] specifically for my support of the early site permit at North Anna. (DT-0046 6)

Comment: Nuclear energy is efficient and cost-effective due to its high plant performance coupled with modernized plants, low production cost, future price stability, and clean air compliance value. New nuclear plants at North Anna will ensure nuclear energy's continued contribution to both our economy and the protection of our environment. (DT-0046 8)

Comment: We commend Dominion for being proactive and farsighted when looking for reliable methods of addressing expected increases in energy demand over the coming years, while minimizing the environmental footprint of the selected energy sources, as well as the economic burden to Dominion customers. (DT-0052 4)

Comment: I endorse Dominion's proposal for an early site permit for an additional plant at North Anna. Nuclear energy is a safe and efficient supplier of our energy needs today and will be more important in the future. (DT-0059 1)

Comment: I could think of nothing better than to have an additional nuclear plant at North Anna. (DT-0060 1)

Comment: I am very supportive of Dominion Power and the North Anna Nuclear Power Station. Many of my neighbors and business acquaintances feel the same. So I urge you to swiftly approve the Environmental Impact Statement for the Early Site Permit (NUREG 1811). Follow your staff's recommendation and approve the ESP and let Dominion get started with the next reactors. (DT-0063 6)

Comment: [I] would like to voice my support of Dominion's efforts to maintain nuclear power as an energy option with the potential construction of new nuclear power plants in Virginia. (DW-0185 1)

Comment: I urge the NRC to consider issuing an Early Site Permit to the North Anna nuclear project on the basis that it will not adversely impact the environment. (DW-0370 1)

Comment: I agree with the Staff's conclusions that the North Anna site appears to be environmentally acceptable for the construction of new reactors, and that Dominion's request to perform limited site preparation and investigation measures will not result in significant environmental insult. (DW-0399 2)

Comment: I see no problem with an early site permit for North Anna site. (DW-0440 1)

Comment: Please approve the document [North Anna's EIS]. (DW-0442 1)

Comment: Please approve the draft environmental statement as presented by North Anna for an ESP at their site. (DW-0445 1)

Comment: Please register my support for any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. (DW-0471 1)

Comment: You have correctly assessed the environmental impact. The recently conducted public hearings, while an important part of the process, are just that: one source of public input. You correctly applied your approved process and scientific principles and judgment. The conclusion in support of the use of the site is appropriate. Additional steps in the future licensing of a unit or units will build on your work. Your job is complete and stands on its own merit! It serves as an important foundation for continued safe use of the property. The public is well served by your action and conclusions. (DW-0583 1)

Comment: An editorial last year in the Richmond Times-Dispatch put it this way: "Many environmentalists want to reduce consumption of fossil fuels. Regarding electricity generation, what better way to replace oil, coal, and natural gas plants than with nuclear?" And the Washington Post, in an August 2004 editorial on energy policy, said it is time to "look again at

nuclear energy, a taboo issue yet potentially a huge source of homegrown, non-carbon producing energy. Dominion is doing just that...looking at its options for producing electricity for future generations in a way that is safe, sustainable and affordable for all consumers. (DW-0668 3)

Comment: My vote is for Dominion Power's plan to expand nuclear power generation. (DW-0757 2)

Comment: The Sierra Club is opposed to Dominion Power's efforts to build two new nuclear generators on the shore of Lake Anna. It is my considered opinion that the Sierra Club is "barking up the wrong tree." (DW-0760 1)

Comment: My vote is for Dominion Power's plan to expand nuclear power generation. (DW-0760 3)

Comment: I am writing to SUPPORT granting an Early Site Permit to Dominion Resources to build two new reactors at the North Anna nuclear plant in Mineral, Virginia. (DW-0791 1)

Comment: This is a wise decision for a company that has proven over time to be a safe and effective nuclear operator. (DW-0791 2)

Comment: The electric power generation from nuclear energy must be revived with the approval of early site permit (ESP) at North Anna followed by the issuance of combined license for construction and operation (COL). The one-step licensing and economic viability of the safest, the cleanest and the most modern nuclear technology must be demonstrated. It is heartening to know that Dominion is at the forefront of this move. ... The ESP and COL application are just two tiny but monumental steps in the pursuit of nuclear energy option here in the United States and should not be thwarted by what amounts to a baseless anti-nuclear propaganda. (DW-0812 2)

Comment: I fully support this initiative. (DW-0858 1)

Comment: I support your plan to build another nuclear power plant. (DW-0879 1)

Comment: It is also important to note that the lake at North Anna was originally constructed for 4 units and the people of Louisa as well as the state of Virginia knew about the 4 units since the 1970s. In fact, both Units 3 and 4 were started and construction went quite far before the economic justification faltered, forcing the cessation of work on these units. (DW-1007 5)

Comment: I support the North Anna Early Site Permit as an important step in ensuring energy diversity for Virginia, as well as paving the way for the next generation of safe, environmentally friendly nuclear power for the United States. (DW-1149 1)

Comment: The construction of one or more additional nuclear generating facilities at the current site of the North Anna Power Station makes sense from an economic and environmental point of view. As a member of the public who is concerned about the effect of fossil fuels on our environment, I fully endorse and encourage approval of Dominion's plans for construction and licensing. (DW-1158 1)

Comment: As a resident of central Virginia who will be impacted by any power plants built in the general area, my preference for base loaded plants is the nuclear option. ... I heartily recommend that the draft report be completed within the process and that the site receive final approval for additional reactors if it becomes economically feasible to build them. (DW-1167 1)

Comment: The North Anna site provides what I think is a near ideal site for addition of nuclear power plants. This site was designed for 4 nuclear units with only two currently in operation there. The North Anna site already has a significant amount of the 'things' that are needed for operation of such units, i.e., infrastructure in terms of transmission facilities and dedicated personnel. As such, the impact of placing additional nuclear units there would be minimal compared to a green field site. (DW-1167 4)

Comment: In my biased opinion (I'm a Dominion Resources employee), the operator of the plant has demonstrated a continuing and significant concern for the environment and a determination to safely and effectively operate its current nuclear units. Effective operation of these units is a priority and I believe it will continue to be a priority. (DW-1167 5)

Comment: I look forward to getting my electricity from plants like the future ones on Lake Anna. (DW-1235 3)

Comment: This is to express my unqualified support for issuance of an Early Site Permit for North Anna. I live in the Dominion Virginia service area and enjoy the benefits of the inexpensive nuclear generated electricity from the two existing North Anna reactors. I cannot imagine any reason why an Early Site Permit would be denied. Virginia Electric and Power (the predecessor to Dominion) originally planned to build four reactors at the North Anna site, which was sized to accommodate four units. The quicker an Early Site Permit can be issued, the quicker Dominion can apply for a Construction Operating License. It would be great to have a new nuclear reactor in Virginia in the next few years. (DW-1248 1)

Comment: In Virginia, the power output of the Surry and North Anna plants represent about 7 million tons of carbon dioxide emissions avoided each year. (DW-0863 2)

Comment: As a supporter of the rebirth of nuclear power in the U.S.'s power supply mix, I applaud Dominion's pursuit of an ESP and the Staff's timely and thorough review resulting in the issuance of NUREG-1811 (draft). (DW-0399 1)

Comment: [T]hese are not simple issues. Nothing in power production is simple. Nothing in energy consumption or energy economy is simple. Any project no matter what its size, no matter what its type, will involve some change to the environment. Our job is to balance that, to decide whether the impacts are controllable, whether the impacts make sense in relation to the benefits of the project. (ST-0009 4)

Comment: I wish to express my support on the part of Dominion Resources to build additional new reactors at their North Anna site in Louisa County Virginia. …This appears to me to be a huge benefit economically both locally and regionally and should be allowed to proceed when all permits have been issued. (SW-0001 1)

Comment: On behalf of my constituents, Dominion Power and its 8,968 Virginia employees, I am writing in support of Dominion's early site permit (ESP) application for the North Anna Power Station site, and the U.S. Nuclear Regulatory Commission staff's preliminary recommendation that the ESP should be issued. ...Dominion has safely operated the North Anna Power Station since 1978 and the Power Station is an efficient, low cost nuclear generation facility. (SW-0002 1)

Comment: I am proud of my industry in general and Dominion in particular. ...Like any other technology, nuclear is not risk-free. However, Dominion's record of safely operating its plants is very reassuring. I would wholeheartedly endorse Dominion attempt to secure the subject permit and urge you to issue the same. (SE-0023 1)

Comment: Although, as in any group of hundreds of people, we have members with differing opinions, we, as a whole, as strongly in favor of proceeding with the [North Anna] third and fourth units. We have had no fundamental, unanswered concerns relating to the nuclear portions of the units or the accident safety of the total plant. (SW-0004 1)

Comment: [W]e strongly support Dominion's efforts to bring more Nuclear Generation to Virginia, and specifically, Louisa. …The International Brotherhood of Electrical Workers believe that Corporate America, the American Worker and our precious American Environment can all co-exist and prosper. That is why we believe that expansion at North Anna is good for The Commonwealth, and good for the Nation. It should be permitted to go forward if the need for additional generation arises. (SW-0003 1)

Comment: I would like to indicate my support for a favorable ruling for the Early Site Permit at the North Anna Site. ...with the rising cost of electricity and the need to produce more, the way to go now is nuclear. (SE-0011 1)

Comment: We are not opposed to the North Anna Project and do support the addition of 3rd and 4th nuclear reactors at the North Anna plant, but want to ensure that all environmental issues are taken care of prior to the issuance of either an NRC Early Site Permit or a VDEQ Federal Consistency Certification. (SE-0022 2, ST-0012 2)

Comment: I want to voice my support for granting to Dominion Resources an early site permit to construct new nuclear reactors at its North Anna site. (ST-0013 5)

Comment: I'm the County Administrator. I'll first say that we have a good working relationship with Dominion Virginia Power. As you may know, they're our largest employer and are by far our largest taxpayer and being County Administrator, I'm also involved in safety issues and find them very cautious...the Board of Supervisors voted to say that they support Virginia Dominion Power in their early site permit process. (ST-0010 1)

Comment: [W]e fully support implementing and constructing the new power plants. We are located on the first lagoon, so we're the ones that are going to be most directly affected by the temperatures that these cooling towers should alleviate for us. (ST-0029 1)

Comment: I commend Dominion for being proactive in planning for expected increases in energy demand over the coming years, while considering sources that minimize the environmental footprint, as well as the economic burden to Dominion customers. …I want to voice my SUPPORT to granting to Dominion Resources an Early Site Permit to construct new nuclear reactors at its North Anna site. (SE-0025 4)

Comment: The Virginia Chamber commends the agency staff for its meticulous review of Dominion's early site permit application, and supports its conclusions. Thank you for your time and attention. (ST-0031 2)

Comment: [T]he Louisa County Board of Supervisors is in support of the Early Site Permit being sought by Dominion Virginia Power. (SW-0005 1)

Comment: [A]s a trained environmentalist, I know that nuclear energy has one of the smallest life-cycle environmental impacts. And it is comparable with those impacts associated with other renewal energies, but at a much lower cost, and one that operates 24-hours a day, seven days a week, 365 days a year. And that's why I truly support this permit request. (ST-0033 2)

Comment: I would like to speak very favorably for the additional of the two extra units here in North Anna. (ST-0034 5)

Comment: I'm speaking this evening to register our strong support for Dominion's early site permit application for the North Anna Power Station site, and the NRC staff's preliminary recommendation that the permit be issued. (ST-0031 1)

Comment: Nuclear power is a safe producer of electricity and Dominion is one of the best to do it. ...North Anna's commitment to safety directly affects me just as it does you and every other member of the community. And if Dominion does build Unit 3, I believe it will only strengthen our pursuit of excellence and dedication to this community. (ST-0022 3)

Comment: My wife and my daughters mean more to me than life itself and I feel very comfortable moving five and a half miles from the North Anna Power Station. (ST-0021 2)

Comment: The Chamber of Commerce supports the approval of the early site permit for the North Anna Power Station. The addition of one new nuclear unit is good. The addition is better for the economy. (ST-0018 1)

Comment: So I would like to challenge those who question the analysis, techniques and the results of the Nuclear Regulatory Commission...to see if there are some differences in assumptions that each groups have made or if there is some other reason why there is a discrepancy in value. (ST-0017 2)

Comment: I want to express my personal desire to see this supplemental EIS get approved. I think it's going well and it's a good idea. (ST-0017 1)

Comment: Nuclear holds the promise of being relatively safe and benign environmentally. It is a shared...proven technology with enormous upside potential. And it is time to use it - here. ...The operators of nuclear stations and the NRC has done an excellent job through preventative maintenance and rigorous engineering standard development and enforcement. (SW-0015 7)

Comment: I'm in full support of what I've read in the supplement. (ST-0015 1)

Comment: I applaud Virginia Power in first of all escalating the power rating of the reactor of the proposed Unit 3 and Unit 4. I think that's a good move because I'm also a rate payer. ...I am happy to see more power being produced at a base load facility at one location that's controlled, that's secure, that's safe. (ST-0015 3)

Comment: Dominion's nuclear North Anna has been a responsible, good neighbor over the years. ...Although as in any group of hundreds of people, we have members with differing opinions, we as a whole are strongly in favor of proceeding with the third and fourth North Anna units. (ST-0004 2)

Comment: I am writing to express my support for Dominion's early site permit (ESP) application for the North Anna Power Station site, and the U.S. Nuclear Regulatory Commission staff's preliminary recommendation that the ESP should be issued. ...Dominion is an excellent nuclear operator, and the North Anna Power Station is one of the nation's most efficient nuclear

generation facilities. I support the NRC staff's preliminary conclusion contained in the supplemental draft environmental impact statement and urge the NRC to issue the early site permit. (SW-0013 1)

Comment: So as nuclear professionals and as concerned local citizens, we concur with the NRC's conclusion that environmental impacts would not prevent issuing an early site permit for the North Anna site. (ST-0012 3)

Comment: We have always been and always will be a clean, safe, reliable, cheap energy provide. (ST-0023 2)

Comment: As the elected Delegate representing the 72,000 residents of Louisa, Goochland and northwestern Henrico counties in the Virginia General Assembly, I am writing to express my support for Dominion's early site permit (ESP) application for the North Anna Power Station site. ...Dominion is an excellent corporate neighbor and has demonstrated a longstanding commitment to work with its Louisa County neighbors. Dominion has built up significant community goodwill by its willingness to listen and respond to the concerns of those who live on Lake Anna. (SW-0012 1)

Comment: I am here tonight to voice my support for one of the most misunderstood technologies of today's time - the generation of electricity using nuclear energy. . . and specifically for my support of the Early Site Permit at North Anna. ...New nuclear plants at North Anna will ensure nuclear energy's continued contribution to both our economy and the protection of our environment. (SW-0006 1)

Comment: Upon review of the [Supplement to the] Draft Environmental Impact Statement (NUREG 1811), U.S. Women In Nuclear fully supports the approval of the Draft Environmental Impact Statement and approval of the early site permit request. (SE-0026 1)

Comment: We commend Dominion for being proactive and farsighted when looking for reliable methods of addressing expected increases in energy demand over the coming years, while minimizing the environmental footprint of the selected energy sources, as well as the economic burden to Dominion customers. (SW-0009 4)

Comment: I believe the increased power level of the North Anna 2- proposed generation units is justified due to the fact that the cooling will now be done by cooling towers rather than the existing lagoon. ...I think you will do well to approve this early site permit and let Dominion build the extra generation when it is needed. (SE-0001 1)

Comment: I am speaking this evening to register the support of the Virginia Chamber of Commerce for Dominion's early site permit (ESP) application for the North Anna Power Station site, and the U.S. Nuclear Regulatory Commission staff's preliminary recommendation that the

ESP should be issued. ...The Virginia Chamber commends the [NRC] agency staff for its meticulous review of Dominion's ESP application and supports its conclusions contained in the supplemental draft environmental impact statement. (SW-0007 1)

Comment: [W]hat we're really talking about here is not in my backyard. That's what it really boils down to. Sure, everybody wants safe, clean and affordable electricity and they certainly don't mind the tax revenue and associative benefits, but many of the people who opposed the expansion forget that Lake Anna was a creek bed that was virtually devoid of life before nuclear power. (TR-0020 3)

4.4.2 Opposition to the ESP

Comment: I urge the NRC to reconsider issuing an Early Site Permit to the North Anna nuclear project on the basis that it will not adversely impact the environment. (DW-MM1 1)

Comment: I am writing to ask the NRC to examine the “cradle to cradle” effects of building a new nuclear plant. From construction, to power generation, to disposing of and storing the spent fuel, the proposed nuclear site would be detrimental to the environment and local communities. (DW-MM1 2)

Comment: Please consider the effects of construction, power generation and the disposal and storage of spent fuel in calculating environmental impact. (DW-0266 2)

Comment: I am writing to OPPOSE granting and Early Site Permit (ESP) to Dominion Resources to build two new reactors at the North Anna nuclear plant in Mineral, Virginia. (DW-MM2 1a)

Comment: Too many questions remain unanswered and too many problems remain unsolved for the NRC to grant an ESP at North Anna. (DW-MM2 1b)

Comment: I am opposed to new nuclear power. … Constructing new reactors would be bad for Virginia’s environment, bad for taxpayers, and bad for residential and commercial ratepayers. (DW-MM1 9)

Comment: Please register my opposition to any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. The site is unsuitable, and many important factors are not being considered in the decision of whether to approve Dominion’s application for an Early Site Permit (ESP) at the site. Constructing new reactors would be bad for Virginia’s environment, bad for taxpayers, and bad for residential and commercial rate-payers. I urge the U.S. Nuclear Regulatory Commission to DENY Dominion’s application for an Early Site Permit, and for Dominion to instead focus on finding alternative methods of addressing expected increases in energy demands over the coming years. (DW-MM3 1)

Comment: Please register my opposition to any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. The site is unsuitable, and many important factors are not being considered in the decision of whether to approve Dominion's application for an Early Site Permit (ESP) at the site. Constructing new reactors would be bad for Virginia's environment, bad for taxpayers, and bad for residential and commercial ratepayers. (DW-MM4 1)

Comment: Virginia currently has a surplus of electrical generating capacity, so excess power will likely be sold outside the state rather than being used in-state to lower prices. Local residents will be forced to live with the risks of the nuclear plant without getting the benefits. (DW-MM4 9)

Comment: In light of these concerns [stated previously], we urge the U.S. Nuclear Regulatory Commission to DENY Dominion's application for an Early Site Permit. (DW-MM4 17)

Comment: I want to thank the NRC and Dominion for streamlining this process so that we can look forward to future outbursts of radioactivity in our environment and future nuclear waste dumps. (DT-0023 2)

Comment: We're protecting the corporate interest and ignoring the safety of residents, workers, fish, and the environment in future generations, and the reason why fish and other animals are good for us to look at is because a habitat that's not safe for fish is not safe for humans. (DT-0035 2)

Comment: I write to oppose the issuance of an Early Site Permit to the North Anna nuclear project. The proposed nuclear site would be detrimental both to the environment and to local communities. (DW-0266 1)

Comment: I oppose the North Anna nuclear project. (DW-0305 2)

Comment: As a resident of Central Virginia, living in close proximity to the North Anna power plant, I am writing to OPPOSE granting an Early Site Permit (ESP) to Dominion Resources to build two new reactors at the North Anna nuclear plant in Mineral, Virginia. … Too many questions remain unanswered and too many problems remain unsolved for the NRC to grant an ESP. (DW-0401 1)

Comment: Granting permit for new facilities, especially in a fast track manner, is deemed most irresponsible for a government agency that should be working for the public's interest. (DW-0406 4)

Comment: I oppose any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. (DW-0593 1)

Comment: I am strongly opposed to the approval of Dominion Power's plan to build new reactors at Lake Anna…Please deny Dominion Power's permit application and preserve the environment. (DW-0623 1)

Comment: As a resident of Richmond, Virginia and a citizen of the United States, I have many concerns about Dominion's ESP and the DEIS prepared by the NRC. I am significantly concerned about the process the NRC has accepted to review new permits for nuclear reactors, and see clearly that the issues NOT included for consideration (such as where toxic nuclear waste will be stored) skew the process away from an honest discussion about the future of nuclear power in the U.S. (DW-0630 1)

Comment: [T]he Early Site Permit is supposed to determine the feasibility of the two additional reactors. But issues like specific radioactive waste management systems and long-term waste storage plans have not been addressed. We would think this a necessary part of any nuclear power plants feasibility study. (DW-1157 14)

Comment: Your charge charges you to protect, the citizens. In these times when people are vulnerable and hunkered down and need you the most, you betray their trust. You have returned to plunder the very people you are charged to protect, and I think somebody stands to make a lot money. (DT-0006 5)

Comment: I'm sorry to say I believe that most people in the United States no longer trust our government in their whole hearts. They're fearful of one thing or another. They're fearful of bureaucrats. I pray that you are not bureaucrats abiding by the wishes on high in doing what you think they want. (DT-0048 1)

Comment: We found some pretty serious problems. This is very serious in the EIS, and I'm going to formally request that the NRC should redo the draft environmental impact statement because of certain inadequacies. (DT-0001 5)

Comment: I think this draft environmental impact statement should be scrapped and the NRC should start over and produce its own evaluation as required by law and under the rules that we should be operating. (DT-0001 8)

Comment: I'm opposed to these reactors because this is an insensible national policy to build our energy future without paying enough attention to conservation in our homes, in our businesses, and in our transportation sector. (DT-0002 4)

Comment: The Nuclear Regulatory Commission is going to continue the process that it has been going through for the last few years and continue to shove its regulatory responsibility off onto the nuclear industry. (DT-0005 2)

Comment: I'd also like to talk a little bit about why exactly Dominion is spending this much money if they have no intention of going forward with actually building plants, and I agree that it's a travesty from the perspective of the taxpayers because, as you know, taxpayers are picking up half of the tab for Dominion to go through this process, the application process, not only for the early site process, but you may or may not be aware that Dominion is also simultaneously pursuing this combined operating license. They haven't submitted the application yet, but they're already spending taxpayer money. They asked the Department of Energy for $250 million to help them prepare this application and submit it and get it reviewed. So I agree that as a taxpayer, Dominion should not be spending this money, especially if they have no intention of building these reactors. (DT-0016 2)

Comment: Too many lies for too many years have been told to us about nuclear power. I cannot start believing you now. So my simple message is: don't issue this permit. (DT-0017 4)

Comment: I ask everyone working for the NRC and for Dominion Virginia Power to join us today, to do everything we can to stop our rush toward unparalleled catastrophe. (DT-0018 9)

Comment: The Sierra Club has opposed nuclear power but conditionally for many years dating back to the '70s, but the Virginia Chapter of the Sierra Club, all 18,000 members we represent here tonight, I'm the energy issues chair of the Virginia Chapter, and we took a resolution several months ago opposing approval of additional reactors at Lake Anna or certification of that site is suitable for new units. (DT-0021 1)

Comment: All the NRC has been able to determine [in its EIS] is that what they're going to place on this site will not be as dangerous as the two reactors that already exist there. Dominion does not even know the reactor design it wants to build. (DT-0033 1)

Comment: But I am outraged that Dominion is considering adding new reactors to Lake Anna. I love Louisa, and I know many people do because it's beautiful. It's healthy. It's a great place to raise kids. We're in unchlorinated water. (DT-0037 1)

Comment: And I'm asking the NRC to refuse to grant this permit to Dominion. (DT-0037 5)

Comment: Please don't build more reactors in this community. (DT-0037 8)

Comment: I'm speaking in opposition to the permit for two nuclear reactors. (DT-0038 1)

Comment: We oppose opening any further nuclear reactor power plants, including the two proposed for North Anna, in my neck of the woods, and we oppose transporting nuclear waste across the country through thousands of neighborhoods. We oppose Chernobyl on wheels. (DT-0041 4)

Comment: In the late '70s, early '80s, I was with Piedmont Alliance for Safe Energy. This was our tee shirt: "safe energy alternatives." That's what we advocated, the wave of the future. Now I'm with People's Alliance for Clean Energy. You still haven't done it. Got you on it, Dominion. Be a good corporate neighbor. Do it. (DT-0042 3)

Comment: We urge the Commission to take a stand against the construction of additional nuclear power plants at the North Anna site. (DT-0047 1)

Comment: I would like to state my strong opposition to the proposed new reactors. (DT-0058 1)

Comment: Do not build more reactors. (DT-0058 5)

Comment: Please reconsider issuing an Early Site Permit to the North Anna nuclear project. (DW-0029 2)

Comment: Please reconsider issuing an Early Site Permit to the North Anna nuclear project. It would be wrong to issue this permit on the highly speculative grounds that it would not adversely impact the environment. (DW-0050 2)

Comment: Please reconsider issuing an Early Site Permit to the North Anna nuclear project. The construction of the plant – including truck traffic, smog and building waste, will be detrimental to the environment. (DW-0057 1)

Comment: In the same generation as two nuclear disasters (Three Mile Island and Chernobyl) I cannot believe approval to build another nuclear plant is even being considered. This would be the first license since Three Mile Island. We live in Fluvanna County, a neighboring county of Louisa, where the proposed site is being considered. When we moved to Virginia, one of the first things we did was to look up the location of nuclear plants and measure distance to be from it when choosing a home site. (DW-0181 1)

Comment: I OPPOSE the expansion of nuclear power at the North Anna site for several reasons [which are discussed in the relevant sections of this volume of the EIS]. (DW-0186 1)

Comment: I am writing to express my opposition to the granting of a new license for the nuclear power plant in Louisa County, Virginia. (DW-0193 1)

Comment: Don't expand North Anna. (DW-0195 2)

Comment: I am dismayed to read that the NRC concluded the draft of its Environmental Impact Statement by saying "the environmental impacts would not prevent issuing and Early Site Permit for North Anna." I believe this to be unconscionable and unrealistic. (DW-0196 1 and DW-0744 1)

Comment: I'm urging the NRC to retract the Early Site Permit for the North Anna nuclear project. There is no way such a facility will NOT adversely impact the environment. It will affect the environment during construction, during power generation, and during the attempts to dispose of and store the spent fuel. (DW-0198 8)

Comment: Constructing new reactors would be a danger to Virginia and its neighbors; it would be bad for Virginia's environment, bad for taxpayers, and bad for residential and commercial ratepayers. (DW-0198 11)

Comment: I am writing you in regards to the permitting of new reactors at the North Anna site in Virginia. I am vehemently opposed. (DW-0309 1)

Comment: Please [do] not grant Dominion Resources the site permit. (DW-0398 5)

Comment: Please don't let Dominion Power or anyone else build a nuclear Power Plant. Although it has been many years since the disaster at Three Mile Island, it should still serve as a lesson for all of us not to build such structures. (DW-0403 1)

Comment: They [Dominion Power] continue to spew out hazardous substances, like mercury. There are now 5 million Virginia residents living in areas below the EPA's Clean Air Standards. Dominion Power is one of the key players in this FACT. (DW-0403 3)

Comment: Please, no new nuclear power plants for Virginia. I love this state. Help me protect it for a very, very long time. (DW-0405 1)

Comment: I herewith voice my opposition to the proposal for expanding the North Anna Power facility in Louisa County with two new nuclear reactors. (DW-0406 1)

Comment: I am writing to voice my opposition to the proposed two new nuclear reactors at the North Anna power plant... As a Virginia resident living less than fifty miles from the North Anna power plant, I ask you to please stop the new reactors. (DW-0408 1)

Comment: I believe that the recent Draft Environmental Impact Statement does not take into complete consideration all of the unfortunate effects the new reactors may have on local and national security and environmental health. (DW-0408 2)

Comment: I strongly oppose granting Dominion Virginia Power an Early Site Permit for constructing any new nuclear plants at North Anna. (DW-0409 1)

Comment: We are writing to voice our dismay at the prospect of the granting of an ESP for two new nuclear reactors at the North Anna, Virginia site. (DW-0424 1)

Comment: I am writing to inform you that I am against Dominion Power obtaining a permit to expand nuclear energy operations in my State of Virginia. (DW-0424 1)

Comment: The purpose of an Early Site Permit (ESP) process is supposedly to "assess whether a proposed site is suitable should the applicant decide to pursue a CP [construction permit] or COL [combined license]" (DEIS, page xxi). Yet, this Draft Environmental Impact Statement (DEIS) fails to consider or to fully acknowledge numerous environmental issues that indicate that the North Anna site is not suitable for additional reactors. It does not appear that the ESP really indicates anything about site suitability when analyses to determine environmental impacts or decisions on how to mitigate those impacts are put off to the COL stage or are to be made by the state after the NRC has already granted the ESP. (DW-0437 1)

Comment: Please, Virginia doesn't deserve more environmental degradation. She's so beautiful! Her people don't deserve it either. (DW-0453 3)

Comment: [M]y simple message is just this: DON'T ISSUE THIS PERMIT. (DW-0614 11)

Comment: I'm especially concerned as a Dominion customer! Please don't make me consider taking my business elsewhere. (DW-0627 2)

Comment: The Dominion Web site, with regard to the existing North Anna facility, claims that: "Continuing studies show that North Anna has very minimal effects on the environment." Dominion's idea of "very Minimal" is probably much higher-impact than most Virginians are comfortable with. What is "very minimal" tripled? Two more plants would mean three times the environmental impact. ... We should insist that Dominion bring their "very minimal" detriment to our environment down to zero-impact for the power plant that they ALREADY have before even considering granting permission to build more. ... To allow Dominion to proceed with their new plans would be to REWARD them for harming our environment, however "minimally." (DW-0628 1)

Comment: I am writing to register my opposition to Dominion Virginia Power's application to build a new reactor at their North Anna facility. ... It is my sincere hope the commission will conclude a new reactor is not appropriate and will withhold its approval. (DW-0640 1)

Comment: VIRGINIA DOES NOT NEED NUCLEAR POWER (DW-0641 8)

Comment: I ask that you not grant an Early Site Permit at the North Anna Nuclear Power Plant. ... Additional nuclear reactors at North Anna are not in the public's interest. (DW-0653 1)

Comment: How can the NRC prepare an Environmental Impact Statement that finds that the building of new reactors at North Anna would have no major adverse environmental effects? That is an unreasonable finding. (DW-0653 6)

Comment: Please DO NOT GRANT THE ESP to Dominion! (DW-0654 2)

Comment: I would like to register my objections to the proposed North Anna Nuclear Power plant. There are so many reasons to oppose this plant. ... I strongly think that it is a bad idea to build a nuclear power plant in North Anna. (DW-0729 1)

Comment: The proposed expansion of the North Anna Nuclear Plant in Louisa County, Virginia is a terrible idea. (DW-0741 1)

Comment: Do not expand your nuclear plant in Louisa County, Virginia. (DW-0749 1 and DW-0750 1)

Comment: I am writing to express my deep concern about the possibility of two new nuclear reactors being at the existing North Anna nuclear power plant in central Virginia. I think this is not the answer to our energy concerns, and ask that you do not grant a site permit for the purpose of increasing the nuclear reactors at North Anna. (DW-0757 1)

Comment: My hope is you will hear what thinking, sensible people are saying and abandon this project. (DW-0793 3)

Comment: Please DO NOT put any more nuclear reactors in Virginia. (DW-0798 1)

Comment: I am writing this to show my opposition for granting an Early Site Permit to Dominion Resources for the construction of two new reactors. (DW-0802 1)

Comment: There is far too much risk to the environment in this proposal, Lake Anna is already at risk, and the construction of this magnitude would only make the situation worse. (DW-0802 2)

Comment: I am writing in ADAMANT OPPOSITION to the granting of the Early Site Permit to Dominion for the building of two new reactors at North Anna's nuclear plant in Mineral, Virginia. ... I have to pledge my opposition to the granting of the ESP on behalf of community stability. (DW-0817 1)

Comment: I am against the construction of nuclear power plants at Lake Anna. I feel that these plants are a risk to people and the environment. (DW-0821 1)

Comment: As a mother of two teenage children and a resident of southern Albemarle County, I oppose the expansion of the nuclear facility at Lake Anna. The Lake Anna facility affects not just Louisa County, but all of us. (DW-0822 1)

Comment: Please record this e-mail as a citizen's new vote against the site permit, and the unacceptably risky construction that it would facilitate. (DW-0825 2)

Comment: I am writing in OPPOSITION to new nuclear reactors at the North Anna nuclear power plant. ... Please deny these permits. (DW-0827 1)

Comment: I am opposed to granting a preliminary permit for more reactors at North Anna because the plan submitted for cooling the reactors is inadequate. (DW-0829 1)

Comment: If this meeting means anything whatever, you will not issue an early site permit to dominion for further nuclear reactors to be located at North Anna. ... no more nuclear reactors at North Anna – we are watching you closely! (DW-0830 1)

Comment: I am writing to express my belief that we do not need any more nuclear reactors at Lake Anna. ...Please do not bring any more nuclear reactors to our area. (DW-0831 1)

Comment: I am also very concerned about the potential damage to the environment and to wildlife and fish in the area of the lake. (DW-0832 3)

Comment: [I] am writing to voice my opposition to the building of additional reactors at the North Anna site. I believe this would be environmentally, as well as economically, unsound. (DW-0833 1)

Comment: I am writing to oppose the building of a new nuclear power plant at the North Anna site. I don't believe that all the issues concerning nuclear energy have been addressed with the current power plant - waste disposal/storage, terrorism and security, health effects, and evacuation and safety planning - just to mention a few. (DW-0834 1)

Comment: Please, please do not approve this. (DW-0846 4)

Comment: Please OPPOSE granting an Early Site Permit (ESP) to Dominion. Too many questions remain unanswered and too many problems remain unsolved for the NRC to grant an ESP. (DW-0851 1)

Comment: The Falls of the James Group Sierra Club (central, southern Virginia) is opposed to the building of additional nuclear reactors in central Virginia and oppose an Early Site Permit (ESP) for Lake Anna. (DW-0857 1)

Comment: I do not wish to see G.W. Bush and the DOE blow another 200 million of my tax money to cover the cost of new permits for this proposed facility on behalf of Dominion Power. (DW-0900 3)

Comment: I am strongly against plans to build any new nuclear reactors at Dominion's North Anna nuclear power station in Virginia. (DW-0981 2)

Comment: I also have specific concerns about North Anna. (DW-0983 3)

Comment: [M]y husband, Louis, and I urge the U.S. Nuclear Regulatory Commission to DENY Dominion's application for an Early Site Permit. (DW-0998 6)

Comment: Please register my opposition to any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. (DW-1042 1)

Comment: I urge the U.S. Nuclear Regulatory Commission to DENY Dominion's application for an Early Site Permit, and for Dominion to instead focus on finding alternative methods of addressing expected increases in energy demands over the coming years. (DW-1042 4)

Comment: As a Louisa Virginia resident, please register my opposition to any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. [only slightly changed] (DW-1048 2)

Comment: As a Lake Anna fisherman, Virginia resident, and Dominion Power customer, I am strongly opposed to any plans by Dominion Power to build any new nuclear reactors at its North Anna nuclear power station in Virginia. (DW-1084 2)

Comment: This proposal is unacceptable for many reasons of safety and of health concerns of the U.S. population. … I am very much opposed to this nuclear reactor. (DW-1090 1)

Comment: This is not a well-conceived project for so many reasons. I do hope that those entrusted with the decision will choose to deny permission to build additional reactors at the Lake Anna site. (DW-1121 1)

Comment: I am writing to express my strong opposition to allowing another reactor at North Anna. …Please oppose this reactor permit. (DW-1151 1)

Comment: The Piedmont Environmental Council (PEC) continues to believe this permit is not in the interest of the public and is unnecessary given the lack of need for additional electric power generation in the Commonwealth. (DW-1157 1)

Comment: We would recommend that the two additional reactors at this site are inappropriate for a multitude of reasons. We would ask that due to the numerous concerns mentioned in our previous comments and those outlined in this submission, that the Early Site Permit for this facility be denied. (DW-1157 16)

Comment: Do not issue a permit to Dominion Power for new nuclear reactors. (DW-1181 5)

Comment: Please consider my opposition to any plans by Dominion to build any new nuclear reactors at its North Anna nuclear power station in Virginia. The site is unsuitable and many important factors aren't being considered in the decision whether or not to approve Dominion's application for an Early Site permit (ESP). Constructing new reactors would be bad for Virginia's environment, taxpayers, and residential and commercial ratepayers. I urge the U.S. Nuclear Regulatory Commission to deny the ESP ... Please take my opposition to Dominions plans into account. (DW-1233 1)

Comment: I am opposed to the granting of any early site permits to Dominion Nuclear North Anna for future construction of additional nuclear power plants at North Anna Power Station. (DW-0832 1)

Comment: [T]he EIS is seriously deficient in a number of areas especially with regard to socioeconomics and the human environment. There is a rather long list of important information that is absent ranging from questions about impacts to striped bass to basic info about the power plant's cost, security, traffic, and plans for waste disposal. (DW-0594 3)

Comment: [A]n issue deferred in the consideration of the environmental impacts for this Early Site Permit, the long-term management of wastes, re-emerges in my mind as a fundamental environmental issue that must be considered if we are going to be realistic. Without considering and largely solving this problem, a realistic consideration of likely environmental impacts must recommend the denial of a request for site permitting for additional reactors. (DW-0685 15)

Comment: My only hope is that there's a chance for the public to make a difference and get this stopped. There is too much research on safety and waste to allow this to happen ... which is not even being allowed to be presented. (DW-0181 6)

Comment: [We don't need] the open invitation to whatever fanatics might find the site a source of material for their efforts to terrorize the U.S. (DW-0967 3)

Comment: Until we have found a way to safely dispose of waste heat without negatively impacting the natural world around us, building additional reactors is simply not an acceptable action. We must protect our world…it is the only one we have. (DW-0457 2)

Comment: I want to express my opposition to any new nuclear reactors at the North Anna Virginia site. In addition to the problems of radioactive waste and reactor security, building new reactors at North Anna will further damage Virginia's already stresses local and regional water sources. (SE-0032 1)

Comment: I want to express my opposition to any new nuclear reactors at the North Anna Virginia site. In addition to the problems of radioactive waste and reactor security, building new reactors at North Anna will further damage Virginia's already stresses local and regional water sources. (SE-0042 1)

Comment: The initial prospects of boiling the fish on the warm side of the lake; of flooding the docks, piers, and boathouses on the cold side; of leaving everyone's boat stranded without water during prolonged draughts; and of deafening all of us with the loud 24/7 roar of cooling tower fans have somehow faded into a chorus of amicable assurances and harmless impacts in the face of your ESP hearings. (SE-0020 3)

Comment: I am writing to protest building a nuclear plant in this part of Virginia. (SW-0011 1)

Comment: I am opposed to the North Anna Nuclear Plant Early Site Permit being granted to Virginia Dominion Power…The issue is not about how squeaky clean the plant looks to workers and visitors, it is about the capacity of Virginia Dominion Power to protect all of our citizens against radiation contamination and pollution. Without clean air and safe water supplies, we humans will not survive. (SW-0021 3)

Comment: Spotsylvania County...adopted a resolution on February 8, 2005 which recited a number of concerns about the Early Site Permit process, chiefly the demands of the proposed project for Lake Anna water in light of the rapidly growing population in the Lake region and the impacts on Lake residents and visitors of lowering the water level of the Lake. The County objected to the ESP process. (SW-0017 80)

4.5 References

10 CFR Part 50. Code of Federal Regulations, Title 10, *Energy,* Part 50, "Domestic Licensing of Production and Utilization Facilities."

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy*, Part 52, "Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants."

10 CFR Part 54. Code of Federal Regulations, Title 10, *Energy*, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants."

10 CFR Part 100. Code of Federal Regulations, Title 10, *Energy*, Part 100, "Reactor Site Criteria."

40 CFR Part 1508. Code of Federal Regulations, Title 40, *Protection of the Environment*, Part 1508. "Terminology and Index."

54 FR 15386. "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors." *Federal Register.* April 19, 1989.

68 FR 40025. "Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants; Proposed Rule." *Federal Register*. Vol. 68, No. 128. July 23, 2003.

68 FR 55905. Nuclear Energy Institute; Denial of Petition for Rulemaking." *Federal Register*. Vol. 68, No. 188, September 29, 2003.

68 FR 57383. "Nuclear Energy Institute; Denial of Petition for Rulemaking." *Federal Register*. Vol. 68, No. 192. October 3, 2003.

71 FR 12782. "Licenses, Certifications, and Approvals for Nuclear Power Plants." *Federal Register*, Vol. 71, No. 48. March 13, 2006.

Atomic Energy Act. 42 USC 2011, et seq.

Clean Water Act (also referred to as the Federal Water Pollution Control Act). 33 USC 1251, et seq.

Coastal Zone Management Act (CZMA). 16 USC 1451, et seq.

Dominion Nuclear North Anna LLC (Dominion). 2006. *North Anna Early Site Permit Application – Part 3 – Environmental Report. Revision 9, Glen Allen, Virginia.*

Energy Policy Act of 2005. Public Law 109.58.

Energy Reorganization Act of 1974. 42 USC 5851, et seq.

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Nuclear Energy Institute (NEI). 2005. Letter to NRC regarding environmental reviews for a combined license application, February 10, 2005.

Private Fuel Storage, LLC, CLI-02-25, 56 NRC 340. 2002.

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U.S. Nuclear Regulatory Commission (NRC). 2000. *Standard Review Plans for Environmental Reviews for Nuclear Power Plants*. NUREG-1555. Vol. 1. Office of Nuclear Reactor Regulation, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2004. *Processing Applications for Early Site Permits*. RS-002, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2005a. *Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site.* NUREG-1835. Accession No. ML05160246. Available at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html.

U.S. Nuclear Regulatory Commission (NRC). 2005b. Letter to NEI regarding environmental reviews for a combined license application, July 6, 2005.

U.S. Nuclear Regulatory Commission (NRC). 2006b. *Supplement to the Final Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site.* September 2006. Accession No. ML062210441.

5.0 Comments Outside the Scope of the EIS

As set forth in 10 CFR 52.17(a)(2), an environmental report (ER) submitted as part of an early site permit (ESP) application need not include an assessment of the benefits (e.g., need for power) of the proposed action. Pursuant to 10 CFR 52.18, an environmental impact statement (EIS) prepared in connection with an ESP application also need not include such an assessment. Similarly, an ESP ER and EIS need not assess alternative energy sources and cost of power. If these issues are not included in the ESP review, then they must be evaluated during the environmental review performed in connection with a construction permit (CP), an operating license (OL), or a combined license (COL) application. In addition, as set forth in Volume II, Section 2.2 of this EIS, the position of the U.S. Nuclear Regulatory Commission (NRC) is that malevolent acts, including terrorism, are beyond the scope of a National Environmental Policy Act (NEPA) review. Comments received in response to the release of the North Anna ESP Draft environmental impact statement (EIS, also referred to by commenters as DEIS) and the Supplement to the Draft EIS (SDEIS) included many related to these issues, which are outside the scope of the ESP review.

The NRC is not authorized to promote nuclear power, nor does the NRC, through its environmental reviews or otherwise, have any role in setting policy with respect to encouraging or discouraging development of any particular source of energy. Therefore, comments supporting or opposing nuclear power are outside the scope of the NRC's environmental review. Several comments found fault with provisions in the NRC regulations. The NRC's preparation of an EIS on a requested licensing action, however, does not involve changes in NRC regulations, nor does the request for comments on an EIS afford an opportunity for such changes. Rather, the appropriate method to request a change to an NRC rule is through a petition for rule making under 10 CFR 2.802. Accordingly, comments on the adequacy of NRC rules and regulations are outside the scope of this EIS. A more detailed description of the areas that are outside the scope of the environmental review has been added to the Executive Summary in Volume I and the Introduction to Volume II of this EIS.

Comments on safety issues are generally outside the scope of the environmental review because the NEPA process focuses on environmental impacts of the proposed action rather than on issues related to safety. Safety issues become important to the environmental review when they could potentially result in environmental impacts, which is why the environmental effects of postulated accidents are considered in the EIS. The NRC has codified the regulations for developing an EIS separate from the regulations for reviewing safety issues during the ESP review. The regulations governing the environmental review are in Title 10 of the Code of Federal Regulations (CFR) Part 51, referenced in 10 CFR 52.17(a)(2) and 52.18, and the regulations covering the safety review are in 10 CFR Part 52. For this reason, the environmental review is distinct and separate from the safety review. Because the two reviews are separate, emergency planning and other safety issues are considered outside the scope of the environmental review, just as the environmental issues are not considered as part of the

safety review. Emergency preparedness and other safety issues are addressed in the NRC Safety Evaluation Report (SER) (ADAMS Accession No. ML052710305) for the North Anna ESP site, which was issued in September 2005 and supplemented in September 2006 (Accession No. ML063170371). The SER is available on the NRC's website at www.nrc.gov. Safety comments received during the environmental review were forwarded to the appropriate NRC staff for consideration.

This chapter is organized into the following sections:

- Section 5.1: Alternative Energy Sources
- Section 5.2: Cost and Need for Power
- Section 5.3: Emergency Preparedness
- Section 5.4: Safety
- Section 5.5: Security and Terrorism
- Section 5.6: NRC Oversight

These sections are followed by Section 5.7, which contains Comments in Support of Nuclear Power (Section 5.7.1) and Comments Opposed to Nuclear Power (Section 5.7.2). Section 5.8 contains Miscellaneous Out-of-Scope Comments. Section 5.9 lists references.

Comments in this chapter are considered out of scope of the environmental review; therefore comments are not addressed individually; rather, a general response is presented at the beginning of each section, followed by applicable comments. Comments received on the Draft EIS are listed at the beginning of each section, followed by comments concerning the SDEIS. When a comment submitted on the Draft EIS was repeated exactly, or almost exactly on the SDEIS, the comment is listed once and shown with both the Draft and SDEIS comment numbers.

5.1 Alternative Energy Sources

This section lists comments that discuss a need to move toward alternative energy sources such as solar and wind power, or to implement conservation of energy efforts. It also lists comments supporting the use of nuclear energy rather than alternative sources because the alternatives are not able to supply baseload capacity or because of other environmental concerns. The subjects of these comments have been determined to be out of the scope of this EIS. If Dominion applies for a CP or a COL in the future, the issue of alternative energy sources will be evaluated at that time, as required to satisfy NEPA.

General Response: *The NRC determined and informed prospective ESP applicants by letter that evaluation of alternative energy sources did not need to be covered in an application for an ESP. This determination is included on the NRC's web site at*

http://www.nrc.gov/reactors/new-licensing/esp/generic-esp-issues.html. NRC's position on this issue is further explained in a proposed change to 10 CFR Part 52 that was published in the Federal Register on July 3, 2003 (68 FR 40025, 40028-40029). Dominion chose not to include an analysis of energy alternatives in its ESP application and energy alternatives are not considered in this EIS. If Dominion North Anna LLC (Dominion) is granted an ESP and subsequently elects to apply for (1) a COL to construct and operate new nuclear units at the site under the procedures at 10 CFR Part 52 Subpart C or (2) a CP under the procedures at 10 CFR Part 50, then Dominion would be required to include an analysis of energy alternatives in the subsequent application. In conjunction with its evaluation of the CP or COL application, the NRC would prepare an EIS that complies with NEPA and applicable NRC regulations regarding the proposed action (i.e., the CP or COL). The staff would consider and include in the EIS a discussion of energy alternatives to construction of new nuclear generating units at the ESP site.

With respect to energy conservation, the NRC considers such matters in connection with the need for power. Because 10 CFR 52.17(a)(2) explicitly states that an applicant need not assess the need for power in its ER, Dominion did not do so in its ER, conservation is not evaluated in the EIS, and the comments on conservation are out of scope.

Individual comments are organized below by general alternative energy type(s) or topic with comments on the Draft EIS listed first and comments on the SDEIS following for each section:

Renewable Energy Sources

Comment: And I think the government could probably change the energy policies if they wanted to, and there is a lot of things I think they could change, especially the kind of energy that we use. And I think the best kinds are probably solar, hydro, and wind. (DT-0008 3)

Comment: The DEIS fails to consider alternative sources to nuclear energy for the generation of electric power by Dominion at North Anna--Renewable sources of energy such as wind, solar, and small hydro are available in Virginia and could provide electric power generation with far smaller environmental and human health impacts. (DT-0034 5, DW-1163 4)

Comment: In its application for an ESP, Dominion failed to properly assess alternatives to its proposed action including the utilization of renewable energy to generate electricity. There are three favorable alternatives which could make additional nuclear reactors at North Anna unnecessary: wind energy, solar energy, and small-scale hydropower. (DT-0034 17)

Comment: A clean, safe, renewable energy resource might be solar or wind power. (DT-0041 2)

Comments Outside the Scope of the EIS

Comment: Research the sustainable alternatives of wind, solar, biomass, and many others. (DW-0173 4)

Comment: For the billions you waste on nuclear pollution, you could build windmills and solar cells that would power the nation. (DW-0180 4)

Comment: Please consider putting your efforts toward clean energy. (DW-0192 4)

Comment: I urge you to work for the development of safe, renewable, environmentally-friendly methods of electricity production such as wind power, solar power, and geo-thermal energy. (DW-0193 4)

Comment: The only safe nuclear power plant is the sun - go solar! (DW-0195 6)

Comment: Dominion and all utilities should put all their resources to work developing alternative and renewable forms of energy like wind or biomass. (DW-0198 10)

Comment: I live in a solar powered house including electricity so I know that technology works with minimal environmental impact. (DW-0309 2)

Comment: NO to nuclear power - YES to renewable energy! (DW-0395 2)

Comment: Solar and wind provide clean and safe energy. (DW-0398 2)

Comment: There are real, harmless alternatives, such as solar energy. (DW-0403 2)

Comment: I am sorry that Dominion seems to only want to provide energy from coal and nuclear power. I would like to see them promote other renewal energy sources such as solar, wind, etc. (DW-0407 4)

Comment: Additional nuclear reactors are not needed; renewable energy sources can accomplish as much and more than nuclear generated energy has or ever will. And with none of the lethal consequences of the flawed nuclear technology. (DW-0411 4)

Comment: There are less dangerous ways of obtaining power from wind and sun energy, which is ever abundant. (DW-0412 2)

Comment: More study needs to go into alternative energy sources such as wind power. There is a lot of wind on the mountains that can be harnessed…Natural gas is plentiful in the coal mines of West Virginia. Methane gas from landfills and decomposing cow manure can be harnessed for energy to run the electric generators. We need to study all the options before putting our area into a check mate situation. (DW-0413 6)

Comment: Today's technology can supply other alternatives, in fact many. (DW-0421 2)

Comment: The most patriotic thing our country can do to meet our energy needs is to commit our nation's best minds to developing highly effective renewable energy technologies. This would free us from dependence on other countries for fuel supplies, and would keep our own citizens healthy by reducing air pollution and possible increased radiation exposure. Americans are worth that effort. (DW-0426 19)

Comment: Instead of expanding our nuclear presence, we should explore, properly fund and mandate renewable energy sources. (DW-0616 3)

Comment: Wind turbines and solar cells are more efficient, nonpolluting sources of energy being used successfully. (DW-0641 7)

Comment: We should focus on renewable sources of energy, without hesitation, such as wind and solar, and leave nuclear energy as a dirty part of our past. (DW-0654 4)

Comment: In Spain they use windmills to provide much of the electrical power. This is cheaper, safer, and already being used in parts of California. We do not need to risk the use of nuclear power when there are cheaper and better alternatives for generating electricity. (DW-0495 2)

Comment: Instead of nuclear, why not partner with renewable energy companies or start your own renewables division. I choose to get my power, not from Dominion, but from Pepco because they offer 100% renewable wind energy. It's renewable and there's no waste--you can't beat that! (DW-0700 2)

Comment: We can easily meet our energy needs with energy efficiency and renewable energy programs. (DW-0743 3)

Comment: We have renewable and clean forms of energy, such as wind and solar power. …Be a leader in corporate development in renewable energy. (DW-0749 2 and DW-0750 2)

Comments Outside the Scope of the EIS

Comment: I would prefer that Dominion meet its power capacity needs using clean energy like wind or biomass. In reevaluating the ESP and the EIS, the NRC should urge Dominion to consider other alternatives to an expensive nuclear plant. (DW-0772 5)

Comment: If Dominion wishes to produce more energy, it should do so by building wind farms in places like Highland County. If we want to leave our children a world worth inhabiting, then we must invest in renewable energy now. (DW-0777 3)

Comment: There are other forms of energy that deserve our attention. (DW-0780 3)

Comment: Our country needs to be looking at sa[f]e, sensible and sustainable energy sources. Nuclear at this time is certainly none of these. (DW-0793 2)

Comment: Wind and solar energy need to be developed... Clean, safe energy is available. We need to use it. (DW-0797 2)

Comment: It is time to use other non-fossil fuel energy alternatives, such as wind, solar power, and others. If money were allocated to this research before, we would already be able to benefit from better methods of producing energy. (DW-0811 4)

Comment: I hope the NRC will require Dominion Nuclear North Anna to withdraw their application and consider other alternative electricity generating technologies before endangering the large, and growing, population of this area. (DW-0832 5)

Comment: Wouldn't the investigation into more sustainable energy be a more prudent approach? (DW-0834 2)

Comment: We need to start investing in clean renewable energy - not nuclear!! We need to leave a cleaner earth for our children's, children's children. (DW-0897 2)

Comment: Dominion Virginia Power should be using its resources to develop alternative energy sources. (DW-0902 2)

Comment: There are cheaper and less controversial energy sources that are not being fully investigated. (DW-0955 2)

Comment: Dominion [should] instead focus on finding alternative methods of addressing expected increases in energy demands over the coming years. (DW-0998 7)

Comment: I am convinced that we have to start searching for alternative fuels to meet our energy needs. We cannot endanger our lives by a fuel source that is a proven danger. I urge you to focus instead on developing alternative fuels. Even if we had to make sacrifices for them, it would be worth it in peace of mind and in safety. (DW-1042 3)

Comment: Focus your energy of funding and developing renewable sources of energy that don't leave a radioactive or wasteful legacy. (DW-1069 4)

Comment: Why don't you invest in building solar energy facilities and give lots of people work and generate a safe renewable source of energy in much less time that it takes to build nuclear plants. (DW-1090 2)

Comment: The technology exists for the United States to switch from dirty energy to solar, wind and water generated power. Why would we want to continue to use nuclear power when a cleaner, safer alternative is available? …I pray for this nation and it's leaders to set a new standard in global energy production. Let's use the FREE energy the sun, wind and water provide, update our power grid to incorporate solar power, and begin taking our environmental safety and health seriously. Stop the madness! Go Solar!! (DW-1166 2)

Comment: I urge the US NRC to focus on finding alternative methods for addressing the increasing energy demands. (DW-1233 2)

Comment: I would prefer that Dominion meet its power capacity needs using clean energy like wind or biomass. In reevaluating the ESP and the EIS, the NRC should urge Dominion to consider other alternatives to an expensive nuclear plant. (DW-MM1 10)

Comment: Safer, cheaper alternatives to new nuclear generating capacity are not being explored as part of the Early Site Permit process. The ESP application doesn't consider what the effect might be on the cost of power in Virginia, or the need for new generating capacity. (DW-MM3 3)

Comment: Safer, cheaper alternatives to new nuclear generating capacity are not being explored as part of the Early Site Permit process. (DW-MM4 7)

Comment: Renewable energy sources such as wind power create more jobs per investment dollar than does nuclear power. Those jobs also require less specialized education, increasing the chances that local workers will be able to secure the jobs rather than requiring outside experts. (DW-MM4 11)

Comments Outside the Scope of the EIS

Comment: In light of these concerns [stated previously], we urge … Dominion to instead focus on finding alternative methods of addressing expected increases in energy demands over the coming years. (DW-MM4 18)

Comment: It is past time to switch to safe, sustainable alternative energy sources -- oil and nuclear energy are filthy, non-sustainable sources that wreak havoc with the health of all beings on this planet and the planet itself. (DW-0891 2)

Comment: For once let us consider the harmfulness to our environment. The way things are going there will be nothing left for future generations to enjoy. Let's work on find[ing] another way to work on increasing energy demands. (DW-0493 3)

Comment: The proposed action is a major Federal action significantly affecting the quality of the human environment; therefore, the NRC must consider alternative sources to nuclear energy for the generation of electric power by Dominion at North Anna before granting an ESP. Renewable sources of energy such as wind, solar, and small hydro are available in Virginia and, if implemented, would allow increased electric power generation with smaller environmental and human health impacts. (DW-1163 16)

Comment: Nuclear power is promoted to the public as safe, clean and cheap and yet information that would enable them to understand the specifics of that claim is not provided in this proposal and that information is key if the public is to understand the merits of this proposal especially as compared to other power-generation choices such as coal, solar and wind. (DW-0594 7)

Comment: Please work towards sustainable and fiscally responsible energy technology. (DW-0408 10)

Comment: Please SPARE OUR LIVES and spend OUR (taxpayer) money on safe energy alternatives. (DW-0196 7 and DW-0744 7)

Comment: Our country has developed technologies that are safer and more enduring in the long term. Let's use them. (DW-0197 2)

Comment: I am the executive director of the, “environmental crisis center,” and our agenda is having clean energy, now! (DW-0177 1)

Comment: I would urge you to be good corporate citizens. Stop feeding at the taxpayer trough. Take that money and look at renewable energies. (DT-0042 1)

Comment: What will happen if Virginia Power is able to build a nuclear power plant? Our children will be left to find out or then again maybe they won't. There are other ways to create energy without harming our environment. (DT-0057 3)

Comment: In response to the Dominion VP's remarks: Why is there no mention of alternative energy sources? Why just mention natural gas? Imagine if the amount of money put into this NRC review was put into subsidizing solar applications or research on other alternative energy possibilities in the area. (DT-0062 1)

Comment: The amount of money spent on nuclear research is $74 billion versus $14 billion on all renewable energy research. I would like to install solar panels in my home, but the cost is prohibitive. Until more citizens invest in these technologies, the cost will probably not come down, so I am considering going into debt for it. (DT-0062 2)

Comment: If we shut down nuclear today, we would not have return to living in dark caves rubbing sticks together to start fires. When we turn to wind and solar for our electricity, the power companies will still make profits. People will still be employed. Taxes will still be paid. (DT-0018 7)

Comment: [A]ll energy technologies have their pros and cons. Life cycle emissions for wind and solar are actually higher than nuclear. Furthermore, they ignore that solar produces about the same amount of toxic waste per kilowatt hour produced as nuclear does. But this is waste that never decays or becomes less dangerous. ...I still think we should develop renewables and do everything we can to use them, but they are a part of a balanced energy mix, not the entire solution, just like nuclear. (ST-0012 8)

Comment: [T]he draft shows no real consideration of renewable energy and demand-side management. (ST-0036 9)

Comment: How much [energy] can we get from wind? What's the impact of wind going to be on the bald eagle population when they fly into a turbine which they've had a problem with at the turbine farm in West Virginia of birds flying into the turbines? (ST-0023 4)

Renewable Energy Sources and Conservation

Comment: Our government and our power production companies should instead establish aggressive policies for energy conservation and clean renewable energy production. (DT-0047 8)

Comment: These resources would be better directed to alternative energy and energy conservation efforts. (DT-0054 6)

Comments Outside the Scope of the EIS

Comment: Would it not be a better solution to be more conservative and efficient in the use of the resources that we have and try safe wind and solar alternatives? (DW-0398 4)

Comment: Dominion Power should be encouraging conservation and passive solar construction methods. They should also be exploring wind power. (DW-0576 2)

Comment: I'm asking Dominion to please pour your resources into sources of energy that are really clean and safe and efficient. And I'm asking myself and citizens of Louisa to be loud and consistent in our demands for safe power and in cutting back our own energy use and in our own experiments with alternative power. (DT-0037 6)

Comment: As a taxpayer of our country and a shareholder in Dominion, I'm dismayed to hear Dominion say that they're going to go ahead and spend hundreds of millions of dollars not to build the plant. That's unbelievable. This money could be well spent on many positive ways to either conserve energy, energy efficiency, or to build a plant which is actually going to produce energy. But here he says we're not building a plant. We're just going to take your money and spend my shareholder money not to do it. Dominion has many economic, environmentally, and acceptable ways to produce or save energy. Let them do that, and let them leave us in peace. (DT-0015 2)

Comment: I want for energy providers to educate the public on ways to reduce our use of resources and to provide safer, cleaner options like solar, biomass and wind energy. (DW-0165 7)

Comment: Although our population is growing, future anticipated electrical power demands can be met with more judicious per capita consumption and development of smaller distributed electrical generation plants using alternative energy sources. (DW-0406 2)

Comment: I urge you to be wise for future generations and promote conservation, solar, and wind alternatives. (DW-0429 4)

Comment: I urge that every effort be made to save energy through comprehensive conservation plans for that region, and then the use of sustainable, clean power sources [can] be pursued. (DW-1140 3)

Comment: Market-based programs for Energy Star products and green building should be developed as part of our energy portfolio. These programs would render unsafe and expensive proposals such as this one unnecessary. (DW-0593 4)

Comment: We can easily meet our energy needs with energy efficiency and renewable energy programs. (DW-0743 3)

Comment: There is a better and less expensive way to solve our energy needs. Major sacrifice and simple conservation discipline in every city, town and county in Virginia, as well as the use of renewable energy would eliminate the need to build more nuclear power plants and make all Virginians safer. (SW-0021 6)

Comment: Wind power and other renewables along with energy efficiency and conservation and co-generation are much more cost effective and can be deployed much faster. (ST-0008 6)

Comment: If as much taxpayer money were put into research on renewable energy sources and on increased energy efficiency and conservation as has been put into subsidizing the nuclear industry, we would not be facing the increased energy needs that call for more nuclear reactors. (SE-0010 2)

Conservation

Comment: I think it's in our hands as well, as citizens, as sharers of the earth to come up how we live our life. We need to practice conservation. (DT-0026 2)

Comment: California was able to eliminate the construction of many nuclear power plants years ago through conservation programs. (DW-0042 2)

Comment: What about conservation efforts, where are they? We have not [given] nearly the attention here that is needed. (DW-0379 2)

Comment: The U.S. needs to implement conservation measures that will make the country a leader in conservation technology…we need to support the conservation measures with incentives and support for research. Investments in these areas will reap immediate and long-term benefits for us all. (DW-0537 2)

Comment: We are…ready for technologies of efficiency. How about those standards for new air conditioning and heat pump efficiency that President Bush removed early in his first term. They should be reinstated…Our current policies actually seem to encourage more demand for energy, when it should be encouraging more efficient ways to use what generating capacity we already have. (DW-0577 3)

Comment: First and foremost, this country should not invest a penny more in power generation until it has a conservation plan that is equally invested in. (DT-0058 2)

Comments Outside the Scope of the EIS

Comment: To those who would argue that there are not enough non-polluting electricity generating options to support the population demanding electricity, I respond that the population should be reduced to the level that can be supported by sustainable non-polluting sources. (DW-0648 3)

Comment: I believe that Dominion would be better served by working to help its power users reduce demand than to construct additional generating capacity at this time. I also think that an investigation of the potential for tidal hydro generating systems in the Chesapeake Bay and Virginia coastal areas would be a much better use of financial resources, although environmental concerns would also have to be carefully addressed. (DW-0832 4)

Comment: We also need to embrace conservation, continue to develop our renewable energy supplies and employ safe, clean nuclear energy as a continued part of balanced energy mix. (ST-0020 9)

Comment: I am asking all of us to cut back on our energy use, and be careful what we do. (SW-0014 2)

Desire for Safer Options

Comment: This antiquated power source has seen its day and the world needs to rid itself of it and seek safer alternatives. (DW-0655 3)

Comment: We must find a different solution to meet Virginia's energy needs, one that does not risk the health of future Americans. (DW-0426 16)

Comment: We need to be putting our funding and planning into alternative energy and conservation--not reviving the dangerous and uneconomical industry. (DW-0409 5)

Comment: Please. It just is not worth the risk. Our country has developed technologies that are safer and more enduring in the long term. Let's use them. (DW-0405 2)

Comment: We need to find other energy sources. Nuclear power is NOT it…I want my money redirected for safer energy sources. (DW-0404 3)

Comment: Safer, cheaper alternatives to new nuclear generating capacity are not being explored enough. (DW-1088 2)

Comment: It is time for humankind to figure out how to be creative, to manufacture energy that causes no harm to the environment. Coal, gas, wind, solar are all safer to the environment than nuclear. (DW-1089 3)

Comment: Safe, clean, renewable energy resources are available. Now Is the time to start developing them and stop relying on an energy source that is unsafe in the long run. (SE-0032 2)

Energy Independence

Comment: What about alternative sources of energy? Well, for a fact, we have heard that Dominion has already invested in what's called liquified natural gas. I wouldn't doubt that if Dominion found the right spot to build a wind farm with windmills that could produce enough energy and make a profit they would do it. Anyway, if all of the energy initiatives were to succeed, you've got to ask yourself the question will America be better off. Will we get closer to the goal of financial or -- excuse me -- of energy independence? (DT-0011 3)

Comment: We've heard a little bit about energy independence and the idea that nuclear power is going to get us off foreign oil, and I personally believe we shouldn't just get off foreign oil, but maybe oil in general, and if more of us were riding bicycles we could help do that. (DT-0016 4)

Comment: Nuclear energy helped back oil out of the electricity sector in the 1970s and the 1980s by essentially replacing oil in electric generation. We think it can do the same thing in the transportation sector by making hydrogen to operate fuel cell vehicles, another way to make us less dependent on foreign sources of oil. But nuclear power is not going to make a meaningful dent in our oil consumption. According to, again, the United States Department of Energy figures here, in 2003 the percentage of oil that was used in the United States on generating electricity, 2.1 percent, and that's total. Not all of that was imported even. That compares to 70 percent of all petroleum use in this country on transportation. So if you're interested in achieving energy independence, nuclear power is not going to get us there. (DT-0027 6)

Comment: The nation is now facing aging reactors needing retirement. ...Any new reactors built in the next ten years would merely replace aging reactors, doing nothing to reduce our oil dependence. (DW-0641 4)

Comment: Just about all of the electricity that has been added to the United States grid in the last several years is being generated by natural gas...There has been tremendous price volatility in the price of natural gas... in many parts of the country is that industries that depend on natural gas are actually leaving the country. (DT-0004 4)

Comment: We believe that the U.S. should become self-reliant for energy sources and not be dependent on foreign oil, but we do want to promote the wise and safe use of nuclear energy and not have the impact of the new nuclear reactors destroy Lake Anna in the process. (ST-0014 1) and (SE-0022 1)

Comments Outside the Scope of the EIS

Energy Technology

Comment: Industry advocates are promising the safety, cost and oil-replacing potential of generation-after-next “pebble-bed” reactors, but these designs still need years of research and development. (DW-0641 3)

Comment: There are better answers. Technology and design advances have opened up a new way to organize our energy grid that encourages high-quality energy and healthy markets. Small natural gas turbines combined with better grid design can capture much of the wasted energy by distributing clean generating capacity closer to consumers. Instead of putting one massive power plant tens of miles from customers and taking five years to build, micro turbine powerplants of any size can drop in incremental capacity onto the grid where it is needed, when it is needed. Since they are affordable, they eliminate the need for market-corrupting and deficit-worsening subsidies. (DW-0641 6)

Comment: And let's move on to fusion technology as quickly as possible. (DT-0063 8)

EIS-Specific Alternative Energy Comments

Comment: The list of alternatives in Section 8 should include the following:

a. Life extension of the existing two North Anna reactors
b. Retirement of the existing two North Anna reactors.
c. Constructing the new reactors and radioactive material storage underground to increase security against an air attack
d. Non-nuclear generation sources. (DW-0438 170)

Comment: The list of alternatives did not include life extension of the existing two plants or retirement of those plants. (DW-0594 9)

Comment: [T]he alternative section of the EIS (in contrast to that of an ER) needs to assess other alternatives beyond siting such as renewables, demand side management, repowering of Units #1 and #2, etc. (SE-0045 38)

Comment: [W]e don't feel that NRC has adequately considered the alternatives to this whole process which they are legally required to do...According to National Renewable Energy Laboratory data that was actually published in a study by the Virginia Center for Coal and Energy Research in 2005 actually concluded from that data that renewable energy, I mean solar, wind onshore and offshore, geothermal heat pumps and possibly some advanced hydropower could actually meet Virginia's electricity needs in the coming two to three decades completely. ...The benefit is there's no radioactive waste, there's no risk from a plant having a

problem or being intentionally sabotaged. ...they should really seriously look at alternatives to actually building more reactors in the first place. (ST-0005 7)

Comment: Dominion Power could resolve these issues [from water use through evaporative cooling]...by investing in renewables and in energy conservation and efficiency and conservation. (SE-0035 4)

Comment: It's obvious the enormous amount of time, money, and energy that's been put into what Dominion says is just one option, and I'm wondering how much is being spent to seek alternatives. This could be an opportunity for Dominion to be an innovative force in seeking true clean energy. (DT-0044 1)

Comment: A nuclear reactor will deplete valuable water resources from the Lake Anna area. Why not go for renewable energy and consider the common good to achieve the same end? (SE-0031 1) (SE-0043 1)

Other Comments

Comment: The Kyoto Protocol limits the amount of carbon dioxide that can be put into the atmosphere because of the concerns of the impact of carbon dioxide on global temperatures. Again, the U.S. is not participating. If the United States does choose to participate, then once again we need an energy source that does not involve putting carbon dioxide into the air ... So there's a growing awareness around the world that if we're going to be generating power in an environmentally responsible way, nuclear is one of the options. (DT-0004 5)

Comment: Page 2-13 line 31 discusses that severe weather may occur in the area. These weather events can contribute to power outages and disruption of road access. Increased generation of power from a few large power plants in one location does nothing to improve regional system transmission stability whereas decentralized generation would offer that benefit. (DW-0438 26)

Comment: Nuclear generation of energy causes more global warming than other energy generation methods. More green house gases are released. (DW-0151 2)

Comment: Nuclear energy production causes more green house gasses than other energy production methods. We are already seeing the results of global warming. (DW-0384 2)

Comment: This whole process [nuclear] seems far better to me than continuing to use fossil fuels which pollute the atmosphere and prevent the United States from meeting the Kyoto protocols. Russia has agreed to meet these protocols and they have a much dirtier atmosphere than we do. (DW-1007 7)

5.2 Cost and Need for Power

Section 5.2 lists comments addressing cost and/or need for power. Commenters expressed the opinion that nuclear power is expensive, and they were surprised that Dominion would spend the money required to build new plants. They expressed concern that tax payer dollars would be spent on this project, and that nuclear power is more expensive than other options. There were comments expressing frustration that nuclear power is being subsidized by the government. Concerns were expressed about the costs of mining, handling, using and storing radioactive materials, and the long-term social and health costs in communities interacting with these materials.

General Response: *The regulations in 10 CFR 52.17 and 52.18 specify, respectively, that the ER and EIS prepared for an ESP need not include an assessment of the benefits (e.g., need for power) of the proposed action. Cost of power is part of the assessment of the need for power.* Dominion chose not to address these matters in its ER, pursuant to 10 CFR 52.17(a)(2). Accordingly, these issues are outside the scope of this EIS. Nonetheless, these issues will be reviewed at the CP or COL stage because they were not reviewed at the ESP stage. Further, the NRC does not have any role in setting energy policy or otherwise providing funds for energy research or development, nor do NRC environmental reviews implement energy policy. Accordingly, these issues are also outside the scope of this EIS.

Cost of Power

Comment: Nuclear power is a very bad investment. The Department of Energy itself reports that the average nuclear power plant built in the United States ran 400 percent over budget … Nuclear energy has been historically and continues to be a terrible investment. (DT-0005 1)

Comment: That nuclear power is cheap is a fiction. It's cheap at the meter, but if the tax subsidies are included, it is more expensive. (DT-0006 3)

Comment: And finally, don't build it [a processing plant] with tax dollars. Use private money. I want the person who turns on the switch to pay the penalty, and he'll be more inclined to conserve. (DT-0006 8)

Comment: Building a nuclear power plant is expensive. It could be, as somebody said, hundreds and it's probably in the billions, but I think it's going to take ten years to build the plant from the time you begin the process. (DT-0011 2)

Comment: Something that wasn't on the slides that we saw earlier that was on slides last year when I was here at the scoping meeting was what the impact was going to be on the cost of power in Virginia. You guys right now have a cap on your electricity base in Virginia. That's going to be lifted in 2010, which is before these plants, if they're built, which I believe they will, too; before they're built, those rate caps are going to come off, and any cost overruns on this plant are going to be borne by shareholders and by ratepayers. That's something you guys need to keep in mind. (DT-0016 1)

Comment: According to the Department of Energy, nuclear power is projected to be more expensive than coal, more expensive than gas, and even more expensive than wind, not just now but through the year 2025. It's going to continue to be the most expensive method of generating electricity. (DT-0016 3)

Comment: That dome would drive up your costs, and I would think possibly your CEO wouldn't want to drive up your costs. Just a guess. (DT-0033 6)

Comment: This administration's clear policy is to ignore scientific fact and protect Wall Street's bottom line over the environment and public health. The first myth of nuclear power is that it's cheap. It is made to seem that way by the subsidies the government gives to the industry. This hemorrhage of cash has totaled nearly $100 billion over the last 50 years. These subsidies are in actuality a redistribution of tax money from working people to rich corporations so they can avoid the true cost of doing business. (DT-0036 2)

Comment: I just got my natural gas bill: $114, $114 last month. I wasn't even there for half of it. My electric bill was $30. My wife lives in Lynchburg. Her electric bill was $50, and we have no natural gas there. So my question is: why is Dominion spending the last four years putting in purely natural gas plants? Please, I can't afford it. (DT-0043 1)

Comment: Nuclear power is certainly not cheap in terms of dollars. (DW-0181 3)

Comment: Nuclear power is expensive and highly dependent on government subsidies. (DW-0186 2)

Comment: Stop wasting taxpayer monies for the most expensive and dangerous means for electrical power. (DW-0187 2)

Comment: I read that NRC plans to "prime the pump" of nuclear power expansion by providing various incentives, rebates, and subsidies. If the nuclear power industry can't manage to make a go of it in the free market after 40+ years, and if North Anna's two existing reactors can't turn enough of a profit to make expansion there worthwhile, then this is simply corporate welfare. (DW-0194 5)

Comments Outside the Scope of the EIS

Comment: Please stop wasting money on the most expensive electric power generation-which is nuclear. (DW-0195 1)

Comment: Utilities that have fallen for the nuclear hype end up with enormous costs they then foist off on the ratepayers as “stranded costs.” (DW-0198 5)

Comment: Construction of such a plant is extremely expensive. (DW-0306 3)

Comment: The only reason nuclear energy is cheap is because of the Federal subsidies that the nuclear industry receives. I'm all for free trade, but this is Corporate Welfare. (DW-0333 3)

Comment: I oppose construction for the following reasons: I oppose taxpayer subsidization of the nuclear industry. An industry that claims to be safe and economical should not have its accidents and cost overruns underwritten by taxpayers. (DW-0409 4)

Comment: Section 6.0 should include a statement of the government subsidies and tax incentives that are provided for nuclear fuel production, fuel and waste transport, and waste disposal. (DW-0438 165)

Comment: We resent the use of our tax dollars to prop up an otherwise unprofitable enterprise. (DW-0424 4)

Comment: Government subsidies to the nuclear industry – how much will these kilowatt hours really cost? (DW-0432 7)

Comment: I could not find in the DEIS a definitive statement of the proposed project’s net electrical output. How can one assess the cost/benefits without this core data? (DW-0438 1)

Comment: I could not find in the DEIS a mention of whether the proposed project would be a regulated rate-based plant or a merchant plant. How can a Dominion customer assess the cost/benefits without this core data? (DW-0438 2)

Comment: Page 1-2 line 41 mentions the thermal capacity of the plant but not the electrical (useful) capacity. This major omission does not allow the reader to determine the efficiency of the power plant. (DW-0438 9)

Comment: The upfront financial costs of mining, handling, utilizing, and storing radioactive materials, and more importantly the long-term social and health costs for those communities interacting with these materials, make the cost of nuclear energy astronomical and, in my view, immoral. (DW-0537 3)

Comment: It [nuclear energy] is also extraordinarily expensive and has cost U.S. taxpayers many billions of dollars. Efficiency measures can save businesses and other ratepayers considerable money while foregoing the expense of building many new power plants. (DW-0593 3)

Comment: Information about how much of the cost will be borne by Dominion and how much by taxpayers is absent. (DW-0594 10)

Comment: A cost estimate for the facility is not included and thus one can't do any cost-benefit analysis for its capital and operating impacts. (DW-0594 11)

Comment: The chances for FINANCIAL disaster in this case are quite high, likely changing our current electricity rates to very high rates. (DW-0614 8)

Comment: Nuclear power has to be subsidized by citizens because of its cost. ... Virginia does not need nuclear citizen-subsidized energy. (DW-0641 2)

Comment: [N]uclear reactors are expensive. In a time of a nation-wide financial crisis, why are we spending $200 million to build a nuclear reactor when we can save money by investing in safer, more environmentally conscious and cheaper sources of energy such as hydrogen, solar power and geothermal energy to name a few? (DW-0670 4)

Comment: And what about the fact that nuclear power plants don’t ever seem to pay for themselves (and are either kept afloat by gouging consumers or by massive tax payer subsidies). (DW-0729 6)

Comment: The NRC is in an unusual position, in that it has a detailed understanding of the costs involved with nuclear power plants, including the decommissioning and hazardous waste disposal. Should we really resume imposing these costs on ourselves and future generations? (DW-0807 3)

Comment: I live within the impact zone of North Anna, and I don’t want to pay for the subsidies involved. (DW-0861 4)

Comment: It is unfair to expect the taxpayers to subsidize the industry. (DW-0867 3)

Comment: It doesn't make economic sense. The lack of insurance through traditional private means together with huge start-up costs would require government subsidy, at a time when public resources are short and other more urgent programs are dying for lack of funds. (DW-0955 1)

Comments Outside the Scope of the EIS

Comment: Among my concerns are: COST -- Nuclear power plants are notoriously expensive and always run over budget. Safer, cheaper alternatives to nuclear energy are possible and all avenues should be investigated instead of just leading us all down the nuclear energy road. (DW-0998 4)

Comment: Nuclear power is not price competitive without government subsidies. The fast track permitting process is indeed one such subsidy. (DW-1181 2)

Comment: I oppose the use of taxpayer funds to prop up the regulatory requirements of the utility industry. They either pay for it and make a profit, or they don't get it. (DW-1247 2)

Comment: The ESP application doesn't consider what the effect might be on the cost of power in Virginia. (DW-MM3 4)

Comment: The ESP application also doesn't consider what the effect might be on the cost of power in Virginia or nationally, or the need for new generating capacity. (DW-MM4 8)

Comment: The history of nuclear power demonstrates that constructing nuclear reactors is expensive, with final costs often running billions of dollars over budget – costs that are often passed on to ratepayers. (DW-MM4 10)

Comment: The minute they mention that they have a reactor design, Wall Street will think it's an intent to construct, and they will short your stock. Your own CEO stated it best. Hedge funds will be knocking over each other trying to short your stock. The minute Wall Street thinks you're going to build a nuclear power plant, your bonds turn to junk. That's Dominion's own CEO. That's not the environmentalists. (DT-0033 2)

Comment: What is the capital and operating cost associated with the dry coolers (Page 3-7 line 22)? (DW-0438 86)

Comment: Nuclear generation is the cheapest and cleanest dependable source of electricity in Virginia. As Virginia continues to grow, cheap and reliable power will be needed. Affordable electricity helps drive the economy. (SW-0003 2)

Comment: [D]espite the significant subsidies provided in the Energy Policy Act of 2005, investments in new nuclear plants remain very risky. ...U.S. Department of Energy has clearly and concisely stated that new nuclear plants are not expected to be economical. A 2003 study by the Massachusetts Institute of Technology forecasted that the base case, real levelized cost of electricity for new nuclear reactors being estimated at 85 percent capacity would be 6.7 cents per kilowatt hour over a projected 40 year operating life which is more expensive than energy from pulverized coal or natural gas. ...a 2005 assessment by Synapse Energy Economics

Incorporation showed that the levelized costs of electricity from a new 2,180 megawatt nuclear power plant would be significantly higher than obtaining the same amount of energy from a combination of wind and gas-fired capacity and energy efficiency measures. (ST-0008 2)

Comment: [T]he project offers no conclusive evidence that there are benefits from this project for the region. There's no clear cost benefit analysis, so how do we know that this is good? (ST-0036 12)

Comment: The low-cost energy produced from these generating facilities has enhanced the state's economic climate, enabling Virginia to attract new business growth. Existing companies have also benefitted from a lower cost energy environment that has allowed them to remain competitive and expand operations in the Commonwealth. (ST-0031 3)

Comment: Information about how much of the cost will be borne by Dominion and how much by taxpayers is absent. (SE-0049 2)

Need for Power

Comment: Hundreds of articles have made the point that the day of reckoning is coming to us when the required source of energy may not be sufficient to meet the demand. So unless we increase the supply here domestically, the question is: are we going to be ready when that happens? Will we start from scratch at that particular point to develop new energy sources when really it’s already too late? (DT-0011 4)

Comment: Even with expanded conservation and efficiencies, as I said before, we're going to need 45 percent more electricity over the next 20 years. (DT-0027 10)

Comment: The impacts will be less if the possible additional reactors are replacements for the present Units 1 and 2 when the current operating licenses expire. (DT-0029 6)

Comment: There will be a need for additional electrical generating capacity in this county irrespective of conservation efforts. (DT-0029 11)

Comment: And it is imperative that we consider need, how to reduce our need, and alternatives in this process. (DT-0044 4)

Comment: I’m reassured because our nation needs more baseload energy generation, and tonight's hearing is one step to a process that brings us closer to resolving our need for more clean, economical, and reliable power. (DT-0046 2)

Comments Outside the Scope of the EIS

Comment: There is no demonstrated need for the additional energy that these nuclear reactors would supply. (DT-0047 7)

Comment: One reality that is easy for anyone to understand is that Virginia already has an excess of energy production capacity. This is a socioeconomic issue, because Virginia has already built up excess production of air-polluting coal and gas power plants. Now we are asked to accept the risk of nuclear production and waste disposal for the generation of other's power. (DT-0061 2)

Comment: It is indisputable that we are facing an enormous energy crisis because of the pending end of the oil era. However, switching to nuclear only introduces a plethora of other problems already mentioned. (DW-0198 9)

Comment: It's time to re-think our energy needs and start protecting our country and environment. (DW-0395 3)

Comment: Virginia does not need the extra electricity. Most of the power produced at the plant would be sold to other states. (DW-0408 8)

Comment: An evaluation of the need for power and who benefits is crucial to determining whether the ESP application should be considered at all. In fact, the first question that should be asked is whether residents of Virginia will receive any of the benefit of new reactors. (DW-0437 68)

Comment: Virginia currently has an excess electric generation capacity for its in-state needs but continues to approve new fossil-fueled generating units that primarily will serve out-of-state customers while increasing air pollution, water resource consumption and transmission line impacts in Virginia. Neither the State of Virginia nor any of its major power generating companies has undertaken substantial initiatives to encourage or provide safe, clean renewable energy resources or to promote energy conservation. (DW-0589 10)

Comment: New nuclear reactors are not needed and would adversely impact the region. (DW-0623 5)

Comment: Currently Virginia has a surplus of energy, so a new nuclear power plant would generate energy which would likely be sold out of State, thereby increasing the risks to Virginians without any benefits. (DW-0670 5)

Comment: Virginia currently has a surplus of electrical generating capacity, so excess power will likely be sold outside the state rather than being used in-state to lower prices. Local residents will be forced to live with the risks of the nuclear plant without getting the benefits. (DW-0925 2)

Comment: Nuclear Power should not be used because: We use power so frivolously and inefficiently now that we do not need additional generators. (DW-0829 8)

Comment: Under Section 1.3 Purpose and Need for the Proposed Action, there is no discussion of the need of his facility. It is interesting to note that Virginia has had over 10,000 megawatts permitted since 1999 under a deregulated energy market. Most of these are already under construction or in operation. This additional generation has gone far and above any future need for the Commonwealth thereby making this additional generation unnecessary. The risks to public safety and welfare by adding units three and four must be weighed against the benefits. But with no need for the proposed generation, where is the benefit to citizens of the Commonwealth. (DW-1157 15)

Comment: Sustained growth of the United States' economy is dependent on having adequate power available. This necessitates the addition of new base load plants to the energy mix in the near future. (DW-1167 3)

Comment: The ESP application doesn't consider what the effect might be on the cost of power in Virginia, or the need for new generating capacity. (DW-MM3 5)

Comment: In the U.S. studies show that it's not possible to maintain the existent percentage of unlimited energy sources, let alone increase this percentage, with[out] the contribution of nuclear power. That means that just to maintain the current level of economic development and environmental quality, we will need to be build new nuclear power plants. (DT-0025 3)

Comment: When 11 year old ASA is 30, we're going to need 45 percent to 50 percent more electricity than we have today, even assuming efficiency and conservation. So we're going to need more renewables, more than the two percent of electricity that we get today from wind and solar. We're going to need more nuclear, more than the 20 percent that we get today from nuclear energy. We're going to need electricity from all the sources we can get to meet the high tech economy, the growing population and the quality of life that we would like for our children at that time. (DT-0027 2)

Comment: Nuclear power is the only large scale, emission free electricity source that we have today that can be readily expanded to meet our growing economy. (DT-0027 7)

Comments Outside the Scope of the EIS

Comment: I have always believed in using Nuclear Fuel for supporting the electrical need of the United States. (DW-0440 2)

Comment: The early site process preserves the option to build new nuclear power plants, helping ensure that we will have a diverse, secure, sustainable energy supply to power our future. We need reliable … affordable …clean sources of energy for Virginia and America. (DW-0668 2)

Comment: The supply and demand projections show that the real shortage of electricity without nuclear power is waiting to happen in the coming decade or two. (DW-0812 4)

Comment: Need for new reactors needs re-evaluation. (SE-0010 1)

Comment: Nuclear energy is important to the Commonwealth of Virginia and my constituents in Virginia's 7 th Congressional District. Dominion's nuclear stations in Virginia provide 34 percent of the electricity used by customers and play a significant role in providing safe and reliable electricity that is important to Virginia's growing economy. ...Because more baseload electricity will be required in the future, it is important that nuclear energy remains an option to meet this growing demand. (SW-0002 2)

Comment: We expect that the demand for electricity will increase substantially in the next decade and we need to our part to be ready for that. (ST-0009 1)

Comment: Nuclear energy is important to Virginia. Dominion's North Anna and Surry power stations provide 34 percent of the electricity used by customers in this state. These stations provide safe, reliable and affordable electricity that is important to our growing economy. ...Because more electricity will be required in the future, it is important that nuclear energy remains an option to meet this growing demand. (SW-0013 2)

Comment: [What is the basis for saying] that we're going to need a whole lot more electrical generating capacity in the future. Hey, what's the basis for this? (ST-0002 5)

Comment: The document does not address the life cycle costs of power and the amount of government subsidy involved. (SE-0045 4)

Comment: [W]e have expanded our nuclear portfolio and Wall Street hasn't really hurt us that bad about that, you know, and it is about money and it is about what's good for the community, not just a group community. (ST-0023 3)

Comment: [Regarding selling of power out of State,] one of the greatest concerns in the western part of Virginia these days has been the fact that we have a line coming in from West Virginia bringing electricity into the state, not the converse. (ST-0034 3)

Comment: [I]s it Virginia that's going to need it, or are you going to be exporting it elsewhere? Well, then I say not in my backyard. (ST-0002 6)

5.3 Emergency Preparedness

This section lists comments related to emergency preparedness. Commenters raised concerns that it may not be possible to develop an effective emergency plan, or to evacuate the affected members of the public.

General Response: *Emergency preparedness is a safety issue that is addressed in the NRC Safety Evaluation Report (ADAMS Accession No. ML052710305) issued in September 2005. The Safety Evaluation Report is available on the NRC's website at www.nrc.gov. The NRC evaluates emergency plans for nuclear power reactors to determine whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. For an ESP, the Commission must determine, in consultation with the Federal Emergency Management Agency, whether the information submitted by the applicant indicates that there are physical characteristics that could pose a significant impediment to the development of emergency plans. In the NRC Safety Evaluation Report for the North Anna ESP site, the staff determined that no such impediments are present. The emergency planning issues that were raised during the environmental review were forwarded to the appropriate NRC safety project manager for consideration and appropriate action.*

Emergency planning is a fundamental element of the Commission's defense-in-depth safety philosophy. The NRC will not issue a license to operate a nuclear power reactor unless it finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency (see 10 CFR 50.47). This is a safety finding under the NRC's Atomic Energy Act responsibilities. Safety issues, however, are generally outside the scope of the environmental review because the NEPA process focuses on the environmental impacts of the proposed action rather than on issues related to safety, which are not necessarily associated with environmental impacts. This is discussed in greater detail in the introductory remarks to Chapter 5 of Volume II of this EIS.

Nonetheless, accidents involving radioactive material can have environmental impacts. Consequently, the impacts of postulated accidents are analyzed in Section 5.10 of Volume I of this EIS. Under NEPA, the analyses are to reflect "reasonably foreseeable" consequences even though the likelihood of accidents is low. In its evaluation of severe accidents, for

example, the staff considered incident response principles. The NRC staff used the MACCS2 code to estimate the environmental impacts of severe accidents. The MACCS2 code analysis takes into account a delay time prior to simulating the relocation of the affected segment of the population, which is a mitigation measure. Further, the MACCS2 code estimates the economic costs of the short-term relocation of people simulated in the code. These analytical assumptions are not intended to be linked to specific elements of detailed and site-specific emergency plans for a nuclear power reactor, but are intended to reflect the reasonable expectation that action will be taken to protect the public. Further consideration of emergency response measures in the EIS is not warranted.

Comment: In order to build a nuclear power plant, there must be an evacuation plan approved by the NRC, as I understand it. Unfortunately the NRC accepts evacuation plans that can't work, and here are two examples. One, at the time of the Three Mile Island accident, 3400 people were ordered to evacuate. One hundred and forty-four thousand tried to leave clogging highways all the way to New York. Not workable. Two, when the Shoreham Nuclear Power Plant on Long Island was being built in the early ‘80s, the Long Island Lighting Company’s evacuation plan called for residents to evacuate to upstate New York. Upstate New York residents were interviewed about this and some said they would shoot Long Islanders on sight. … This same plan called for decontaminating fleeing vehicles with Handiwipes and spray Fantastik. I know this because I lived there at the time and heard these very words spoken by power company officials at an NRC hearing. The plan also called for evacuating people according to their license plate numbers. One day the even numbers could go. The next day, the odd numbers. Studies have shown that in the event of a nuclear accident, emergency workers would leave their duties and go home to rescue their families. The same for school bus drivers. So calling these evacuation plans acceptable is without merit. And, by the way, we kept the Shoreham plant from opening. (DT-0009 5)

Comment: The fifth issue … are the zones that are around Ground Zero in case of a meltdown, the ten mile evacuation zone. A 17.5 mile fatality zone, but those people are not in the evacuation plan. You see where I'm getting at. A 50 mile peak injury radius. (DT-0009 6)

Comment: There is in fact no safe and effective plan to evacuate the vicinity which recognizes that many citizens will require assistance and transportation. (DT-0054 3)

Comment: Finally, the question of accidents, I have been told that the potential for accidents is small. I personally live only 15 miles (or less) from Surry Nuclear Power Plant as does my University, the College of William and Mary. A few years ago, due to concern about meltdown or terrorist attack, iodine pills were distributed to the Williamsburg community surrounding the College, students living in dorms, were exempt from this. While residents of Williamsburg received annual bulletins regarding evacuation procedures, students do not. If these blatant

exclusions were made, what other errors in evacuation procedures, meltdown prevention, or security measures were made? (DT-0061 4)

Comment: What is the evacuation plan going to be for those within 40 miles of this plant which includes portions of Charlottesville? Washington, D.C., itself is only 90 miles away down wind. What a poor choice of location for our national security! My thoughts would be that the people who are considering this have already had their brains polluted enough not to be thinking clearly. (DW-0181 5)

Comment: What is the evacuation plan for the neighboring community and for Washington, D.C., Richmond, and Charlottesville? (DW-0187 5)

Comment: [Comment regarding Dominion's ESP application rather than the NRC Draft EIS] I also feel that route alerting needs to be addressed in the Emergency Planning Section as well, if sufficient sirens are not currently yet in place. (DW-0191 3)

Comment: My family and all the rest of living things are close enough downwind (from the predominate prevailing westerlies) that should there be an accident, there would be no way to warn us in time. (DW-0192 3)

Comment: I'd like to know what plan NRC has for evacuating my county of Louisa, plus nearby cities like Charlottesville, Richmond, and Washington D.C. (less than 100 miles downwind) if anything goes wrong with waste transport, or there is a reactor failure, or a terrorist attack occurs. If NRC and the Dept of Homeland Security don't have these plans in place, there is no point in even talking about expanding a ripe target like North Anna. (DW-0194 4)

Comment: What is your evacuation plan? I live within 70 miles of the current plant and have never received evacuation info. Washington, D.C. is less than 90 miles downwind. What evacuation plans are in place? (DW-0195 4)

Comment: Can Washington, D.C. be evacuated without a tremendous loss of lives in the event of a radiation leak or an explosion? (DW-0413 2)

Comment: Transportation is entirely inadequate for not only construction phase of the proposed facilities, but certainly in the event of the need for an evacuation. (DW-0431 4)

Comment: The lack of full-time hospitals and fire/rescue facilities in the immediate Lake Anna area creates a high potential for serious impacts from an accident at the project. (DW-0438 79)

Comment: Sections 5.5.3.1 and 5.5.3.2 do not consider evacuation impacts. (DW-0438 153)

Comments Outside the Scope of the EIS

Comment: Sections 5.5.3.4 and 5.5.3.5 should assess the impact on recreation and local housing if there is a nuclear accident at the facility. (DW-0438 156)

Comment: The project itself has real problems including...ability to support construction personnel, and emergency evacuation. ... We mention above the road situation relative to the movement of 5,000 construction personnel – what would happen if an evacuation was required of ten or twenty times that many people? Local infrastructure can't support this project. (DW-0594 6)

Comment: There isn't a sufficient emergency evacuation plan for Route 33. It is two lanes wide. How is it that you do not have an evacuation plan with such a limited way to get out? Most of us live very near Route 33 and according to your plan we have to get to Patrick Henry High school in Ashland. 18 miles away on a two lane road. this is not good. We need to hold town meetings in churches in the area to make the facts clear with this community. (DW-0626 2)

Comment: Emergency plans for dealing with an accident or terrorist attack are inadequate, and rely on teachers, bus drivers, doctors, and other civilians to facilitate an evacuation, without taking into account the possibility of role abandonment. Studies of the Three Mile Island accident, which took place in 1979 in Pennsylvania, found that doctors and other key workers abandoned their posts up to 25 miles from the site to tend to their families or save themselves. In the case of a more severe accident, heroic actions would be required to successfully carry out an evacuation. (DW-MM4 16)

Comment: Emergency plans for dealing with an accident or terrorist attack are inadequate, and rely on uninformed teachers, bus drivers, doctors, and other civilians to facilitate an evacuation, without taking into account the possibility of role abandonment. Studies of the Three Mile Island accident, which took place in 1979 in Pennsylvania, found that doctors and other key workers abandoned their posts up to 25 miles from the site to tend to their families or save themselves. (DT-0053 9)

Comment: Page 2-1 line 24 mentions that I95 passes within 16 miles of the site. Later sections do not adequately detail the impact on I95 during upset conditions at the plant or upset conditions on the road. The DEIS fails to demonstrate that a plant upset would not adversely impact I95 or US1 which is THE major north-south corridor in the Mid-Atlantic region. (DW-0438 11)

Comment: The DEIS says that emergency plans are okay in part because there are two hospitals in Spotsylvania. THERE ARE NO HOSPITALS IN SPOTSYLVANIA! Mary Washington Hospital in Fredericksburg is the primary hospital serving this area and it is getting stretched thin. (DW-0594 12)

Comment: [Comment related to Dominion's ESP application rather than the NRC Draft EIS] First and foremost the information in Part 2 - Site Safety Analysis, Chapter 2 - Site Characteristics, Section 2.1.3 pertaining to population distribution. This information references the most recent Evacuation Time Estimate (ETE) for the NAEP is based on the Census 2000 data and the total population is noted as 20,292. This information is contradictory to the information noted in Chapter 4, Section 4.4.1.1 Groups Vulnerable to Physical Impacts, 4.4.1.1.1 People - This section notes the area within 10 miles of the ESP to be estimated to be populated by approximately 15,500 people. This information references Section 2.5, 2.5.1.1. The information contained in Section 2.5 is current data. This information is contradictory in it's self, which leads to believe that there are more contradictions other than these since the data referenced is from various time spans dating back to the mid-1980s. (DW-0191 1)

Comment: There's been no real analysis...for the innumerable people that may need to be evacuated in the event of a nuclear incident. ...How is Route 208 going to evacuate any meaningful number of people? It can't. The other roads in the area can't. (ST-0036 4)

Comment: [With the addition of construction and operations traffic from the new unit], [e]mergency evacuation would be impossible on this small 2-lane road if there was a nuclear disaster or terrorist attack. (SW-0005 3)

Comment: What would happen during an emergency evacuation caused by a terrorist attack? The roads could not handle this situation. (SE-0004 17)

Comment: We request that VDOT upgrade the roads at the Lake so that they are adequate for the evacuation of the current and expected population. We request that VDOT, Dominion and the Public develop a traffic management plan relevant to evacuation. (SW-0004 10)

Comment: Increased construction usage will have major impacts on these roads. If an evacuation is required during the construction interval when additional personnel are on site, the impact would be staggering. (SE-0045 6)

Comment: Emergency Evacuation surrounding the entire lake in Louisa, Spotsylvania and Orange Counties. Only 2 lane roads surround the lake. ...The applicant, state and federal governments should work together to...increase the road width's, etc. prior to any new construction beginning as a result of the ESP or COL that accommodates the emergency evacuation of 7,000 to 8,000 Dominion employees/construction workers together with all the local residents and recreational users of the lake. (SE-0003 2)

Comment: The recent past raises serious concerns about Virginia Dominion Power's ability to meet emergency situations in the Commonwealth. After hurricane Isabel, it took ten days and power crews from Arkansas and Alabama to get the Norfolk area up and running again. More

recently, tropical storm Ernesto left some without power for five to six days. Those kinds of response times would be deadly in the event of a nuclear accident or facility attack and seem to me to be unacceptable risks to take. (SW-0021 4)

Comment: [I]t [the EIS] doesn't provide sufficient detail on the planning and consideration for potential nuclear incidents, not just likely nuclear accidents. (ST-0036 1)

Comment: [To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you further evaluate the following concerns prior to your making a final decision on the ESP]…Emergency evacuation on small 2 lane roads. Need for expanded road system to accommodate new workers and subdivisions. (ST-0014 15) and (SE-0022 27)

5.4 Safety

This section lists comments that primarily focus on safety. The comments near the beginning of the section express general safety concerns and concern related to safety of operating reactors, although there is one comment that refers to the nuclear industry's "enviable safety record." The remaining comments generally express concerns about the extent of the safety review contained in the EIS. The subjects of all of the these comments have been determined to be out of the scope of the EIS.

General Response: *The EIS sets forth the NRC staff evaluation of the effect facility construction and operation at the North Anna ESP site would have on the environment. The staff's evaluation covers the effects of normal operation and design basis accidents, which would occur if plant systems, structures, and components (SSCs) important to safety function as designed, and severe accidents, which would occur only if plant SSCs do not function as designed. This concept extends to other matters covered by NRC safety requirements, such as emergency preparedness programs. Whether any particular SSC is correctly designed or would correctly function, or whether any program would be correctly implemented, makes no difference to this evaluation because their failure is presumed in the severe accident analysis. Stated another way, consideration of comments on the adequacy of SSCs or other safety measures would not result in a severe accident different than that already considered in the EIS. Accordingly, comments regarding the adequacy of plant safety are outside the scope of the EIS.*

The environmental setting of the site is described in Chapter 2 of the EIS. Certain factors that relate to safety issues are also relevant to the environmental review; these factors include seismology, hydrology, demography, and meteorology. Regulations governing the environmental review are in 10 CFR Part 51, and the regulations covering the safety review are

in 10 CFR Part 52. For this reason, the environmental review is distinct and separate from the safety review. Site safety issues and emergency preparedness are addressed in the NRC Safety Evaluation Report (ADAMS Accession No. ML052710305) for the North Anna ESP site issued in September 2005 and its supplement issued in September 2006 (Accession No. 063170371). These reports are available on the NRC's website at www.nrc.gov. To the extent that comments are directed to NRC review processes, a response is provided in Section 2.2 of Volume II of this EIS.

General Safety Concerns

Comment: [It] is now a source of concern to me knowing that the Nuclear Regulatory Commission seems willing to accept this draft EIS, which according to Public Citizen, People's Alliance for Clean Energy and others, neglects to address crucial safety issues. (DT-0009 1)

Comment: I thought you said … the NRC would discuss security issues with the Atomic Safety and Licensing Board, but there was no place in the Security Review process, at least at any point in the research or formative stage, for public comment. If that is the case, then I object strenuously. Safely is probably the greatest concern for the public out of all of the issues arising in the permitting process. How can you think to shut us out of that discussion? That is wrong, wrong, wrong! (DW-0410 2)

Comment: The Enron factor. Although I am willing to allow that nuclear power could be provided in a safe, clean and efficient manner (in theory), I am uncomfortable with leaving my family's safety in the hands of corporate managers who are trained to think of profit first. If the economic cycle reverses and the plants become unprofitable, the temptation to take a few shortcuts could be very strong. (DW-0955 3)

Comment: I don't believe you when you say you have the ability to protect the public and insure our safety. (DW-0614 2)

Comment: I live a short distance from the site and I am concerned about safety issues related to the plant operations. (DW-0832 2)

Comment: I live in Richmond, Virginia and am very concerned with the safety of nuclear power. (DW-0847 2)

Comment: [Nuclear power] has come out on top after the challenges of the seventies and eighties with an enviable safety record. (DW-0812 3)

Comment: Here in Louisa, there are already 2 nuclear units which have safely produced power for 30 years without incident. The power company has dealt with incidents such as transformer

failure, low water levels, and leaks in a safe and reliable fashion. They have defended the plant against possible intrusions and have built up a substantial security team to aid the operators. This has all been done in a very professional manner. (DW-1007 2)

Comment: The Davis-Besse plant near-disaster is a case in point [near accident], and in that situation, both the NRC and the utility, First Energy, were extremely negligent in inspecting the plant and in following up with necessary maintenance and repairs. (DW-0198 4)

Comment: Page 1-5 line 28 mentions the North Anna Dam. Shouldn't an analysis be done and included herein on the safety and environmental impacts if the Dam is breached? (DW-0438 8)

Comment: Dominion has set high standards for safety throughout their fleet, personnel safety, industrial safety and that which directly affects my department and what I do-- radiological safety. (ST-0022 1)

Comment: [Sharing comment from a plant vendor] "You know, I just want to thank somebody and tell them how much I appreciate the safety and everything, all the checks that we go through." (ST-0037 1)

Comment: [T]he draft EIS contains only one page on the geology of the ESP site at North Anna. ...The draft EIS plainly omits critical information about seismology in the central Virginia area. ...The proposed construction of two or more reactors in close proximity to two existing nuclear reactors in an active earthquake zone must not be permitted. (SW-0008 1)

Comment: I want to acknowledge you all for having created power plants that are user-friendly...You have an admirable safety record that I think is the envy of all kinds of other industries out there. ...your record is fantastic, and I thank you for that. (ST-0038 1)

Comment: To bound the possible effects of Unit 3 cooling on Lake Anna water levels and downstream releases, the NRC analysis purports to examine the simulated impacts of operating Unit 3 wet-dry cooling during what was a critical drought period between April 2001 and February 2003. This simulation is hardly encouraging. Operation of Unit 3 with wet-dry cooling would have dropped the minimum lake level experienced during this period by an additional 1.7 feet, to 243.5 MSL. That is only 1.5 feet above the minimum operational plant intake level of 242 ft MSL, where the North Anna reactors would be forced to shut down. Given possible errors and plausible variances in the model's input data, we do not believe this provides a sufficient or safe operating margin. (SE-0040 9)

Comment: I worked inside the fence at North Anna for five years, and can tell you after many, many hours spent in the control room, that North Anna is one of the safest, best run, and best protected industrial facility anywhere in the country. (ST-0026 1)

Safety Review

Comment: The lack of detailed safety discussions in the socioeconomic sections is a major flaw in the ESP process. Thus the DEIS cannot be effectively used as a decision-making tool. (DW-0438 58)

Comment: There are no operating experience records for this generation of reactor. … there can be problems that small scale operation cannot predict. (DW-0570 2)

Comment: In other words, what are the compounding effects on safety and the environment of the proximity of other reactors? The description of the affected environment correctly emphasizes the presence of NAPS Units 1 and 2 on the site (paragraph 2-1); however the possible interactions between existing reactors with the proposed reactors do not appear to be addressed where they would need to be, for example in Chapter 5.10.1, Design-Basis Accidents, in Chapter 5.10.2, Severe Accidents; or Chapter 6, Fuel Cycle, Transportation and [De]Commissioning, especially Section 6.1.1.6, Radioactive Wastes. What, for example, will be the effect of these additional reactors on the safety of the two existing reactors? (DW-0685 2)

Comment: What is the comparative safety record of large and small clusters of reactors? (DW-0685 3)

Comment: What are the effects on safety, and on the concept of “defense in depth” of greater maximums of full power operation at a given site? (DW-0685 4)

Comment: [Comment regarding Dominion's ESP application rather than the NRC Draft EIS] The information in Tables 2.5-16 - Table 2.5-21 all specifically state that the information is from 1989 EPRI data. This information is over 16 years old. Certainly there is more current information from EPRI - this information is closer dated for the use for previous construction at North Anna Power Station than for new units not yet constructed. No information is provided which stipulates what the data is based on. The other remaining Tables do not include this date reference on or within the data, which leads you to believe that the basis of this data is also more than 15 years old. (DW-0191 5)

Comment: Dominion's ESP application for North Anna contains no safety assessment of the facility and, therefore, cannot demonstrate a low probability of accidental releases of fission products. (DT-0034 12)

Comments Outside the Scope of the EIS

Comment: Page 2-40 line 11 states that the WHTF "is physically separated from the rest of Lake Anna by a series of d[i]kes". What is the susceptibility of the WHTF to earthquakes, hurricanes, and other natural or terrorist disasters? (DW-0438 55)

Comment: [Comment regarding Dominion's ESP application rather than the NRC Draft EIS] Tables 2.5-1 through 2.5-6 discuss the fault that runs through this region, however the data that is provided is based on Crone & Wheeler of 2000 prior to the relatively recent strong earthquake (tremors) that occurred in early May of 2003 and on December 9th, 2003 in this region. Also, the information referenced in Figure 2.5-14 Seismic Source Zones and Seismicity in Central & Eastern North America is based on magnitude information from 1987 data, which is over 18 years old. Figure 2.5-19 Bechtel Group EPRI Sources, no date on this data is noted other than the Bechtel/EPRI data, which is, dated 1987-1989. The opening letter in Appendix J - Down Hole Seismic Report & Data to Mr. J. A. Price is dated March 17th, 2003, which is also before both of these previous events. Since these events have occurred in this specific region, and significant boring will occur during construction, I feel that this information should be re-evaluated using current data, and not based on data that is over 18 years old. (DW-0191 4)

Comment: I cannot understand why seismic activity in the Lake Anna area was ruled out from the DEIS process. NRC material indicates that seismic features are to be considered in an EIS for an ESP. Given the earthquake of last year, and the number of faults in this area, it is irresponsible to exclude consideration of seismic features at the North Anna site. (DW-0630 2)

Comment: The DEIS omits critical information about seismology in the Central Virginia Area—The proposed construction of two or more reactors in close proximity to two existing nuclear reactors in an active earthquake zone beggars understanding. (DT-0034 2 and DW-1163 1)

Comment: Dominion failed to adequately address the seismic history of the proposed ESP site. The Draft EIS contains only one page on the geology of the ESP site at North Anna. Section 2.4 alludes to two previous environmental reports prepared for North Anna Units 1 and 2 (done by Dames and Moore for VEPCo in 1969) and the never constructed North Anna Units 3 and 4 (Dames and Moore 1971). It has come to our attention through recent conversations with the June Allen, M. Ed., former President of the North Anna Environmental Coalition, that there were "multiple problems beginning 33 years ago" with regard to the seismic faults underlying the North Anna station. According to information and belief, false statements were filed in that matter which were uncovered too late to affect the permitting decision. The ESP DEIS states that seismological data will be addressed in the safety evaluation report. Nevertheless, we hereby request that the DEIS record include and consider all documents in the case filed by North Anna Environmental Coalition during the extensive litigation brought during the 1970s. (DW-1163 5 and DT-0034 6)

Comment: On December 9, 2003, there was a 4.5 Richter Scale earthquake in central Virginia, just one day after the NRC's first hearing on the ESP in Mineral. …The horizontal acceleration which occurs during earthquakes presents unacceptable risks for a technology as sensitive as nuclear power. The proposed construction of two or more reactors in close proximity to two existing nuclear reactors in an active earthquake zone beggars understanding. (DW-1163 6)

Comment: The site permit regulation which Dominion must adhere to is predicated on the type of nuclear power unit. But since "Dominion has not selected a particular reactor design," the power unit is as yet undetermined. In order to evaluate the radiological dose consequences as stipulated in 10 CFR §100.21 (c)(2), the NRC must have the preliminary safety analysis report (PSAR) which would be submitted with Dominion's application for a construction permit. As stipulated in 10 CFR §50.34(a)(1), the PSAR applicable to North Anna would include: "(ii) A description and safety assessment of the site and a safety assessment of the facility. It is expected that reactors will reflect through their design, construction and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products." Dominion's ESP application for North Anna contains no safety assessment of the facility and, therefore, cannot demonstrate a low probability of accidental releases of fission products. (DW-1163 10)

Comment: There are several areas of safety that have not been addressed from construction effects to the damage done to the lake, not to speak of dealing with the waste storage. (DW-0404 1)

Comment: NRC Safety report [is] not reviewed by Commonwealth of Virginia Departments or the public...There should be a draft safety report public comment period, similar to the ESP process, so the public and state agencies have a chance to review and comment on the NRC's safety findings. ...There are those sections that should definitely be reviewed by the Va. Dept of Water Resources, Fish & Game together with Transportation Dept and inaccurate statements in the safety report that should be corrected. (SE-0003 13)

Comment: The public must be involved with the safety of the nuclear reactors, whether it is at the plant, at the dam, together with how, where and how long the spent nuclear fuel is stored. ...It is essential that the public can review the safety report prior to the closing of the public comment period for ESP process. (SE-0033 2)

Comment: We also request that the public be involved in reviewing a draft safety report, read the EPS prior to its final issuance and that's there's an automatic extension of the public comment period whenever revision of the EPS occurs. (SE-0022 36) and (ST-0014 23)

Comment: The public should be involved with the safety evaluation report and be able to comment. That doesn't occur right now. The NRC does their own thing. (ST-0014 3a)

5.5 Security and Terrorism

This section lists comments that primarily focus on security and terrorism. The comments near the beginning of the section express concerns about physical security at nuclear power plants and security of nuclear materials. The remaining comments generally express concerns about terrorism and the potential impacts associated with terrorist attacks. The subjects of all of the these comments have been determined to be outside the scope of the EIS.

General Response: *The NRC is devoting substantial time and attention to terrorism-related matters including coordination with the Department of Homeland Security. As part of its mission to protect public health and safety and provide for the common defense and security pursuant to the Atomic Energy Act, the NRC staff is conducting vulnerability assessments for the domestic utilization of radioactive material. In the time since the horrific events of September 2001, the NRC has identified the need for license holders to implement compensatory measures and has issued several orders to license holders imposing enhanced security requirements. Finally, the NRC has taken actions to ensure that applicants and license holders maintain vigilance and a high degree of security awareness. Consequently, the NRC will continue to consider measures to prevent and mitigate the consequences of acts of terrorism in fulfilling its safety mission.*

Major NRC actions include the following:

- *Ordering plant owners to sharply increase physical security programs to defend against a more challenging adversarial threat.*
- *Requiring more restrictive site access controls for all personnel.*
- *Enhancing communication and liaison with the intelligence community.*
- *Improving communication among military surveillance activities, NRC, and its licensees to prepare power plants and to effect safe shutdown, should it be necessary.*
- *Ordering plant owners to improve their capability to respond to events involving explosions or fires.*
- *Enhancing readiness of security organizations by strengthening training and qualifications programs for plant security forces.*
- *Requiring vehicle checks at greater stand-off distances.*

- *Enhancing force-on-force exercises to provide a more realistic test of plant capabilities to defend against an adversary force.*

- *Improving liaison with Federal, State, and local agencies responsible for protection of the national critical infrastructure through integrated response training.*

- *Working with national experts to predict the realistic consequences of terrorist attacks on nuclear facilities, including one from a large commercial aircraft. For the facilities analyzed, the results confirm that the likelihood of both damaging the reactor core and releasing radioactive material that could affect public health and safety is low.*

The Commission has determined that security and terrorism are outside the scope of an NRC environmental review for the following three reasons. First, the Commission does not currently have a method or theory with which to perform a meaningful analysis of the environmental impacts of terrorism with respect to a particular facility. Second, in the absence of specific information indicating that a terrorist attack on a specific facility is likely to occur, NEPA does not require consideration of postulated terrorist attacks. Third, the public aspect of the NEPA processes conflicts with the need to protect certain sensitive information because (1) a review of terrorism under NEPA would involve examination not only of how terrorist attacks could cause maximum damage but also how they might best be thwarted, and (2) confidentiality in this area protects against the risks that terrorism poses to public health and safety.

Physical Security and Security of Nuclear Materials

Comment: Questions about the adequacy of current security regulations and performance are ignored. (DW-MM2 4)

Comment: Even a “minor” accidental discharge could have serious effects due to the densely populated suburbs of Washington. (DT-0054 4)

Comment: Security of the surrounding cities is another main concern for those of us living in areas that would be affected adversely by the plant. (DW-0802 3)

Comment: The issue of security also has profound implications. (DW-0817 6)

Comment: Nuclear Power should not be used because: An attack or sabotage by terrorists would be a disaster to eclipse the Indian Ocean Tsunami. (DW-0829 4)

Comment: What area the implications for national security if nuclear plants do not know what to do with the waste? (DW-1181 4)

Comments Outside the Scope of the EIS

Comment: Should they [the reactors] be closed or partially closed for security purposes? (DT-0038 5)

Comment: The Draft EIS fails to evaluate the environmental impacts and security threat of indefinitely storing the additional irradiated fuel that will be generated by the proposed reactors onsite. (SE-0038 7)

Comment: I will say this about the security force and the security department at the North Anna Power Station. The security force is a formidable force. Our security officers are motivated. (ST-0021 1)

Terrorism

Comment: Nearly 3½ years after September 11th, 2001, legislation to improve security at nuclear plants has not been enacted, and security improvements by the nuclear industry have been shown to have significant gaps and flaws. Security guards are often ill-trained and ill-equipped. Mock assaults designed to test guards and keep them on their toes are often done in an unrealistic manner, with months of advanced warning, and with added security forces that are not normally present to defend against a real attack. (DW-MM4 14)

Comment: Nearly 3½ years after September 11th, 2001, legislation to improve security at nuclear plants has not been enacted, and security improvements by the nuclear industry have been shown to have significant gaps and flaws. Security guards are often ill-trained and ill-equipped. Mock assaults designed to test guards and keep them on their toes are often done in a unrealistic manner, with weeks of advanced warning and limited attack scenarios. Further, the company testing security also guards nearly half the plants in the country, creating a conflict of interest that prevents meaningful security analysis. Eight state attorneys general submitted comments to the NRC in January 2005 calling for vastly improved security standards. (DT-0053 7)

Comment: One possible security measure to protect the reactor from assault by aircraft is to place a reactor below ground level. Therefore, an analysis in the Draft EIS of the suitability of the site to place the reactor containment below-grade level should be done, which would require an in-depth analysis of geological and hydrological conditions at the site. (DW-0437 66)

Comment: I truly believe we fail miserably when it comes to making these materials secure. Los Alamos is a perfect example of a failure on the part of those responsible to keep materials out of the wrong hands … or being unable to account for secretive material vital to the nation's security. Are we going to further risk the security of the United States by expanding the opportunities for those who would harm us? (DW-1013 2)

Comment: 9/11 has presented us with serious, new chances for terrorism. And I do not think it is wise for our community to allow these two new nuclear reactors to be built and more waste to be brought into our midst. (DT-0007 4)

Comment: Also, if we are truly concerned about terrorists, isn't this a great temptation for them? (DT-0008 7)

Comment: The issue of terrorist attack. Who can assure use that a plant won't be bombed, invaded or hit by a plane, and that the fuel rods won't be exposed resulting in a devastating fire? No one. In 2003, Senator Harry Reid said that the NRC had done nothing to improve safety and security at our nation's nuclear power plants. The NRC's response at that time was since it couldn't calculate the risk of terrorist attack, it would not consider it a risk factor in opening new power plants. (DT-0009 4)

Comment: Another thing that mystifies me is that apparently the analysis of terrorism was done by regulations proposed in 1996, and we need to be up to date on this. It's bizarre that our government was raising the possibility of terrorism every few days last summer and fall, and that now somehow this branch of government, the NRC, overlooks it in this analysis. (DT-0010 4)

Comment: I don't understand why we in Central Virginia have to house four nuclear reactors. It seems like that's just inviting a terrorist attack. It seems that the two that we have is probably enough, and with the problem of nuclear fuel, it's probably too much. (DT-0013 3)

Comment: I care about the risks of nuclear power on a personal level and on a global level. I need to say specifically to NRC folks here that I don't believe you when you say the issue of terrorist attacks on the plant will be addressed in another part of the process. So I don't believe you when you say you have the ability to protect the public and insure our safety. (DT-0017 1)

Comment: The Draft EIS fails to evaluate the environmental impacts and security threat of indefinitely storing the additional irradiated fuel that will be generated by the proposed reactors onsite. (DW-0437 33 and DW-0589 8)

Comment: I submit that a Lake Anna site is not suitable for a nuclear reactor. The War on Terrorism is a top priority for this administration. President Bush devoted 40 percent, four, oh, percent, of his State of the Union message to the War on Terrorism. You, the NRC, are a part of the government, and you have a part in the war on terrorism. The proliferation of nuclear reactors does not mesh with the goal of preventing a disastrous terrorist strike on the United States...You have been warned by the government, by the President, by Homeland Security, the CIA, and the 9/11 Commission report that the threat of a terrorist attack is very real. You should not be authorizing a new reactor near any metropolitan area, especially Washington,

which is a prime symbolic target. You should not renew permits for current reactors, and you should shut down the Indian Point reactor that is a mere 35 miles from Times Square. (DT-0022 1)

Comment: Right now the nuclear bureaucrats in Washington are paving the way to allow construction of reactors that lack the very containment domes that they were lauding after 9/11. ... If you looked after 9/11, how were we attacked? We were attacked by the air. What has NRC done in its inestimable wisdom? They've shored up our defenses from the ground. Nothing has been done to secure these plants from airliner attack. (DT-0033 4)

Comment: Does the range of severe accidents that could occur at the North Anna site with the addition of reactor Units 3 and 4 (DEIS, Section 5.10.2) include an external attack on the scale of the one that occurred on September 11, 2001 at the World Trade Center in New York City, where hijacked aircraft were employed to destroy two very large office towers? If not, would such an attack be bound by the accidents considered in the Draft EIS, or would such an event require a unique analysis? (DW-0437 67)

Comment: And when I heard tonight that one of the ways that Dominion protects us from terrorists is to hire armed guards to patrol the lake that doesn't make me feel safer, and if our current power source has to be guarded by a virtual private army, I think we should start looking for a new power source. (DT-0037 3)

Comment: I believe that siting two new reactors at the North Anna area constitutes a terrorist threat. When the U.S. was attacked on September 11th, the terrorists didn't need to go to Iraq to find those weapons of mass destruction. They used our technology against us. By licensing and building additional nuclear power plants, we are further increasing the risk of another terrorist attack. (DT-0041 6)

Comment: The site's proximity to Washington, D.C. presents an extremely attractive target for terrorist attack. (DT-0054 5)

Comment: [T]he current administration and Congress has refused to take the proper measures – any measures – to make nuclear and chemical plants safe from terrorist attack. (DT-0058 4)

Comment: The addition of two more nuclear reactors would make for an even more appealing terrorist target. (DW-0165 5)

Comment: The highly radioactive spent fuel will most likely be stored at the North Anna site and will be vulnerable to terrorist attack. (DW-0186 4)

Comment: Therefore the North Anna cask storage site, located less than 100 miles from our nation's capitol, would be a prime target for terrorists, continuing to place those of us who live in this area at highest risk. (DW-0196 4 and DW-0744 4)

Comment: Finally, there is the fact that nuclear plants are prime targets for terrorists. (DW-0198 7)

Comment: There are issues of general safety, not to mention the terrorist invitation potential. (DW-0309 6)

Comment: At this time or terror threats, building a nuclear power plant is reckless. (DW-0384 4)

Comment: Nuclear power has proven a dangerous way to go. Increased threat of terrorism and the possibility of catastrophic accident should all be considered before the U.S. Nuclear Regulatory Commission decides to build more nuclear plants. (DW-0397 6)

Comment: Sitting at North Anna, less than three hours away from the nation's capital makes it a primo target for terrorists. (DW-0408 6)

Comment: I oppose construction for the following reasons: 9/11 has shown us that terrorists can use our own resources against us. It is too easy for terrorists to cause a horrible nuclear accident by attacking the reactors or irradiated waste at North Anna. (DW-0409 3)

Comment: I assert that a Lake Anna site is not suitable for a nuclear reactor due to the catastrophic environmental damage that might ensure from a terrorist strike on the nuclear facility, including damage to places downwind of Lake Anna [maps included], such as Washington, D.C. The treat of such a strike on an energy plant is often stated by top government officials ... you also have a part in the war on terrorism. ... Therefore: (1) You should not authorize new nuclear reactors near or upwind of major metropolitan areas, especially Washington, which is a prime symbolic target for terrorists. (2) You should not renew or extend operating permits for current reactors near or upwind of major metropolitan areas, such as the old ones here at Lake Anna. (3) You should shut down the Indian Point reactors, which are a mere 35 miles from Times Square in New York City and which have one spent fuel pool that is mostly above ground. ... It is your duty to protect the public by removing these targets from us and by barring new ones. (DW-0410 1)

Comment: In view of the fact that the CIA is positively predicting a major terrorist attack in the near future, it is positively foolhardy to put four nuclear reactors together at North Anna about 50 miles from Washington, D.C., creating a target for a stupendous terrorist attack. This is a

private facility that anyone with an AK47 could go into and shoot up the place. What kind of security and evacuation plan is on the books for this? (DW-0413 1)

Comment: We fail to understand why the NRC is not considering the security implications of new plants post 9/11, especially in the light of the fact that the nation's capital, a highly symbolic terrorist target, is often downwind of North Anna. (DW-0424 2)

Comment: My concerns about increasing Virginia's and America's reliance on nuclear energy are based on … the chance for terrorists to take advantage of any of those [fuel cycle] steps. (DW-0426 7)

Comment: I would like to express my concern over creating additional potential targets for terrorists. If we build more nuclear reactions in North Anna, that may increase how attractive it looks to terrorists, especially given its proximity to Washington, D.C. Every transport of radioactive waste from North Anna to Yucca Mountain on our nation's highways is an additional opportunity for terr[or]ist action. I am confused by our President's repeated statements that terrorists are considering targets such as nuclear facilities, followed by statements that the future of America's energy needs lies in nuclear energy. (DW-0426 18)

Comment: Safety and Terrorism – this is clearly a socioeconomic issue that should be addressed in an EIS given the proximity to large population centers including Washington, D.C. (DW-0432 5)

Comment: Nuclear power plants have known vulnerabilities to terrorist attack and sabotage. According to the 9/11 Commission Report, al Qaeda specifically discussed targeting U.S. nuclear plants. Fuel storage pools, dry storage facilities, and reactor control rooms are not designed to withstand the type attack that occurred on September 11, 2001. The Government Accountability Office (GAO) concluded in recent testimony before the U.S. Senate that cargo and general aviation airfields, three of which are located very close to the North Anna Site (DEIS, page 2-10), are more vulnerable to security breaches than commercial airports. Ignoring the threat because it is "highly speculative" does not make the threat go away, and indicates one shortfall of using an exclusively risk-based approach. (DW-0437 65)

Comment: The lack of analysis and discussion of security against terrorist threats is a major omission. This subject is clearly part of today's "human environment". It is ironic that on the morning of the Louisa public hearing that the federal government announced that the U.S. is still the target for such acts yet the ESP process seems to ignore any analysis and disclosure on this subject. (DW-0438 57)

Comment: Section 4.5.1.1 fails to account for the fact that the construction and new plant operation will provide increased access to the site which could increase the potential for accidents and terrorism. (DW-0438 96)

Comment: Why isn't the independent spent fuel storage facility underground (Page 4-40 line 10)? This would help protect it from air attacks. (DW-0438 114)

Comment: Especially in this time of terrorism we do not need more nuclear plants. (DW-0493 2)

Comment: Up to four reactors in one site will invite sabotage and terrorism. Surely, this is not a good strategy. (DW-0570 3)

Comment: I don't believe you when you say that the issue of terrorist attacks on the plant will be "addressed" in another part of this process. (DW-0614 1)

Comment: With rising tensions and increasing threats of new terrorist attacks inside the United States, it seems a VERY poor time to be thinking of building more reactors at North Anna. (DW-0614 6)

Comment: I am horrified that this is even considered in light of nuclear disasters that have happened in the past, such as Three Mile Island. I do not want to raise my children in the shadow of a terrorist target. (DW-0654 3)

Comment: I feel this form of power is extremely unwise in our present political climate. The potential for terrorists to infiltrate the reactor's construction process seems great and dangerous, to me. (DW-0655 2)

Comment: Why are we considering building new nuclear reactors? This is a step backward. Do you remember Three Mile Island? Chernobyl? Nuclear reactors are not safe due to potential accidents or incidents of terrorism. Al Qaeda recently called on its people to plan more terrorist activities outside of Iraq, including more potential violence within the United States. It is a proven fact that Al Qaeda has considered attacks against nuclear reactors. ... Exposes on national news show that reporters can easily walk right into nuclear facilities and be there for long periods of time before a guard even approaches them, plenty of time to detonate a bomb. (DW-0670 3)

Comment: If there is any situation where we need to pay attention to the threats of terrorism, it is with accumulations of radioactive materials at easily visible sites on American soil, especially near major urban targets like New York City and Washington, D.C. The increase in risk resulting from the increase in high level nuclear waste on the site that would be caused by one

or two additional reactors needs to be part of a realistic assessment of risk, and a realistic environmental impact assessment. Please include it in your next draft. (DW-0685 11)

Comment: What precautions are being taken regarding the potential risk of attacks against the power plant? (DW-0729 3)

Comment: Nuclear power plants are ideal terrorist targets making us all that much more vulnerable at a time in our history when we need to secure the safety of our people. (DW-0741 3)

Comment: Shortly after the 9/11 attacks there was fear that nuclear power plants could become targets for terrorists. This could still happen. (DW-0822 5)

Comment: During the meeting, we found out there are ground guards and ground based security, but no air security. All this radioactive trash is a tempting target for a dirty terrorist bomb, especially since we are only 75 wind miles from the heart of DC. When the winds come from south-southwest (as they often do), Washington, D.C. is directly downwind from the North Anna Nuclear Plant. ... Terrorists do suicide missions. ... And North Anna has no protection against these. (DW-0823 3)

Comment: Are you all nuts???? We already have a big target sign on our state for terrorists since we border DC, do you want to add another reason for Virginia to be a “place” of interest? (DW-0846 2)

Comment: We can figure out better ways to boil water that do not come with terrorist threat. (DW-0861 2)

Comment: Terrorism. I have never really worried about this with regard to Lake Anna. There are larger targets closer to major population centers. However, with two or three reactors, it would be much more attractive. (DW-0955 4)

Comment: Among my concerns are: The possibility of terrorists attacking nuclear power plants--we already know Al Qaeda has considered hitting nuclear facilities. Security at existing nuclear plants leaves much to be desired. These plants should be secured before any other reactors are even thought about. (DW-0998 3)

Comment: Here in the DC suburbs, we are not too far from the site [North Anna] to be concerned about nuclear …sabotage. (DW-1019 3)

Comment: In a time of increased terrorist threats, new nuclear power plants increase physical and economic risks to central Virginia residents, Dominion customers and shareholders, and nuclear industry employees. (DW-1099 2)

Comment: I am also worried about the increased terrorist risk. (DW-1151 4)

Comment: Fuel rods have gone missing in the past years, and until the nation has a safe and secure means to store spent fuel, the rods pose a risk to the environment and in a worst-case scenario, could end up in the wrong hands. (DW-MM1 8)

Comment: In a time of increased terrorist threat, new nuclear power plants increase physical and economic risks to central Virginia residents, Dominion customers and shareholders, and nuclear industry employees. Al Qaeda is known to have considered nuclear power plants as a target for an attack. Terrorist threats and heightened Threat Advisory Levels (Orange and Red level) may lead to severe restrictions on public access to Lake Anna, which could impact local businesses dependent on public use of the lake. This has already happened at over a dozen lakes with nuclear plants around the country. Adding additional reactors to the North Anna facility could also increase its attractiveness as a terrorist target, increasing the frequency and likelihood of lake closures. (DW-MM4 6)

Comment: Our industry is one of the few industries that's regulated by the federal government in the area of security. Since 9/11, we've updated our security requirements according to the NRC's mandates twice, most recently in October of last year. And we meet security requirements because it's important not only to protect our workers, but to protect their families and their neighbors. That's why we do it. We have three ways that we protect our plants, our workers, and our neighbors: structural security at our plants, very strong structures; technological security with access detection equipment; and we have human security, 8000 well trained, well armed officers at 64 sites across the country. Three ways, three redundant ways to protect our plants. (DT-0027 9)

Comment: The concentration of four domed reactors makes an inviting target for those who constantly plot attacks against the United States of America. (SW-0021 2)

Comment: [T]he document fails to adequately address the potential for a terrorist act. ...and North Anna is a possible target. The fuel and waste storage areas at North Anna are especially vulnerable to a terrorist attack. How is this in the public interest to worsen the situation? (ST-0036 2)

Comment: It [building new reactors] would also add to current problems of radioactive waste and security from terrorism. (SE-0035 2)

Comment: Where are the NRC safety protections for terrorist attacks against the plant and dam. If the dam is blown up and breaks, the Lake Anna water will run downstream. ...The public must be involved with the safety of the nuclear reactors, whether it is at the plant, at the dam, together with how, where and how long the spent nuclear fuel is stored. (SE-0022 5)

Comment: [H]as NRC correctly analyzed...the vulnerability of the North Anna site to…terrorist threats...what are the impacts if terrorists manage to blow a hole in the dam, suddenly draining the lake and disabling the three units that depend wholly or in part on cooling water withdrawals from the lake, or attack the spent fuel storage pools. ...a recent 9th Circuit Court decision directing the NRC to analyze the reasonably foreseeable environmental impacts of a terrorist attack on a California reactor's spent fuel storage facility suggests that such analysis should be part of the NEPA coverage for the North Anna ESP. (SE-0040 18)

Comment: Since Chapter 8 should address system design alternatives the EIS should include consideration in section 8.2 for locating potentially vulnerable facilities (such as fuel and waste storage) underground to mitigate against terrorist attack or aviation accident. (SE-0045 40)

Comment: The continued lack of analysis and discussion of security against terrorist threats in Section 5.10 is a major omission. This subject is clearly part of today's "human environment". I would argue that terrorism is not an "accident". Terrorist attacks are deliberate and numerous. The proximity to DC could make North Anna an attractive target. Even FBI Director Mueller has stated that a terrorist attack on a nuclear facility can be "postulated". (SE-0045 31)

Comment: A successful attack, a terrorist attack, such as the one that was thwarted this week could halt new construction even after significant expenditures are made and sight preparation. ...Robert Mueller, the FBI Director, testified before the Senate Select Committee in 2005 stating "Another area we consider vulnerable and target rich is the energy sector particularly nuclear power plants. al-Qaeda planner Sheikh Mohammed had nuclear power plants as part of his target set and we have no reason to believe that al-Qaeda has reconsidered." (ST-0008 3)

Comment: I ask you to look at the collaterals that go along with it. ...the power plants that Pakistan, and Korea, and others have put out, that this is the material for nuclear bombs. (ST-0038 4)

5.6 NRC Oversight

This section lists comments related to the NRC staff oversight of nuclear power plants.

General Response: *The existence of and the authority granted to the NRC are the result of legislation enacted by the Congress: the Atomic Energy Act of 1954, as amended, and the*

Energy Reorganization Act of 1974, as amended. Under that authority, the NRC has established its regulatory framework in Title 10, Energy, of the Code of Federal Regulations and in guidance such as Regulatory Guides, Standard Review Plans, Review Standards, and Office Instructions.

NRC staff activities to fulfill its NEPA responsibilities are governed by NRC rules and regulations (see 10 CFR Part 51) and the regulatory guidance developed in support of 10 CFR Part 51. Development of the framework and conduct of such activities are performed in open and transparent forums that actively involve interested stakeholders (whereever they may reside), provide for public scrutiny, result in regulatory positions, and allow for change in positions based on fact.

Setting energy policy is not within the purview of the NRC. Implementing and executing a regulatory structure to provide for, among other things, the safe use of nuclear material, the protection of public health and safety, the protection of the environment, and the common defense and security, are within the purview of the NRC. The Commission and its staff take this obligation seriously. When laws, such as the Price Anderson Act, directing NRC actions are enacted, the NRC ensures that programs exist to comply with the laws.

The Commission recognizes that other stakeholders have important roles in assisting the NRC in fulfilling its independent responsibilities and obligations. Clearly these stakeholders include license holders, plant operators, other government officials, and the public. The NRC's oversight and inspection programs are expected to result in an effective regulatory structure. There are numerous examples, such as the events of September 11, 2001, and the Davis-Besse reactor vessel head corrosion, that demonstrate how robust and resilient NRC programs are and how regulatory improvements are implemented.

Comment: "The Nuclear Regulatory Commission should have [to] but do [did?] not identify or prevent the corrosion at Davis Besse [nuclear plant near Toledo, Ohio] because its oversight did not generate accurate information on plant conditions." (DT-0005 4)

Comment: As a nuclear engineer, I understand nuclear power and the only thing I worry about is the regulation of this effort. As a federal employee, I also understand the actions of government. As far as I am concerned, the Nuclear Regulatory Commission is the best of the regulation agencies within the government. This does NOT mean that more can't be done to strengthen the NRC. (DW-0360 4)

Comment: We respectfully remind the NRC that they are public servants whose number one priority is, or should be, the safety of the public. (DW-0424 5)

Comment: NRC is supposed to be looking after our interests, not the interest of Dominion, which sometimes I question, I think they're looking after the interest of Dominion. (ST-0002 3)

Comment: The Nuclear Regulatory Commission shortcomings are also troublesome in that we may be putting nuclear economic interests ahead of safety and public confidence. It was 27 years ago that President Carter's Commission found a mind set at the Nuclear Regulatory Commission that was preoccupied with the licensing of plants and not giving primarily consideration to overall safety issues. (ST-0008 4)

Comment: [S]hortcomings of the U.S. Nuclear Regulatory process were clearly implicated in the 2001 near accident at the Davis Besse plant in Ohio. (ST-0008 5)

Comment: For a long time I felt that the NRC was doing this [protecting the public health and safety], but they've moved to be a rah-rah club for the nuclear industry. And they've moved away from our common goal, to protect us, our health and safety, our defense. Anybody with Defense would say you don't build another one of these potential targets. You protect the environment? You can't protect the environment by creating the most lethal poison that's going to be around for 100,000 years. (ST-0024 1)

5.7 Comments in Support of or Opposed to Nuclear Power

This section lists comments expressing support of or opposition to nuclear power as their primary focus. The comments in Section 5.7.1 support nuclear power, and those in Section 5.7.2 are opposed to it. These comments express the opinions of the commenter and provide no information warranting staff evaluation in the EIS. The subjects of all of these comments have been determined to be out of the scope of this EIS.

General Response: *The ESP process is not a public referendum or vote. Rather it is a process designed to assure that applicants meet applicable NRC safety requirements before a permit is granted. The ESP process also ensures that the ESP complies with the requirements of NEPA.*

In addition, the Energy Reorganization Act of 1974, which created the NRC from the regulatory arm of the abolished Atomic Energy Commission, ensured that the NRC would not have a promotional role regarding nuclear power; that is now the domain of the U.S. Department of Energy.

Based on the foregoing, comments either in favor of, or opposed to, nuclear power do not provide new information, and no changes were made to this EIS as a result of these comments.

5.7.1 Support for Nuclear Power

Comments below express support for nuclear power. They express the opinion that nuclear energy is safe, clean, reliable, cost effective, and necessary for baseload power generation. They state that nuclear power reduces global warming and supports nonproliferation by taking uranium out of Russian warheads. Commenters express the view that use of nuclear power helps leave a better world for the future by reducing greenhouse emissions and helps reduce carbon dioxide emissions in America. Commenters also express the view that nuclear power has a proven safety record.

General Support

Comment: Every power source has economic and environmental costs, and there is no such thing as zero risk. (DT-0014 2)

Comment: Being a victim of high methyl concentrations in my blood due to eating fish from our local grocery stores and seafood markets, I'm acutely aware of the environmental problems induced by effluent from coal generated plants. (DT-0014 3)

Comment: From casually and professionally studying the concepts from coal fly ash composition using particle accelerators to other power sources, to the accidents at Three Mile Island and Chernobyl … I have concluded that nuclear power has significantly lower environmental and economic cost than coal-fired, other fossil fuels, and other means of generating electricity for our transmission grid. Some of the world's top environmentalists, including Wyeth-Ayerst, James Lovelock, Patrick Moore who is the co-founder or one of the co-founders of Greenpeace, Bishop Hugh Montefiore who is a long time board member of the Friends of Earth, also agree. (DT-0014 4, DT-0014 5)

Comment: In fact, I will argue that nuclear power is the only energy source which takes full responsibility for all of its waste and fully costs them in its product of electricity. This itself gives rise to a negative perception. Since the wastes are retained rather than being discharged into the environment and forgotten, many are stored in particular places, and they are represented incorrectly as an unsolved problem. (DT-0014 8)

Comment: I am extremely proud of the very significant contribution that nuclear science and technology makes every day to improve our quality of life. This contribution is most time very quiet, unglamorous, and very much behind the scenes, and most people truly aren't aware of it. In particular, I think that nuclear power is an unsung hero, that every day it generates more than 35 percent of the electricity in Virginia, safely, cleanly, inexpensively, and reliably...I know that nuclear power is the most environmentally sound, large-scale option for new energy investment. Nuclear power minimizes environmental impact by using a small land area and a small amount

of fuel to produce a large energy output. Furthermore, it accomplishes these without releasing any hazardous emissions, and the byproducts of nuclear power are the most manageable of energy waste burn-ups being thoroughly contained in retrievable and reusable. (DT-0025 1)

Comment: The diversity of supply, including nuclear, helps keep us on an energy reliable and affordable track and helps reduce our dependence on foreign energy supplies. And Dominion isn't alone in this endeavor. (DT-0027 3)

Comment: Today more than 100 nuclear power reactors are important to America's energy diversity mix. They provide us with reliable electricity, affordable electricity, safe electricity, and emission free electricity. (DT-0027 11)

Comment: With potential hydro sites limited, nuclear power is the most efficient and economical source of the generation. (DT-0029 12)

Comment: We need more nuclear power. (DT-0043 2)

Comment: I'm here tonight to voice my support for one of the most misunderstood technologies of today's time, the generation of electricity using nuclear energy. (DT-0046 1)

Comment: We believe that nuclear energy is safe, clean, reliable and cost effective, and as such, it should continue to be an important part of a balanced energy mix. (DT-0052 2)

Comment: In fact, nuclear energy is in many ways better and safer than conventional power producers like coal, gas and oil. There are virtually NO air pollutants from nuclear power. There are virtually NO water pollutants from nuclear power. And there is very little solid waste generated by these plants. Therefore, they are environmentally much cleaner. (DT-0063 1)

Comment: More nuclear plants are needed to offset coal, oil, and especially natural gas plants. (DW-0360 1)

Comment: I support expanding the use of nuclear power in the United States. Constructing new reactors would be good for Virginia's environment, good for taxpayers, and good for residential and commercial ratepayers. (DW-0370 8)

Comment: I would prefer that Dominion meet its power capacity needs using clean, safe, and cost-effective energy like nuclear. (DW-0370 9)

Comment: I would like to see more Nuclear Fuel Plants so that coal, natural gas, etc., could be used in other areas. (DW-0440 3)

Comment: Numerous comments have been made advocating that solar and wind power be employed instead of nuclear power. Currently available solar and wind equipment would require approximately 40 square miles of land to produce 1000 MW of power. This is much larger than the area which will be disturbed by the proposed nuclear installation. Although this proceeding cannot properly consider a different type of power plant than the one proposed, the LARGE environmental impact of a comparable solar or wind installation would preclude their consideration on environmental grounds. ... Solar and wind systems do not enjoy large economies of scale. Systems sized for individual homes or businesses are not much more expensive per kilowatt than large scale installations. Net metering of these sources is typically available, so that expensive battery systems are not required. Those individuals who wish to get their power from these sources are free to do so, without imposing additional costs on those Dominion ratepayers who cannot afford it. (DW-0645 1)

Comment: The cost (both environmentally and economically) of operating an environmentally clean nuclear generator is considerably less than that required for fossil fuel plants, which generate smog, acid rain, and other pollutants. Both the fossil fuel and nuclear power plants will have potential environmentally negative aspects. However, weighing all the alternatives available with current off the shelf technology, I would opt to champion the cause of nuclear power generation over fossil fuels from an economical and environmental points of view. (DW-0757 3 and DW-0760 2)

Comment: Nuclear energy is far cleaner and more efficient then the feasible alternatives. (DW-0879 2)

Comment: The other primary forms of producing energy have a negative impact on climate change and that is a serious problem for mankind. (DW-0976 3)

Comment: I saw the first nuclear power plants go into service in Virginia in 1972 and always felt that nuclear power was the cleanest and safest source of energy for electric power generation. (DW-1007 1)

Comment: I wish ... to elaborate more on my support for nuclear electricity generation in general. Therefore, when considering all the other options that are available at present, I am in favor of nuclear energy to supply the remainder. It does not pollute the atmosphere, it is economically attractive, it has a proven track record of safety and efficiency and it can provide electricity in the ways renewable sources and conservation cannot. (DW-1148 8)

Comment: I am also bothered by all of the air pollution from electrical generating plants and automotive exhaust. (DW-1235 1)

Comments Outside the Scope of the EIS

Comment: I am a 1000% supporter of nuclear power! I do not understand how France, The Netherlands, China and many other countries can have a very successful and safe nuclear industry and the Sierra Club can claim that this is not a safe technology! Our own nuclear navy is very active and safe! In my humble professional opinion the Sierra Club will whine about solar power because it takes sunshine away from plants and trees! So let it be known that in every possible way I, and so many others that I share the wonderful natural world with, support nuclear power, the building of nuclear power plants and the future of nuclear power. (DW-1235 2)

Comment: To quote from the form letter sent by the opponents: "I would prefer that Dominion meet its power capacity needs using clean energy like wind or biomass." If Dominion proposed to build a wind farm with a capacity of 1000 MWe at the North Anna site, I am sure the NIMBYs would be loud and vehement in their opposition. (DW-1248 3)

Comment: Please add the attached 33 signatures to the 540 signatures supporting the NA-YGN petition that were already provided to NRC staff at the NRC public hearing held last February 17, 2005 in Louisa Co. As stated at the hearing, all these signatures supporting Dominion's proposed new nuclear reactors at North Anna, were obtained in only one day. (DW-0417 1)

Comment: I am extremely proud of the very significant contribution the nuclear science and technology makes every day to improve our quality of life. ...It's an unsung hero that every day generates more than 35 percent of the electricity that we consume in Virginia and it does that cleanly, safely, inexpensively and reliably. ...Nuclear power minimizes environmental impact by using a small amount of land area and a small amount of fuel to produce a large energy output. Furthermore, it accomplishes this without emitting any negative gas emissions and furthermore, the byproducts of nuclear power are the most manageable of energy waste products because they are totally contained, transportable and reuseable. (ST-0013 2)

Comment: I firmly believe that nuclear power is going to lead the way in the 21st century until there is something viable, better for the majority of the power we consume because we consume a lot. (ST-0023 5)

Comment: Nuclear energy is safe, clean and reliable and is an important part of a balanced energy mix. Currently, nuclear provides about one-fifth of our nation's electricity and about one-third of Virginia's. In Virginia, the power output of the North Anna plants represent about seven million metric tons of carbon dioxide emissions avoided each year. (ST-0012 1)

Comment: I wanted to give to the NRC 1,190 signatures that the NA-YGN, the North American Young Generation in Nuclear, has collected for the last three or four weeks and this is from

people all over the area and actually from all over North American in support of nuclear power and the new nuclear in Virginia in particular. (ST-0013 1)

Comment: [N]uclear energy doesn't spew its waste into the air, or spill it into the water. The residents of Lake Anna never have to breathe it, they never have to see it, they never have to smell it, you never have to taste it. ...It will never aggravate a child's asthma, or speed up global warming, and it will never disrupt the flight path of migrating birds. ...When I decide what I want my legacy to be, I don't want it to be a hot earth with droughts and melting ice caps, hurricanes, disappearing glaciers. I'd rather it be clean, efficient, environmentally friendly nuclear power. (ST-0027 2)

Comment: We do need, in the nuclear industry, the NRC and all of us involved, to push forward the concept of the generic plans for reactor plants, so that reactor plants can be built swiftly, efficiently, consistent with good, safe practices. That is coming forward, but needs to be pursued much more rapidly. (ST-0034 4)

Comment: We believe that nuclear energy is safe, clean, reliable and cost effective, and as such, it should continue to be an important part of a balanced energy mix. (SW-0009 2)

Baseload Power Needed

Comment: Solar and wind will not produce baseline power, period...Now, they're great at producing peak power and maybe we should consider them for that, but for base power, we need nuclear power, and that's just the end of that argument. (DT-0043 3)

Comment: I emphasize baseload generation because many opponents to nuclear power seem to miss this significant factor. I agree that solar and wind power should continue to provide more and more power as a percentage share of total power generated. Although these technologies are maturing, getting a large concentration of energy is not possible due to the distributed nature of the ultimate energy source, the sun and the wind. Even when solar and wind power is applied to its fullest extent, these sources cannot meet the country's overall demand for electricity. The only environmentally conscious solution to adding baseload generation is nuclear power. (DT-0046 3)

Comment: Now if we do not have nuclear power, what does that leave? Solar, wind, tidal, etc.... These technologies are either not available or mature enough (or both). The most mature, wind power, is noisy, expensive, and can not supply BASELINE power. It might be great for peak power with more research and maturation, but it will never supply BASELINE power. The same problem exists for solar except that it is even less mature and again, cannot supply BASELINE power. This leaves nuclear to supply BASELINE power. I highlight BASELINE power because this is where Public Citizen apparently is missing the point. What do

they suggest to replace BASELINE power when they kill fossil fuel and nuclear? The source of the power of course says nothing about conservation. Conservation should be the most important item on the energy list, but remember, you CANNOT conserve yourself to zero power usage! The only source that can supply BASELINE power and NOT foul our atmosphere is well regulated nuclear power. (DW-0360 3)

Comment: I am in favor of using solar and wind generation to maximum potential. However, much like hydroelectricity in the past, the number of economically and environmentally feasible locations is limited. And, as one member of the audience pointed out, these sorts of energy sources cannot be guaranteed to be available 100% of the time and are thus unreliable. And although it may seem incredible to say that solar and wind are unenvironmental, it is not inaccurate to say that these technologies require significant land area and opposition to their visual pollution has already arisen. No energy generation technology is perfect, and none ever will be. I am clearly in favor of conservation. ... All these things put together should clearly indicate to any rational person that renewable energy sources and conservation practices alone cannot provide all the energy this nation requires. Neither now, nor in the future. (DW-1148 9)

Comment: In order for Virginia to continue to be a place for families to live and businesses to thrive, we need reliable, safe, clean and affordable energy. Nuclear has been providing much of this energy in Virginia for the last 30 years and it's been doing it safely and economically. As we move forward, we will need all forms of non-polluting energy to cover our current energy needs, not just the renewables, not just nuclear, but all of them. ...That's why I support the idea of expanding the use of nuclear energy in Virginia particularly at North Anna Power Station. (ST-0020 8)

Comment: I think that nuclear power is an unsung hero, that every day generates more than 35% of the electricity we consume in Virginia, safely, cleanly, inexpensively and reliably. (SE-0025 1)

Energy Independence

Comment: I favor a goal of energy independence in this country. I think it's a goal that everyone would want. Nuclear power supplies 20 percent of our nation's energy. Coal-fired plants is 51 percent, which causes problems as you know, and natural gas is 17 percent of our energy. (DT-0011 1)

Comment: Nuclear power decreases our need for foreign oil and provides us with the best future means to generate hydrogen to potentially provide a new fossil fuel, independent, and environmentally friendly means of powering our vehicles. Let us resolve to use the appropriate energy sources based on its true market costs and benefits. (DT-0014 9)

Comment: This kind of an initiative must occur if we are to lessen our country's dependence on fossil fuels. (DW-0858 3)

Comment: Currently, nuclear power provides about one-fifth of our nation's electricity and about one third of Virginia's. (DW-0863 1)

Comment: [N]uclear power plants such as North Anna provide safe, reliable and affordable electricity that is important to our economy, and helps our Commonwealth and Nation achieve greater energy independence. (SW-0012 2)

Comment: I would like to speak in favor of moving nuclear energy forward as rapidly as we can. ...We need energy independence, and nuclear is the way to go. It is a clean form of energy. (ST-0034 1)

Environmental Aspects

Comment: The decisions that need to be made about where energy is going to come from are very, very complex. No matter what kind of energy we decide to use or you decide to use, there are always going to be impacts. There are impacts from any energy source. (DT-0004 3)

Comment: That is, in spite of the misinformed and skewed claims of the small minority of career anti-nuclear activists, nuclear power has perhaps the smallest impact on the environment, including water, land, habitat, species and air resources. And life cycle emission analyses show that per kilowatt hours, the impact of nuclear energy is among the lowest of any form of electricity generation, including wind and solar. (DT-0020 4)

Comment: Several people have said nuclear power does not emit greenhouse gases. Last year alone nuclear energy prevented 700 million tons of carbon from going into the atmosphere. That's the equivalent of taking all the carbon out of nine out of ten cars on the road across America. (DT-0027 8)

Comment: So you can fight against nuclear power, but you trade it for global warming. (DT-0028 1)

Comment: Over the past couple of years I've been reading the press and have been impressed by the trend I've seen that favors construction of new nuclear power plants. There are various things behind this. The first reason is the support that nuclear power is gaining from a variety of environmentalists. (DT-0032 1)

Comments Outside the Scope of the EIS

Comment: Of all energy sources, nuclear energy has the lowest impact on the environment, including water, land, habitat, species, and air resources. Nuclear energy is the most eco-efficient of all energy sources because it produces the most electricity in relation to its minimal environmental impact. (DT-0046 7)

Comment: Nuclear power is a very positive power source for the future offering clean power generation with little or no greenhouse gas emission. I want nuclear power to help America lead the world in CO2 reduction initiatives to leave the world a better place for my children. (DW-0442 2)

Comment: In practical terms, nuclear energy is the best possible answer to the environmental and economic hardships that the people of the world are already experiencing. … The time to support nuclear energy, and the government and the industry to act is overdue. The time to build advanced nuclear reactors is now. ... nuclear energy must be harnessed by building many more modern nuclear plants for the current and coming generation to enjoy cleaner environment, economic prosperity, and less dependence on foreign oil. (DW-0812 1)

Comment: Since coal fired generation produces large amounts of NOx, SOx, lead, mercury, and other pollutants, the proposed plant will reduce such air and water pollution proportional to it's capacity. This reduced pollution may be reflected in air or water quality improvements around the proposed site, or in other areas of the state depending on the particular coal plant which is not dispatched on any given day. Should the Commission determine that any of the potential environmental impacts are other than SMALL, it should take into account the positive, long term improvement in air and water quality that would ensue from the reduced operation of coal fired facilities to reduce the net impact. (DW-0645 2)

Comment: Clean air benefits are why support for nuclear energy is widespread among leaders in government, business and academia and is growing among many environmentalists. Six out of 10 self-described environmentalists favor nuclear energy. (DW-0668 1)

Comment: Coal, gas, oil, and biomass all eject pollutants into the atmosphere for all to breathe. Every particulate of waste that these energy sources have ever created is out there and in many cases, never will be retrieved. True, trees and plants will clean some of these pollutants from the atmosphere, but proving how much and how fast is next to impossible. (DW-1148 10)

Comment: Of all energy sources, nuclear energy has the lowest impact on the environment, including water, land, habitat, species and air resources. Nuclear energy is the most eco-efficient of all energy sources because it produces the most electricity in relation to its minimal environmental impact. Nuclear energy is efficient and cost- effective due to its high

plant performance coupled with modernized plants, low production cost, future price stability, and clean air compliance value. (SW-0006 2)

Comment: I know that nuclear power is the most environmentally sound, large-scale option for new energy investment. Nuclear power minimizes environmental impact by using a small land area and a small amount of fuel to produce a large energy output. Furthermore, it accomplishes this without releasing any greenhouse gas emissions. (SE-0025 2)

Safety

Comment: As nuclear technology relates to electricity generation, we wanted to tell everyone the success story that is nuclear power in our country. Nuclear energy is safe, clean, and reliable as an important part of a balanced energy mix. (DT-0020 1)

Comment: My health and safety net of my family and friends always come first. I also believe that we as society must be good stewards of the environment. I would not work in this industry [nuclear] if it violated these principles. (DT-0020 8)

Comment: As a former project manager responsible for preparing the safety evaluation reports for licensing certain nuclear plants, I think you covered about as much as you could regarding the safety issues in Section 5 based on the limited information available on the assumed plant parameter. (DT-0029 2)

Comment: James Lovelock, who has been mentioned previously. He says, “Nuclear energy from its start in 1952 has proved to be the safest of all energy sources.” That was in 2004, mind you, after the 9/11/2001 incidents. (DT-0032 2)

Comment: Patrick Moore writes as follows: “nuclear energy is the only non-greenhouse gas emitting power source that can effectively replace fossil fuels and satisfy global demand.” (DT-0032 3)

Comment: This is the safest form of power generation and least pollutant of the times. I would recommend another plant at this site. (DT-0060 3)

Comment: As for the safety issue, the opponents keep talking about Chernobyl and Three Mile Island. Well, that’s all they can talk about. That’s because nuclear power plants are designed to be safe and are tightly regulated to prevent an impact on public health. They are built with several barriers between radioactive material and the outside. In fact, NRC established safety goals that the acceptable risk to the average individual within the vicinity of a nuclear plant should be less than 0.001%, whether from an accident itself or from cancer resulting from radiation exposure. (DT-0063 2)

Comment: I recognize that several issues such as security are not addressed in the ESP process and these things concern some of the area citizens. Many of these people are concerned but not very well informed. The security [at] Dominion nuclear power plants has been much better than at any other place that I've worked, including Shippingport Atomic Power Station. Having worked in the safety analysis field of nuclear power for over 30 years, I am convinced that many of the objections raised to nuclear power are grossly overstated. If nuclear power was as bad as its vigorous opponents contend, then it would have been very obvious years ago. (DW-1167 6)

Other Benefits

Comment: Nuclear plants by the end of this year will have rendered 10,000 warheads useless by taking uranium out of those Russian warheads and using it as fuel to power U.S. cities. That's a significant nonproliferation goal that we're achieving today and rendering warheads that used to be aimed at our cities useless and now using them to power our cities. (DT-0027 12)

Comment: Nuclear power to include reprocessing like in the Integral Fast Reactor System as developed at Argonne National Laboratory and demonstrated Argonne National Laboratory - West, is the only source of power that should even be considered by any power company, the NRC, and Public Citizen. I think once the REAL facts and the morals behind power generation are given to the people, the citizens of this country will DEMAND no less that nuclear power and the integral fast reactor system. (DW-0360 5)

Comment: [N]uclear is one of the best answers we have available today, particularly if you are concerned about the members of your community that struggle to pay their electric bill every month. (ST-0025 4)

Comments Against Opposition Groups

Comment: I have seen scare tactics and misinformation that characterized the campaign of career anti-nuclear ideologues. Recently two venerated leaders of the Green, James Lovelock of the United Kingdom and Patrick Moore, founder of Greenpeace, publicly criticized such distortion of the facts. Lovelock has said that the fears these types of anti-nuclear organizers have about the safety of nuclear energy are irrational and exaggerated, his words. Moore has said that such groups have abandoned science and logic in favor of emotion and sensationalism. I have found that in many cases, the misinformation campaign is intentional. (DT-0020 6)

Comment: I would like to suggest that you take the names and addresses of all of these agitators and demonstrators opposing nuclear power and promptly TURN OFF THEIR ELECTRICITY…FOREVER. AND require that they make up the taxes from our nuclear power

plant. They might just change their tune! They obviously don't understand that the world is running out of fossil fuels and nuclear is the ONLY (safe and clean) solution. (DT-0063 7)

Comment: I'm pretty liberal, I'm a member of the ACLU, but on Nuclear power I have to break from my usual stance. Don't let the Environmental groups get you down. You have nuclear energy supporters who are counting on you! (DW-0879 3)

5.7.2 Opposition to Nuclear Power

There were many comments received in opposition to nuclear power including four sets of letters that were the same or very similar in content because they resulted from a letter writing campaign. These are referred to by the staff as Draft mass mailing (DMM) comment letters and are identified with the structure that includes letter 1 through 4 and the comment number within the letter. Several forwarded mass mailing letters were received repeatedly, some numerous times from the same commenters. Many of the comments received expressed fear of the safety of nuclear power. Some commenters expressed their opinions of nuclear power as insanity, disastrous, and flawed. There were negative comments aimed at the NRC and the U.S. government. Many commenters stated that nuclear power is not the answer to U.S. energy needs.

General Opposition

Comment: The summation of information is that nuclear energy is an irrational pursuit. It's a bad idea. So why after a 20-year hiatus is this great push to impose upon us this devil? (DT-0006 4)

Comment: And so I think nuclear power is a really bad kind of power, maybe one of the worst invented. (DT-0008 1)

Comment: I'd like to keep our world safe, healthy, and beautiful for my generation and my children's generation. How about you? (DT-0008 8)

Comment: I'll conclude by recommending that nuclear fission power plants be retired, and to that end I kindly, respectfully, and most seriously urge anyone working for the Nuclear Regulatory Commission to seek other employment where you can use your talents to provide people with safe energy and a clean environment. (DT-0009 7)

Comment: Perhaps some of you, like me, were raised in the 1950s when we were taught that the answer to all of society's needs for clean, safe, cheap, unlimited energy was to be found inside the atom. This is a hideous, perverted lie. (DT-0018 5)

Comment: We are against breathing air full of radioactive particles, drinking water that poisons instead of gives life, eating food that gives our children cancer for untold generations. How do you explain the fact that we seem to be more willing to protect our fragile psyches from looking honestly at the horror we are creating than doing whatever we have to do to protect our babies? We must stop hiding behind “we'll fix it tomorrow” or accidents never happen. We must speak openly of the truth that we are talking about the end of life on this planet and perhaps the end of life throughout the whole universe. We don’t really know. Because whether or not it comes by terrorism or leukemia or poisoned air and water or the destruction of our DNA, death is the inevitable end of this madness that is nuclear. We can do better, you all. We can do better. Don't you believe that these guys and ladies are smart enough and capable enough to figure out ways to boil water that aren’t suicidal? I do. (DT-0018 8)

Comment: The 2004 Green Party of the United States platform calls for the dismantling of all currently active nuclear power plants within five years. (DT-0041 5)

Comment: If this case, the end does not justify the means. If we were really smart, at this point we’d say “who gas” what a mistake, we’d carefully dismantle these things, and we’d look to alternative energy sources. I was very glad to hear from the Dominion Power administration that options continue to be open. (DT-0051 3)

Comment: Second, nuclear power generation is a messy, toxic business even when handled well, and neither private industry nor the NRC has shown the fortitude for doing it well. (DT-0058 3)

Comment: My fervant wish is that the focus will shift, sooner rather than later, to invest in finding “ways to boil water that are not suicidal.” Let the scientists and commissioners apply their intelligence and expertise to this endeavor. (DT-0062 3)

Comment: I oppose new nuclear reactors there for the very environmental and safety reasons which were not “allowed” during the early site permit process. (DW-0165 2)

Comment: No to any new nuclear plants!...Stop Now. (DW-0173 1)

Comment: We as citizens have the right to protest against anything else the DOE, would submit, such as building more nuclear plants. We know about the energy executives giving the Bush inaugural monies. This sends a clear message that the DOE, has further to go in developing clean energy and saving the planet for future generations. Please note, many groups will be watching in what is going to happen, with the energy issues. (DW-0177 2)

Comment: I am against all nuclear reactors from being built. (DW-0180 1)

Comment: Do not license any new nuclear power plants. (DW-0188 1)

Comment: Please no new nuclear power plants for Virginia. I love this state. Help me protect it for a very, very long time. Please. It just is not worth the risk. (DW-0197 1)

Comment: For the record we are all opposed to any nuclear expansion either here at North Anna, or anywhere else in the world. (DW-0192 1)

Comment: No nuclear power plants in North Anna or anywhere else!...I am opposed to new nuclear power. … No nuclear power plants in North Anna or anywhere else! (DW-0274 2)

Comment: Nuclear energy must be phased out, not revived. (DW-0333 2)

Comment: This is a totally disastrous and ill conceived project and should be rejected. (DW-0335 2)

Comment: I understand the growing need for more energy, but I am opposed to getting this energy from nuclear sources. (DW-0398 1)

Comment: I do not want any reactors at North Anna or Mineral or anywhere else. (DW-0404 6)

Comment: Nuclear is a flawed technology. (DW-0411 1)

Comment: My family is opposed to any new nuclear power plants being built for many reasons. (DW-0412 1)

Comment: I have never forgotten [the Three Mile accident in 1979] as we lived close enough to the plant to see the steam plume. What was true then, terrifying hundreds of people, is true now. Spend millions of dollars for a plant carrying such a dangerous potential that it has the power to wipe out populations? Not if I can speak out against it, and I am joined by many others. (DW-0421 1)

Comment: Dominion Power and this Bush administration ought to know better. No more nukes! Please consider all these factors in making a decision. (DW-0421 3)

Comment: As a citizen living in neighboring Albemarle County, I am strongly opposed to building additional nuclear reactors in Louisa, or anywhere else in the country. (DW-0426 1)

Comments Outside the Scope of the EIS

Comment: I promise to fight Dominion Power, the US Nuclear Regulatory Commission, the Bush Administration and all energy “fat cats” in this country from building any more potentially dangerous and contaminating reactors in the United States. The people will be heard! (DW-0429 3)

Comment: Please do not begin this nuclear problem again, it is too powerful an issue to take lightly!!!!! (DW-0585 2)

Comment: These proposed new reactors HAVE NEVER BEEN BUILT BEFORE ANYWHERE IN THE WORLD. I do not like being a Guinea Pig for untested reactor designs. (DW-0614 7)

Comment: Please listen to the public! We do not want any additional nuclear power plants! (DW-0619 2)

Comment: Charging off into additional nuclear power stations is NOT THE WAY TO GO! y'HEAR?? (DW-0636 2)

Comment: I register my objection to approving any new nuclear plants, nuclear weapons, or nuclear industrial applications. (DW-0648 2)

Comment: I am against new power plants, including at North Anna. (DW-0669 1)

Comment: I am against any new nuclear plants. (DW-0743 2)

Comment: I am completely opposed to the construction of any new nuclear facilities. (DW-0777 1)

Comment: We neither want nor need them [more nuclear reactors]. (DW-0798 2)

Comment: Nuclear energy is NOT the way to go! ...NO NUCLEAR! (DW-0811 1)

Comment: I am writing in strong opposition to any new nuclear reactors at North Anna or any location. (DW-0861 1)

Comment: What a lovely group of hornswogglers you are! Seems our government's nose is growing longer than Pinocchio's. Why don't you just tell the TRUTH? There will come a time when all of your lies are going to catch up with you and I hope that I'm around to escort you to the prison of my choice. Why damage Virginia any more than you already have? I understand that Iran is in the market for your services. Have a happy non-nuclear day. (DW-0866 1)

Comment: Please do not revisit nuclear power!! (DW-0867 1)

Comment: I have been opposing nuclear power since I was in college. ...I am eager for progress in this area but I don't see it. (DW-0976 2)

Comment: My first grandchild will be born in a few weeks. She does not need or want nuclear energy. (DW-0980 2)

Comment: Please say no to more reactors. (DW-1091 3)

Comment: I am against any more nuclear power plants, not only in Virginia, but within the continental United States. (DW-1166 3)

Comment: Thank you for your attention to this most serious matter [opposition to nuclear power], and I look forward to receiving your response. Lest "we" forget, if you don't exercise responsibility, its Siamese sister, freedom, will wither, as well. Sadly, now, it first needs to be exorcised before its exercised. (DW-1265 2)

Comment: I'm a school teacher and I've been studying this - what I realized in the last couple of years is that there is no magic in fissioning the atom. There is horrible death, there is the potential for complete planetary destruction, and there is heat. (ST-0006 4)

Comment: [S]omething I find missing in this entire argument that we're going through, is a conscience issue. We do have clean nuclear plants, and this is a plus. But the side issues are still so sloppy, and I have a hard time living with it, and I think it's worth junking the entire industry, because of the side issues, the parts that you have not dealt with. (ST-0038 6)

Comment: I vehemently oppose any new reactors. (SE-0010 4)

Cost

Comment: The nuclear operators are going to continue to cut costs in the highly competitive electricity market by reducing their staff at nuclear facilities as much as they possibly can. (DT-0005 3)

Comment: It wasn't the anti-nuclear movement that really beat back, you know, your reactors. It was your own inability to manage construction and operating costs of your own reactors. Forbes Magazine called you the greatest managerial disaster in the history of American business. I don't suggest we go down that path again. (DT-0033 7)

Comment: It is a tremendous waste of money for a dangerous technology that is not necessary. (DW-0309 7)

Comment: My tax dollars are subsidizing it to the tune of at least one billion and upwards dollars and yet I am adamantly opposed to it. (DW-0404 4)

Comment: I sincerely hope those who make these decisions will think of the future of our planet and not just give in to those who will make a profit. (DW-0789 2)

Comment: Nuclear Power should not be used because: Government subsidies of development, the fuel cycle, promotion, security, and insurance make it impossible to compare the costs of nuclear, fossil, and renewable power. The same for the unknown cost of decommissioning and guarding old reactors after they have become too brittle to use. (DW-0829 7)

Energy Needs

Comment: Nuclear power does nothing to fix the country's fractured energy system. In fact, it only reinforces the inefficient system by creating a new generation of massive plants located far from the customers served in most instances. (DW-0641 1)

Comment: We need to get serious about our long-term energy demands and Nuclear Reactors are not the answer. (DW-0710 2)

Comment: Nuclear power isn't the answer to our energy problems. (DW-1069 2)

Comment: With so many other forms of energy available to harness, it is criminal to continue to build nuclear reactors. (DW-1091 1)

Safety

Comment: I want to know when we all bought into the idea that having enough energy to meet our needs meant that we also had to have terrorist threats or lethal poisoning of radioactivity for tens of thousands of years. (DT-0018 6)

Comment: Now, we don't know that the next reactor that they're going to build there will even have that dome. (DT-0033 5)

Comment: We know that nuclear power is not safe for citizens and the environment. Otherwise why can you not find a private insurance company to fully insure against the costs of a major nuclear accident? (DT-0038 2)

Comment: Nuclear power perpetuates us living in fear, fear for our environment, our safety, our health, and our future. (DT-0044 3)

Comment: We do not believe that nuclear power is safe. This might be said about other means for generating electrical energy, but the world has witnessed the consequences of a nuclear disaster. It simply is not worth the risk. (DT-0047 9)

Comment: In this current atmosphere of terror alerts and due to the failure to secure currently operating nuclear power plants, I find the desire to permit the building of a new nuke plant to be utter insanity. (DW-0306 2)

Comment: The literature is rife with details of premature corrosion of various components of reactors. (DW-0309 4)

Comment: The risks of nuclear facilities to the health, safety and welfare to the public and environment far outweigh any benefits. (DW-0406 3)

Comment: We are not ready to safely use nuclear power. … We live in a finite world, and simply cannot continue to grow industry ad infinitum. (DW-0577 2)

Comment: How many other times have we been overconfident in the safety of our technology? DDT and CFC's come to mind as examples of technologies we thought were risk-free but turned out to lead to increased health problems. (DW-0426 15)

Comment: There are many unresolved safety…issues. (DW-0188 2)

Comment: Nuclear power is the most unsafe form of electricity generation. (DW-0193 2)

Comment: Questions about the adequacy of current security regulations and performance are ignored. (DW-0401 4)

Comment: Nuclear energy is unsafe and it does have considerable lifecycle polluting emissions. (DW-0593 2)

Comment: It [nuclear energy] threatens society with its danger. (DW-0811 2)

Comment: Nuclear reactors present an unacceptable risk for the public. (DW-0186 3)

Comment: Prevent another Chernobyl…do the right thing for America and the future of our children. (DW-0749 3, DW-0750 3)

Comment: I would hope that there is no attempt to start up the construction of nuclear power plants in this country. They are among the most dangerous pieces of industrial equipment on the planet, with environmental consequences lasting for thousands of years. (DW-0807 1)

Comments Outside the Scope of the EIS

Comment: Having lived through the TMI accident as a child and knowing many people who now have cancer in our area I urge you to now allow any new nuclear power plants. (DW-0819 2)

Comment: I do not believe that nuclear power is good for our communities or our environment, and I strongly oppose it. If we care about the safety of our communities and the health of our environment, we should not be expanding nuclear energy. (DW-0822 4)

Comment: My three grandchildren live near Three Mile Island and I constantly worry about that threat to their lives…If there were some way we could assure people there would be no nuclear accidents, no threat from radioactivity released into the environment and a safe way for disposing of nuclear waste, my position would change. (DW-1042 2)

Comment: I really believe that terrorist threats and unsolved issued of radioactive waste make new nuclear plants folly to consider. (DW-1078 2)

Comment: I oppose construction for the following reasons: Nuclear power has never been shown to be as safe or as economical as the nuclear industry has promised. (DW-0409 2)

Comment: Nuclear Power should not be used because: The spread of nuclear power expertise through the world enables hostile nations to convert that expertise to weapons' development. (DW-0829 6)

Comment: Nuclear Reactors are ... not SAFE (they let out tons of radiation) the spent cores are a danger and we still have nothing to do with them except drop them on innocent IRAQI WOMEN AND CHILDREN or use it to irradiate food which is just poison. (DW-0180 3)

Comment: Nuclear Power should not be used because: An accident would be a disaster to eclipse the Indian Ocean Tsunami. (DW-0829 3)

Comment: There has not been one single nuclear plant that has not had leaks, spills, accidents or near accidents, incurring tremendous cost in attempts to fix them (not always successful). (DW-0198 2)

Comment: I am shocked that there is even a consideration of this highly potential disaster. Nuclear power has never been safe. (DW-0181 2)

Comment: [T]he consequences should there be a problem are tremendous with operation and should not be overlooked. (DW-0407 2)

Comment: [T]he cost to future generations of one slight mis-step leading to nuclear catastrophe definitely outweighs any benefits these new reactors would produce. (DW-0408 9)

Comment: The addition of two new nuclear reactors makes no sense at all, and creates an accident waiting to happen. (DW-0413 5)

Comment: My concerns about increasing Virginia's and America's reliance on nuclear energy are based on … the possibility of an accident within the power plant. (DW-0426 4)

Comment: I live within a half-hour's drive of the reactor, and would be immediately affected by any serious malfunction. (DW-0660 2)

Comment: It [nuclear power] is highly dangerous, not the least to Washington, DC, which is in its radiation radius, should anything go wrong -- and things can and have gone wrong! (DW-0805 5)

Comment: I am concerned about the potential for a major nuclear accident, endangering citizens in Charlottesville as well as Richmond and Washington, D.C. This is [not?] an acceptable safety risk! (DW-0827 4)

Comment: Here in the DC suburbs, we are not too far from the site [North Anna] to be concerned about nuclear accidents. (DW-1019 2)

Comment: As residents of nearby Charlottesville, we already feel vulnerable to the possibility of a catastrophic accident. (DW-0424 3)

Comment: Three-eighths of an inch of stainless steel that was bulging and fatigued stopped an accident of major proportion in Ohio. The first accident that happens in the United States during the period of time that this process is going on will stop the additional reactors at the North Anna nuclear power plant, just like the accident at Three Mile Island canceled 100 reactors that were on order at that time. (DT-0005 5)

Comment: The issue of accidents. Are nuclear power plants safe from meltdowns, as in Chernobyl, or partial meltdowns, as in Three Mile Island? Nothing assures me that meltdowns of any kind can't happen again. (DT-0009 3)

Comment: I am also opposed for safety reasons. Accidents do still happen around the world. (DW-0165 4)

Comment: Remember Three Mile Island, it DID happen in the U.S. (DW-0195 5)

Comment: I am a resident of Louisa County who lives 10 miles as the crow flies from the North Anna plant, and it is clear to me that nuclear reactors present an unacceptable risk for the public. There have been many documented near-catastrophes in addition to the disaster at Chernobyl and the near meltdown at Three Mile Island. (DW-0196 2 and DW-0744 2)

Comment: I respectfully submit my heartfelt request that we TURN AWAY from deadly nuclear, and turn our awesome creativity toward energy sources that do not make the world a dangerous place. (SE-0037 1)

Comment: When did we all buy into this idea that having enough energy to meet our needs meant that we also had to become a terrorist threat, that we had to face terrorist threats? These nuclear reactors are cocked and loaded nuclear bombs, essentially. ...We don't need to have lethal poisoning for millions of years just to boil water. We don't have to have our children, and our futures dying of leukemia and cancers just to boil water. This is not an either/or proposition. We can do both. We can have our electricity, and have a safe world. ...We have to stop hiding behind oh, we'll fix it tomorrow. Let's let another generation pay for it, or accidents never happen. ...there aren't enough green and white balloons in the universe to make it true that nuclear is safe, and that nuclear is clean. We live in an era of perverse cynicism. (ST-0006 2)

Environmental Aspects

Comment: I may be near the end of my life, but we have to be good stewards for this earth. We need to be thinking about them. And almost every major environmental group in the world is opposed to nuclear power. (DT-0047 10)

Comment: There will always be adverse impacts on the environment when a nuclear plant is built! No more!!! (DW-0097 2)

Comment: As you well know, creating the [reactor] cores requires BURNING COAL, so Nuclear Reactors are not CLEAN. (DW-0180 2)

Comment: Please, no new nukes, further expansion of current levels, or anything other than a turn to earth friendly and people friendly energy!! (DW-0783 1)

Political Aspects

Comment: The Greens are a worldwide movement and each Green Party on the planet is opposed to building new nuclear reactors. We object to the secret meetings during which the Bush administration formulated the current energy policy, including the renewed push for nuclear energy which brought us all here tonight. The Green Party denies President Bush's

recently stated contention that nuclear power is a safe, clean, and renewable energy source. Nuclear power is not clean, nor is it safe, nor is it renewable. (DT-0041 1)

Comment: Because you see opposition here now. It's going to continue. It's going to continue as the debate intensifies in Central Virginia, as it intensifies in Virginia, and as it intensifies across our country, because people want to be involved in their energy future. They don't want a decision coming down from Washington, D.C., that is, you know, coercive, that has been coerced by the Bush administration and the nuclear energy industry and their lobbyists and friends in Congress. (DT-0042 2)

Comment: Clearly dirty politics are at work here from the nuclear industry. What in heavens name were PRO-nuclear representatives from CHICAGO doing in Louisa, Virginia on 2/17/05?? Clearly, the nuclear industry is keen to give the impression of a PRO-nuclear grassroots movement. Which does not exist. The whole thing reeks of corruption and deceit. (DW-0830 3)

Nuclear Waste

Comment: Symbolic light show presentation showing the relationship between nuclear waste and time. (DT-0012 2)

Comment: The NRC and Dominion are determined to build more nuclear reactors, and that means more nuclear waste, and that's great. ... Nuclear power is expensive, radioactive, and totally unreasonable and illogical, just like me. (DT-0023 1)

Comment: Something with the impact that nuclear energy has and the potential that it has to be de-static (in spite of its positive effect), and the as yet unsolved problem of clean-up really does ever preclude its use as an energy source. (DT-0051 2)

Comment: No new nuclear power plant should be build ever, and all those that exist should be shut down. Nuclear energy has been hyped as being clean, green, and cheap, and it is none of those things. The fact that nuclear waste remains lethal for hundreds of thousands of years, much longer than any nation has lasted is all the reason any sane person needs to ban any kind of nuclear use or production. WHO is going to monitor the waste??? None of the ideas of dealing with it make any sense - shooting it into space, burying it under an earthquake-fault ridded mountain. (DW-0198 1)

Comment: Given the lack of adequate plans for nuclear waste disposal, I oppose the construction of any nuclear reactors at this time. (DW-0983 2)

Comment: I am opposed to nuclear power anywhere on earth for three reasons. One, the power plants are safe until they fail, and then they can be catastrophic. Everything fails. (DT-0006 1)

Comment: We don't need more nuclear waste and more nuclear time bombs. (DW-0743 4)

Comment: We have enough trouble disposing of the waste we're already creating without making the problem worse by building new facilities. (DW-0777 2)

Comment: We have no right to build another one [plant] until we can handle our waste! (DW-0780 2)

Comment: I think it is a big mistake to invest in nuclear power when we have no way to dispose of the waste and it's so dangerous. (DW-0789 1)

Comment: No more nukes/stop the old ones. We all live at Yucca Mountain… (DW-1249 1)

Comment: I am opposed to nuclear power in general primarily because of the hazards involved in disposal of the irradiated fuel generated by reactor[s]. (DW-0407 1)

Comment: Nuclear Power should not be used because: The fuel cycle produces "small" amounts of radiation at every stage. (DW-0829 2)

Comment: If it's clean, take responsibility for your own waste. (ST-0024 7)

5.8 Miscellaneous Out Of Scope Comments

The following comments are miscellaneous in nature and did not fit well into any of the subject categories that were formed as a result of the bulk of comments received. The subjects of all these comments have been determined to be outside the scope of the EIS.

Comment: Page 5-42 on taxes mentions utility deregulation. Would the new units be merchant plants or rate-based? (DW-0438 154)

Response: *The staff does not have information with which to respond to this question, which is outside the scope of this EIS.*

Comment: Is Dominion ready to go for a COL for unit 3 right away? (SE-0027 12)

Comment: [I]s Dominion ready to go for a COL soon after they get an early site permit, because I think the public is due an answer on this question, and Dominion should be forthwith and tell us what their plans are. (ST-0028 10)

Response: *In a letter dated November 22, 2005, Dominion stated that it had selected the ESBWR design for the preparation of a COL application. The letter did not provide an expected date for the submittal of the application.*

Comment: We have experienced through the years major changes in Lake Erie. The major concern, as you well know, is the dead zone. It is being investigated still after 2 years observation and still to my knowledge considered a mystery. I wonder if there is any correlation between the dead zone, which is expanding every year, and what could happen to Lake Anna if any nuclear waste or power plants are built here in Virginia. (DT-0056 1)

Comment: I ask for a binding individual contract...The contract should address, in comparison with the baseline body of water previously described, water quality, water temperature, water level. There should be no restriction as to forming a class action by the parties, there should be a limit of liability 5% of the wholesale value of station output during defined environmental infractions. The individual contracts should be offered to all abutters (including private access abutters) and run with the land as would a deed covenant. The reason for this is simple - it introduces an economic incentive for Dominion Resources / Virginia Power to live up to its environmental commitments locally, and directly reimburse abutters for station operational indiscretions. (SW-0015 5)

Comment: [I]ndemnify the local stakeholders, through the use of reliable technology and binding individual contractual obligations. ...Now for this next generation of nuclear power construction require to the extent feasible, fail safe standards of engineering design and environmental neutrality. (SW-0015 8)

Response: *NRC is not responsible for landowner relations with Dominion. Accordingly, no changes were made to this EIS as a result of these comments.*

Comment: The DEIS does not inform the public that private insurance will not provide total coverage for this kind of facility and that, in fact, taxpayer funds are used to self insure. (SE-0049 5)

Comment: The insurance companies don't provide unlimited insurance for anybody for anything. When you buy a policy, you buy X amount of liability, and that's what you pay for. And the nuclear industry is not any different from the coal industry, or the chemical industry, or the drivers of their cars, except that Congress gets involved in mandating how that insurance is apportioned. (ST-0025 5)

Comment: My late father was an insurance agent. He told me “If a company can't find affordable insurance, then the business isn't safe.” Since North Anna and other plants can't seem to find a free market insurer, that means the free market is telling us all that nuclear power is too risky. Let's listen to the free market! (DW-0194)

Comment: The only reason the nuclear industry can even afford its insurance is that the Price Anderson Act limits liability ridiculously below the likely cost of an accident. It would be cost prohibitive for the industry to be insured against the actual cost of a meltdown. (DT-0036 3)

Comment: If you deem nuclear power is safe, why cannot you find a private insurance company to insure against an accident? (DW-0187 3)

Comment: Our government is heavily subsidizing the insurance on our nuclear reactors, because insurance companies will not insure these reactors without government subsidies, and without these subsidies, in free markets, the reactors would not operate. My question is this: what do the insurance companies know about the risk of these reactors that the NRC does not know, or is not including in its risk assessment? (DW-0685 12)

Comment: Cleanup costs for a major nuclear accident are estimated to be around $500 billion, not including broader economic shockwaves. The nuclear industry’s liability for such an accident is capped at around $10 billion, leaving taxpayers with a $490 billion bill, ratepayers with a bankrupt utility, and surviving residents without a home. (DW-MM4 13)

Comment: A major nuclear accident could leave an area the size of Pennsylvania uninhabitable for decades. The area around the Chernobyl nuclear plant, site of a major accident in 1986, is still closed to public access and radiation levels are still high. Cleanup costs for a major nuclear accident are estimated to be around $500 billion, not including broader economic shockwaves. The nuclear industry’s liability for such an accident is capped at round $10 billion, leaving taxpayers with a $490 billion bill, ratepayers will a bankrupt utility, and surviving residents without a home. (DT-0053 8)

Comment: Louisa County, the officials…[have] gotten $212 million from Dominion, and how much has Louisa County saved? Anybody know the answer? Zero. ... So it's a windfall, but they're blowing it. (ST-0024 4)

Comment: Nukes, if they're safe, get your own insurance, very simple. If the nuclear plant is safe, get private insurance. (ST-0024 6)

Comment: Wouldn’t the installation of new unit(s) be an opportunity to mitigate some of the existing problems with water temperature and lake level? (SE-0045 25)

Comment: [Adding proposed Unit 3 at North Anna] suggests a disturbing vulnerability in Virginia's electrical supply. Units 1 and 2 already account for about 15% of the state's electric power generation, and adding Unit Three's 1560 MWe would probably boost the NAPS contribution to 25% or more of the state's total. Putting the state's public safety and economy at the mercy of a prolonged heat wave, or possible sabotage of the North Anna dam, does not suggest to us a responsible energy policy for the State. (SE-0040 10)

Comment: Pending approval of the North Carolina Utilities Commission, Dominion will join the PJM interconnection. PJM is the largest regional transmission organization (RTO) in the U.S., and currently coordinates the movement of electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. The Final EIS should include an analysis of what the PJM will mean for Virginia ratepayers, including the fact that Dominion is likely to export the electricity generated by the new reactors at North Anna to other states such as New Jersey where electricity prices are twice as high as Virginia and revenues will be greater. (DW-0437 69)

5.9 References

10 CFR Part 2. Code of Federal Regulations, Title 10, *Energy,* Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders."

10 CFR Part 50. Code of Federal Regulations, Title 10, *Energy,* Part 50, "Domestic Licensing of Production and Utilization Facilities."

10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy*, Part 52, "Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants."

68 FR 40025. "Early Site Permits, Standard Design Certifications, and Combined Licenses for Nuclear Power Plants; Proposed Rule." *Federal Register*. Vol. 68, No. 128. July 23, 2003.

Atomic Energy Act. 42 USC 2011, et seq.

Dominion Nuclear North Anna, LLC (Dominion). 2005. Letter from E. Grecheck (Dominion) to NRC, Dominion Submittal of ESP Application Schedule, November 22, 2005.

Energy Reorganization Act. 42 USC 5851, et seq.

Comments Outside the Scope of the EIS

National Environmental Policy Act of 1969 (NEPA). 42 USC 4321, et seq.

Price Anderson Act. 42 USC 2210.

U.S. Nuclear Regulatory Commission (NRC). 2005. *Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site.* NUREG-1835. Accession No. ML052710305. Available at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html.

U.S. Nuclear Regulatory Commission (NRC). 2006. *Supplement to the Final Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site.* September 2006. Accession No. ML06317371.

6.0 Commenter Reference Tables

The comments received regarding the North Anna Early Site Permit (ESP) Draft Environmental Impact Statement (EIS) are documented in the U.S. Nuclear Regulatory Commission (NRC) Agencywide Documents Access and Management System (ADAMS) under accession number ML0514720560. They are also available individually and under one of the following four ADAMS files (beginning with the page shown in Table 6-2):

Pages (1 - 495) ML051390174
Pages (496 - 984) ML051390179
Pages (985 - 1531) ML051390185
Pages (1532 - 2504) ML051390190

The comments received regarding the Supplemental Draft Environmental Impact Statement (SDEIS) are documented in ADAMS under accession number ML063060459. They are also available in individual ADAMS files (listed in Tables 6-4 and 6-5).

Comments received through the public comment period were organized into categories by topic in Chapter 3 (Comments Within Scope), Chapter 4 (ESP Process, NEPA Compliance, and Comments Supporting or Opposing the ESP), and Chapter 5 (Comments Outside the Scope of the EIS). Some of the comments could conceivably fit in more than one category but are provided only once. Comments that covered several topics but that did not fit simply into the categories of “in support of” or “in opposition to” nuclear power or the ESP were usually subdivided by topic.

Regarding the numbering of the comments, comment numbers were initially assigned in sequential order to portions of verbal or written statements. In some cases, decisions were made that the preliminary assignments did not meet the criteria as comments; in other cases, two sequential comments were combined into one comment or one comment was subdivided to address different aspects. As a result, although most comment number assignments follow the verbal or written comment sequentially, a few are not and should not be construed as missing.

Draft EIS Comments

Three tables were developed to facilitate cross referencing comments received on the Draft EIS with the commenters. Table 6-1 provides a listing of commenters in alphabetical order, along with the assigned identifiers for the following:

- DT for verbal transcript comments received during the February 17, 2005, Public Meeting on the Draft EIS (includes written comments provided at the meeting)
- DW for written comments (DW).

Those commenters who provided more than one set of comments are listed multiple times, once for each set of comments. In instances where the commenter represented an agency or an organization, both the commenters and the agency are listed. Table 6-1 also lists the accession number associated with the specific set of comments and the page number on which the comments begin. Two petitions were received, one supportive of and one opposed to the ESP. These documents are referenced as DT-0052 and DT-0053 by the title of the organizations identified on the petition, and are listed at the end of Table 6-1.

In Table 6-2, the list is sorted sequentially by transcript and written commenter number, providing the assigned identification number and the commenter or organization where appropriate. This table also lists the accession number for the document containing the specific set of comments and the page number on which the comments begin. Table 6-3 identifies the commenters who sent the NRC mass mailing form letters or who extracted essentially verbatim portions from the form letters. The comments associated with the form letters are identified as being from mass mailing (DMM) letters 1 (DMM-1) through 4 (DMM-4), and these designations rather that the individual signers are used to identify each of the mass mailing comments.

The DMM-1 comments are further divided in the list (but not in Appendix E) based on the subject line used for the same letter text. Comments using the subject line “Please find an alternative to the North Anna nuclear project” were assigned DMM-1A; those using subject line “Reconsider the Lake Anna Early Site Permit” were assigned DMM-1B; and those using the subject line “No nuclear power plant in North Anna” were assigned DMM-1C.

SDEIS Comments

Three tables were developed to facilitate cross referencing comments received on the SDEIS with the associated commenters. Table 6-4 provides a listing of commenters in alphabetical order along with the assigned identifiers for the following:

- ST for verbal transcript comments (received at the August 15, 2006, Public Meeting)
- SW for written comments including those received at the Public Meeting
- SE for e-mailed comments received by the NRC.

Those who provided more than one set of comments are listed multiple times, once for each set of comments. In instances where the commenter or commenters represented an agency or an organization, both the commenter and the agency are listed. Table 6-4 also lists the accession numbers of the public meeting transcript and the individual comment letters and e-mail messages. One petition in support of the ESP was received and is referenced as SW-0009 by the title of the organization identified on the petition.

In Table 6-5, the list is sorted in numerical order by transcript, written, and e-mailed comments followed by the commenter (and organization where appropriate), the accession number, and the comment date.

Table 6-1. Draft EIS Index Arranged Alphabetically, Sorted by Commenter Name

Commenter Name, Organization where specified	Comment Number	Accession Number	Page Number
Jim and Kim Ackerman	DW- 0690	ML051390185	1087
Jean and Bill Ackor	DW- 1037	ML051390190	1747
Michelle Acton	DW- 0474	ML051390179	665
Antje Adams	DW- 0303	ML051390174	310
Jim Adams	DW- 0823	ML051390185	1241
Jim Adams	DT- 0050	ML051390190	2356
Lynn Adams	DW- 0542	ML051390179	765
Roger Adams	DW- 0921	ML051390185	1433
Roger Adams	DW- 0910	ML051390185	1416
Shannon Adams	DW- 1209	ML051390190	2078
Nancy Adamson	DW- 0537	ML051390179	758
Lauren J. Agreela	DW- 0397	ML051390174	405
Felix Aguilar	DW- 0234	ML051390174	241
Felix Aguilar	DW- 0102	ML051390174	102
Linda Alberda	DW- 0754	ML051390185	1153
Martin Albert	DW- 0511	ML051390179	720
Evan Albright	DW- 0201	ML051390174	208
Michael Aleman	DW- 0767	ML051390185	1166
Karla Alfano	DW- 0521	ML051390179	732
John Alge	DW- 1258	ML051390190	2131
Nicole Allard	DW- 0393	ML051390174	401
Michael Allen	DW- 0705	ML051390185	1102
Monica Allen	DW- 0128	ML051390174	128
Monica Allen	DW- 0280	ML051390174	287
Matthew Allenbaugh	DW- 1192	ML051390190	2061
Seamus Allman	DT- 0036	ML051390190	2320
Charles Alvarez	DW- 0235	ML051390174	242
Charles Alvarez	DW- 0048	ML051390174	48
Disamodha Amarasinghe	DW- 0518	ML051390179	727
Dean Amel	DW- 1054	ML051390190	1786
Eleanor Amidon	DW- 0414	ML051390174	445
Revathi Ananthakrishnan	DW- 0717	ML051390185	1114
Corina Anderson	DW- 0205	ML051390174	212
Corina Anderson	DW- 0046	ML051390174	46
Ellen Anderson	DW- 0650	ML051390185	985
Ron Anderson	DW- 0943	ML051390185	1486
Stephen Anderson	DW- 0481	ML051390179	674
Joseph Anthony	DW- 0470	ML051390179	659
Joseph Anthony	DW- 0618	ML051390179	902
Carlton Apperson	DW- 0624	ML051390179	914
Michael Appia	DW- 0696	ML051390185	1093
Joe Apple	DW- 0963	ML051390190	1542
Lee Archard	DW- 0619	ML051390179	905

Commenter Name, Organization where specified	Comment Number	Accession Number	Page Number
Barbara Arcure	DW- 0285	ML051390174	292
William Arguto, U.S. Environmental Protection Agency	DW- 0422	ML051390174	472
William Arguto, U.S. Environmental Protection Agency	DW- 1272	ML051390190	2145
Nancy Asman	DW- 0651	ML051390185	988
Neil Asselin	DW- 0202	ML051390174	209
Neil Asselin	DW- 0064	ML051390174	64
Anjali Athavale	DW- 0603	ML051390179	872
Mark Atkinson	DW- 0955	ML051390185	1520
Mha Atma S. Khalsa	DW- 0738	ML051390185	1136
Rachel Atwood	DW- 0052	ML051390174	52
Peggy Augustus	DW- 0798	ML051390185	1197
Christopher Austin	DW- 1032	ML051390190	1736
Douglas Austin	DW- 1043	ML051390190	1759
Carl Avers	DW- 0471	ML051390179	660
Burt Avery	DW- 0967	ML051390190	1554
Diana Bach	DW- 0802	ML051390185	1201
Dwight Baker	DW- 0645	ML051390179	957
Alex Balboa	DW- 0252	ML051390174	259
Alex Balboa	DW- 0005	ML051390174	5
Jean Balckwood	DW- 1140	ML051390190	1987
Rhea Baldino	DW- 0461	ML051390179	638
Keith Baldwin	DW- 0627	ML051390179	919
Richard H. Ball	DW- 0589	ML051390179	845
Richard Ball	DT- 0021	ML051390190	2273
Wanda S. Ballentine	DW- 0198	ML051390174	204
Wanda S. Ballentine	DW- 0061	ML051390174	61
Ashok Bankley	DW- 0812	ML051390185	1218
Elizabeth Barger	DW- 0556	ML051390179	783
David Barish	DW- 0729	ML051390185	1126
Robert Barnes	DW- 1057	ML051390190	1795
Sherry Barnes	DW- 0131	ML051390174	131
Brenda Barnhart	DW- 0278	ML051390174	285
James Barrett	DW- 1201	ML051390190	2070
Andy Barton	DW- 0865	ML051390185	1327
Lenore Bassett	DW- 0811	ML051390185	1217
Sally Bastian	DW- 0799	ML051390185	1198
Barbara Beck	DW- 0990	ML051390190	1620
Battlefields Sierra Group, Larry Gross	DW- 0444	ML051390179	611
Battlefields Sierra Group, Larry Gross	DW- 0594	ML051390179	855
Mary Bejer	DW- 0123	ML051390174	123
Carrie Bell	DW- 0522	ML051390179	733
Ray Bell	DW- 0321	ML051390174	328
Jill Bender	DW- 1257	ML051390190	2130
Margaret Benfield	DW- 1198	ML051390190	2067
Jaime Bennett	DW- 0986	ML051390190	1608

Commenter Name, Organization where specified	Comment Number	Accession Number	Page Number
Michael Bennett	DW- 0031	ML051390174	31
Michael Bennett	DW- 0208	ML051390174	215
Lesey Bensinger	DW- 0037	ML051390174	37
Gloria Berg	DW- 1002	ML051390190	1653
Laurie Beringer	DW- 1156	ML051390190	2011
Sally Berk	DW- 1180	ML051390190	2049
Rachel Bernatz	DW- 0718	ML051390185	1115
Michael Bernier	DW- 0852	ML051390185	1304
Glen Besa	DW- 0847	ML051390185	1293
Gree Bessette	DW- 0312	ML051390174	319
Sharon Best	DW- 1105	ML051390190	1923
Julie Betterley	DW- 1211	ML051390190	2080
Nate Beuttenmueller	DW- 038	ML051390174	38
Ken Bezilla	DW- 0409	ML051390174	429
Rachana Bhatia	DW- 0380	ML051390174	388
Gretchen Biernot	DW- 0643	ML051390179	953
Dianne Bigler	DW- 1233	ML051390190	2105
Heidi Bilardo	DW- 0989	ML051390190	1617
Sama Bilbao y Leon	DW- 0417	ML051390174	458
Mark Bir	DW- 1204	ML051390190	2073
Angela Black	DW- 1231	ML051390190	2102
Krista Blackwood	DW- 1145	ML051390190	1992
Joe Blaszcak	DW- 1178	ML051390190	2047
Anne Bloomburg	DW- 0453	ML051390179	624
Scott Blossom	DW- 0580	ML051390179	824
Blue Ridge Environmental Defense League, Louis Zeller	DT- 0034	ML051390190	2316
Blue Ridge Environmental Defense League, Louis Zeller	DW- 1163	ML051390190	2025
Audrey Blumeenau	DW- 0096	ML051390174	96
Audrey Blumeenau	DW- 0227	ML051390174	234
Susanna Blunt	DW- 0317	ML051390174	324
Kevin Blythe	DW- 0531	ML051390179	748
Rachel Bobbitt	DW- 0462	ML051390179	639
Carol Bock	DW- 0956	ML051390185	1521
Dan Bodnaruk	DW- 0560	ML051390179	789
Joel Boggan	DW- 1251	ML051390190	2124
Connie Boitano	DW- 0766	ML051390185	1165
David Bokel	DW- 0540	ML051390179	761
Jay Bolan	DT- 0024	ML051390190	2283
Mary Lou Bolas	DW- 1022	ML051390190	1710
Jay R. Bolon	DW- 0190	ML051390174	191
Gina Boltz	DW- 0314	ML051390174	321
Julie Bond	DW- 0804	ML051390185	1203
Julie Bond	DW- 0725	ML051390185	1122
Victoria Bonsignore	DW- 0369	ML051390174	377
David Boone	DW- 0699	ML051390185	1096

Commenter Name, Organization where specified	Comment Number	Accession Number	Page Number
Jean Bordwin	DT- 0055	ML051390190	2460
Eric Borgersen	DW- 0616	ML051390179	899
Elizabeth Borkowski	DW- 0983	ML051390190	1600
Deborah L. Bors	DW- 0193	ML051390174	196
Julie Boswell	DW- 0761	ML051390185	1160
Linda Boswell	DW- 0781	ML051390185	1180
Tom Boughan	DW- 0746	ML051390185	1145
Bill Bourdin	DT- 0011	ML051390190	2240
Lauren Bouyea	DW- 0170	ML051390174	171
Lucy Bovasso	DW- 1186	ML051390190	2055
Jacqueline Bowman	DW- 0492	ML051390179	689
Jamie Bown	DW- 0080	ML051390174	80
Michele Boyd and Joseph P. Malherek, Public Citizen	DW- 0686	ML051390185	1069
Michele Boyd, Public Citizen	DW- 0437	ML051390179	523
Michelle Boyd	DT- 0019	ML051390190	2269
Brianne Boylan	DT- 0035	ML051390190	2319
Brianne Boylan	DW- 0165	ML051390174	165
Katie Boyle	DW- 0813	ML051390185	1219
Carl Brackett	DW- 0379	ML051390174	387
Sean Brady	DW- 0703	ML051390185	1100
Linda Braham	DW- 1085	ML051390190	1879
Katie Brazier	DW- 0906	ML051390185	1412
Margaret Breslau	DW- 0612	ML051390179	887
Jim Brian	DT- 0010	ML051390190	2234
Dennis A. Bried	DW- 0791	ML051390185	1190
Cary Brief	DW- 0180	ML051390174	181
Lindsay Broockman	DW- 1244	ML051390190	2117
Dan Brook	DW- 0274	ML051390174	281
Jimmy Brooks	DW- 1254	ML051390190	2127
Kim Brooks	DW- 0224	ML051390174	231
Steve Brooks	DW- 0997	ML051390190	1640
Benjamin T. Brown	DW- 0829	ML051390185	1251
David E. Brown	DW- 1151	ML051390190	2002
Virginia Brown	DW- 1241	ML051390190	2114
Amoret Bruguiere	DW- 0848	ML051390185	1296
Ann Brummer	DW- 1137	ML051390190	1982
Julie Bruning	DW- 1229	ML051390190	2100
James A. Bryan	DW- 0685	ML051390185	1060
Keith Bryan	DW- 1049	ML051390190	1775
Kelly Bryan	DW- 0960	ML051390190	1533
Jennifer Bryant	DW- 0588	ML051390179	842
Peter Buck	DW- 0929	ML051390185	1452
Peter Buck	DW- 0009	ML051390174	9
Brian Buckley	DT- 0026	ML051390190	2290
Thuy-Vy Bui	DW- 0536	ML051390179	757

Commenter Name, Organization where specified	Comment Number	Accession Number	Page Number
Kyle Bunting	DW- 1060	ML051390190	1804
Debbie Burack	DW- 0209	ML051390174	216
Debbie Burack	DW- 0078	ML051390174	78
Scott Burger	DW- 0977	ML051390190	1584
Kim Burgess	DW- 0204	ML051390174	211
Kim Burgess	DW- 0021	ML051390174	21
Kerry Burkhardt	DW- 0054	ML051390174	54
Kerry Burkhardt	DW- 0203	ML051390174	210
David Burkhart	DW- 0289	ML051390174	296
Mecca Burns	DT- 0062	ML051390190	2475
Mary Burress	DW- 1196	ML051390190	2065
Lori Burris	DW- 1136	ML051390190	1981
Caryl Burtner	DW- 0835	ML051390185	1257
Mark J. Burwinkel	DW- 0946	ML051390185	1495
Carolyn Bushey	DW- 1045	ML051390190	1763
Lisa Butch	DW- 0345	ML051390174	352
Brian Butcher	DW- 0163	ML051390174	163
Brian Butcher	DW- 0392	ML051390174	400
Brian Butcher	DW- 0764	ML051390185	1163
Kirk Butler	DW- 0573	ML051390179	813
Morgan Butler, and Richard A. Parrish, Southern Environmental Law Center	DW- 1122	ML051390190	1958
Roy Butler	DT- 0060	ML051390190	2468
Sarah Byrne	DW- 0647	ML051390179	962
Lori C	DW- 0974	ML051390190	1575
Lori C	DW- 0478	ML050770019	671
Joseph Calhoun	DW- 0697	ML051390185	1094
Whitney Cali	DW- 1101	ML051390190	1913
Stephen Calkins	DW- 0339	ML051390174	346
Susie Callahan	DW- 0841	ML051390185	1275
Paxus Calta	DT- 0005	ML051390190	2220
Paxus Calta	DW- 0114	ML051390174	114
Brigit Campana	DW- 1026	ML051390190	1720
David Campbell	DW- 0895	ML051390185	1393
David Campbell	DW- 0475	ML051390179	666
Kenneth Campbell	DW- 0529	ML051390179	742
Kenneth Campbell	DW- 0527	ML051390179	738
Matthew Campbell	DW- 0505	ML051390179	708
Nancy Campbell	DW- 0398	ML051390174	406
Victoria Campbell	DW- 0115	ML051390174	115
Victoria Campbell	DW- 0216	ML051390174	223
Robert Cannon	DW- 0584	ML051390179	834
Alan Carlson	DW- 0885	ML051390185	1369
Judith Carlson	DW- 0083	ML051390174	83
Nancy Carpenter	DW- 0575	ML051390179	815

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Cindy Carper	DW- 0911	ML051390185	1417
Cindy Carper	DW- 0903	ML051390185	1405
Nell Carr-Young	DW- 0920	ML051390185	1430
Jimmy Carrell	DW- 1041	ML051390190	1755
Sandra Carrubba	DW- 0151	ML051390174	151
Sandra Carrubba	DW- 0384	ML051390174	392
Lynne Carruth	DW- 0882	ML051390185	1360
Ellie Carter	DW- 1112	ML051390190	1944
L. Carter	DW- 0156	ML051390174	156
Yvonne E. Carter	DW- 1206	ML051390190	2075
Bill Casino	DT- 0039	ML051390190	2327
Donna Cassano	DW- 0333	ML051390174	340
Anje Cassel	DW- 1075	ML051390190	1849
Virginia Cassidy	DW- 0099	ML051390174	99
Virginia Cassidy	DW- 0354	ML051390174	361
Alice Catlin	DW- 1015	ML051390190	1689
Michael Cavanaugh	DW- 1256	ML051390190	2129
Joe Cecil	DW- 0517	ML051390179	726
Laura Celestine	DW- 1023	ML051390190	1713
Kevin Chaney	DW- 0450	ML051390179	619
Susan Chappell	DW- 1039	ML051390190	1749
Sue Chase	DT- 0009	ML051390190	2230
Bryan Chauveau	DW- 1239	ML051390190	2112
Todd Chenore	DW- 0803	ML051390185	1202
Eileen and Victor Chieco	DW- 0926	ML051390185	1447
Erin Christiansen	DW- 0751	ML051390185	1150
Pat Churchman	DW- 0958	ML051390185	1527
Richard Churray	DW- 1014	ML051390190	1686
Andrea Cimino	DW- 0387	ML051390174	395
Andrea Cimino	DW- 0094	ML051390174	94
Beth Clark	DW- 0673	ML051390185	1028
Diane Clark	DW- 0562	ML051390179	793
Loralee Clark	DW- 0452	ML051390179	621
Scott Clark	DW- 0838	ML051390185	1266
Dick Clark	DT- 0029	ML051390190	2302
Kirk Clayton	DW- 0755	ML051390185	1154
Kirk Clayton	DW- 0153	ML051390174	153
Audrey Clement	DW- 0463	ML051390179	642
Della Cleve	DW- 0794	ML051390185	1193
Della Cleve	DW- 0672	ML051390185	1025
Marione M. Cobb	DW- 0196	ML051390174	202
Marione M. Cobb	DW- 0744	ML051390185	1143
Merrill Cole	DW- 0033	ML051390174	33
Merrill Cole	DW- 0266	ML051390174	273
Darlene Coleman	DW- 0498	ML051390179	697

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Fletcher Collins	DW- 0490	ML051390179	685
Janet Collins	DW- 0524	ML051390179	735
John Coltrinari	DW- 1217	ML051390190	2088
Commonwealth of Virginia, Office of Environmental Impact Review, Ellie L. Irons	DW- 0439	ML051390179	555
Jennifer Conner	DT- 0023	ML051390190	2282
James Conroy	DW- 0572	ML051390179	812
Peggy Conroy	DW- 0262	ML051390174	269
Dana Cook	DW- 0844	ML051390185	1284
David Cook, Jr.	DW- 0218	ML051390174	225
Sherri Cook	DW- 0876	ML051390185	1346
Christina Copeland	DW- 0533	ML051390179	752
Caryn Corriere	DW- 0771	ML051390185	1170
Caryn Corriere	DW- 0154	ML051390174	154
Caryn Corriere	DW- 0174	ML051390174	175
Domelza Costa	DW- 0318	ML051390174	325
Patrick Costello	DW- 0377	ML051390174	385
Tracy Ann Costello	DW- 1092	ML051390190	1893
Cheryl Costigan	DW- 0385	ML051390174	393
Cheryl Costigan	DW- 0179	ML051390174	180
Bert Courson	DW- 1171	ML051390190	2037
Matthew R. Courter	DW- 1135	ML051390190	1980
John Covey	DW- 0752	ML051390185	1151
Joel Cox	DW- 0566	ML051390179	800
Katrina Cox	DW- 0659	ML051390185	1000
Beth Craig	DW- 0639	ML051390179	944
Mike Craig	DW- 0883	ML051390185	1363
Susie Crate	DW- 1003	ML051390190	1656
Keith Croghan	DW- 0504	ML051390179	705
Amber Crooks	DW- 0245	ML051390174	252
Mark and Sandra Crossler	DW- 1189	ML051390190	2058
Allison Crowell	DW- 0821	ML051390185	1239
John Cruickshank	DT- 0047	ML051390190	2349
Jon Cruickshank	DW- 0886	ML051390185	1370
Steven Culp	DW- 1147	ML051390190	1994
Ryan Cunningham	DW- 0878	ML051390185	1352
Carol Curran	DW- 0784	ML051390185	1183
Julie Curry	DT- 0051	ML051390190	2485
Priya Curtis	DW- 0415	ML051390174	446
Jana Cutler	DT- 0041	ML051390190	2334
Jana Cutlip	DW- 0171	ML051390174	172
Sue D'Onofrio	DW- 0998	ML051390190	1643
Rachael Daigle	DW- 1183	ML051390190	2052
John Daily	DW- 1237	ML051390190	2110
Gerald Dalton	DW- 0298	ML051390174	305

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Jerry Dalton	DW- 0084	ML051390174	84
Kathy Dammarell	DW- 0683	ML051390185	1056
Lyn Darnall	DW- 1093	ML051390190	1896
Beth Davies	DW- 0810	ML051390185	1216
Laura Davimes	DW- 1011	ML051390190	1679
Andrew Davis	DW- 1224	ML051390190	2095
Jennifer Davis	DW- 0582	ML051390179	830
John Davis	DW- 0912	ML051390185	1418
Ryan Davis	DW- 0008	ML051390174	8
Ryan Davis	DW- 0290	ML051390174	297
Susan Davis	DW- 0477	ML051390179	670
Thomas Alex Davis	DW- 0408	ML051390174	428
Teresa Dawson	DW- 0605	ML051390179	876
Donald Day	DT- 0002	ML051390190	2337
Elena Day	DW- 0164	ML051390174	164
Elena Day	DT- 0042	ML051390190	2339
Kathy Day	DW- 0611	ML051390179	886
Carol DeAntoni	DW- 0135	ML051390174	135
Brian Deasy	DW- 0640	ML051390179	947
Jerome Decker	DW- 1120	ML051390190	1956
D. D. Delaney	DW- 0877	ML051390185	1349
Stephen Dell'Aria	DW- 0655	ML051390185	992
Diane Dennette-Shaw	DW- 1059	ML051390190	1801
Tom Dennison	DW- 0464	ML051390179	645
Chad Derosier	DW- 0282	ML051390174	289
Martha Desrosiers	DW- 0495	ML051390179	692
M. L. Devore	DW- 1078	ML051390190	1858
Ed Dewitt	DW- 0028	ML051390174	28
Richard Diamond	DT- 0013	ML051390190	2245
Marcia Dickinson	DW- 0681	ML051390185	1050
Charlote Diedrich	DW- 0948	ML051390185	1501
Pat Dietch	DW- 0514	ML051390179	723
Sama Dilbaoy Leon	DT- 0025	ML051390190	2286
Robin Dina	DW- 1252	ML051390190	2125
Lorna Doering	DW- 0693	ML051390185	1090
Gregory Doggett	DW- 0896	ML051390185	1396
Gregory Doggett	DW- 0544	ML051390179	767
Karin Doggett	DW- 0526	ML051390179	737
Dominion Nuclear North Anna, LLC, Eugene Grecheck	DW- 0423	ML051390174	476
Dominion Nuclear North Anna, LLC, Eugene Grechek	DT- 0004	ML051390190	2215
Anne Donley	DW- 0994	ML051390190	1631
Jennifer Doob	DW- 0727	ML051390185	1124
Jennifer Doob	DW- 0134	ML051390174	134
Carolyn Doswell	DW- 0178	ML051390174	179
Cathy Douthit	DW- 0407	ML051390174	427

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Fred Dove	DW- 0866	ML051390185	1330
Ray Dribble	DT- 0003	ML051390190	2207
Claudia Duffy	DW- 0776	ML051390185	1175
Matt Duffy	DW- 0969	ML051390190	1560
Katy Duke	DW- 1218	ML051390190	2089
John Dukovich	DW- 0868	ML051390185	1332
Mary Dunbar	DW- 0950	ML051390185	1505
David Dunkleberger	DW- 1267	ML051390190	2140
Stephen Dunne	DW- 0010	ML051390174	10
Renee Duprey	DW- 0217	ML051390174	224
Andrew Dzikiewicz	DW- 0879	ML051390185	1355
Gordon Early	DW- 1143	ML051390190	1990
Buddy East	DW- 1071	ML051390190	1837
Khaalen East	DW- 0069	ML051390174	69
Khaalen East	DW- 0355	ML051390174	362
Laura East	DW- 0667	ML051390185	1014
Lorah East	DW- 0563	ML051390179	796
Constantina Economou	DW- 0534	ML051390179	755
Joseph Edwards	DW- 0931	ML051390185	1456
Ron Edwards	DW- 1006	ML051390190	1665
Robert Egbert	DW- 1097	ML051390190	1905
Liz Ehrich	DW- 0601	ML051390179	866
Patricia Eichenberger	DW- 1102	ML051390190	1916
Patricia Eichenberger	DW- 0449	ML051390179	618
Sandy Eichert	DW- 0073	ML051390174	73
Sandy Eichert	DW- 0207	ML051390174	214
Jim Eldon	DW- 0930	ML051390185	1455
Mark Elliott	DW- 0628	ML051390179	920
Elena Ellis	DW- 0192	ML051390174	195
Thomas Ellis	DW- 0991	ML051390190	1623
Mimi Elrod	DW- 0959	ML051390185	1530
Eliza Beth Engle	DW- 0897	ML051390185	1399
Garrett English	DW- 0884	ML051390185	1366
Joseph O. Erb	DW- 1167	ML051390190	2033
Robyn Erickson	DW- 0609	ML051390179	884
M. Esseltine	DW- 0353	ML051390174	360
Gregory Esteve	DW- 0351	ML051390174	358
Gregory Esteve	DW- 0105	ML051390174	105
Dinda Evana	DW- 0836	ML051390185	1260
Alma Evans	DW- 0347	ML051390174	354
Dinda Evans	DW- 0279	ML051390174	286
Jeanne and John Evans	DW- 1273	ML051390190	2148
Michael Evans	DW- 070	ML051390174	70
Michael Evans	DW- 0241	ML051390174	248
Devin Evert	DW- 0704	ML051390185	1101

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James Facette	DW- 0326	ML051390174	333
Deborah Fahrner	DW- 0191	ML051390174	192
David Fairman	DW- 0320	ML051390174	327
Marcia Fairman	DW- 1177	ML051390190	2046
Marcia Fairman	DW- 0675	ML051390185	1032
Linda Falkerson	DW- 0981	ML051390190	1594
Leo Fanning	DW- 0442	ML051390179	606
Rebecca Faris	DT- 0018	ML051390190	2257
C. R. Farley	DW- 0648	ML051390179	963
Rebecca Farris	DW- 0861	ML051390185	1318
J. R. Feagin	DW- 0445	ML051390179	614
Ross Feitlinger	DW- 0502	ML051390179	703
Brett Feldman	DW- 0107	ML051390174	107
Brett Feldman	DW- 0291	ML051390174	298
Dale Richard Felker	DW- 0004	ML051390174	4
Dale Richard Felker	DW- 0382	ML051390174	390
Leslie Fellows	DW- 1082	ML051390190	1870
Robert Fener	DW- 0309	ML051390174	316
Joyce and Terry Fernandez	DW- 1259	ML051390190	2132
Elizabeth Field	DW- 0019	ML051390174	19
Zack Fields	DW- 0777	ML051390185	1176
Dough Finkelnburg	DW- 0087	ML051390174	87
Albert Fioretti	DW- 0888	ML051390185	1376
Michael Fish	DW- 0158	ML051390174	158
Joanne Fisher	DT- 0056	ML051390190	2461
Mary Fisher	DW- 1212	ML051390190	2081
Anna Fitzgerald	DW- 0434	ML051390179	509
Kurt Flage	DT- 0049	ML051390190	2353
Catherine Fleischman	DW- 0973	ML051390190	1572
Paul Fleisher	DW- 0800	ML051390185	1199
Bruce Flinchum	DW- 1245	ML051390190	2118
RaVani Flood	DW- 0367	ML051390174	375
Bobbie Dee Flowers	DW- 0129	ML051390174	129
Bobbie Dee Flowers	DW- 0343	ML051390174	350
Todd Flowers	DW- 0185	ML051390174	186
Todd Flowers	DT- 0046	ML051390190	2347
Erin Foley	DW- 1174	ML051390190	2040
Scheherazade Folley-Regusters	DW- 0674	ML051390185	1029
Ned Fongemie	DW- 0350	ML051390174	357
Sam Forrest	DT- 0006	ML051390190	2223
Janice Foss	DW- 0082	ML051390174	82
Janice Foss	DW- 0304	ML051390174	311
Ariele Foster	DW- 0512	ML051390179	721
Janet Fotos	DW- 0311	ML051390174	318

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Sue Frankel-Streit	DT- 0037	ML051390190	2323
Sue Franket-Streit	DW- 0168	ML051390174	169
Dorothea Fransson	DW- 0051	ML051390174	51
Dorothea Fransson	DW- 0337	ML051390174	344
Chad Freckmann	DW- 1181	ML051390190	2050
Misha Fredericks	DW- 0547	ML051390179	770
Matthew Freeman	DW- 0617	ML051390179	900
Sarah Craig Freeman	DW- 0630	ML051390179	922
Ariela Friedman	DW- 0362	ML051390174	370
Paul Friedman	DW- 0976	ML051390190	1581
Jeffri Frontz	DW- 0770	ML051390185	1169
Jeffri Frontz	DW- 0111	ML051390174	111
Roberta Froome	DW- 0712	ML051390185	1109
Liz Fuerst	DW- 0213	ML051390174	220
Lisa Fues	DW- 0561	ML051390179	790
K. Kenneth Fujishiro	DW- 0760	ML051390185	1159
Sydney Funsinn	DW- 0758	ML051390185	1157
Brian Gallagher	DW- 0663	ML051390185	1006
Yvonne Garcia	DW- 0532	ML051390179	751
Barbara Gardner	DW- 0980	ML051390190	1591
Mike Garnet	DW- 0372	ML051390174	380
Brandi Gartland	DW- 0293	ML051390174	300
Nancy Gathing,	DW- 1132	ML051390190	1977
Nancy Gathing	DW- 0233	ML051390174	240
Richard L. Geddes	DW- 0441	ML051390179	602
Richard L. Geddes	DW- 0443	ML051390179	607
Richard L. Geddes	DW- 1214	ML051390190	2083
Richard L. Geddes	DW- 0399	ML051390174	407
Nicole Germans	DW- 1000	ML051390190	1647
Elizabeth Gilchrist	DW- 0787	ML051390185	1186
Margaret Gilges	DW- 0467	ML051390179	652
Sarah Gillespie	DW- 0557	ML051390179	784
Sarah Gillespie	DW- 0625	ML051390179	915
Kerry Girardin	DW- 1222	ML051390190	2093
Deke Gliem	DW- 1139	ML051390190	1986
Alan Gold	DW- 1019	ML051390190	1701
Rebecca Golden	DW- 0152	ML051390174	152
Rebecca Golden	DW- 0095	ML051390174	95
Aviv Goldsmith	DW- 0438	ML051390179	537
Aviv Goldsmith	DW- 0649	ML051390179	965
Beth Goldstone	DW- 0055	ML051390174	55
John Golembieski	DW- 0257	ML051390174	264
Robyn Good	DW- 0678	ML051390185	1041
Michael Goodman	DW- 0850	ML051390185	1302
Jesse Gore	DW- 0249	ML051390174	256

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Mary Jane Gore	DW- 0420	ML051390174	469
Mary Gorka	DW- 0570	ML051390179	808
Kay Goss	DW- 1228	ML051390190	2099
Simone Gourguechon	DW- 0150	ML051390174	150
Eric Gracyalny	DW- 1148	ML051390190	1995
Ariel Graham	DW- 0120	ML051390174	120
Ariel Graham	DW- 0394	ML051390174	402
Kimberley Graham	DW- 0138	ML051390174	138
Kathleen Grant	DW- 0740	ML051390185	1138
Mariah Grant	DW- 0859	ML051390185	1314
Terry Grant	DW- 1121	ML051390190	1957
Joanna Gras	DW- 1250	ML051390190	2123
Maurene Gray	DW- 1115	ML051390190	1949
Eugene Grecheck, Dominion Nuclear North Anna, LLC	DW- 0423	ML051390174	476
Eugene Grechek	DT- 0004	ML051390190	2215
Jason J. Green	DW- 0913	ML051390185	1419
Jason J. Green	DW- 0226	ML051390174	233
Paul Greggs	DW- 1110	ML051390190	1938
Probyn Gregory	DW- 0574	ML051390179	814
Larry Gross, Battlefields Sierra Group	DW- 0594	ML051390179	855
Lawrence Gross, Battlefields Sierra Group	DW- 0444	ML051390179	611
Jeffrey Grossman	DW- 0782	ML051390185	1181
Ravi Grover, P. O. Box 802103, Chicago, IL	DW- 0851	ML051390185	1303
Ricky Grubb	DW- 0545	ML051390179	768
Fred Gruber	DT- 0048	ML051390190	2352
Paul Gunter, Nuclear Information Resource Service	DW- 1154	ML051390190	2005
Paul Gunter, Nuclear Information Resource Service	DT- 0040	ML051390190	2330
Britta Gustavson	DW- 1261	ML051390190	2134
Christine Gyovia	DW- 0654	ML051390185	991
Talbott Hagood	DW- 1047	ML051390190	1769
Talbott Hagood	DW- 0901	ML051390185	1403
Kimberly Anne Halizak	DW- 1160	ML051390190	2020
Charles Hall and Adrienne Bodie	DW- 0805	ML051390185	1204
Kathleen Halliburton-Ross	DW- 1166	ML051390190	2030
Rebecca Hamil	DW- 0389	ML051390174	397
Frank Hammond	DW- 0702	ML051390185	1099
Dottie Hampton	DW- 0785	ML051390185	1184
Alicia Hans	DW- 0598	ML051390179	863
Carsten Hansen	DW- 0701	ML051390185	1098
Linda Hanson	DW- 0489	ML051390179	684
Ann Hardy	DW- 0072	ML051390174	72
Christopher Hargrove	DW- 0079	ML051390174	79
R. Michael Harman	DW- 1169	ML051390190	2035
Linda Harrell	DW- 0103	ML051390174	103
Ed Harris	DW- 0753	ML051390185	1152

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Sarah Harris	DW- 0294	ML051390174	301
Sarah Harris	DW- 0122	ML051390174	122
Elizabeth Harshaw	DW- 0546	ML051390179	769
Chris Hartleben	DW- 1129	ML051390190	1972
Lindsay Hawks	DW- 0817	ML051390185	1224
Sue Hayden	DW- 0891	ML051390185	1385
Gina Hayes	DW- 0541	ML051390179	764
Jim Head	DW- 0119	ML051390174	119
Phil Hearne	DW- 0638	ML051390179	941
James Heater	DW- 1263	ML051390190	2136
Jennifer Heavilin	DW- 0108	ML051390174	108
Jennifer Heavilin	DW- 0308	ML051390174	315
Brian Hebeisen	DW- 0743	ML051390185	1142
Brian Hebeisen	DW- 0162	ML051390174	162
Jenny Heberlein	DW- 0819	ML051390185	1237
Flemming Heegaard	DW- 0975	ML051390190	1578
Roselind Heinekamp	DW- 0691	ML051390185	1088
Steven Heinitz	DW- 0396	ML051390174	404
Lillian Henderson	DW- 1063	ML051390190	1813
Holly Hendrickson	DW- 0581	ML051390179	827
Sarah Hepler	DW- 0457	ML051390179	632
Sigrid Hepp-Dax	DW- 1219	ML051390190	2090
Amber Herdez	DW- 1141	ML051390190	1988
Laura Herndon	DW- 0296	ML051390174	303
BettyJean Herner	DW- 0053	ML051390174	53
Jeph Herrin	DT- 0058	ML051390190	2466
David R. Herring	DW- 0403	ML051390174	418
Kristie Hersey	DW- 0586	ML051390179	838
Adrian P. Heymer, Nuclear Energy Institute (NEI)	DW- 0435	ML051390179	511
Jean E. Hiatt	DW- 0653	ML051390185	990
Walter Hill	DW- 0908	ML051390185	1414
Dianne Hinch	DW- 1168	ML051390190	2034
Dianne Hinch	DW- 1162	ML051390190	2022
Mary Hirose	DW- 0117	ML051390174	117
Mary Hirose	DW- 0388	ML051390174	396
Ceri Hitchcock-Hodgson	DW- 1124	ML051390190	1967
Ted Hochstadt	DW- 0902	ML051390185	1404
Mary Hodge	DW- 0520	ML051390179	731
Rita Hodge	DW- 1184	ML051390190	2053
Rebecca Hoeschler	DW- 1208	ML051390190	2077
Brendan Hoffman	DW- 0088	ML051390174	88
Brendan Hoffman	DT- 0016	ML051390190	2252
Lilli Hoffman	DW- 0889	ML051390185	1379
Lilli Hoffman	DW- 0494	ML051390179	691
Christoph Hogger	DW- 1024	ML051390190	1716

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Adrienne Hohenberg	DW- 0277	ML051390174	284
Dee Hoke	DW- 0167	ML051390174	168
Ronald Holberg	DW- 1130	ML051390190	1973
Heidi Holeman	DW- 0089	ML051390174	89
Holy Holily Holian	DW- 1264	ML051390190	2137
Matthew Holland	DW- 0858	ML051390185	1313
Katherine Hollins	DW- 0893	ML051390185	1389
Daniel R. Holmes, Piedmont Environmental Council	DW- 1157	ML051390190	2012
Rdolfo Holz	DW- 0210	ML051390174	217
Daniel Homitz	DW- 1066	ML051390190	1822
Marcia Hoodwin	DW- 0694	ML051390185	1091
Delbert Horn	DT- 0031	ML051390190	2306
Delbert Horn	DW- 1149	ML051390190	1999
Rene Horst	DW- 0361	ML051390174	369
Jacob Hosen	DT- 0061	ML051390190	2473
Susanna Houston	DW- 1173	ML051390190	2039
Jay Howard	DW- 0579	ML051390179	821
John Howard	DW- 1004	ML051390190	1659
Priya Hudson-DiTraglia	DW- 1179	ML051390190	2048
Julie Huff	DW- 0795	ML051390185	1194
Erica Hulstrom	DW- 1113	ML051390190	1947
Janet Hunt	DW- 0922	ML051390185	1436
Mitchell Hunt	DW- 0365	ML051390174	373
Aurora E. Hunter	DW- 1030	ML051390190	1732
Terrace Hutchinson	DW- 0206	ML051390174	213
Brenda Hyson	DW- 0822	ML051390185	1240
Megan Imbert	DW- 1064	ML051390190	1816
Eric Indermuehle	DW- 0371	ML051390174	379
John Ingle	DW- 0313	ML051390174	320
Ellie L. Irons, Commonwealth of Virginia, Office of Environmental Impact Review	DW- 0439	ML051390179	555
Ken Irwin	DW- 0344	ML051390174	351
Ken Irwin	DW- 0104	ML051390174	104
Pamela Irwin	DW- 0937	ML051390185	1468
Melanie Jackson	DW- 0790	ML051390185	1189
Sherelle Jackson	DW- 0626	ML051390179	918
Tom Jackson	DW- 0127	ML051390174	127
Tom Jackson	DW- 0238	ML051390174	245
Toni Jackson	DW- 0680	ML051390185	1047
Boswell Jacqueline	DW- 1001	ML051390190	1650
Alicia Jaffe	DW- 0695	ML051390185	1092
Anne Jameson	DW- 0480	ML051390179	673
Andrew Janicki	DW- 0359	ML051390174	366
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Jean Jearman	DW- 0661	ML051390185	1002
Melody Jeffrey	DW- 1017	ML051390190	1695
Don Jeffries	DW- 0636	ML051390179	937
Beverly Jennings	DW- 0730	ML051390185	1128
Steve Jerbi	DW- 0100	ML051390174	100
Heath Johnso	DW- 0971	ML051390190	1566
Bill Johnson	DW- 0172	ML051390174	173
Brock Johnson	DW- 1123	ML051390190	1966
Candace Johnson	DW- 0057	ML051390174	57
Candace Johnson	DW- 0323	ML051390174	330
Kerry Johnson	DW- 0169	ML051390174	170
Letitia Johnson	DW- 0634	ML051390179	935
Letitia Johnson	DW- 0965	ML051390190	1548
Mark Johnson	DW- 0036	ML051390174	36
Susan Johnson	DW- 0567	ML051390179	801
Vicki Johnson	DW- 0260	ML051390174	267
Anne Johnston	DW- 0788	ML051390185	1187
David Johnston	DW- 0797	ML051390185	1196
Timothy Johnston	DW- 0255	ML051390174	262
Timothy Johnston	DW- 0159	ML051390174	159
Karen Jones Squires	DW- 1091	ML051390190	1892
Lauren Jones	DW- 0578	ML051390179	820
M. A. Jones	DW- 1249	ML051390190	2122
Virginia B. Jordan	DW- 0421	ML051390174	471
James H. Jorgensen	DW- 1150	ML051390190	2001
Kathy Joseph	DW- 0483	ML051390179	676
Cassie Jurasits	DW- 0658	ML051390185	999
Katarzyna	DW- 0299	ML051390174	306
Katarzyna	DW- 0106	ML051390174	106
Andrew Kalukin	DW- 0622	ML051390179	912
Claire Kaplan	DW- 0378	ML051390174	386
Jay Kardan	DW- 0660	ML051390185	1001
Letitia Kashani	DW- 1058	ML051390190	1798
Kat Katsos	DW- 0600	ML051390179	865
Ruth Kaufman	DW- 0602	ML051390179	869
Ferris Kawar	DW- 0256	ML051390174	263
Thomas Kay	DW- 0026	ML051390174	26
Thomas Kay	DW- 0374	ML051390174	382
Nina Keefer	DW- 0097	ML051390174	97
Nina Keefer	DW- 0363	ML051390174	371
Dewey Keeton, III	DW- 1048	ML051390190	1772
Dewey Keeton III	DW- 0904	ML051390185	1408
Susan Keith	DW- 1262	ML051390190	2135
Wayne Kelly	DW- 0375	ML051390174	383

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Sarah Kendall	DW- 0221	ML051390174	228
Sarah Kendall	DW- 0067	ML051390174	67
J. Kennedy	DW- 1203	ML051390190	2072
Mark Kennedy	DW- 1138	ML051390190	1985
Charles Kern	DW- 0571	ML051390179	809
John Kesich	DW- 0824	ML051390185	1245
Diba Khan-Bureau	DW- 0288	ML051390174	295
Clancey Kilcoyne	DW- 0035	ML051390174	35
Pamela Kim	DW- 0460	ML051390179	637
Jane Kimbrough	DW- 0273	ML051390174	280
Jane Kimbrough	DW- 0071	ML051390174	71
Jamie King	DW- 0569	ML051390179	805
Julie Kissel	DW- 0706	ML051390185	1103
Robbin Knapp	DW- 0516	ML051390179	725
Sarah Knorr	DW- 0552	ML051390179	777
Helen Kopp	DW- 0306	ML051390174	313
Kelly Korenak	DW- 0390	ML051390174	398
Dale Krewson	DW- 0269	ML051390174	276
Andrea B. Krochalis	DW- 0985	ML051390190	1605
Andrea B. Krochalis	DW- 0535	ML051390179	756
Samuel Kroiz	DW- 0808	ML051390185	1214
Douglas krueger	DW- 0297	ML051390174	304
Douglas Krueger	DW- 0161	ML051390174	161
Barry Kuhlik	DW- 0867	ML051390185	1331
Christopher Kunkel	DW- 1083	ML051390190	1873
Wendy Kupsaw	DW- 1118	ML051390190	1954
Miriam Kurland	DW- 1144	ML051390190	1991
Robert Kurtz	DW- 0894	ML051390185	1392
Mark Lackey	DW- 0577	ML051390179	819
Kevin Laffey	DW- 0328	ML051390174	335
Kevin Laffey	DW- 0034	ML051390174	34
Bill LaFleur	DW- 0253	ML051390174	260
Pete Lafoillette	DW- 0175	ML051390174	176
Pete Lafoillette	DW- 0768	ML051390185	1167
Pete Lafoillette	DW- 0719	ML051390185	1116
Ken Langslow	DW- 0587	ML051390179	841
Sarah Lanzman	DW- 1074	ML051390190	1846
Patricia Larch	DW- 0093	ML051390174	93
Dorothy Laverdiere	DW- 0455	ML051390179	628
Fred Lavy	DW- 0509	ML051390179	716
Mary Lawrence	DW- 0604	ML051390179	873
Martha Leahy	DW- 0044	ML051390174	44

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Lauren Leake	DW- 0664	ML051390185	1007
David Leavitt	DW- 1127	ML051390190	1970
Dana Leeper	DW- 1116	ML051390190	1950
Matt Legler	DW- 0713	ML051390185	1110
Karen M. Lehman	DW- 1195	ML051390190	2064
Sara Lemmon	DW- 0098	ML051390174	98
David Lenehan	DW- 0436	ML051390179	522
Andrew Leonard	DW- 0015	ML051390174	15
Cornelia Lewis	DW- 0488	ML051390179	683
Cynthia Lewis	DW- 0783	ML051390185	1182
Lena Lewis	DW- 0426	ML051390179	499
Steve Liebowitz	DW- 1170	ML051390190	2036
Stacey Lighfoot	DW- 0027	ML051390174	27
Stacey Lightfoot	DW- 0284	ML051390174	291
Terry Lilley	DT- 0044	ML051390190	2343
Kathi Lindsay	DW- 1191	ML051390190	2060
Michael Loew	DW- 1020	ML051390190	1704
David Longacre	DW- 1044	ML051390190	1762
Tom Loper	DW- 1234	ML051390190	2106
Jonathan Lotz	DW- 0479	ML051390179	672
Rebecca Louis	DW- 0214	ML051390174	221
James Lowestern	DW- 1089	ML051390190	1890
Chrissie Lozano	DW- 0568	ML051390179	802
Isaac Ludwing	DW- 1182	ML051390190	2051
Charlotte Lundemo	DW- 0707	ML051390185	1104
Charlotte Lundemo	DW- 0358	ML051390174	365
Kristy Lutjen	DW- 0914	ML051390185	1420
Joseph R. Lyle	DW- 1235	ML051390190	2107
James P. Lynch	DW- 1095	ML051390190	1900
Maggie	DW- 0404	ML051390174	420
Robert MacDowell	DW- 0637	ML051390179	938
Ivy Main	DW- 0576	ML051390179	818
Arjun Makhijani	DT- 0001	ML051390190	2292
Joseph P. Malherek and Michele Boyd, Public Citizen	DW- 0686	ML051390185	1069
Ben Malloy	DW- 0774	ML051390185	1173
Devan Malore	DW- 0585	ML051390179	837
Mitchell Maness	DW- 0395	ML051390174	403
Mitchell Maness	DW- 0047	ML051390174	47
Mitchell Maness	DW- 0130	ML051390174	130
Louise Mann	DW- 0482	ML051390179	675
Juan Marchini	DW- 1052	ML051390190	1784
Peter and Catherine Marciniak	DW- 0933	ML051390185	1460
Lisa Marshall	DW- 0485	ML051390179	680
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Heather Martin	DW- 0554	ML051390179	779
Rena Martin-Errick	DW- 0614	ML051390179	893
Rena Martin-Errick	DT- 0017	ML051390190	2255
Christina Martinez	DW- 1106	ML051390190	1926
Diana Martz	DW- 1269	ML051390190	2142
James Masters	DW- 0465	ML051390179	648
Carla Mathews	DW- 1260	ML051390190	2133
M. Mathewson	DW- 0126	ML051390174	126
KL Matlock	DW- 0032	ML051390174	32
Thomas Matsuda	DW- 0199	ML051390174	206
Thomas Matsuda	DW- 0060	ML051390174	60
Tyla Matteson	DT- 0038	ML051390190	2325
Tyla Matteson	DW- 0510	ML051390179	717
Elaine Matthew	DW- 0212	ML051390174	219
Annette May	DW- 0606	ML051390179	879
Robert T. May	DW- 1158	ML051390190	2018
Francisco Maya	DW- 0219	ML051390174	226
James Mayes	DW- 1221	ML051390190	2092
Paul Mayhew	DW- 1080	ML051390190	1864
Anne Maziak	DW- 0736	ML051390185	1134
Charlotte McAdams	DW- 1067	ML051390190	1825
Elizabeth McAnally	DW- 0292	ML051390174	299
Clare McBrien	DW- 0793	ML051390185	1192
Lauren McCabe	DW- 0972	ML051390190	1569
Kim McClamroch	DW- 1227	ML051390190	2098
Joe McCloskey	DW- 0549	ML051390179	772
Barney McComas	DW- 0305	ML051390174	312
Lindsey McConnell	DW- 0116	ML051390174	116
John McCoy	DT- 0032	ML051390190	2311
Kris McCradic	DW- 0039	ML051390174	39
Kris McCradic	DW- 0739	ML051390185	1137
Amee McDermott	DW- 0949	ML051390185	1502
Marion McDonald	DW- 0815	ML051390185	1221
Marion McDonald	DW- 0411	ML051390174	441
Marion McDonald	DW- 0814	ML051390185	1220
Wendy McFadden	DW- 0184	ML051390174	185
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Mary Ann McFarland	DW- 0662	ML051390185	1005
Yvonne McGhee	DW- 1055	ML051390190	1789
Mary E. McGilligan	DW- 0386	ML051390174	394
Mary E. McGilligan	DW- 1270	ML051390190	2143
Colleen McGlone	DW- 0307	ML051390174	314
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Anne McGurk	DW- 0459	ML051390179	634
Anne McGurk	DW- 0425	ML051390179	498
Bill McLaughlin	DT- 0059	ML051390190	2467
Beth McLeod	DW- 0833	ML051390185	1255
Jon McMillan	DW- 0934	ML051390185	1461
Tisha McMillan	DW- 0666	ML051390185	1013
Jason McMillen	DW- 0944	ML051390185	1489
Christopher Meder	DW- 0246	ML051390174	253
Kirit Mehta	DW- 0928	ML051390185	1449
Rich Meier	DW- 0909	ML051390185	1415
Margaret Meister	DW- 0486	ML051390179	681
Ana Najera Mendoza	DW- 0014	ML051390174	14
Eric Mens	DW- 0352	ML051390174	359
Jamsin Merida	DW- 0530	ML051390179	745
Nazen Merjian	DW- 0187	ML051390174	188
Nicole Mettler	DW- 0491	ML051390179	686
Jennifer Meyer	DW- 0186	ML051390174	187
Jennifer Meyer	DW- 0831	ML051390185	1253
Marilyn Meyer	DW- 1197	ML051390190	2066
Lillian Mezey	DW- 0827	ML051390185	1249
Anne Mickel	DW- 0633	ML051390179	932
Michael Mihok	DW- 0232	ML051390174	239
Michael Mihok	DW- 0066	ML051390174	66
Kathleen Mikulski	DW- 0059	ML051390174	59
Kathy Mikulski	DW- 0349	ML051390174	356
Cliff Miller	DW- 1088	ML051390190	1888
Dianne Miller	DW- 0763	ML051390185	1162
Glenn Miller	DW- 0711	ML051390185	1108
Griff Miller	DW- 1069	ML051390190	1831
Griff Miller	DW- 0700	ML051390185	1097
Jason Miller	DW- 0887	ML051390185	1373
Ruth Miller	DW- 0689	ML051390185	1086
Susan Emge Milliner	DW- 1038	ML051390190	1748
Stephen Mills	DW- 0473	ML051390179	664
David Mitchell	DW- 0538	ML051390179	759
Lee Mitchell	DW- 0679	ML051390185	1044
Roy Mitchell	DW- 0915	ML051390185	1421
Roy Mitchell	DW- 1013	ML051390190	1683
Tori Mitchell	DW- 1226	ML051390190	2097
Audrey Moeller	DW- 1008	ML051390190	1670
Joe Montague	DT- 0045	ML051390190	2345
Neah Monteiro	DW- 1243	ML051390190	2116
Shaun Mooney	DW- 0558	ML051390179	785
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Kimberly Moreno	DW- 0472	ML051390179	661
John Morgan	DW- 0900	ML051390185	1402
Katherine Morgan	DW- 0620	ML051390179	906
Katherine Morgan	DW- 0508	ML051390179	715
Allison Morris	DW- 0596	ML051390179	859
Elijah Morrison	DW- 1005	ML051390190	1662
Jessica Mottley	DW- 1255	ML051390190	2128
Adrienne Moumin	DW- 0327	ML051390174	334
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Adrienne Moumin	DW- 0074	ML051390174	74
Conway Moy	DW- 0632	ML051390179	929
Allen Muchnick	DW- 0880	ML051390185	1356
Reed Muehlman	DW- 0656	ML051390185	995
Robert Mueller	DW- 0984	ML051390190	1603
Victoria Mullins	DW- 1076	ML051390190	1852
Bill Murphy	DT- 0028	ML051390190	2301
Margaret Murphy	DW- 0898	ML051390185	1400
Shirley Napps	DW- 0731	ML051390185	1129
Michael Neil	DW- 0765	ML051390185	1164
Michael Neil	DW- 0141	ML051390174	141
James Nelson	DW- 0807	ML051390185	1213
Teresa Nemeth	DW- 0966	ML051390190	1551
Pamela Newton	DW- 0938	ML051390185	1471
Vince Newton	DW- 0677	ML051390185	1038
Chris Nicholas	DW- 0503	ML051390179	704
Vicki Nichols Goldstein	DW- 0970	ML051390190	1563
Rael Nidess	DW- 1035	ML051390190	1743
Anne Nielsen	DW- 1062	ML051390190	1810
Evelyne Noel	DW- 0405	ML051390174	425
Evelyne Noel	DW- 0197	ML051390174	203
James M. Nordlund	DW- 1265	ML051390190	2138
Nuclear Energy Institute (NEI), Adrian P. Heymer	DW- 0435	ML051390179	511
Nuclear Information Resource Service, Paul Gunter	DW- 1154	ML051390190	2005
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Jeanne O'Hara	DW- 0953	ML051390185	1514
Margaret O'Keefe	DW- 1155	ML051390190	2010
Julie Obermeyer	DW- 1215	ML051390190	2086
Catherine OBrion	DW- 0907	ML051390185	1413
Robert Oldham	DW- 0832	ML051390185	1254
Jose Maria Olmos	DW- 0688	ML051390185	1085
Thomas Olsen	DW- 0864	ML051390185	1324
Lisa Osborn	DW- 0665	ML051390185	1010
Carla Osborne	DW- 0714	ML051390185	1111

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Amber Ostheimer	DW- 1242	ML051390190	2115
Judith Ostrowski	DW- 0476	ML051390179	667
Jim Oxyer	DW- 0756	ML051390185	1155
Darren Pace and Aaron Eichorst	DW- 0419	ML051390174	467
Rachel Page	DW- 0644	ML051390179	954
Carolynn Pakeltis	DW- 0762	ML051390185	1161
Anjili Pal	DW- 0875	ML051390185	1343
Michelle Palladine	DW- 0086	ML051390174	86
Michelle Palladine	DW- 0264	ML051390174	271
Liz Palmer	DW- 0466	ML051390179	649
Diana C. Parker	DW- 0857	ML051390185	1311
Diana Parker	DW- 0454	ML051390179	627
Floret Parker	DW- 0999	ML051390190	1644
James Parker	DW- 0599	ML051390179	864
Michelle Parker	DW- 0979	ML051390190	1588
Michelle Parker	DW- 1271	ML051390190	2144
Mark Parlette	DW- 0982	ML051390190	1597
Richard A. Parrish and Morgan Butler, Southern Environmental Law Center	DW- 1122	ML051390190	1958
Samuel Parrucci	DW- 1096	ML051390190	1902
Richard Pasichnyk	DW- 0368	ML051390174	376
Rob Pates	DW- 0830	ML051390185	1252
A. Patrick	DW- 0143	ML051390174	143
A. Patrick	DW- 0316	ML051390174	323
Meaghan Patrick	DW- 0215	ML051390174	222
Meaghan Patrick	DW- 0013	ML051390174	13
Cynthia Patterson	DW- 0749	ML051390185	1148
Kalin Patterson	DW- 0750	ML051390185	1149
H. Paul Bigler	DW- 0427	ML051390179	501
Dexter Payne	DW- 0881	ML051390185	1359
Bob Pechman	DW- 0528	ML051390179	739
Bob Peckman	DW- 0780	ML051390185	1179
Robert A. Pedde and Lawrence A. Salomone, Westinghouse Savannah River Co.	DW- 0818	ML051390185	1225
Robert Pedde, President, Westinghouse Savannah River Co.	DW- 0416	ML051390174	447
Sharon Pederslie	DW- 0356	ML051390174	363
Michaelene Pederson	DW- 0671	ML051390185	1024
Lance Pedigo	DW- 1051	ML051390190	1781
Kelle Peeplez	DW- 0759	ML051390185	1158
Tina Pence	DW- 0845	ML051390185	1287
Angela Burnett Penn	DW- 0734	ML051390185	1132
Roberto Perez	DW- 0551	ML051390179	776
France Perlman	DW- 1152	ML051390190	2003

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Emily and Jeremy Peters	DW- 0778	ML051390185	1177
Ron Peterson and Family	DW- 1053	ML051390190	1785
Scott Peterson	DT- 0027	ML051390190	2297
Scott Peterson, NEI	DW- 0668	ML051390185	1017
Connor Petren	DW- 0331	ML051390174	338
Chell D. Pfeffer	DW- 0091	ML051390174	91
Peggy Phan, Minneapolis, MN	DW- 0300	ML051390174	307
Donna Phillips	DW- 0657	ML051390185	996
Scot Phillips	DW- 0259	ML051390174	266
Scott Phillips	DW- 0076	ML051390174	76
Alva Pick	DW- 0364	ML051390174	372
Piedmont Environmental Council, Daniel R. Holmes	DW- 1157	ML051390190	2012
Donna Pienkowski	DW- 0432	ML051390179	506
Donna Pienkowski	DW- 0564	ML051390179	797
Lawrence Pierce	DW- 0458	ML051390179	633
Joseph Pipik	DW- 0418	ML051390174	465
Julie Pitre	DW- 1012	ML051390190	1682
Elaine Plamquist	DW- 0855	ML051390185	1307
Victoria Plummer	DW- 1133	ML051390190	1978
Laura Poisson	DW- 0548	ML051390179	771
Joseph Ponisciak	DW- 1134	ML051390190	1979
Charles Pool	DW- 1010	ML051390190	1676
Jason Pooler	DW- 0853	ML051390185	1305
Sarah Pope	DW- 0222	ML051390174	229
Judy Popelas	DW- 0500	ML051390179	699
Joe Porfert	DW- 1247	ML051390190	2120
Jami Porter Lara	DW- 1187	ML051390190	2056
Caroline Pott	DW- 0265	ML051390174	272
Phyllis Pownall	DW- 1111	ML051390190	1941
Andrew Presgraves	DW- 0590	ML051390179	851
Stephen Proctor	DW- 1056	ML051390190	1792
Linda Prostko	DW- 0745	ML051390185	1144
Linda Prostko	DW- 0113	ML051390174	113
D. Prusik	DW- 1025	ML051390190	1719
Barbara Pryor	DW- 1086	ML051390190	1882
Cindy Pryor	DW- 1034	ML051390190	1740
Public Citizen, Michele Boyd and Joseph P. Malherek	DW- 0686	ML051390185	
Blake Puhak	DW- 0842	ML051390185	1278
Brian Quam	DW- 0940	ML051390185	1477
Leah Quam	DW- 0952	ML051390185	1511
Abigail Quesinberry	DW- 0916	ML051390185	1422
Jill Quick	DW- 1119	ML051390190	1955
Robin Rabens	DW- 1238	ML051390190	2111
Juliana Radloff	DW- 0724	ML051390185	1121

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Karen Rakes	DW- 0899	ML051390185	1401
Leah Rampy	DW- 1061	ML051390190	1807
Jill Ramson	DW- 1188	ML051390190	2057
David Randall	DW- 0142	ML051390174	142
Dee Randolph	DW- 0716	ML051390185	1113
Robert Rapice	DW- 0519	ML051390179	730
Aislynn Raymond	DW- 0507	ML051390179	712
Patricia Raynor	DW- 0741	ML051390185	1139
Nancy Re	DW- 0493	ML051390179	690
Mark Reback	DW- 0200	ML051390174	207
Mark Reback	DW- 1103	ML051390190	1919
Mark Reback	DW- 0109	ML051390174	109
Michaela Redden	DW- 1164	ML051390190	2028
Sherley Redding	DW- 0428	ML051390179	502
Sherley Redding	DW- 1104	ML051390190	1920
Audrey J. Reed	DW- 1216	ML051390190	2087
Ben Reed	DW- 0340	ML051390174	347
Ben Reed	DW- 0058	ML051390174	58
Billie Reed	DW- 1266	ML051390190	2139
Mark Reif	DW- 0513	ML051390179	722
Joshua Rellick	DW- 0615	ML051390179	896
Kenneth Remmers, Waterside Property Owners of Lake Anna	DW- 0806	ML051390185	1206
Kenneth Remmers, Waterside Property Owners of Lake Anna	DW- 0400	ML051390174	411
Charles Rettinger	DW- 0720	ML051390185	1117
Helen R. Reutlinger	DW- 0834	ML051390185	1256
Robert Rexroat	DW- 0430	ML051390179	504
Robert Rexroat	DW- 0412	ML051390174	443
Kirk Rhoads	DW- 0250	ML051390174	257
Kirk Rhoads	DW- 0075	ML051390174	75
Carlon Ribbins	DW- 0332	ML051390174	339
Jim Riccio	DT- 0033	ML051390190	2313
Ron Richards	DW- 0229	ML051390174	236
Ron Richards	DW- 0007	ML051390174	7
William Richards	DW- 0448	ML051390179	617
Carmen Rico	DW- 0286	ML051390174	293
Emily Rieber	DW- 0391	ML051390174	399
Kelly Riley	DW- 0240	ML051390174	247
Kelly Riley	DW- 0011	ML051390174	11
Margaret Roach	DW- 0591	ML051390179	852
Keegan Roberson	DW- 0324	ML051390174	331
John Mark Roberton	DW- 0263	ML051390174	270

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Jon Roberts	DW- 0248	ML051390174	255
Phillip Rockey	DW- 0062	ML051390174	62
Ann Rogers	DW- 1029	ML051390190	1729
Marliss Rogers	DW- 0383	ML051390174	391
Ruthann Roka	DW- 1142	ML051390190	1989
Darthula Romine	DT- 0054	ML051390190	2459
Heidi Rood	DW- 0029	ML051390174	29
Carol Rose	DW- 0496	ML051390179	693
Cheryl Rosenfeld	DW- 0338	ML051390174	345
Stewart Rosenkrantz	DW- 0230	ML051390174	237
Stewart Rosenkrantz	DW- 0024	ML051390174	24
Jerry Rosenthal	DT- 0015	ML051390190	2250
Guy Ross	DW- 1094	ML051390190	1897
David Roth	DW- 0870	ML051390185	1334
Gregory Rouse	DW- 1161	ML051390190	2021
Kira Routh	DW- 0840	ML051390185	1272
Virginia Rovnyak	DT- 0022	ML051390190	2278
Virginia Rovnyak	DW- 0410	ML051390174	430
Ronald Russillo	DW- 1210	ML051390190	2079
Robert Rutkowski	DW- 0006	ML051390174	6
Robert Rutkowski	DW- 0919	ML051390185	1429
Linda Safley	DW- 0177	ML051390174	178
Joanna Salidis	DW- 0792	ML051390185	1191
Michelle Salisbury	DW- 0854	ML051390185	1306
Sherry Salomon	DW- 0329	ML051390174	336
Anthony Sanchez	DW- 0085	ML051390174	85
Helen Sanders	DW- 0684	ML051390185	1057
Richard Sanders	DW- 1202	ML051390190	2071
Maritza Santana	DW- 0342	ML051390174	349
Roger P. Santerre	DW- 0927	ML051390185	1448
Leonardo Sarli	DW- 0635	ML051390179	936
Leonardo Sarli	DW- 0964	ML051390190	1545
Chris Saunders	DW- 1199	ML051390190	2068
Thomas Savage	DW- 1108	ML051390190	1932
Rosemarie Sawdon	DW- 0506	ML051390179	709
Rosemarie Sawdon	DW- 0801	ML051390185	1200
Rosemarie Sawdon	DW- 0652	ML051390185	989
Rosemarie Sawdon	DW- 0641	ML051390179	948
Noah Scalin	DW- 0843	ML051390185	1281
William and Nedra Scarrow	DW- 1009	ML051390190	1673
Sarah Schaefer	DW- 1165	ML051390190	2029
Rebecca Schild	DW- 0319	ML051390174	326
Kerry Schindl	DW- 0692	ML051390185	1089
Keith Schlesinger	DW- 0194	ML051390174	197
Arthur Schmidt	DW- 0447	ML051390179	616

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Tavis Schmidt	DW- 0133	ML051390174	133
Tavis Schmidt	DW- 0722	ML051390185	1119
Kelly Schneider	DW- 0357	ML051390174	364
Paul Schneller	DW- 0341	ML051390174	348
Mark Schnider	DW- 1220	ML051390190	2091
Kurt Schroeder	DW- 0837	ML051390185	1263
Linda Schweppe	DW- 0223	ML051390174	230
Robert Seltzer	DW- 0220	ML051390174	227
Diana Sette	DW- 0144	ML051390174	144
Diana Sette	DW- 0742	ML051390185	1141
John Sexson	DW- 0553	ML051390179	778
Charles Seyffer	DW- 1018	ML051390190	1698
Erika Shamo	DW- 0148	ML051390174	148
Erika Shamo	DW- 0295	ML051390174	302
Andrea Shandor	DW- 0905	ML051390185	1409
Tim Shank	DW- 0607	ML051390179	880
David Shantz	DW- 0993	ML051390190	1629
Michael Shapiro	DW- 1040	ML051390190	1752
Kimberley Sharp	DW- 0769	ML051390185	1168
Elaine Shaw	DW- 0402	ML051390174	416
Janis Shaw	DW- 1193	ML051390190	2062
Jason Shawn	DW- 0523	ML051390179	734
John Shea	DW- 0597	ML051390179	862
Lisa Shell	DT- 0020	ML051390190	2267
Lisa Shell	DW- 0863	ML051390185	1320
Judith Shematek	DW- 0501	ML051390179	702
Judith Shematek	DW- 0302	ML051390174	309
Judith Shematek	DW- 0613	ML051390179	890
Sarah Sherwood Litchfield	DW- 0188	ML051390174	189
Jone Shilliday	DW- 0846	ML051390185	1290
Mandy Shipler	DW- 0189	ML051390174	190
Charlotte Shnaider	DW- 0789	ML051390185	1188
Denise Shreeve	DW- 0631	ML051390179	926
Elizabeth Shuey	DW- 1223	ML051390190	2094
Jean Sideris	DW- 0001	ML051390174	1
Suzanne Sievers-Bartlett	DW- 0726	ML051390185	1123
Chandra Sigmund	DW- 0003	ML051390174	3
Mr. and Mrs. John Silver	DW- 0682	ML051390185	1053
Seth Silverman	DW- 0139	ML051390174	139
Seth Silverman	DW- 0346	ML051390174	353
Jamie Simo	DW- 0670	ML051390185	1022
Jane Simpson	DW- 0924	ML051390185	1442
Sally Simpson	DW- 0043	ML051390174	43
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Stephanie Sims	DW- 0281	ML051390174	288

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Barbara Singer	DW- 0728	ML051390185	1125
Barbara Singer	DW- 0068	ML051390174	68
Robert Singleterry	DW- 0360	ML051390174	367
Robert Singleterry	DT- 0043	ML051390190	2341
Silja Sistok-Katz	DW- 0451	ML051390179	620
Silja Sistok-Katz	DW- 0839	ML051390185	1269
Shelly and Sid Sitzer	DW- 0413	ML051390174	444
Shelly and Sid Sitzer	DW- 0816	ML051390185	1223
Shelly Sitzer	DW- 0433	ML051390179	507
Sue Sjolin	DW- 0030	ML051390174	30
Hannah Sk	DW- 0941	ML051390185	1480
Kate Skolnick	DW- 0176	ML051390174	177
Maya Skopal	DW- 0996	ML051390190	1637
Richard Sloan	DW- 0555	ML051390179	782
Ben Sloane	DT- 0014	ML051390190	2246
Shaun Smakal	DW- 0315	ML051390174	322
William Small	DT- 0063	ML051390190	2463
Gene Smith	DW- 0583	ML051390179	833
Jennifer Smith	DW- 1087	ML051390190	1885
John Patrick Smith	DW- 0828	ML051390185	1250
Kevin Smith	DW- 0592	ML051390179	853
Saron Smith	DW- 0310	ML051390174	317
Sharon Smith	DW- 0118	ML051390174	118
Chelsea Snelgrove	DW- 0110	ML051390174	110
Chelsea Snelgrove	DW- 0270	ML051390174	277
Pamelynn Snell	DW- 1079	ML051390190	1861
Amanda Snyder	DW- 0002	ML051390174	2
Kelly Snyder	DW- 1098	ML051390190	1908
Kelly Snyder	DW- 0525	ML051390179	736
Ron Sokol	DW- 0484	ML051390179	677
Dina Sorensen	DW- 0733	ML051390185	1131
Patricia Soriano	DW- 1070	ML051390190	1834
Yvonne Sorovacu	DW- 1131	ML051390190	1974
Lucy Sotar	DW- 1042	ML051390190	1758
Southern Environmental Law Center, Morgan Butler and Richard A. Parrish	DW- 1122	ML051390190	1958
Valerie Soza	DW- 0276	ML051390174	283
Valerie Soza	DW- 0016	ML051390174	16
Chris Spahn	DW- 0723	ML051390185	1120
Nancy Spears	DW- 0715	ML051390185	1112
Nancy Spears	DW- 0157	ML051390174	157
Nancy Spears	DW- 0023	ML051390174	23
Nancy Spears	DW- 0287	ML051390174	294
Karen Spencer	DW- 1117	ML051390190	1953

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Marina Spitkovskaya	DW- 0336	ML051390174	343
Marina Spitkovskaya	DW- 0056	ML051390174	56
Richard Spotts	DW- 0243	ML051390174	250
Richard Spotts	DW- 0050	ML051390174	50
Richard Spotts	DW- 1114	ML051390190	1948
Chris Stafford	DW- 1033	ML051390190	1737
Edgar Stahl	DW- 0710	ML051390185	1107
Marlene Stanley	DW- 0236	ML051390174	243
Michaela Starrett	DW- 1246	ML051390190	2119
Shauna Steigerwald	DW- 1213	ML051390190	2082
Paul Stenbjorn	DW- 0446	ML051390179	615
Mary Steponkus	DW- 0962	ML051390190	1539
Rachael Sterlin	DW- 0698	ML051390185	1095
Catherine Stevens	DW- 1190	ML051390190	2059
Douglas Stewart	DW- 0593	ML051390179	854
Katie Stif	DW- 0957	ML051390185	1524
Paula Stober	DW- 0251	ML051390174	258
Mia Stollenwerk	DW- 0709	ML051390185	1106
Jem Stone	DW- 0621	ML051390179	909
Gary Stoner	DW- 0550	ML051390179	775
Karen Stout	DW- 1205	ML051390190	2074
Heather Strachan	DW- 0646	ML051390179	959
Adrienne Strandberg	DW- 1068	ML051390190	1828
Agnes Stringfellow	DW- 0987	ML051390190	1611
Melissa Strobel	DW- 0995	ML051390190	1634
Michael Stuart	DW- 0820	ML051390185	1238
Judy Stufflebeam	DW- 1125	ML051390190	1968
Robert Stumm	DW- 0406	ML051390174	426
Katie Stump	DW- 0872	ML051390185	1336
John Sukovich	DW- 1099	ML051390190	1911
Alice Sullivan	DW- 1126	ML051390190	1969
Barbara Sullivan	DW- 1232	ML051390190	2103
Steve Summers	DW- 0042	ML051390174	42
Steve Summers	DW- 0231	ML051390174	238
Daniel Sumrall	DW- 1065	ML051390190	1819
Nida Sun	DW- 0376	ML051390174	384
Christian Sund	DW- 0468	ML051390179	655
M. Sundy	DW- 1016	ML051390190	1692
Dawn Surowski	DW- 0708	ML051390185	1105
Emanuel Suter	DW- 0939	ML051390185	1474
Josh Swartzbaugh	DW- 0809	ML051390185	1215
Shannon Sweeney	DW- 1146	ML051390190	1993
Judy Szeman	DW- 0968	ML051390190	1557
Cynthia Tapley	DW- 1225	ML051390190	2096
Heather Taplin	DW- 0687	ML051390185	1084

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Lynn Tarek	DW-	0137	ML051390174	137
Suzanne Tarr	DW-	0936	ML051390185	1465
Kristin Taverna	DW-	0401	ML051390174	415
Leslie Tawnamaia	DW-	0773	ML051390185	1172
Kelly L. Taylor	DW-	0826	ML051390185	1248
Bill R. Teer	DW-	1248	ML051390190	2121
Joe Terry	DW-	1109	ML051390190	1935
Pat Therrien	DW-	0918	ML051390185	1426
Abayha Thiel	DT-	0007	ML051390190	2226
Abhaya Thiele	DW-	0182	ML051390174	183
Abhaya Thiele	DW-	0183	ML051390174	184
Abhaya Thiele	DW-	1176	ML051390190	2044
Joanne M. Thiele	DW-	0874	ML051390185	1340
Pablo Thomason	DW-	0676	ML051390185	1035
Virginia M. Thull	DW-	0431	ML051390179	505
Matthew Tiffault	DW-	0325	ML051390174	332
Don Timmerman, Roberta Thurstin	DW-	1100	ML051390190	1912
Hollis Toal	DW-	0145	ML051390174	145
Julio Torres	DW-	0101	ML051390174	101
Nicole Totino	DW-	0348	ML051390174	355
Andrew Town	DW-	0595	ML051390179	858
William G. Tresky	DW-	0429	ML051390179	503
Jason Trew	DW-	0539	ML051390179	760
Jason Trew	DW-	0244	ML051390174	251
Gail Troy	DW-	0195	ML051390174	199
Chip Tucker	DW-	0825	ML051390185	1246
Ingrid Turner	DW-	0440	ML051390179	601
Willis Turner	DW-	0961	ML051390190	1536
Norman B. Tweed, Jr.	DW-	1007	ML051390190	1668
Anne Tyrrell	DW-	1077	ML051390190	1855
Joseph Tyrrell	DW-	0892	ML051390185	1386
Kris Unger	DW-	0373	ML051390174	381
Kris Unger	DW-	0871	ML051390185	1335
Howard Urbach	DW-	1027	ML051390190	1723
U.S. Environmental Protection Agency, William Arguto	DW-	0422	ML051390174	472
Betty J. Van Wicklen	DW-	0748	ML051390185	1147
Sara Van Buren	DW-	0381	ML051390174	389
Felicia VanderBranden	DW-	1268	ML051390190	2141
Kevin Vaught	DW-	0041	ML051390174	41
Kevin Vaught	DW-	0239	ML051390174	246
Yvonne Vecchia	DW-	1240	ML051390190	2113
Asa Vegodski	DT-	0008	ML051390190	2228
Eve Venema	DW-	0721	ML051390185	1118
Eve Venema	DW-	0147	ML051390174	147
Joetta Venneman	DW-	0932	ML051390185	1459

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Jan Vinegar	DW- 0849	ML051390185	1299
Ann Volk	DW- 1253	ML051390190	2126
Anna Von Gehr	DW- 0775	ML051390185	1174
Katrina Von Briesen	DW- 0456	ML051390179	629
John Votta	DW- 0757	ML051390185	1156
Sandra Wagner	DW- 0081	ML051390174	81
Bryan L. Wagoner	DW- 0623	ML051390179	913
Laura Walters	DW- 0247	ML051390174	254
Martha Waltman	DW- 0045	ML051390174	45
Martha Waltman	DW- 0237	ML051390174	244
Timothy D. Wampler	DW- 0935	ML051390185	1464
Claire Ward	DW- 1081	ML051390190	1867
Erin Ward	DW- 0988	ML051390190	1614
Sheila Ward	DW- 0090	ML051390174	90
Sheila Ward	DW- 0322	ML051390174	329
Sheila Ward	DW- 1230	ML051390190	2101
Cassandra Warren	DW- 1236	ML051390190	2109
Waterside Property Owners of Lake Anna, Kenneth Remmers	DW- 0806	ML051390185	1206
Waterside Property Owners of Lake Anna, Kenneth Remmers	DW- 0400	ML051390174	411
Randal and Donna Watkins	DW- 0181	ML051390174	182
Robin Watkins	DW- 0629	ML051390179	921
Claire Watson	DW- 0747	ML051390185	1146
Claire Watson	DW- 0146	ML051390174	146
Claire Watson	DW- 0065	ML051390174	65
Claire Watson	DW- 0268	ML051390174	275
Cheryl Weber	DW- 0469	ML051390179	656
Adam Weesner	DW- 1185	ML051390190	2054
Michaela Wehner	DW- 0862	ML051390185	1319
J. Weikert	DW- 0951	ML051390185	1508
Tom Weis	DW- 0947	ML051390185	1498
Joanna F. Welch	DW- 0228	ML051390174	235
Joanna F. Welch	DW- 0092	ML051390174	92
Kristina Weller	DW- 0334	ML051390174	341
Donna Wellman	DW- 0499	ML051390179	698
Catherine Welsh	DW- 0925	ML051390185	1445
Jane Wentworth	DW- 1090	ML051390190	1891
Westinghouse Savannah River Co., Robert A. Pedde and Lawrence A. Salomone	DW- 0818	ML051390185	1225
President, Westinghouse Savannah River Co., Robert Pedde	DW- 0416	ML051390174	447
Jared Wetherington	DW- 0543	ML051390179	766
Alice Whealin	DW- 1021	ML051390190	1707
Joe Whetstone	DW- 0873	ML051390185	1339

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Eric White	DW- 1107	ML051390190	1929
Lily Whitesell	DW- 0942	ML051390185	1483
Doris Whitfield	DW- 0642	ML051390179	950
Vernon and Carol Whitney	DW- 1172	ML051390190	2038
Betty.Van Wicklen	DW- 0025	ML051390174	25
David Wilcox	DW- 0275	ML051390174	282
James Wilcox	DW- 0515	ML051390179	724
Brenda Wiley	DW- 0610	ML051390179	885
Craig Williams	DW- 0254	ML051390174	261
David Williams	DW- 0173	ML051390174	174
Marilyn Williams	DW- 0012	ML051390174	12
Martha Williams	DW- 0860	ML051390185	1317
Paul Williams	DW- 0211	ML051390174	218
Paul Williams	DW- 0121	ML051390174	121
Richard H. Williams	DW- 0242	ML051390174	249
Barbara Williamson	DW- 1050	ML051390190	1778
Ryan Williamson	DW- 1028	ML051390190	1726
Sandra Williamson	DW- 0166	ML051390174	167
Craig Willimas	DW- 0155	ML051390174	155
Ken Willis	DW- 0608	ML051390179	881
Alisha Wilson	DW- 1175	ML051390190	2043
Amy Wilson	DW- 0330	ML051390174	337
Beka Wilson	DW- 0020	ML051390174	20
Bill Wilson	DW- 0370	ML051390174	378
Brian Wilson	DW- 0954	ML051390185	1517
Susan Wilson	DW- 0917	ML051390185	1423
Dawn Winalski	DW- 0732	ML051390185	1130
Dawn Winalski	DW- 0018	ML051390174	18
Sean Winkel	DW- 1200	ML051390190	2069
Sarah Wise	DW- 0869	ML051390185	1333
Sarah Wise	DW- 1072	ML051390190	1840
Marsha Withers	DW- 0890	ML051390185	1382
Katie Wolf	DW- 0149	ML051390174	149
Adel Wood	DT- 0012	ML051390190	2244
Adele Wood	DW- 0669	ML051390185	1021
Barbara L. Wood	DW- 0225	ML051390174	232
Barbara L. Wood	DW- 0040	ML051390174	40
Susannah Wood	DW- 0779	ML051390185	1178
Michael Woodbridge	DW- 1084	ML051390190	1876
Ann Woodlief	DW- 0978	ML051390190	1587
Judy Woods	DW- 1159	ML051390190	2019
Mary H. Woodward	DW- 0301	ML051390174	308
Frank Worshek	DW- 0796	ML051390185	1195
Sharon Wright	DW- 1153	ML051390190	2004
Warren Wright	DW- 0271	ML051390174	278

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Warren Wright	DW- 0063	ML051390174	63
Zaahira Wyne	DW- 0497	ML051390179	694
Jowita Wysocka	DW- 0992	ML051390190	1626
Suzanne Yeaman	DW- 0856	ML051390185	1308
Ana Yong Soler	DW- 0737	ML051390185	1135
Linda York	DW- 0112	ML051390174	112
Linda York	DW- 0735	ML051390185	1133
Stasi York	DW- 0565	ML051390179	799
Stasi York	DW- 1046	ML051390190	1766
Coleen Zahnke	DW- 0786	ML051390185	1185
K. Zalewski	DW- 0160	ML051390174	160
Sara Zaza	DW- 1073	ML051390190	1843
Lou Zeller, Blue Ridge Environmental Defense League	DT- 0034	ML051390190	2316
Louis Zeller, Blue Ridge Environmental Defense League	DW- 1163	ML051390190	2025
James Zinck	DW- 1036	ML051390190	1744
James Zizzo	DW- 1128	ML051390190	1971
Alison Zyla	DW- 1194	ML051390190	2063
North American Youth Generation in Nuclear Petition Signers	DT- 0052	ML051390190	2360
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DT-2	Donald Day	Public Meeting (2/17/05)	ML050750309	--
DT-3	Ray Dribble	Public Meeting (2/17/05)	ML050750309	--
DT-4	Gene Grecheck, Dominion Nuclear North Anna, LLC	Public Meeting (2/17/05)	ML050750309	--
DT-5	Paxus Calta	Public Meeting (2/17/05)	ML050750309	--
DT-6	Sam Forrest	Public Meeting (2/17/05)	ML050750309	--
DT-7	Abayha Thiel	Public Meeting (2/17/05)	ML050750309	--
DT-8	Asa Vegodski	Public Meeting (2/17/05)	ML050750309	--
DT-9	Sue Chase	Public Meeting (2/17/05)	ML050750309	--
DT-10	Jim Bryan	Public Meeting (2/17/05)	ML050750309	--
DT-11	Bill Bourdin	Public Meeting (2/17/05)	ML050750309	--
DT-12	Adel Wood	Public Meeting (2/17/05)	ML050750309	--
DT-13	Richard Diamond	Public Meeting (2/17/05)	ML050750309	--
DT-14	Ben Sloane	Public Meeting (2/17/05)	ML050750309	--
DT-15	Jerry Rosenthal	Public Meeting (2/17/05)	ML050750309	--
DT-16	Brendan Hoffman	Public Meeting (2/17/05)	ML050750309	--
DT-17	Rena Martin-Errick	Public Meeting (2/17/05)	ML050750309	--
DT-18	Rebecca Faris	Public Meeting (2/17/05)	ML050750309	--
DT-19	Michele Boyd	Public Meeting (2/17/05)	ML050750309	--

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DT-21	Richard Ball	Public Meeting (2/17/05)	ML050750309	--
DT-22	Virginia Robnyak	Public Meeting (2/17/05)	ML050750309	--
DT-23	Jennifer Conner	Public Meeting (2/17/05)	ML050750309	--
DT-24	Jay Bolan	Public Meeting (2/17/05)	ML050750309	--
DT-25	Sama Bilbao y Leon	Public Meeting (2/17/05)	ML050750309	--
DT-26	Brian Buckley	Public Meeting (2/17/05)	ML050750309	--
DT-27	Scott Peterson	Public Meeting (2/17/05)	ML050750309	--
DT-28	Bill Murphy	Public Meeting (2/17/05)	ML050750309	--
DT-29	Dick Clark	Public Meeting (2/17/05)	ML050750309	--
DT-30	Unidentified speaker	Public Meeting (2/17/05)	ML050750309	--
DT-31	Delbert Horn	Public Meeting (2/17/05)	ML050750309	--
DT-32	John McCoy	Public Meeting (2/17/05)	ML050750309	--
DT-33	Jim Riccio	Public Meeting (2/17/05)	ML050750309	--
DT-34	Lou Zeller, Blue Ridge Environmental Defense League	Public Meeting (2/17/05)	ML050750309	--
DT-35	Brianne Boylan	Public Meeting (2/17/05)	ML050750309	--
DT-36	Seamus Allman	Public Meeting (2/17/05)	ML050750309	--
DT-37	Sue Frandel-Streit	Public Meeting (2/17/05)	ML050750309	--
DT-38	Tyla Matteson	Public Meeting (2/17/05)	ML050750309	--
DT-39	Bill Casino	Public Meeting (2/17/05)	ML050750309	--
DT-40	Paul Gunter, Nuclear Information Resource Service	Public Meeting (2/17/05)	ML050750309	--
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DW-549	Joe McCloskey	Written comment (02/27/05)	ML051390179	772
DW-550	Gary Stoner	Written comment (02/27/05)	ML051390179	775
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DW-553	John Sexson	Written comment (02/27/05)	ML051390179	778
DW-554	Heather Martin	Written comment (02/27/05)	ML051390179	779
DW-555	Richard Sloan	Written comment (02/27/05)	ML051390179	782
DW-556	Elizabeth Barger	Written comment (02/27/05)	ML051390179	783
DW-557	Sarah Gillespie	Written comment (02/27/05)	ML051390179	784
DW-558	Shaun Mooney	Written comment (02/27/05)	ML051390179	785
DW-559	Shaun Mooney	Written comment (02/27/05)	ML051390179	788
DW-560	Dan Bodnaruk	Written comment (02/27/05)	ML051390179	789
DW-561	Lisa Fues	Written comment (02/27/05)	ML051390179	790
DW-562	Diane Clark	Written comment (02/27/05)	ML051390179	793
DW-563	Lorah East	Written comment (02/27/05)	ML051390179	796
DW-564	Donna Pienkowski	Written comment (02/27/05)	ML051390179	797
DW-565	Stasi York	Written comment (02/27/05)	ML051390179	799
DW-566	Joel Cox	Written comment (02/27/05)	ML051390179	800
DW-567	Susan Johnson	Written comment (02/27/05)	ML051390179	801
DW-568	Chrissie Lozano	Written comment (02/27/05)	ML051390179	802
DW-569	Jamie King	Written comment (02/27/05)	ML051390179	805
DW-570	Mary Gorka	Written comment (02/27/05)	ML051390179	808
DW-571	Charles Kern	Written comment (02/27/05)	ML051390179	809
DW-572	James Conroy	Written comment (02/27/05)	ML051390179	812

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DW-576	Ivy Main	Written comment (02/27/05)	ML051390179	818
DW-577	Mark Lackey	Written comment (02/27/05)	ML051390179	819
DW-578	Lauren Jones	Written comment (02/27/05)	ML051390179	820
DW-579	Jay Howard	Written comment (02/27/05)	ML051390179	821
DW-580	Scott Blossom	Written comment (02/27/05)	ML051390179	824
DW-581	Holly Hendrickson	Written comment (02/27/05)	ML051390179	827
DW-582	Jennifer Davis	Written comment (02/27/05)	ML051390179	830
DW-583	Gene Smith	Written comment (02/27/05)	ML051390179	833
DW-584	Robert Cannon	Written comment (02/27/05)	ML051390179	834
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DW-592	Kevin Smith	Written comment (02/28/05)	ML051390179	853
DW-593	Douglas Stewart	Written comment (02/28/05)	ML051390179	854
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DW-597	John Shea	Written comment (02/28/05)	ML051390179	862
DW-598	Alicia Hans	Written comment (02/28/05)	ML051390179	863
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DW-610	Brenda Wiley	Written comment (02/28/05)	ML051390179	885
DW-611	Kathy Day	Written comment (02/28/05)	ML051390179	886
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DW-613	Judith Shematek	Written comment (02/28/05)	ML051390179	890
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DW-619	Lee Archard	Written comment (02/28/05)	ML051390179	905
DW-620	Katherine Morgan	Written comment (02/28/05)	ML051390179	906
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DW-624	Carlton Apperson	Written comment (02/28/05)	ML051390179	914
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DW-626	Sherelle Jackson	Written comment (02/28/05)	ML051390179	918
DW-627	Keith Baldwin	Written comment (02/28/05)	ML051390179	919
DW-628	Mark Elliott	Written comment (02/28/05)	ML051390179	920
DW-629	Robin Watkins	Written comment (02/28/05)	ML051390179	921
DW-630	Sarah Craig Freeman	Written comment (02/28/05)	ML051390179	922
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DW-632	Conway Moy	Written comment (02/28/05)	ML051390179	929
DW-633	Anne Mickel	Written comment (02/28/05)	ML051390179	932
DW-634	Letitia Johnson	Written comment (02/28/05)	ML051390179	935
DW-635	Leonardo Sarli	Written comment (02/28/05)	ML051390179	936
DW-636	Don Jeffries	Written comment (02/28/05)	ML051390179	937
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DW-638	Phil Hearne	Written comment (02/28/05)	ML051390179	941
DW-639	Beth Craig	Written comment (02/28/05)	ML051390179	944
DW-640	Brian Deasy	Written comment (02/28/05)	ML051390179	947
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DW-642	Doris Whitfield	Written comment (02/28/05)	ML051390179	950
DW-643	Gretchen Biernot	Written comment (02/28/05)	ML051390179	953
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DW-649	Aviv Goldsmith	Written comment (02/28/05)	ML051390179	965
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DW-651	Nancy Asman	Written comment (02/28/05)	ML051390185	988
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DW-657	Donna Phillips	Written comment (02/28/05)	ML051390185	996
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DW-659	Katrina Cox	Written comment (02/28/05)	ML051390185	1000
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DW-663	Brian Gallagher	Written comment (03/01/05)	ML051390185	1006
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DW-665	Lisa Osborn	Written comment (03/01/05)	ML051390185	1010
DW-666	Tisha McMillan	Written comment (03/01/05)	ML051390185	1013
DW-667	Laura East	Written comment (03/01/05)	ML051390185	1014
DW-668	Scott Peterson, NEI	Written comment (03/01/05)	ML051390185	1017
DW-669	Adele Wood	Written comment (03/01/05)	ML051390185	1021
DW-670	Jamie Simo	Written comment (03/01/05)	ML051390185	1022

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DW-675	Marcia Fairman	Written comment (03/01/05)	ML051390185	1032
DW-676	Pablo Thomason	Written comment (03/01/05)	ML051390185	1035
DW-677	Vince Newton	Written comment (03/01/05)	ML051390185	1038
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DW-681	Marcia Dickinson	Written comment (02/28/05)	ML051390185	1050
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DW-684	Helen Sanders	Written comment (02/28/05)	ML051390185	1057
DW-685	James A. Bryan	Written comment (03/01/05)	ML051390185	1060
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DW-687	Heather Taplin	Written comment (03/07/05)	ML051390185	1084
DW-688	Jose Maria Olmos	Written comment (03/07/05)	ML051390185	1085
DW-689	Ruth Miller	Written comment (03/06/05)	ML051390185	1086
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DW-692	Kerry Schindl	Written comment (03/06/05)	ML051390185	1089
DW-693	Lorna Doering	Written comment (03/06/05)	ML051390185	1090
DW-694	Marcia Hoodwin	Written comment (03/06/05)	ML051390185	1091
DW-695	Alicia Jaffe	Written comment (03/06/05)	ML051390185	1092
DW-696	Michael Appia	Written comment (03/06/05)	ML051390185	1093
DW-697	Joseph Calhoun	Written comment (03/06/05)	ML051390185	1094
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DW-706	Julie Kissel	Written comment (03/05/05)	ML051390185	1103
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DW-711	Glenn Miller	Written comment (03/04/05)	ML051390185	1108
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DW-715	Nancy Spears	Written comment (03/04/05)	ML051390185	1112
DW-716	Dee Randolph	Written comment (03/04/05)	ML051390185	1113
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DW-728	Barbara Singer	Written comment (01/19/05)	ML051390185	1125
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DW-732	Dawn Winalski	Written comment (01/20/05)	ML051390185	1130
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DW-736	Anne Maziak	Written comment (01/20/05)	ML051390185	1134
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DW-745	Linda Prostko	Written comment (01/22/05)	ML051390185	1144
DW-746	Tom Boughan	Written comment (01/23/05)	ML051390185	1145
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DW-750	Kalin Patterson	Written comment (01/24/05)	ML051390185	1149
DW-751	Erin Christiansen	Written comment (01/24/05)	ML051390185	1150
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DW-784	Carol Curran	Written comment (02/09/05)	ML051390185	1183
DW-785	Dottie Hampton	Written comment (02/09/05)	ML051390185	1184
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DW-796	Frank Worshek	Written comment (02/11/05)	ML051390185	1195
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DW-798	Peggy Augustus	Written comment (02/12/05)	ML051390185	1197
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DW-803	Todd Chenore	Written comment (02/13/05)	ML051390185	1202
DW-804	Julie Bond	Written comment (02/13/05)	ML051390185	1203
DW-805	Charles Hall and Adrienne Bodie	Written comment (02/14/05)	ML051390185	1204
DW-806	Kenneth Remmers, Waterside Property Owners of Lake Anna	Written comment (02/15/05)	ML051390185	1206
DW-807	James Nelson	Written comment (02/15/05)	ML051390185	1213
DW-808	Samuel Kroiz	Written comment (02/15/05)	ML051390185	1214
DW-809	Josh Swartzbaugh	Written comment (02/15/05)	ML051390185	1215
DW-810	Beth Davies	Written comment (02/16/05)	ML051390185	1216
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DW-815	Marion McDonald	Written comment (02/17/05)	ML051390185	1221
DW-816	Shelly and Sid Sitzer	Written comment (02/17/05)	ML051390185	1223
DW-817	Lindsay Hawks	Written comment (02/17/05)	ML051390185	1224
DW-818	Robert A. Pedde and Lawrence A. Salomone, Westinghouse, Savannah River Co.	Written comment (02/17/05)	ML051390185	1225
DW-819	Jenny Heberlein	Written comment (02/18/05)	ML051390185	1237
DW-820	Michael Stuart	Written comment (02/18/05)	ML051390185	1238
DW-821	Allison Crowell	Written comment (02/18/05)	ML051390185	1239
DW-822	Brenda Hyson	Written comment (02/20/05)	ML051390185	1240
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DW-825	Chip Tucker	Written comment (02/21/05)	ML051390185	1246
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DW-827	Lillian Mezey	Written comment (02/21/05)	ML051390185	1249
DW-828	John Patrick Smith	Written comment (02/22/05)	ML051390185	1250
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DW-832	Robert Oldham	Written comment (02/24/05)	ML051390185	1254
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DW-846	Jone Shilliday	Written comment (02/24/05)	ML051390185	1290
DW-847	Glen Besa	Written comment (02/24/05)	ML051390185	1293
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DW-856	Suzanne Yeaman	Written comment (03/01/05)	ML051390185	1308
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DW-864	Thomas Olsen	Written comment (03/01/05)	ML051390185	1324
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DW-866	Fred Dove	Written comment (03/01/05)	ML051390185	1330
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DW-903	Cindy Carper	Written comment (02/25/05)	ML051390185	1405
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DW-920	Nell Carr-Young	Written comment (02/25/05)	ML051390185	1430
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DW-960	Kelly Bryan	Written comment (02/24/05)	ML051390190	1533
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DW-962	Mary Steponkus	Written comment (02/24/05)	ML051390190	1539
DW-963	Joe Apple	Written comment (02/24/05)	ML051390190	1542
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DW-1094	Guy Ross	Written comment (02/24/05)	ML051390190	1897
DW-1095	James P. Lynch	Written comment (02/24/05)	ML051390190	1900
DW-1096	Samuel Parrucci	Written comment (02/24/05)	ML051390190	1902
DW-1097	Robert Egbert	Written comment (02/24/05)	ML051390190	1905
DW-1098	Kelly Snyder	Written comment (02/24/05)	ML051390190	1908
DW-1099	John Sukovich	Written comment (02/24/05)	ML051390190	1911
DW-1100	Don Timmerman, Roberta Thurstin	Written comment (02/24/05)	ML051390190	1912
DW-1101	Whitney Cali	Written comment (02/24/05)	ML051390190	1913

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DW-1102	Patricia Eichenberger	Written comment (02/24/05)	ML051390190	1916
DW-1103	Mark Reback	Written comment (02/24/05)	ML051390190	1919
DW-1104	Sherley Redding	Written comment (02/24/05)	ML051390190	1920
DW-1105	Sharon Best	Written comment (02/24/05)	ML051390190	1923
DW-1106	Christina Martinez	Written comment (02/24/05)	ML051390190	1926
DW-1107	Eric White	Written comment (02/24/05)	ML051390190	1929
DW-1108	Thomas Savage	Written comment (02/24/05)	ML051390190	1932
DW-1109	Joe Terry	Written comment (02/24/05)	ML051390190	1935
DW-1110	Paul Greggs	Written comment (02/24/05)	ML051390190	1938
DW-1111	Phyllis Pownall	Written comment (02/24/05)	ML051390190	1941
DW-1112	Ellie Carter	Written comment (03/01/05)	ML051390190	1944
DW-1113	Erica Hulstrom	Written comment (03/01/05)	ML051390190	1947
DW-1114	Richard Spotts	Written comment (03/01/05)	ML051390190	1948
DW-1115	Maurene Gray	Written comment (03/01/05)	ML051390190	1949
DW-1116	Dana Leeper	Written comment (03/01/05)	ML051390190	1950
DW-1117	Karen Spencer	Written comment (03/01/05)	ML051390190	1953
DW-1118	Wendy Kupsaw	Written comment (03/01/05)	ML051390190	1954
DW-1119	Jill Quick	Written comment (03/01/05)	ML051390190	1955
DW-1120	Jerome Decker	Written comment (03/01/05)	ML051390190	1956
DW-1121	Terry Grant	Written comment (03/01/05)	ML051390190	1957
DW-1122	Morgan Butler, and Richard A. Parrish, Southern Environmental Law Center	Written comment (03/01/05)	ML051390190	1958
DW-1123	Brock Johnson	Written comment (03/01/05)	ML051390190	1966
DW-1124	Ceri Hitchcock-Hodgson	Written comment (03/01/05)	ML051390190	1967
DW-1125	Judy Stufflebeam	Written comment (03/01/05)	ML051390190	1968
DW-1126	Alice Sullivan	Written comment (03/01/05)	ML051390190	1969
DW-1127	David Leavitt	Written comment (03/01/05)	ML051390190	1970
DW-1128	James Zizzo	Written comment (03/01/05)	ML051390190	1971
DW-1129	Chris Hartleben	Written comment (03/01/05)	ML051390190	1972
DW-1130	Ronald Holberg	Written comment (03/01/05)	ML051390190	1973
DW-1131	Yvonne Sorovacu	Written comment (03/01/05)	ML051390190	1974
DW-1132	Nancy Gathing,	Written comment (03/01/05)	ML051390190	1977
DW-1133	Victoria Plummer	Written comment (03/01/05)	ML051390190	1978
DW-1134	Joseph Ponisciak	Written comment (03/01/05)	ML051390190	1979
DW-1135	Matthew R. Courter	Written comment (03/01/05)	ML051390190	1980
DW-1136	Lori Burris	Written comment (03/01/05)	ML051390190	1981
DW-1137	Ann Brummer	Written comment (03/01/05)	ML051390190	1982
DW-1138	Mark Kennedy	Written comment (03/01/05)	ML051390190	1985
DW-1139	Deke Gliem	Written comment (03/01/05)	ML051390190	1986
DW-1140	Jean Balckwood	Written comment (03/01/05)	ML051390190	1987
DW-1141	Amber Herdez	Written comment (03/01/05)	ML051390190	1988
DW-1142	Ruthann Roka	Written comment (03/01/05)	ML051390190	1989
DW-1143	Gordon Early	Written comment (03/01/05)	ML051390190	1990
DW-1144	Miriam Kurland	Written comment (03/01/05)	ML051390190	1991
DW-1145	Krista Blackwood	Written comment (03/01/05)	ML051390190	1992
DW-1146	Shannon Sweeney	Written comment (03/01/05)	ML051390190	1993
DW-1147	Steven Culp	Written comment (03/01/05)	ML051390190	1994
DW-1148	Eric Gracyalny	Written comment (03/01/05)	ML051390190	1995

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DW-1149	Delbert Horn	Written comment (03/01/05)	ML051390190	1999
DW-1150	James H. Jorgensen	Written comment (03/01/05)	ML051390190	2001
DW-1151	David E. Brown	Written comment (03/01/05)	ML051390190	2002
DW-1152	France Perlman	Written comment (03/01/05)	ML051390190	2003
DW-1153	Sharon Wright	Written comment (03/01/05)	ML051390190	2004
DW-1154	Paul Gunter, Nuclear Information Resource Service	Written comment (03/01/05)	ML051390190	2005
DW-1155	Margaret O'Keefe	Written comment (03/01/05)	ML051390190	2010
DW-1156	Laurie Beringer	Written comment (03/01/05)	ML051390190	2011
DW-1157	Daniel R. Holmes, Piedmont Environmental Center	Written comment (03/01/05)	ML051390190	2012
DW-1158	Robert T. May	Written comment (03/01/05)	ML051390190	2018
DW-1159	Judy Woods	Written comment (03/01/05)	ML051390190	2019
DW-1160	Kimberly Anne Halizak	Written comment (03/01/05)	ML051390190	2020
DW-1161	Gregory Rouse	Written comment (03/01/05)	ML051390190	2021
DW-1162	Dianne Hinch	Written comment (03/01/05)	ML051390190	2022
DW-1163	Louis Zeller, Blue Ridge Environmental Defense League	Written comment (03/01/05)	ML051390190	2025
DW-1164	Michaela Redden	Written comment (03/01/05)	ML051390190	2028
DW-1165	Sarah Schaefer	Written comment (03/01/05)	ML051390190	2029
DW-1166	Kathleen Halliburton-Ross	Written comment (03/01/05)	ML051390190	2030
DW-1167	Joseph O. Erb	Written comment (03/01/05)	ML051390190	2033
DW-1168	Dianne Hinch	Written comment (03/01/05)	ML051390190	2034
DW-1169	R. Michael Harman	Written comment (03/01/05)	ML051390190	2035
DW-1170	Steve Liebowitz	Written comment (03/01/05)	ML051390190	2036
DW-1171	Bert Courson	Written comment (03/01/05)	ML051390190	2037
DW-1172	Vernon and Carol Whitney	Written comment (03/01/05)	ML051390190	2038
DW-1173	Susanna Houston	Written comment (03/01/05)	ML051390190	2039
DW-1174	Erin Foley	Written comment (03/01/05)	ML051390190	2040
DW-1175	Alisha Wilson	Written comment (03/02/05)	ML051390190	2043
DW-1176	Abhaya Thiele	Written comment (03/02/05)	ML051390190	2044
DW-1177	Marcia Fairman	Written comment (03/02/05)	ML051390190	2046
DW-1178	Joe Blaszcak	Written comment (03/02/05)	ML051390190	2047
DW-1179	Priya Hudson-DiTraglia	Written comment (03/02/05)	ML051390190	2048
DW-1180	Sally Berk	Written comment (03/02/05)	ML051390190	2049
DW-1181	Chad Freckmann	Written comment (03/02/05)	ML051390190	2050
DW-1182	Isaac Ludwing	Written comment (03/02/05)	ML051390190	2051
DW-1183	Rachael Daigle	Written comment (03/02/05)	ML051390190	2052
DW-1184	Rita Hodge	Written comment (03/02/05)	ML051390190	2053
DW-1185	Adam Weesner	Written comment (03/02/05)	ML051390190	2054
DW-1186	Lucy Bovasso	Written comment (03/02/05)	ML051390190	2055
DW-1187	Jami Porter Lara	Written comment (03/02/05)	ML051390190	2056
DW-1188	Jill Ramson	Written comment (03/02/05)	ML051390190	2057
DW-1189	Mark and Sandra Crossler	Written comment (03/02/05)	ML051390190	2058
DW-1190	Catherine Stevens	Written comment (03/02/05)	ML051390190	2059
DW-1191	Kathi Lindsay	Written comment (03/02/05)	ML051390190	2060
DW-1192	Matthew Allenbaugh	Written comment (03/02/05)	ML051390190	2061
DW-1193	Janis Shaw	Written comment (03/02/05)	ML051390190	2062

Comment Number	Commenter Name	Source	Accession Number	Page Number (for DWs only)
DW-1194	Alison Zyla	Written comment (03/02/05)	ML051390190	2063
DW-1195	Karen M. Lehman	Written comment (03/02/05)	ML051390190	2064
DW-1196	Mary Burress	Written comment (03/02/05)	ML051390190	2065
DW-1197	Marilyn Meyer	Written comment (03/02/05)	ML051390190	2066
DW-1198	Margaret Benfield	Written comment (03/02/05)	ML051390190	2067
DW-1199	Chris Saunders	Written comment (03/02/05)	ML051390190	2068
DW-1200	Sean Winkel	Written comment (03/02/05)	ML051390190	2069
DW-1201	James Barrett	Written comment (03/02/05)	ML051390190	2070
DW-1202	Richard Sanders	Written comment (03/02/05)	ML051390190	2071
DW-1203	J. Kennedy	Written comment (03/04/05)	ML051390190	2072
DW-1204	Mark Bir	Written comment (03/04/05)	ML051390190	2073
DW-1205	Karen Stout	Written comment (03/04/05)	ML051390190	2074
DW-1206	Yvonne E. Carter	Written comment (03/04/05)	ML051390190	2075
DW-1207	Bob Osland	Written comment (03/04/05)	ML051390190	2076
DW-1208	Rebecca Hoeschler	Written comment (03/04/05)	ML051390190	2077
DW-1209	Shannon Adams	Written comment (03/04/05)	ML051390190	2078
DW-1210	Ronald Russillo	Written comment (03/04/05)	ML051390190	2079
DW-1211	Julie Betterley	Written comment (03/04/05)	ML051390190	2080
DW-1212	Mary Fisher	Written comment (03/04/05)	ML051390190	2081
DW-1213	Shauna Steigerwald	Written comment (03/04/05)	ML051390190	2082
DW-1214	Richard L. Geddes	Written comment (03/04/05)	ML051390190	2083
DW-1215	Julie Obermeyer	Written comment (03/03/05)	ML051390190	2086
DW-1216	Audrey J. Reed	Written comment (03/03/05)	ML051390190	2087
DW-1217	John Coltrinari	Written comment (03/03/05)	ML051390190	2088
DW-1218	Katy Duke	Written comment (03/03/05)	ML051390190	2089
DW-1219	Sigrid Hepp-Dax	Written comment (03/03/05)	ML051390190	2090
DW-1220	Mark Schnider	Written comment (03/03/05)	ML051390190	2091
DW-1221	James Mayes	Written comment (03/03/05)	ML051390190	2092
DW-1222	Kerry Girardin	Written comment (03/03/05)	ML051390190	2093
DW-1223	Elizabeth Shuey	Written comment (03/03/05)	ML051390190	2094
DW-1224	Andrew Davis	Written comment (03/03/05)	ML051390190	2095
DW-1225	Cynthia Tapley	Written comment (03/03/05)	ML051390190	2096
DW-1226	Tori Mitchell	Written comment (03/03/05)	ML051390190	2097
DW-1227	Kim McClamroch	Written comment (03/03/05)	ML051390190	2098
DW-1228	Kay Goss	Written comment (03/03/05)	ML051390190	2099
DW-1229	Julie Bruning	Written comment (03/04/05)	ML051390190	2100
DW-1230	Sheila Ward	Written comment (03/04/05)	ML051390190	2101
DW-1231	Angela Black	Written comment (03/04/05)	ML051390190	2102
DW-1232	Barbara Sullivan	Written comment (03/08/05)	ML051390190	2103
DW-1233	Dianne Bigler	Written comment (03/07/05)	ML051390190	2105
DW-1234	Tom Loper	Written comment (02/28/05)	ML051390190	2106
DW-1235	Joseph R. Lyle	Written comment (04/01/05)	ML051390190	2107
DW-1236	Cassandra Warren	Written comment (03/31/05)	ML051390190	2109
DW-1237	John Daily	Written comment (04/20/05)	ML051390190	2110
DW-1238	Robin Rabens	Written comment (04/08/05)	ML051390190	2111
DW-1239	Bryan Chauveau	Written comment (04/08/05)	ML051390190	2112
DW-1240	Yvonne Vecchia	Written comment (03/28/05)	ML051390190	2113
DW-1241	Virginia Brown	Written comment (03/25/05)	ML051390190	2114
DW-1242	Amber Ostheimer	Written comment (03/25/05)	ML051390190	2115

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DW-1243	Neah Monteiro	Written comment (03/24/05)	ML051390190	2116
DW-1244	Lindsay Broockman	Written comment (03/23/05)	ML051390190	2117
DW-1245	Bruce Flinchum	Written comment (03/15/05)	ML051390190	2118
DW-1246	Michaela Starrett	Written comment (03/13/05)	ML051390190	2119
DW-1247	Joe Porfert	Written comment (03/13/05)	ML051390190	2120
DW-1248	Bill R. Teer	Written comment (03/09/05)	ML051390190	2121
DW-1249	M. A. Jones	Written comment (03/08/05)	ML051390190	2122
DW-1250	Joanna Gras	Written comment (03/08/05)	ML051390190	2123
DW-1251	Joel Boggan	Written comment (03/08/05)	ML051390190	2124
DW-1252	Robin Dina	Written comment (03/08/05)	ML051390190	2125
DW-1253	Ann Volk	Written comment (03/08/05)	ML051390190	2126
DW-1254	Jimmy Brooks	Written comment (03/07/05)	ML051390190	2127
DW-1255	Jessica Mottley	Written comment (03/07/05)	ML051390190	2128
DW-1256	Michael Cavanaugh	Written comment (03/07/05)	ML051390190	2129
DW-1257	Jill Bender	Written comment (03/07/05)	ML051390190	2130
DW-1258	John Alge	Written comment (03/07/05)	ML051390190	2131
DW-1259	Joyce and Terry Fernandez	Written comment (03/07/05)	ML051390190	2132
DW-1260	Carla Mathews	Written comment (03/07/05)	ML051390190	2133
DW-1261	Britta Gustavson	Written comment (03/07/05)	ML051390190	2134
DW-1262	Susan Keith	Written comment (03/07/05)	ML051390190	2135
DW-1263	James Heater	Written comment (03/07/05)	ML051390190	2136
DW-1264	Holy Holily Holian	Written comment (03/07/05)	ML051390190	2137
DW-1265	James M. Nordlund	Written comment (03/07/05)	ML051390190	2138
DW-1266	Billie Reed	Written comment (03/07/05)	ML051390190	2139
DW-1267	David Dunkleberger	Written comment (03/07/05)	ML051390190	2140
DW-1268	Felicia VanderBranden	Written comment (03/07/05)	ML051390190	2141
DW-1269	Diana Martz	Written comment (03/07/05)	ML051390190	2142
DW-1270	Mary E. McGilligan	Written comment (04/06/05)	ML051390190	2143
DW-1271	Michelle Parker	Written comment (03/14/05)	ML051390190	2144
DW-1272	William Arguto, U.S. Environmental Protection Agency	Written comment (04/11/05)	ML051390190	2145
DW-1273	Jeanne and John Evans	Written comment (04/13/05)	ML051390190	2148

Table 6-3. Draft EIS Mass Mailing Cross-Reference List

Comment	Document ID	Last Name	First Name
DMM-1	DW-0029	Rood	Heidi
DMM-1A	DW-0007	Richards	Ron
DMM-1A	DW-0011	Riley	Kelly
DMM-1A	DW-0012	Williams	Marilyn
DMM-1A	DW-0015	Leonard	Andrew
DMM-1A	DW-0017	Janicki	Andrew
DMM-1A	DW-0020	Wilson	Beka
DMM-1A	DW-0021	Burgess	Kim
DMM-1A	DW-0024	Rosenkrantz	Stewart
DMM-1A	DW-0026	Kay	Thomas

Comment	Document ID	Last Name	First Name
DMM-1A	DW-0027	Lightfoot	Stacey
DMM-1A	DW-0033	Cole	Merrill
DMM-1A	DW-0034	Laffey	Kevin
DMM-1A	DW-0036	Johnson	Mark
DMM-1A	DW-0038	Beuttenmueller	Nate
DMM-1A	DW-0039	McCradic	Kris
DMM-1A	DW-0041	Vaught	Kevin
DMM-1A	DW-0045	Waltman	Martha
DMM-1A	DW-0048	Alvarez	Charles
DMM-1A	DW-0049	Raghav	shyla
DMM-1A	DW-0050	Spotts	Richard
DMM-1A	DW-0052	Atwood	Rachel
DMM-1A	DW-0053	Herner	Betty Jean
DMM-1A	DW-0058	Reed	Ben
DMM-1A	DW-0065	Watson	Claire
DMM-1A	DW-0073	Eichert	Sandy
DMM-1A	DW-0077	Kempton	Roger
DMM-1A	DW-0079	Hargrove	Christopher
DMM-1A	DW-0086	Palladine	Michelle
DMM-1A	DW-0087	Finkelnburg	Doug
DMM-1A	DW-0091	Pfeffer	Chell D
DMM-1A	DW-0094	Cimino	Andrea
DMM-1A	DW-0096	Blumeenau	Audrey
DMM-1A	DW-0098	Lemmon	Sara
DMM-1A	DW-0100	Jerbi	Steve
DMM-1A	DW-0102	Aguilar	Felix
DMM-1A	DW-0106	Jong	Katarzyna
DMM-1A	DW-0107	Feldman	Brett
DMM-1A	DW-0117	Hirose	Mary
DMM-1A	DW-0119	Head	Jim
DMM-1A	DW-0120	Graham	Ariel
DMM-1A	DW-0121	Williams	Paul
DMM-1A	DW-0128	Allen	Monica
DMM-1A	DW-0133	Schmidt	Tavis
DMM-1A	DW-0138	Graham	Kimberley
DMM-1A	DW-0139	Silverman	Seth
DMM-1A	DW-0141	Neil	Michael
DMM-1A	DW-0145	Toal	Hollis
DMM-1A	DW-0149	Wolff	Katie
DMM-1A	DW-0151	Carrubba	Sandra
DMM-1A	DW-0156	Carter	L.
DMM-1A	DW-0158	Fish	Michael
DMM-1A	DW-0161	Krueger	Douglas
DMM-1A	DW-0166	Williamson	Sandra
DMM-1A	DW-0168	Frankel-Streit	Sue
DMM-1A	DW-0174	Corriere	Caryn
DMM-1A	DW-0189	Shipler	Mandy
DMM-1A	DW-0202	Asselin	Neil

Comment	Document ID	Last Name	First Name
DMM-1A	DW-0207	Eichert	Sandy
DMM-1A	DW-0208	Bennett	Michael
DMM-1A	DW-0210	Holz	Rdolfo
DMM-1A	DW-0214	Louis	Rebecca
DMM-1A	DW-0217	Duprey	Renee
DMM-1A	DW-0221	Kendall	Sarah
DMM-1A	DW-0225	Wood	Barbara
DMM-1A	DW-0227	Blumeenau	Audrey
DMM-1A	DW-0230	Rosenkrantz	Stewart
DMM-1A	DW-0233	Gathing	Nancy
DMM-1A	DW-0234	Aguilar	Felix
DMM-1A	DW-0236	Stanley	Marlene
DMM-1A	DW-0240	Riley	Kelly
DMM-1A	DW-0243	Spotts	Richard
DMM-1A	DW-0245	Crooks	Amber
DMM-1A	DW-0247	Walters	Laura
DMM-1A	DW-0250	Rhoads	Kirk
DMM-1A	DW-0255	Johnston	Timothy
DMM-1A	DW-0260	Johnson	Vicki
DMM-1A	DW-0264	Palladine	Michelle
DMM-1A	DW-0267	Simpson	Sally
DMM-1A	DW-0268	Watson	Claire
DMM-1A	DW-0271	Wright	Warren
DMM-1A	DW-0275	Wilcox	David
DMM-1A	DW-0278	Barnhart	Brenda
DMM-1A	DW-0282	Derosier	Chad
DMM-1A	DW-0284	Lightfoot	Stacey
DMM-1A	DW-0287	Spears	Nancy
DMM-1A	DW-0288	Khan-Bureau	Diba
DMM-1A	DW-0289	Burkhart	David
DMM-1A	DW-0291	Feldman	Brett
DMM-1A	DW-0292	McAnally	Elizabeth
DMM-1A	DW-0294	Harris	Sarah
DMM-1A	DW-0298	Dalton	Gerald
DMM-1A	DW-0302	Shematek	Judith
DMM-1A	DW-0303	Adams	Antje
DMM-1A	DW-0306	Kopp	Helen
DMM-1A	DW-0311	Fotos	Janet
DMM-1A	DW-0312	Bessette	Bree
DMM-1A	DW-0315	Smakal	Shaun
DMM-1A	DW-0319	Schild	Rebecca
DMM-1A	DW-0320	Fairman	David
DMM-1A	DW-0322	Ward	Sheila
DMM-1A	DW-0328	Laffey	Kevin
DMM-1A	DW-0331	Petren	Conor
DMM-1A	DW-0332	Robbins	Carlon
DMM-1A	DW-0334	Weller	Kristina
DMM-1A	DW-0336	Spitkovskaya	Marina

Comment	Document ID	Last Name	First Name
DMM-1A	DW-0339	Calkins	Stephen
DMM-1A	DW-0340	Reed	Ben
DMM-1A	DW-0345	Butch	Lisa
DMM-1A	DW-0350	Fongemie	Ned
DMM-1A	DW-0354	Cassidy	Virginia
DMM-1A	DW-0358	Lundemo	Charlotte
DMM-1A	DW-0367	Flood	RaVani
DMM-1A	DW-0371	Indermuehle	Eric
DMM-1A	DW-0377	Costello	Patirck
DMM-1A	DW-0379	Brackett	Carl
DMM-1A	DW-0383	Rogers	Marliss
DMM-1A	DW-0389	Hamil	Rebecca
DMM-1A	DW-0393	Allard	Nicole
DMM-1A	DW-0394	Graham	Ariel
DMM-1A	DW-0396	Heinitz	Steven
DMM-1A	DW-0707	Lundemo	Charlotte
DMM-1A	DW-0723	Spahn	Chris
DMM-1A	DW-0724	Radloff	Juliana
DMM-1A	DW-0732	Winalski	Dawn
DMM-1A	DW-0733	Sorensen	Dina
DMM-1A	DW-0736	Maziak	Anne
DMM-1A	DW-0737	Yong Soler	Ana
DMM-1A	DW-0740	Grant	Kathleen
DMM-1A	DW-0742	Sette	Diana
DMM-1A	DW-0746	Boughan	Tom
DMM-1A	DW-0755	Clayton	Kirk
DMM-1A	DW-0756	Oxyer	Jim
DMM-1A	DW-0763	Miller	Dianne
DMM-1A	DW-0764	Butcher	Brian
DMM-1A	DW-0768	Lafoillette	Pete
DMM-1A	DW-0771	Corriere	Caryn
DMM-1A	DW-0778	Peters	Emily and Jeremy
DMM-1A	DW-0785	Hampton	Dottie
DMM-1A	DW-0788	Johnston	Anne
DMM-1A	DW-0796	Worshek	Frank
DMM-1A	DW-0803	Chenore	Todd
DMM-1A	DW-0804	Bond	Julie
DMM-1A	DW-0819	Heberlein	Jenny
DMM-1A	DW-1240	Vecchia	Yvonne
DMM-1A	DW-1246	Starrett	Michaela
DMM-1B	DW-0002	Snyder	Amanda
DMM-1B	DW-0006	Rutkowski	Robert
DMM-1B	DW-0014	Mendoza	Ana Najera
DMM-1B	DW-0018	Winalski	Dawn
DMM-1B	DW-0022	Sims	Stephanie
DMM-1B	DW-0030	Sjolin	Sue
DMM-1B	DW-0032	Matlock	KL
DMM-1B	DW-0037	Bensinger	Lesley
DMM-1B	DW-0040	Wood	Barbara L

Comment	Document ID	Last Name	First Name
DMM-1B	DW-0056	Spitkovskaya	Marina
DMM-1B	DW-0060	Matsuda	Thomas
DMM-1B	DW-0062	Rockey	Phillip
DMM-1B	DW-0067	Kendall	Sarah
DMM-1B	DW-0068	Singer	Barbara
DMM-1B	DW-0078	Burack	Debbie
DMM-1B	DW-0080	Brown	Jamie
DMM-1B	DW-0081	Wagner	Sandra
DMM-1B	DW-0082	Foss	Janice
DMM-1B	DW-0083	Carlson	Judith
DMM-1B	DW-0084	Dalton	Jerry
DMM-1B	DW-0085	Sanchez	Anthony
DMM-1B	DW-0089	Holeman	Heidi
DMM-1B	DW-0090	Ward	Sheila
DMM-1B	DW-0092	Welch	Joanna F
DMM-1B	DW-0095	Golden	Rebecca
DMM-1B	DW-0097	Keefer	Nina
DMM-1B	DW-0103	Harrell	Linda
DMM-1B	DW-0109	Reback	Mark
DMM-1B	DW-0112	York	Linda
DMM-1B	DW-0113	Prostko	Linda
DMM-1B	DW-0118	Smith	Sharon
DMM-1B	DW-0123	Beier	Mary
DMM-1B	DW-0126	Mathewson	M.
DMM-1B	DW-0127	Jackson	Tom
DMM-1B	DW-0130	Maness	Mitchell
DMM-1B	DW-0132	McGlone	Colleen
DMM-1B	DW-0135	DeAntoni	Carol
DMM-1B	DW-0137	Tarek	Lynn
DMM-1B	DW-0144	Sette	Diana
DMM-1B	DW-0146	Watson	Claire
DMM-1B	DW-0150	Gourguechon	Simone
DMM-1B	DW-0152	Golden	Rebecca
DMM-1B	DW-0153	Clayton	Kirk
DMM-1B	DW-0154	Corriere	Caryn
DMM-1B	DW-0159	Johnston	Timothy
DMM-1B	DW-0163	Butcher	Brian
DMM-1B	DW-0165	Boylan	Brianne
DMM-1B	DW-0167	Hoke	Dee
DMM-1B	DW-0169	Johnson	Kerry
DMM-1B	DW-0170	Bouyea	Lauren
DMM-1B	DW-0200	Reback	Mark
DMM-1B	DW-0201	Albright	Evan
DMM-1B	DW-0203	Burkhardt	Kerry
DMM-1B	DW-0204	Burgess	Kim
DMM-1B	DW-0211	Williams	Paul
DMM-1B	DW-0212	Matthew	Elaine
DMM-1B	DW-0213	Fuerst	Liz

Comment	Document ID	Last Name	First Name
DMM-1B	DW-0216	Campbell	Victoria
DMM-1B	DW-0218	Cook	David
DMM-1B	DW-0222	Pope	Sarah
DMM-1B	DW-0223	Schweppe	Linda
DMM-1B	DW-0224	Books	Kim
DMM-1B	DW-0226	Green	Jason
DMM-1B	DW-0229	Richards	Ron
DMM-1B	DW-0231	Summers	Steve
DMM-1B	DW-0232	Mihok	Michael
DMM-1B	DW-0238	Jackson	Tom
DMM-1B	DW-0239	Vaught	Kevin
DMM-1B	DW-0241	Evans	Michael
DMM-1B	DW-0242	Williams	Richard
DMM-1B	DW-0248	Roberts	Jon
DMM-1B	DW-0251	Stober	Paula
DMM-1B	DW-0254	Williams	Craig
DMM-1B	DW-0257	Golembieski	John
DMM-1B	DW-0258	Kempton	Roger
DMM-1B	DW-0259	Phillips	Scot
DMM-1B	DW-0262	Conroy	Peggy
DMM-1B	DW-0270	Snelgrove	Chelsea
DMM-1B	DW-0277	Hohenberg	Adrienne
DMM-1B	DW-0281	Sims	Stephanie
DMM-1B	DW-0283	Leahy	Martha
DMM-1B	DW-0285	Arcure	Barbara
DMM-1B	DW-0290	Davis	Ryan
DMM-1B	DW-0304	Foss	Janice
DMM-1B	DW-0307	McGlone	Colleen
DMM-1B	DW-0308	Heavilin	Jennifer
DMM-1B	DW-0310	Smith	Sharon
DMM-1B	DW-0317	Blunt	Susanna
DMM-1B	DW-0318	Costa	Demelza
DMM-1B	DW-0324	Roberson	Keegan
DMM-1B	DW-0326	Facette	James
DMM-1B	DW-0329	Salomon	Sherry
DMM-1B	DW-0335	Moore	Matt
DMM-1B	DW-0337	Fransson	Dorothea
DMM-1B	DW-0338	Rosenfeld	Cheryl
DMM-1B	DW-0341	Schneller	Paul
DMM-1B	DW-0348	Totino	Nicole
DMM-1B	DW-0351	Esteve	Gregory
DMM-1B	DW-0353	Esseltine	M.
DMM-1B	DW-0355	East	Khaalen
DMM-1B	DW-0356	Pederslie	Sharon
DMM-1B	DW-0357	Schneider	Kelly
DMM-1B	DW-0362	Friedman	Ariela
DMM-1B	DW-0363	Keefer	Nina
DMM-1B	DW-0364	Pick	Alva

Comment	Document ID	Last Name	First Name
DMM-1B	DW-0366	McGlone	Gail
DMM-1B	DW-0372	Garnett	Mike
DMM-1B	DW-0376	Sun	Nida
DMM-1B	DW-0380	Bhatia	Rachana
DMM-1B	DW-0382	Felker III	Dale Richard
DMM-1B	DW-0384	Carrubba	Sandra
DMM-1B	DW-0386	McGilligan	Mary
DMM-1B	DW-0390	Korenak	Kelly
DMM-1B	DW-0391	Rieber	Emily
DMM-1B	DW-0392	Butcher	Brian
DMM-1B	DW-0720	Rettiger	Charles
DMM-1B	DW-0721	Venema	Eve
DMM-1B	DW-0725	Bond	Julie
DMM-1B	DW-0727	Doob	Jennifer
DMM-1B	DW-0730	Jennings	Beverly
DMM-1B	DW-0731	Napps	Shirley
DMM-1B	DW-0734	Penn	Angela
DMM-1B	DW-0738	Khalsa	Mha Atma
DMM-1B	DW-0743	Hebeisen	Brian
DMM-1B	DW-0747	Watson	Claire
DMM-1B	DW-0748	Van Wicklen	Betty
DMM-1B	DW-0751	Christiansen	Erin
DMM-1B	DW-0753	Harris	Ed
DMM-1B	DW-0754	Alberda	Linda
DMM-1B	DW-0758	Funsinn	Sydney
DMM-1B	DW-0759	Peeplez	Kelle
DMM-1B	DW-0762	Pakeltis	Carolynn
DMM-1B	DW-0765	Neil	Michael
DMM-1B	DW-0767	Aleman	Micheal
DMM-1B	DW-0769	Sharp	Kimberley
DMM-1B	DW-0779	Wood	Susannah
DMM-1B	DW-0784	Curran	Carol
DMM-1B	DW-0787	Gilchrist	Elizabeth
DMM-1B	DW-0790	jackson	Melanie
DMM-1B	DW-0795	Huff	Julie
DMM-1B	DW-0799	Bastian	Sally
DMM-1B	DW-0809	Swartzbaugh	Josh
DMM-1B	DW-0810	Davies	Beth
DMM-1B	DW-1238	Rabens	Robin
DMM-1B	DW-1244	Broockman	Lindsay
DMM-1B	DW-1245	Flinchum	Bruce
DMM-1B	DW-1270	McGilligan	Mary
DMM-1C	DW-0001	Sideris	Jean
DMM-1C	DW-0003	Sigmond	Chandra
DMM-1C	DW-0004	Felker	Dale Richard
DMM-1C	DW-0005	Balboa	Alex
DMM-1C	DW-0008	Davis	Ryan
DMM-1C	DW-0009	Buck	Peter

Comment	Document ID	Last Name	First Name
DMM-1C	DW-0010	Dunne	Stephen
DMM-1C	DW-0013	Patrick	Meaghan
DMM-1C	DW-0016	Soza	Valerie
DMM-1C	DW-0019	Field	Elizabeth
DMM-1C	DW-0023	Spears	Nancy
DMM-1C	DW-0025	Van Wicklen	Betty J.
DMM-1C	DW-0028	Devitt	Ed
DMM-1C	DW-0031	Bennett	Michael
DMM-1C	DW-0035	Kilcoyne	Clancey
DMM-1C	DW-0042	Summers	Steve
DMM-1C	DW-0043	Simpson	Sally
DMM-1C	DW-0044	Leahy	Martha
DMM-1C	DW-0046	Anderson	Corina
DMM-1C	DW-0047	Maness	Mitchell
DMM-1C	DW-0051	Fransson	Dorothea
DMM-1C	DW-0054	Burkhardt	Kerry
DMM-1C	DW-0055	Goldstone	Beth
DMM-1C	DW-0059	Mikulski	Kathleen
DMM-1C	DW-0061	Ballentine	Wanda S.
DMM-1C	DW-0063	Wright	Warren
DMM-1C	DW-0064	Asselin	Neil
DMM-1C	DW-0066	Mihok	Michael
DMM-1C	DW-0069	East	Khaalen
DMM-1C	DW-0070	Evans	Michael
DMM-1C	DW-0071	Kimbrough	Jane
DMM-1C	DW-0072	Hardy	Ann
DMM-1C	DW-0074	Moumin	Adrienne
DMM-1C	DW-0075	Rhoads	Kirk
DMM-1C	DW-0076	Phillips	Scot
DMM-1C	DW-0093	Larch	Patricia
DMM-1C	DW-0099	Cassidy	Virginia
DMM-1C	DW-0101	Torres	Julio
DMM-1C	DW-0104	Irwin	Ken
DMM-1C	DW-0105	Esteve	Gregory
DMM-1C	DW-0108	Heavilin	Jennifer
DMM-1C	DW-0110	Snelgrove	Chelsea
DMM-1C	DW-0111	Frontz	Jeffri
DMM-1C	DW-0115	Campbell	Victoria
DMM-1C	DW-0116	McConnell	Lindsey
DMM-1C	DW-0122	Harris	Sarah
DMM-1C	DW-0124	Jaramillo	Paula
DMM-1C	DW-0125	Moore	Matt
Extracted from DMM-1C	DW-0129	Flowers	Babbie Dee
DDMM-1C	DW-0131	Barnes	Sherry
DMM-1C	DW-0134	Doob	Jennifer
DMM-1C	DW-0136	McGlone	Gail
DMM-1C	DW-0140	Kelly	Wayne

Comment	Document ID	Last Name	First Name
DMM-1C	DW-0142	Randall	David
DMM-1C	DW-0143	Patrick	A.
DMM-1C	DW-0147	Venema	Eve
DMM-1C	DW-0148	Shamo	Erika
DMM-1C	DW-0155	Williams	Craig
DMM-1C	DW-0157	Spears	Nancy
DMM-1C	DW-0160	Zalewski	K
DMM-1C	DW-0162	Hebeisen	Brian
DMM-1C	DW-0164	Day	Elena
DMM-1C	DW-0171	Cutlip	Jana
DMM-1C	DW-0172	Johnson	Bill
DMM-1C	DW-0175	Lafoillette	Pete
DMM-1C	DW-0176	Skolnick	Kate
DMM-1C	DW-0178	Doswell	Carolyn
DMM-1C	DW-0179	Costigan	Cheryl
DMM-1C	DW-0184	McFadden	Wendy
DMM-1C	DW-0199	Matsuda	Thomas
DMM-1C	DW-0205	Anderson	Corina
DMM-1C	DW-0206	Hutchinson	Terrance
DMM-1C	DW-0209	Burack	Debbie
DMM-1C	DW-0215	Patrick	Meaghan
DMM-1C	DW-0219	Maya	Francisco
DMM-1C	DW-0220	Seltzer	Robert
DMM-1C	DW-0228	Welch	Joanna
DMM-1C	DW-0235	Alvarez	Charles
DMM-1C	DW-0237	Waltman	Martha
DMM-1C	DW-0244	Trew	Jason
DMM-1C	DW-0246	Meder	Christopher
DMM-1C	DW-0249	Gore	Jesse
DMM-1C	DW-0252	Balboa	Alex
DMM-1C	DW-0253	LaFleur	Bill
DMM-1C	DW-0256	Kawar	Ferris
DMM-1C	DW-0263	Robertson	John
DMM-1C	DW-0265	Pott	Caronlin
DMM-1C	DW-0269	Krewson	Dale
DMM-1C	DW-0272	Raghav	Shyla
DMM-1C	DW-0273	Kimbrough	Jane
DMM-1C	DW-0274	Brook	Dan
DMM-1C	DW-0276	Soza	Valerie
DMM-1C	DW-0279	Evans	Dinda
DMM-1C	DW-0280	Allen	Monica
DMM-1C	DW-0286	Rico	Carmen
DMM-1C	DW-0293	Gartland	Brandi
DMM-1C	DW-0295	Shamo	Erika
DMM-1C	DW-0296	Herndon	Laura
DMM-1C	DW-0297	Krueger	Douglas
DMM-1C	DW-0299	Jong	Katarzyna
DMM-1C	DW-0300	Phan	Peggy

Comment	Document ID	Last Name	First Name
DMM-1C	DW-0301	Woodward	Mary
DMM-1C	DW-0305	McComas	Barney
DMM-1C	DW-0313	Ingle	John
DMM-1C	DW-0314	Boltz	Gina
DMM-1C	DW-0316	Patrick	A.
DMM-1C	DW-0321	Bell	Ray
DMM-1C	DW-0323	Johnson	Candace
DMM-1C	DW-0325	Tiffault	Matthew
DMM-1C	DW-0327	Moumin	Adrienne
DMM-1C	DW-0330	Wilson	Amy
DMM-1C	DW-0342	Santana	Maritza
DMM-1C	DW-0343	Flowers	Bobbie Dee
DMM-1C	DW-0344	Irwin	Ken
DMM-1C	DW-0346	Silverman	Seth
DMM-1C	DW-0347	Evans	Alma
DMM-1C	DW-0349	Mikulski	Kathy
DMM-1C	DW-0352	Mens	Eric
DMM-1C	DW-0359	Janicki	Andrew
DMM-1C	DW-0361	Horst	Rene
DMM-1C	DW-0365	Hunt	Mitchell
DMM-1C	DW-0368	Pasichnyk	Richard
DMM-1C	DW-0369	Bonsignore	Victoria
DMM-1C	DW-0373	Unger	Kris
DMM-1C	DW-0374	Kay	Thomas
DMM-1C	DW-0375	Kelly	Wayne
DMM-1C	DW-0378	Kaplan	Claire
DMM-1C	DW-0381	Van Buren	Sarah
DMM-1C	DW-0385	Costigan	Cheryl
DMM-1C	DW-0387	Cimino	Andrea
DMM-1C	DW-0388	Hirose	Mary
DMM-1C	DW-0395	Maness	Mitchell
DMM-1C	DW-0689	Miller	Ruth
DMM-1C	DW-0696	Appia	Michael
DMM-1C	DW-0715	Spears	Nancy
DMM-1C	DW-0719	Lafoillette	Pete
DMM-1C	DW-0722	Schmidt	Tavis
DMM-1C	DW-0726	Sievers-Bartlett	Suzanne
DMM-1C	DW-0728	Singer	Barbara
DMM-1C	DW-0735	York	Linda
DMM-1C	DW-0739	McCradic	Kris
DMM-1C	DW-0745	Prostko	Linda
DMM-1C	DW-0752	Covey	John
DMM-1C	DW-0761	Boswell	Julie
DMM-1C	DW-0766	Boitano	Connie
DMM-1C	DW-0770	Frontz	Jeffri
DMM-1C	DW-0772	McFadden	Wendy
DMM-1C	DW-0773	Tawnamia	Leslie
DMM-1C	DW-0774	Malloy	Ben

Comment	Document ID	Last Name	First Name
DMM-1C	DW-0775	Von Gehr	Anna
DMM-1C	DW-0776	Duffy	Claudia
DMM-1C	DW-0780	Peckman	Bob
DMM-1C	DW-0781	Boswell	Linda
DMM-1C	DW-0782	Grossman	Jeffery
DMM-1C	DW-0786	Zahnke	Coleen
DMM-1C	DW-0792	Salidis	Joanna
DMM-1C	DW-0794	Cleve	Della
DMM-1C	DW-0801	Sawdon	Rosemarie
DMM-1C	DW-0813	Boyle	Katie
DMM-1C	DW-0814	McDonald	Marion
DMM-1C	DW-0824	Kesich	John
DMM-1C	DW-0828	Smith	John Patrick
DMM-1C	DW-1236	Warren	Cassandra
DMM-1C	DW-1242	Ostheimer	Amber
DMM-1C	DW-1243	Monteiro	Neah
Extracted from DMM-2	DW-0397	Aguilar	Lauren
Extracted from DMM-2	DW-0401	Taverna	Kristin
DMM-2	DW-0402	Shaw	Elaine
DMM-2	DW-0418	Pipik	Joseph
DMM-2	DW-0419	Eichorst	Aaron
DMM-2	DW-0420	Gore	Mary Jand
DMM-2	DW-0433	Sitzer	Shelly
DMM-2	DW-0434	Fitzgerald	Anna
DMM-2	DW-0543	Wetherington	Jared
DMM-2	DW-0547	Fredericks	Misha
DMM-2	DW-0573	Butler	Kirk
Extracted from DMM-2	DW-0617	Freeman	Matthew
DMM-2	DW-0654	Gyovai	Christine
DMM-2	DW-0656	Muehlman	Reed
DMM-2	DW-0805	Hall Bodie	Charles and Adrienne
Extracted from DMM-2	DW-0808	Kroiz	Samuel
DMM-2	DW-0881	Payne	Dexter
DMM-2	DW-0885	Carlson	Alan
DMM-2	DW-0919	Rutkowski	Robert
DMM-2	DW-0926	Chieco	Eileen and Victor
DMM-2	DW-0927	Santerre	Roger
DMM-2	DW-0930	Eldon	jim
DMM-2	DW-0932	Venneman	Joetta
DMM-2	DW-0933	Marciniak	Peter and Catherine
DMM-2	DW-0935	Wampler	Timothy
DMM-2	DW-0948	Diedrich	Charltte
DMM-2	DW-1025	Prusik	D
DMM-2	DW-1030	Hunter	Aurora
DMM-2	DW-1032	Austin	Christopher
DMM-2	DW-1035	Nidess	Rael
DMM-2	DW-1038	Milliner	Susan

Comment	Document ID	Last Name	First Name
DMM-2	DW-1044	Longacre	David
DMM-2	DW-1052	Marchini	Juan
DMM-2	DW-1053	Peterson	Ron
DMM-2	DW-1093	Darnall	Lyn
DMM-2	DW-1100	Roberta Thurstin	Don Timmerman
DMM-2	DW-1103	Reback	Mark
DMM-2	DW-1232	Sullivan	Barbara
DMM-3	DW-0427	Bigler	H. Paul
DMM-3	DW-0428	Redding	Sherley
DMM-3	DW-0436	Lenehan	David
DMM-3	DW-0446	Stenbjorn	Paul
DMM-3	DW-0447	Schmidt	Arthur
DMM-3	DW-0448	Richards	William
DMM-3	DW-0449	Eichenberger	Patricia
DMM-3	DW-0450	Chancey	Kevin
DMM-3	DW-0451	Sistok-Katz	Silja
DMM-3	DW-0452	Clark	Loralee
DMM-3	DW-0454	Parker	Diana
DMM-3	DW-0455	Laverdiere	Dorothy
DMM-3	DW-0457	Hepler	Sarah
DMM-3	DW-0458	Pierce	Lawrence
DMM-3	DW-0460	Kim	Pamela
DMM-3	DW-0461	Baldino	Rhea
DMM-3	DW-0465	Masters	James
DMM-3	DW-0468	Sund	Christian
DMM-3	DW-0470	Anthony	Joseph Patrick
DMM-3	DW-0473	Mills	Stephen
DMM-3	DW-0475	Campbell	David
DMM-3	DW-0477	Davis	Susan
DMM-3	DW-0478	C	Lori
DMM-3	DW-0479	Lotz	Jonathan
DMM-3	DW-0480	Jameson	Anne
DMM-3	DW-0481	Anderson	Stephen
DMM-3	DW-0482	Mann	Louise
DMM-3	DW-0483	Joseph	Kathy
DMM-3	DW-0485	Marshall	Lisa
DMM-3	DW-0486	Meister	Margaret
DMM-3	DW-0487	Martin	Barbara
DMM-3	DW-0488	Lewis	Cornelia
DMM-3	DW-0489	Hanson	Linda
DMM-3	DW-0490	Collins	Fletcher
DMM-3	DW-0492	Bowman	Jacqueline
DMM-3	DW-0493	Re	Nancy
DMM-3	DW-0494	Hoffman	Lilli
DMM-3	DW-0495	Desrosiers	Martha
DMM-3	DW-0496	Rose	Carol
DMM-3	DW-0498	Coleman	Darlene
DMM-3	DW-0499	Wellman	Donna

Comment	Document ID	Last Name	First Name
DMM-3	DW-0501	Shematek	Judith
DMM-3	DW-0502	Feitlinger	Ross
DMM-3	DW-0503	Nicholas	Chris
DMM-3	DW-0505	Campbell	Matthew
DMM-3	DW-0508	Morgan	Katherine
DMM-3	DW-0509	Lavy	Fred
DMM-3	DW-0511	Albert	Martin
DMM-3	DW-0512	Foster	Ariele
DMM-3	DW-0513	Reif	Mark
DMM-3	DW-0514	Dietch	Pat
DMM-3	DW-0515	Wilcox	James
DMM-3	DW-0516	Knapp	Robbin
DMM-3	DW-0517	Cecil	Joe
DMM-3	DW-0519	Rapice	Robert
DMM-3	DW-0520	Hodge	Mary
DMM-3	DW-0521	Alfano	Karla
DMM-3	DW-0522	Bell	Carrie
DMM-3	DW-0523	Shawn	Jason
DMM-3	DW-0524	Collins	Janet
DMM-3	DW-0525	Snyder	Kelly
DMM-3	DW-0526	Dogget	Karin
DMM-3	DW-0527	Campbell	Kenneth
DMM-3	DW-0532	Garcia	Yvonne
DMM-3	DW-0534	Economou	Constantina
DMM-3	DW-0535	Krochalis	Andrea
DMM-3	DW-0536	Bui	Thuy-Vy
DMM-3	DW-0537	Adamson	Nancy
DMM-3	DW-0538	Mitchell	David
DMM-3	DW-0539	Trew	Jason
DMM-3	DW-0541	Hayes	Gina
DMM-3	DW-0542	Adams	Lynn
DMM-3	DW-0544	Doggett	Gregory
DMM-3	DW-0545	Grubb	Ricky
DMM-3	DW-0546	Harsahw	Elizabeth
DMM-3	DW-0548	Poisson	Laura
DMM-3	DW-0550	Stoner	Gary
DMM-3	DW-0551	Prez	Roberto
DMM-3	DW-0552	Knorr	Sarah
DMM-3	DW-0553	Sexson	John
DMM-3	DW-0555	Sloan	Richard
DMM-3	DW-0556	Barger	Elizabeth
DMM-3	DW-0557	Gillespie	Sarah
DMM-3	DW-0559	Mooney	Shaun
DMM-3	DW-0560	Bodnaruk	Dan
DMM-3	DW-0563	East	Lorah
DMM-3	DW-0565	York	Stasi
DMM-3	DW-0566	Cox	Joel
DMM-3	DW-0567	Johnson	Susan

Comment	Document ID	Last Name	First Name
DMM-3	DW-0570	Gorka	Mary
DMM-3	DW-0572	Conroy	James
DMM-3	DW-0574	Gregory	Probyn
DMM-3	DW-0576	Main	Ivy
DMM-3	DW-0577	Lackey	Mark
DMM-3	DW-0578	Jones	Lauren
DMM-3	DW-0585	Malore	Devan
DMM-3	DW-0587	Langslow	Ken
DMM-3	DW-0590	Presgraves	Andrew
DMM-3	DW-0591	Roach	Margaret
DMM-3	DW-0592	Smith	Kevin
DMM-3	DW-0595	Town	Andrew
DMM-3	DW-0597	Shea	John
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DMM-3	DW-0599	Parker	James
DMM-3	DW-0600	Katsos	Kat
DMM-3	DW-0603	Athavale	Anjali
DMM-3	DW-0606	May	Annette
DMM-3	DW-0607	Shank	Tim
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DMM-3	DW-0610	Wiley	Brenda
DMM-3	DW-0611	Day	Kathy
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DMM-3	DW-0619	Archard	Lee
DMM-3	DW-0622	Kalukin	Andrew
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DMM-3	DW-0643	Biernot	Gretchen
DMM-3	DW-0647	Byrne	Sarah
DMM-3	DW-0651	Asman	Nancy
DMM-3	DW-0652	Sawdon	Rosemarie
DMM-3	DW-0658	Jurasits	Cassie
DMM-3	DW-0659	Cox	Katrina
DMM-3	DW-0660	Kardan	Jay
DMM-3	DW-0662	McFarland	Mary Ann
DMM-3	DW-0663	Gallagher	Brian
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DMM-3	DW-0670	Simo	Jamie
DMM-3	DW-0671	Pederson	Michaelene
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DMM-3	DW-0687	Taplin	Heather
DMM-3	DW-0688	Ma OlmosC	Jose
DMM-3	DW-0690	Ackerman	John and Kim

Comment	Document ID	Last Name	First Name
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DMM-3	DW-0692	Schindl	Kerry
DMM-3	DW-0693	Doering	Lorna
DMM-3	DW-0694	Hoodwin	Marcia
DMM-3	DW-0695	Jaffe	Alicia
DMM-3	DW-0697	Calhoun	Joseph
DMM-3	DW-0698	Sterlin	Rachael
DMM-3	DW-0699	Boone	David
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DMM-3	DW-0702	Hammond	Frank
DMM-3	DW-0703	Brady	Sean
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DMM-3	DW-0705	Allen	Michael
DMM-3	DW-0706	Kissel	Julie
DMM-3	DW-0708	Surowski	Dawn
DMM-3	DW-0709	Stollenwerk	Mia
DMM-3	DW-0710	Stahl	Edgar
DMM-3	DW-0711	Miller	Glenn
DMM-3	DW-0712	Froome	Roberta
DMM-3	DW-0713	Legler	Matt
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DMM-3	DW-0716	Randolph	Dee
DMM-3	DW-0717	Annanthakrishnan	Revathi
DMM-3	DW-0718	Bernatz	Rachel
DMM-3	DW-0850	Goodman	Michael
DMM-3	DW-0852	Bernier	Michael
DMM-3	DW-0853	Pooler	Jason
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DMM-3	DW-0860	Williams	Martha
DMM-3	DW-0862	Wehner	Michaela
DMM-3	DW-0868	Dukovich	John
DMM-3	DW-0869	Wise	Sarah
DMM-3	DW-0870	Roth	David
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DMM-3	DW-0873	Whetstone	Joe
DMM-3	DW-0891	Hayden	Sue
DMM-3	DW-0897	Engle	Eliza Beth
DMM-3	DW-0898	Murphy	Margaret
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DMM-3	DW-0900	Morgan	John
DMM-3	DW-0901	Hagood	Talbott
DMM-3	DW-0902	Hochstadt	Ted
DMM-3	DW-0904	Keeton III	Dewey
DMM-3	DW-0906	Brazier	Katie
DMM-3	DW-0907	Obrion	Catherine
DMM-3	DW-0908	Hill	Walter

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DMM-3	DW-0910	Adams	Roger
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DMM-3	DW-0912	Davis	John
DMM-3	DW-0913	Green	Jason
DMM-3	DW-0914	Lutjen	Kristy
DMM-3	DW-0915	Mitchell	Roy
DMM-3	DW-0916	Quesinberry	Abigail
DMM-3	DW-1012	Pitre	Julia
DMM-3	DW-1114	Spotts	Richard
DMM-3	DW-1115	Gray	Maurene
DMM-3	DW-1117	Spencer	Karen
DMM-3	DW-1118	Kupsaw	Wendy
DMM-3	DW-1119	Quick	Jill
DMM-3	DW-1120	Decker	Jerome
DMM-3	DW-1123	Johnson	Brock
DMM-3	DW-1124	Hitchcock-Hodgson	Ceri
DMM-3	DW-1125	Stufflebeam	Judy
DMM-3	DW-1126	Sullivan	Alice
DMM-3	DW-1127	Leavitt	David
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DMM-3	DW-1130	Holberg	Ronald
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DMM-3	DW-1138	Kennedy	Mark
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DMM-3	DW-1143	Early	Gordon
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DMM-3	DW-1147	Culp	Steven
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DMM-3	DW-1160	Halizak	Kimberly Anne
DMM-3	DW-1161	Rouse	Gregory
DMM-3	DW-1164	Redden	Michaela
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DMM-3	DW-1169	Harman	Michael
DMM-3	DW-1170	Liebowitz	Steve
DMM-3	DW-1171	Courson	Bert
DMM-3	DW-1172	Whitney	Vernon and Carol
DMM-3	DW-1173	Houston	Susanna
DMM-3	DW-1175	Wilson	Alisha
DMM-3	DW-1177	Fairman	Marcia
DMM-3	DW-1178	Blaszczak	Joe
DMM-3	DW-1179	Hudson-DiTraglia	Priya
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DMM-3	DW-1183	Daigle	Rachael
DMM-3	DW-1184	Hodge	Rita
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DMM-3	DW-1190	Stevens	Catherine
DMM-3	DW-1191	Lindsay	Kathi
DMM-3	DW-1192	Allenbaugh	Matthew
DMM-3	DW-1193	Shaw	Janis
DMM-3	DW-1194	Zyla	Alison
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DMM-3	DW-1197	Meyer	Marilyn
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DMM-3	DW-1199	Saunders	Chris
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DMM-3	DW-1203	Kennedy	J
DMM-3	DW-1204	Bir	Mark
DMM-3	DW-1205	Stout	Karen
DMM-3	DW-1206	Carter	Yvonne
DMM-3	DW-1207	Osland	Bob
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DMM-3	DW-1211	Betterley	Julie
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DMM-3	DW-1219	Hepp-Dax	Sigrid
DMM-3	DW-1220	Schneider	Mark

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DMM-3	DW-1222	Girardin	Kerry
DMM-3	DW-1223	Shuey	Elizabeth
DMM-3	DW-1224	Davis	Andrew
DMM-3	DW-1225	Tapley	Cynthia
DMM-3	DW-1226	Mitchell	Tori
DMM-3	DW-1227	Mcclamroch	Kim
DMM-3	DW-1228	Goss	Kay
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DMM-3	DW-1230	Ward	Sheila
DMM-3	DW-1231	Black	Angela
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DMM-3	DW-1263	Heater	James
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DMM-3	DW-1269	Martz	Diana
DMM-3	DW-1271	Parker	Michelle
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DMM-4	DW-0453	Bloomsburg	Anne
DMM-4	DW-0456	Van Briesen	Katrina
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DMM-4	DW-0466	Palmer	Liz
DMM-4	DW-0467	Gilges	Margaret
DMM-4	DW-0469	Weber	Cheryl
DMM-4	DW-0472	Moreno	Kimberly
DMM-4	DW-0474	Acton	Michelle

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DMM-4	DW-0484	Sokol	Ron
DMM-4	DW-0491	Mettler	Nicole
DMM-4	DW-0497	Wyne	Zaahira
DMM-4	DW-0500	Popelas	Judy
DMM-4	DW-0504	Croghan	Keith
DMM-4	DW-0506	Sawdon	Rosemarie
DMM-4	DW-0507	Raymond	Aislynn
DMM-4	DW-0510	Matteson	Tyla
DMM-4	DW-0518	Amarasinghe	Disamodha
DMM-4	DW-0528	Peckman	Bob
DMM-4	DW-0529	Campbell	Kenneth
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DMM-4	DW-0531	Blythe	Kevin
DMM-4	DW-0533	Copeland	Christina
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DMM-4	DW-0554	Martin	Heather
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DMM-4	DW-0562	Clark	Diane
DMM-4	DW-0568	Lozano	Chrissie
DMM-4	DW-0569	King	Jamie
DMM-4	DW-0571	Kern	Charles
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DMM-4	DW-0579	Howard	Jay
DMM-4	DW-0580	Blossom	Scott
DMM-4	DW-0581	Hendrickson	Holly
DMM-4	DW-0582	Davis	Jennifer
DMM-4	DW-0584	Cannon	Robert
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DMM-4	DW-0596	Morris	Allison
DMM-4	DW-0601	Ehrich	Liz
DMM-4	DW-0602	Daufman	Ruth
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DMM-4	DW-0608	Willis	Ken
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DMM-4	DW-0621	Stone	Jem
DMM-4	DW-0625	Gillespie	Sarah
DMM-4	DW-0631	Shreeve	Denise
DMM-4	DW-0632	Moy	Conway
DMM-4	DW-0633	Mickel	Anne

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DMM-4	DW-0638	Hearne	Phil
DMM-4	DW-0639	Craig	Beth
DMM-4	DW-0642	Whitfield	Doris
DMM-4	DW-0644	Page	Rachel
DMM-4	DW-0646	Strachan	Heather
DMM-4	DW-0650	Anderson	Ellen
DMM-4	DW-0655	Dell'Aria	Stephen
DMM-4	DW-0657	Phillips	Donna
DMM-4	DW-0661	Jearman	Jean
DMM-4	DW-0664	Leake	Lauren
DMM-4	DW-0665	Osborn	Lisa
DMM-4	DW-0667	East	Laura
DMM-4	DW-0670	Simo	Jamie
DMM-4	DW-0672	Cleve	Della
DMM-4	DW-0674	Folley-Regusters	Scheherazade
DMM-4	DW-0675	Fairman	Marcia
DMM-4	DW-0676	Thomason	Pablo
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DMM-4	DW-0678	Good	Robyn
DMM-4	DW-0679	Mitchell	Lee
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DMM-4	DW-0681	Dickinson	Marcia
DMM-4	DW-0682	Silver	John
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DMM-4	DW-0835	Burtner	Caryl
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DMM-4	DW-0838	Clark	Scott
DMM-4	DW-0839	Sistok-Katz	Silja
DMM-4	DW-0840	Routh	Kira
DMM-4	DW-0841	Callahan	Susie
DMM-4	DW-0842	Puhak	Blake
DMM-4	DW-0843	Scalin	Noah
DMM-4	DW-0844	Cook	Dana
DMM-4	DW-0845	Pence	Tina
DMM-4	DW-0846	Shilliday	Jone
DMM-4	DW-0847	Besa	Glen
DMM-4	DW-0848	Bruguiere	Amoret
DMM-4	DW-0849	Vinegar	Jan
DMM-4	DW-0856	Yeaman	Suzanne
DMM-4	DW-0859	Grant	Mariah
DMM-4	DW-0864	Olsen	Thomas
DMM-4	DW-0865	Barton	Andy
DMM-4	DW-0872	Stump	Katie
DMM-4	DW-0874	Thiele	Joanne
DMM-4	DW-0875	Pal	Anjili
DMM-4	DW-0876	Cook	Sherri

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DMM-4	DW-0878	Cunningham	Ryan
DMM-4	DW-0880	Muchnick	Allen
DMM-4	DW-0882	Carruth	Lynne
DMM-4	DW-0883	Craig	Mike
DMM-4	DW-0884	English	Garrett
DMM-4	DW-0886	Cruickshank	John
DMM-4	DW-0887	Miller	Jason
DMM-4	DW-0888	Fioretti	Albert
DMM-4	DW-0889	Hoffman	Lilli
DMM-4	DW-0890	Withers	Marsha
DMM-4	DW-0892	Tyrrell	Joseph
DMM-4	DW-0893	Hollins	Katherine
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DMM-4	DW-0895	Campbell	David
DMM-4	DW-0896	Doggett	Gregory
DMM-4	DW-0903	Carper	Cindy
DMM-4	DW-0905	Shandor	Andrea
DMM-4	DW-0917	Wilson	Susan
DMM-4	DW-0918	Therrien	Pat
DMM-4	DW-0920	Carr-Young	Nell
DMM-4	DW-0921	Adams	Roger
DMM-4	DW-0922	Hunt	Janet
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DMM-4	DW-0924	Simpson	Jane
DMM-4	DW-0925	Welsh	Catherine
DMM-4	DW-0928	Mehta	Kirit
DMM-4	DW-0929	Buck	Peter
DMM-4	DW-0931	Edwards	Joseph
DMM-4	DW-0934	McMillan	Jon
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DMM-4	DW-0937	Irwin	Pamela
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DMM-4	DW-0941	Scialdone-Kimberley	Hannah
DMM-4	DW-0942	Whitesell	Lily
DMM-4	DW-0943	Anderson	Ron
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DMM-4	DW-0950	Dunbar	Mary
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DMM-4	DW-0952	Quam	Leah
DMM-4	DW-0953	O'Hara	Jeanne
DMM-4	DW-0954	Wilson	Brian
DMM-4	DW-0956	Bock	Carol

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DMM-4	DW-0958	Churchman	Pat
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DMM-4	DW-0962	Steponkus	Mary
DMM-4	DW-0963	Apple	Joe
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DMM-4	DW-0965	Johnson	Letitia
DMM-4	DW-0966	Nemeth	Teresa
DMM-4	DW-0967	Avery	Burt
DMM-4	DW-0968	Szeman	Judy
DMM-4	DW-0969	Duffy	Matt
DMM-4	DW-0970	Goldstein	Vicki
DMM-4	DW-0971	Johnson	Heath
DMM-4	DW-0972	McCabe	Lauren
DMM-4	DW-0973	Fleischman	Catherine
DMM-4	DW-0974	C.	Lori
DMM-4	DW-0975	Heegaard	Flemming
DMM-4	DW-0976	Friedman	Paul
DMM-4	DW-0977	Burger	Scott
Extracted from DMM-4	DW-0978	Woodlief	Ann
DMM-4	DW-0979	Parker	Michelle
DMM-4	DW-0980	Gardner	Barbara
DMM-4	DW-0981	Falkerson	Linda
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DMM-4	DW-0987	Stringfellow	Agnes
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DMM-4	DW-0989	Bilardo	Heidi
DMM-4	DW-0990	Beck	Barbara
DMM-4	DW-0991	Ellis	Thomas
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DMM-4	DW-0993	Shantz	David
DMM-4	DW-0994	Donley	Anne
DMM-4	DW-0995	Strobel	Melissa
DMM-4	DW-0996	Skopal	Maya
DMM-4	DW-0997	Brooks	Steve
DMM-4	DW-0999	Parker	Floret
DMM-4	DW-1000	Germans	Nicole
DMM-4	DW-1001	Jacqueline	Boswell
DMM-4	DW-1002	Berg	Gloria
DMM-4	DW-1003	Crate	Susie
DMM-4	DW-1004	Howard	John
DMM-4	DW-1005	Morrison	Elijah

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DMM-4	DW-1008	Moeller	Audrey
DMM-4	DW-1009	Scarrow	William and Nedra
DMM-4	DW-1010	Pool	Charles
DMM-4	DW-1011	Davimes	Laura
DMM-4	DW-1012	Pitre	Julia
DMM-4	DW-1013	Mitchell	Roy
DMM-4	DW-1014	Churray	Richard
DMM-4	DW-1016	Sundy	M
DMM-4	DW-1017	Jeffrey	Melody
DMM-4	DW-1019	Gold	Alan
DMM-4	DW-1020	Loew	Michael
DMM-4	DW-1021	Whealin	Alice
DMM-4	DW-1022	Bolas	Mary Lou
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DMM-4	DW-1024	Hogger	Christoph
DMM-4	DW-1026	Campana	Birgit
DMM-4	DW-1027	Urbach	Howard
DMM-4	DW-1028	Williamson	Ryan
DMM-4	DW-1029	Rogers	Ann
DMM-4	DW-1031	Ewen	Laura
DMM-4	DW-1033	Stafford	Chris
DMM-4	DW-1034	Pryor	Cindy
DMM-4	DW-1036	Zinck	James
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DMM-4	DW-1039	Chappell	Susan
DMM-4	DW-1040	Shapiro	Michael
DMM-4	DW-1041	Carrell	Jimmy
DMM-4	DW-1043	Austin	Douglas
DMM-4	DW-1045	Bushey	Carolyn
DMM-4	DW-1046	York	Stasi
DMM-4	DW-1047	Hagood	Talbott
DMM-4	DW-1048	Keeton III	Dewey
DMM-4	DW-1049	Bryan	Keith
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DMM-4	DW-1051	Pedigo	Lance
DMM-4	DW-1054	Amel	Dean
DMM-4	DW-1055	McGhee	Yvonne
DMM-4	DW-1056	Kashani	Letitia
DMM-4	DW-1057	Dennette-Shaw	Diane
DMM-4	DW-1058	Bunting	Kyle
DMM-4	DW-1059	Proctor	Stephen
DMM-4	DW-1060	Barnes	Robet
DMM-4	DW-1061	Rampy	Leah
DMM-4	DW-1062	Nielsen	Anne
DMM-4	DW-1063	Henderson	Lillian
DMM-4	DW-1064	Imbert	Megan
DMM-4	DW-1065	Sumrall	Daniel

Comment	Document ID	Last Name	First Name
DMM-4	DW-1066	Homitz	Daniel
DMM-4	DW-1067	McAdams	Charlotte
DMM-4	DW-1068	Strandberg	Adrienne
DMM-4	DW-1069	Miller	Griff
DMM-4	DW-1070	Soriano	Patricia
DMM-4	DW-1071	East	Buddy
DMM-4	DW-1072	Wise	Sarah
DMM-4	DW-1073	Zaza	Sara
DMM-4	DW-1074	Lanzman	Sarah
DMM-4	DW-1075	Cassel	Anje
DMM-4	DW-1076	Mullins	Victoria
DMM-4	DW-1077	Tyrrell	Anne
DMM-4	DW-1078	Devore	ML
DMM-4	DW-1079	Snell	pamelynn
DMM-4	DW-1080	Mayhew	Paul
DMM-4	DW-1081	Ward	Claire
DMM-4	DW-1082	Fellows	Leslie
DMM-4	DW-1083	Kunkel	Christopher
DMM-4	DW-1084	Woodbridge	Michael
DMM-4	DW-1085	Branham	Linda
DMM-4	DW-1086	Pryor	Barbara
DMM-4	DW-1087	Smith	Jennifer
DMM-4	DW-1088	Miller	Cliff
DMM-4	DW-1092	Costello	TracyAnn
DMM-4	DW-1094	Ross	Guy
Extracted from DMM-4	DW-1095	Lynch	James
DMM-4	DW-1096	Parrucci	Samuel
DMM-4	DW-1097	Egbert	Robert
DMM-4	DW-1098	Snyder	Kelly
Extracted from DMM-4	DW-1099	Dukovich	John
DMM-4	DW-1101	Cali	Whitney
DMM-4	DW-1102	Eichenberger	Patricia
DMM-4	DW-1104	Redding	Sherley
DMM-4	DW-1105	Best	Sharon
DMM-4	DW-1106	Martinez	Christina
DMM-4	DW-1107	White	Eric
DMM-4	DW-1108	Savage	Thomas
DMM-4	DW-1109	Terry	Joe
DMM-4	DW-1110	Greggs	Paul
DMM-4	DW-1111	Pownall	Phyllis
DMM-4	DW-1112	Carter	Ellie
Extracted from DMM-4	DW-1113	Hulstrom	Erica
DMM-4	DW-1116	Leeper	Dana
DMM-4	DW-1131	Sorovacu	Yvonne
DMM-4	DW-1137	Brummer	Ann
DMM-4	DW-1162	Hinch	Dianne
DMM-4	DW-1166	Halliburton-Ross	Kathleen
DMM-4	DW-1174	Foley	Erin

Table 6-4. SDEIS Index Arranged Alphabetically

Commenter Name, Organization where Specified		Commenter Number	Accession Number	Comment Date
Jim Adams		ST-0038	ML062440240	8/15/2006
Lee Anthony		ST-0034	ML062440240	8/15/2006
Richard Ball	Virginia Chapter of Sierra Club	ST-0030	ML062440240	8/15/2006
Dick Ball	Virginia Chapter of Sierra Club	SE-0038	ML062540017	9/8/2006
Vishwa Bhargava		SE-0023	ML062330040	8/17/2006
Sama Bilbao		SE-0025	ML062350119	8/16/2006
Sama Bilbao Y Leon	North American Young Generation of Nuclear	ST-0013	ML062440240	8/15/2006
Kirsten Breeded		ST-0022	ML062440240	8/15/2006
Gary Breeden	Aspen Homeowner's Association	ST-0029	ML062440240	8/15/2006
Sandra Brockel		SE-0008	ML062060627	7/25/2006
Bill Campbell		ST-0023	ML062440240	8/15/2006
Eric Cantor	Congressman	SW-0002	ML062280472	8/7/2006
Bill Casino		ST-0017	ML062440240	8/15/2006
Keith Cheatham	Virginia Chamber of Commerce	ST-0031	ML062440240	8/15/2006
Keith Cheatham	V. P. Virginia Chamber of Commerce	SW-0007	ML062350262	8/15/2006
Michael Chezik	U.S. Department of the Interior	SE-0024	ML062350118	8/21/2006
Robert Clarke	Industrial Dev. Authority, Louisa Cty	ST-0016	ML062440240	8/15/2006
Julie Curry		SW-0014	ML062350337	8/16/2006
Scott Curtis		SW-0001	ML062220274	7/30/2006
Elena Day	People's Alliance for Clean Energy	ST-0002	ML062440240	8/15/2006
Peter Dorn	PK Dorn and Associates	SE-0015	ML062210381	8/1/2006
R. Faris		SE-0037	ML062500414	9/7/2006
Rebecca Farris		ST-0006	ML062440240	8/15/2006
Todd Flowers		SW-0006	ML062350260	8/15/2006
Wade Frazee		SE-0019	ML062260020	8/11/2006
Sherman Frye		SE-0011	ML062200091	8/6/2006
Paul Genoa		ST-0033	ML062440240	8/15/2006
Gerry Giaccai		ST-0007	ML062440240	8/15/2006
Aviv Goldsmith		ST-0036	ML062440240	8/15/2006
Aviv Goldsmith	(same as SW-0018)	SE-0045	ML062550560	9/12/2006
Aviv Goldsmith	(same as SE-0045)	SW-0018	ML062650173	9/12/2006
Eugene Grecheck	Dominion Nuclear North Anna	ST-0009	ML062440240	8/15/2006
Eugene Grecheck	Dominion Nuclear North Anna	SE-0050	ML062990422	9/12/2006
Eugene Grecheck	Dominion (same as SE-0050)	SW-0022	ML062990422	9/12/2006
Patrick Hanley	Louisa Cty Chamber of Commerce	ST-0018	ML062440240	8/15/2006
Frank Harksen	Hanover Cty Dept of Public Utilities	SW-0019	ML062650174	9/12/2006
Frank Harksen	Hanover Cty Dept of Public Utilities	SE-0048	ML062550564	9/12/2006
Vicky Harte	U.S. Women in Nuclear	SE-0026	ML062400041	8/24/2006
Delbert Horn		ST-0026	ML062440240	8/15/2006
Robin Horne	Chair, Louisa Cty School Board	ST-0011	ML062440240	8/15/2006
Robin Horne	(and HA Shaffer) Louisa Cty School Board	SW-0016	ML062610057	9/6/2006
Michael Ireland		SE-0016	ML062220293	8/9/2006

Commenter Name, Organization where Specified		Commenter Number	Accession Number	Comment Date
Michael Ireland		SE-0020	ML062260021	8/13/2006
Ellie Irons	(VEDQ--forwarding SE-0008 to NRC)	SE-0009	ML062060628	7/25/2006
Ellie Irons	Virginia Department of Environmental Quality	SE-0021	ML062260451	8/14/2006
Ellie Irons	Virginia Department of Environmental Quality	SE-0039	ML062540018	9/8/2006
Ellie Irons	Virginia Department of Environmental Quality	SW-0017	ML062100582	9/8/2006
Ellis James		SW-0021	ML062860577	9/10/2006
Bill Janis	Virginia House of Delegates	SW-0012	ML062350335	8/14/2006
Ray Jurgel		SW-0015	ML062350338	8/16/2006
Melissa Kemp	Public Citizen	ST-0005	ML062440240	8/15/2006
Allan Lassitor		ST-0035	ML062440240	8/15/2006
Keely Levering		SE-0014	ML062210380	8/9/2006
Lee Lintecum	Louisa County Administrator	ST-0010	ML062440240	8/15/2006
Lee Lintecum	Louisa County Administrator	SW-0005	ML062350259	8/15/2006
Chris Lloyd		ST-0003	ML062440240	8/15/2006
Jackie Lombardo		SE-0034	ML062500406	9/5/2006
Jackie Lombardo		SE-0041	ML062540021	9/5/2006
Kouy Luangphinith		SW-0013	ML062350336	8/16/2006
Theresa Lynch		SE-0035	ML062500408	9/6/2006
Ron Mickens		ST-0021	ML062440240	8/15/2006
Steve Montgomery		ST-0037	ML062440240	8/15/2006
William Murphey	Lake Anna Civic Association	SW-0004	ML062350256	8/15/2006
Bill Murphy	Lake Anna Civic Association	ST-0004	ML062440240	8/15/2006
NA-YGN Petition	North American Young Generation of Nuclear	SW-0009	ML062350445	8/15/2006
Christopher Paine	National Resources Defense Council	SE-0040	ML062540019	9/9/2006
Richard Parrish	Southern Environmental Law Center	SE-0046	ML062550561	9/12/2006
Donna Pienkowski		SE-0049	ML062560017	9/12/2006
Henry Pollard	Cristian Barton for Bear Island Paper Co.	SE-0047	ML062550562	9/12/2006
Henry Pollard	Atty, Bear Island Paper Co.	SW-0020	ML062650177	9/12/2006
Ken Remmers	Watersides Homeowner's Property Association	ST-0028	ML062440240	8/15/2006
Kenneth Remmers	Watersides Homeowner's Property Association	SE-0027	ML062400043	8/24/2006
Kenneth Remmers	(duplicate of SE-0027)	SE-0028	ML062400045	8/24/2006
Kenneth Remmers	Watersides Homeowner's Property Association	SE-0029	ML062410057	8/28/2006
Helen Reutlinger		SE-0032	ML062490034	9/5/2006
Helen Reutlinger	(duplicate of SE-0032)	SE-0042	ML062540022	9/5/2006
Robert Richards		SE-0018	ML062260019	8/11/2006
Jerry Rosenthal		ST-0024	ML062440240	8/15/2006
Harry Ruth	Friends of Lake Anna	ST-0014	ML062440240	8/15/2006
Harry Ruth	Friends of Lake Anna	SE-0002	ML062050345	7/24/2006
Harry Ruth	Friends of Lake Anna	SE-0003	ML062050346	7/24/2006
Harry Ruth	Friends of Lake Anna	SE-0004	ML062050635	7/24/2006
Harry Ruth	(duplicate of SE-0003)	SE-0005	ML062050638	7/24/2006
Harry Ruth	(duplicate of SE-0003)	SE-0006	ML062060625	7/25/2006

Commenter Name, Organization where Specified		Commenter Number	Accession Number	Comment Date
Harry Ruth	Friends of Lake Anna	SE-0007	ML062060626	7/24/2006
Harry Ruth	Friends of Lake Anna	SE-0013	ML062200539	8/7/2006
Harry Ruth	Friends of Lake Anna	SE-0022	ML062330039	8/17/2006
Harry Ruth	Friends of Lake Anna	SE-0033	ML062490036	9/5/2006
Harry Ruth	Friends of Lake Anna	SE-0044	ML062550131	9/12/2006
Bill Salisbury		SE-0017	ML062220294	8/10/2006
Harold Schaffer	Louisa County School Board	SE-0036	ML062550322	9/6/2006
Dennis Schaible		ST-0032	ML062440240	8/15/2006
Dennis Schaible		SE-0012	ML062200093	8/5/2006
David Schwartz		SE-0010	ML062120115	7/29/2006
Ben Slone		ST-0015	ML062440240	8/15/2006
Selena Smith		ST-0027	ML062440240	8/15/2006
Margo Sorokin		SE-0031	ML062490033	9/5/2006
Margo Sorokin	(duplicate of SE-0031)	SE-0043	ML062540025	9/5/2006
Lisa Stiles-Shell	Int'l Youth Nuclear Congress, NA-YGN	ST-0012	ML062440240	8/15/2006
Michael Stuart		ST-0020	ML062440240	8/15/2006
Kelly Taylor		ST-0025	ML062440240	8/15/2006
Norman Tweed Jr		SE-0001	ML062050344	7/21/2006
Brad Wike	Int'l Brotherhood of Electrical Workers	SW-0003	ML062350252	8/15/2006
Arguto William	US Environmental Protection Agency	SE-0030	ML062550326	8/28/2006
Catherine Williams		SW-0011	ML062350332	8/14/2006
Lee Wycoff		ST-0001	ML062440240	8/15/2006
Patricia Wycoff		ST-0019	ML062440240	8/15/2006
Lou Zeller	Blue Ridge Env. Defense League	ST-0008	ML062440240	8/15/2006
Louis Zeller	Blue Ridge Env. Defense League	SW-0008	ML062350263	8/15/2006

Table 6-5. SDEIS Index Arranged Numerically

Commenter Number	Commenter Name, Organization where Specified		Accession Number	Comment Date
Transcript Comments				
ST-0001	Lee Wycoff		ML062440240	8/15/2006
ST-0002	Elena Day	People's Alliance for Clean Energy	ML062440240	8/15/2006
ST-0003	Chris Lloyd		ML062440240	8/15/2006
ST-0004	Bill Murphy	Lake Anna Civic Association	ML062440240	8/15/2006
ST-0005	Melissa Kemp	Public Citizen	ML062440240	8/15/2006
ST-0006	Rebecca Farris		ML062440240	8/15/2006
ST-0007	Gerry Giaccai		ML062440240	8/15/2006
ST-0008	Lou Zeller	Blue Ridge Env. Defense League	ML062440240	8/15/2006
ST-0009	Gene Grecheck	Dominion Nuclear North Anna	ML062440240	8/15/2006
ST-0010	Lee Lintecum	Louisa Cty Administrator	ML062440240	8/15/2006
ST-0011	Robin Horne	Louisa County School Board	ML062440240	8/15/2006
ST-0012	Lisa Stiles-Shell	Int'l Youth Nuclear Congress, NA-YGN	ML062440240	8/15/2006
ST-0013	Sama Bilbao Y Leon	North American Young Generation of Nuclear	ML062440240	8/15/2006

Commenter Number	Commenter Name, Organization where Specified		Accession Number	Comment Date
ST-0014	Harry Ruth	Friends of Lake Anna	ML062440240	8/15/2006
ST-0015	Ben Slone		ML062440240	8/15/2006
ST-0016	Robert Clarke	Industrial Dev. Authority, Louisa Cty	ML062440240	8/15/2006
ST-0017	Bill Casino		ML062440240	8/15/2006
ST-0018	Patrick Hanley	Louisa Cty Chamber of Commerce	ML062440240	8/15/2006
ST-0019	Patricia Wycoff		ML062440240	8/15/2006
ST-0020	Michael Stuart		ML062440240	8/15/2006
ST-0021	Ron Mickens		ML062440240	8/15/2006
ST-0022	Kirsten Breeded		ML062440240	8/15/2006
ST-0023	Bill Campbell		ML062440240	8/15/2006
ST-0024	Jerry Rosenthal		ML062440240	8/15/2006
ST-0025	Kelly Taylor		ML062440240	8/15/2006
ST-0026	Delbert Horn		ML062440240	8/15/2006
ST-0027	Selena Smith		ML062440240	8/15/2006
ST-0028	Ken Remmers	Watersides Homeowner's Property Association	ML062440240	8/15/2006
ST-0029	Gary Breeden	Aspen Homeowner's Association	ML062440240	8/15/2006
ST-0030	Richard Ball	Virginia Chapter of Sierra Club	ML062440240	8/15/2006
ST-0031	Keith Cheatham	Virginia Chamber of Commerce	ML062440240	8/15/2006
ST-0032	Dennis Schaible		ML062440240	8/15/2006
ST-0033	Paul Genoa		ML062440240	8/15/2006
ST-0034	Lee Anthony		ML062440240	8/15/2006
ST-0035	Allan Lassitor		ML062440240	8/15/2006
ST-0036	Aviv Goldsmith		ML062440240	8/15/2006
ST-0037	Steve Montgomery		ML062440240	8/15/2006
ST-0038	Jim Adams		ML062440240	8/15/2006
E-mail comments				
SE-0001	Norman Tweed Jr		ML062050344	7/21/2006
SE-0002	Harry Ruth	Friends of Lake Anna	ML062050345	7/24/2006
SE-0003	Harry Ruth	Friends of Lake Anna	ML062050346	7/24/2006
SE-0004	Harry Ruth	Friends of Lake Anna	ML062050635	7/24/2006
SE-0005	Harry Ruth	(duplicate of SE-0003)	ML062050638	7/24/2006
SE-0006	Harry Ruth	(duplicate of SE-0003)	ML062060625	7/25/2006
SE-0007	Harry Ruth	Friends of Lake Anna	ML062060626	7/24/2006
SE-0008	Sandra Brockel		ML062060627	7/25/2006
SE-0009	Ellie Irons	(VEDQ--forwarding SE-0008 to NRC)	ML062060628	7/25/2006
SE-0010	David Schwartz		ML062120115	7/29/2006
SE-0011	Sherman Frye		ML062200091	8/6/2006
SE-0012	Dennis Schaible		ML062200093	8/5/2006
SE-0013	Harry Ruth	Friends of Lake Anna	ML062200539	8/7/2006
SE-0014	Keely Levering		ML062210380	8/9/2006
SE-0015	Peter Dorn	PK Dorn and Associates	ML062210381	8/1/2006
SE-0016	Michael Ireland		ML062220293	8/9/2006
SE-0017	Bill Salisbury		ML062220294	8/10/2006
SE-0018	Robert Richards		ML062260019	8/11/2006
SE-0019	Wade Frazee		ML062260020	8/11/2006

Commenter Number	Commenter Name, Organization where Specified		Accession Number	Comment Date
SE-0020	Michael Ireland		ML062260021	8/13/2006
SE-0021	Ellie Irons		ML062260451	8/14/2006
SE-0022	Harry Ruth	Friends of Lake Anna	ML062330039	8/17/2006
SE-0023	Vishwa Bhargava		ML062330040	8/17/2006
SE-0024	Michael Chezik	U.S. Department of the Interior	ML062350118	8/21/2006
SE-0025	Sama Bilbao		ML062350119	8/16/2006
SE-0026	Vicky Harte	U.S. Women in Nuclear	ML062400041	8/24/2006
SE-0027	Kenneth Remmers	Watersides Homeowner's Property Association	ML062400043	8/24/2006
SE-0028	Kenneth Remmers	(duplicate of SE-0027)	ML062400045	8/24/2006
SE-0029	Kenneth Remmers	Watersides Homeowner's Property Association	ML062410057	8/28/2006
SE-0030	Arguto William	US Environmental Protection Agency	ML062550326	8/28/2006
SE-0031	Margo Sorokin		ML062490033	9/5/2006
SE-0032	Helen Reutlinger		ML062490034	9/5/2006
SE-0033	Harry Ruth	Friends of Lake Anna	ML062490036	9/5/2006
SE-0034	Jackie Lombardo		ML062500406	9/5/2006
SE-0035	Theresa Lynch		ML062500408	9/6/2006
SE-0036	Harold Schaffer	Louisa County School Board	ML062550322	9/6/2006
SE-0037	R. Faris		ML062500414	9/7/2006
SE-0038	Dick Ball	Virginia Chapter of Sierra Club	ML062540017	9/8/2006
SE-0039	Irons Ellie	Virginia Department of Environmental Quality	ML062540018	9/8/2006
SE-0040	Christopher Paine	National Resources Defense Council	ML062540019	9/9/2006
SE-0041	Jackie Lombardo		ML062540021	9/5/2006
SE-0042	Helen Reutlinger	(duplicate of SE-0032)	ML062540022	9/5/2006
SE-0043	Margo Sorokin	(duplicate of SE-0031)	ML062540025	9/5/2006
SE-0044	Harry Ruth	Friends of Lake Anna	ML062550131	9/12/2006
SE-0045	Aviv Goldsmith	(same as SW-0018)	ML062550560	9/12/2006
SE-0046	Richard Parrish	Southern Environmental Law Center	ML062550561	9/12/2006
SE-0047	Henry Pollard	Cristian Barton for Bear Island Paper Co.	ML062550562	9/12/2006
SE-0048	Harksen Frank	Hanover Cty Dept of Public Utilities	ML062550564	9/12/2006
SE-0049	Donna Pienkowski		ML062560017	9/12/2006
SE-0050	Eugene Grecheck	Dominion Nuclear North Anna	ML062990422	9/12/2006
Written comments				
SW-0001	Scott Curtis		ML062220274	7/30/2006
SW-0002	Eric Cantor	Congressman	ML062280472	8/7/2006
SW-0003	Brad Wike	Int'l Brotherhood of Electrical Workers	ML062350252	8/15/2006
SW-0004	William Murphey	Lake Anna Civic Association	ML062350256	8/15/2006
SW-0005	Lee Lintecum	Louisa County Administrator	ML062350259	8/15/2006
SW-0006	Todd Flowers		ML062350260	8/15/2006
SW-0007	Keith Cheatham	V. P. Virginia Chamber of Commerce	ML062350262	8/15/2006
SW-0008	Louis Zeller	Blue Ridge Env. Defense League	ML062350263	8/15/2006
SW-0009	NA-YGN Petition	North American Young Generation of Nuclear	ML062350445	8/15/2006
SW-0010		Notes erroneously entered as a comment	ML062350266	8/15/2006
SW-0011	Catherine Williams		ML062350332	8/14/2006
SW-0012	Bill Janis	Virginia House of Delegates	ML062350335	8/14/2006
SW-0013	Kouy Luangphinith		ML062350336	8/16/2006

Commenter Number	Commenter Name, Organization where Specified		Accession Number	Comment Date
SW-0014	Julie Curry		ML062350337	8/16/2006
SW-0015	Ray Jurgel		ML062350338	8/16/2006
SW-0016	Robin Horne	(and HA Shaffer) Louisa Cty School Board	ML062610057	9/6/2006
SW-0017	Ellie Irons	Virginia Department of Environmental Quality	ML062100582	9/8/2006
SW-0018	Aviv Goldsmith	(same as SW-0045)	ML062650173	9/12/2006
SW-0019	Frank Harksen	Hanover Cty Dept of Public Utilities	ML062650174	9/12/2006
SW-0020	Henry Pollard	Atty, Bear Island Paper Co.	ML062650177	9/12/2006
SW-0021	Ellis James		ML062860577	9/10/2006
SW-0022	Eugene Grecheck	Dominion (same as SE-0050)	ML062990422	9/12/2006

Appendix F

Key Correspondence

Appendix F

Dominion Nuclear North Anna LLC's Key Early Site Permit Consultation Correspondence

Correspondence received during the evaluation process of the early site permit (ESP) application for Dominion Nuclear North Anna LLC (Dominion) for the proposed North Anna site is identified in Table F-1. Copies of the correspondence are included at the end of this table.

Source	Recipient	Date of Letter/E-mail
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Virginia Department of Historic Resources (Ethel Eaton)	November 21, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Virginia Council on Indians (Deanna Beacham)	December 3, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Tuscarora Environmental Program (Neil Patterson)	December 3, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Chief Arnold Hewitt	December 3, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Chief Leo Henry	December 3, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	NOAA Fisheries (Mary Colligan)	December 21, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	U.S. Fish and Wildlife Service (John Wolflin)	December 21, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	U.S. Fish and Wildlife Service (Roger Banks)	December 21, 2003
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	U.S. Fish and Wildlife Service (Mary Knapp)	December 21, 2003

Source	Recipient	Date of Letter/E-mail
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Advisory Council on Historic Preservation (Don Klima)	January 5, 2004
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	NOAA Fisheries (Georgia Cranmore)	January 5, 2004
NOAA Fisheries (Mary Colligan)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	January 6, 2004
U.S. Fish and Wildlife Service (Timothy Hall)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	January 15, 2004
U.S. Fish and Wildlife Service (Mary Knapp)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	February 3, 2004
NOAA (David Bernhart)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	May 19, 2004
U.S. Fish and Wildlife Service (Karen Mayne)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	October 25, 2004
Virginia Department of Historic Resources (Ethel Eaton)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	January 5, 2005
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	U.S. Fish and Wildlife Service (David Sutherland)	January 31, 2005
Dominion Virginia Power Company (Pamela Faggert)	Virginia Department of Environmental Quality (Ellie Irons)	March 21, 2005
U.S. Fish and Wildlife Service (John Wolflin)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	May 20, 2005
Virginia Department of Environmental Quality (Ellie Irons)	Dominion Virginia Power Company (Pamela Faggert)	June 17, 2005

Source	Recipient	Date of Letter/E-mail
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	U.S. Army Corps of Engineers (Mr. Regena Bronson)	June 30, 2005
Department of the Army Corps of Engineers (Bruce F. Williams)	U.S. Nuclear Regulatory Commission (Jack Cushing)	July 15, 2005
U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	Virginia Department of Historic Resources (Ethel Eaton)	September 27, 2005
U.S. Department of the Interior, National Park Service (Skip Brooks)	U.S. Nuclear Regulatory Commission (Jack Cushing)	October 25, 2005
Virginia Department of Historic Resources (Roger W. Kirchen)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	November 3, 2005
Virginia Department of Environmental Quality (Jeffery A. Steers)	U.S. Nuclear Regulatory Commission (Jack Cushing)	June 16, 2006
Virginia Department of Historic Resources (Roger W. Kirchen)	U.S. Nuclear Regulatory Commission (Jack Cushing)	October 20, 2006
U.S. Nuclear Regulatory Commission (Brent Clayton)	Virginia Department of Historic Resources (Ethel Eaton)	November 3, 2006
U.S. Nuclear Regulatory Commission (Brent Clayton)	U.S. Fish and Wildlife Service (Michael Chezik)	November 3, 2006
Dominion Nuclear North Anna, LLC (Eugene Grecheck)	U.S. Nuclear Regulatory Commission (Pao-Tsin Kuo)	November 22, 2006

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 21, 2003

Dr. Ethel Eaton, Manager
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA POWER STATION SITE

Dear Dr. Eaton:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. The NRC staff is currently seeking information from consulting parties, and other individuals and organizations likely to have knowledge of, or concerns with, historic properties in the area, and to identify issues relating to the proposed undertaking's potential effects on historic properties.

If built, the new unit(s) would be located at the existing North Anna Power Station site near Mineral in Louisa County, Virginia, on the southern shore of Lake Anna. The application for an ESP was submitted by Dominion Nuclear North Anna, LLC (Dominion), on September 25, 2003, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52). See Enclosure 1, the application on CD-ROM. As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act (NEPA). In accordance with 36 CFR 800.8, the EIS will include analyses of potential impacts to historic and cultural resources. A draft EIS is scheduled for publication in October 2004, and will be provided to you for review and comment.

If approved, the ESP will document the NRC staff's determination regarding the suitability of the proposed site for the construction and operation of one or more new nuclear plants. The ESP would not authorize the applicant to begin construction of the unit(s). However, in its review the NRC staff will evaluate the environmental impacts of construction and operation and will also consider alternatives, including alternative sites.

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. See Part 4 of the application for the site redress plan. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for this ESP review is the area at the power plant site and its immediate environs which may be impacted by land-disturbing activities

associated with the construction and operation of the new unit(s). However, in some instances these land-disturbing activities may potentially have an effect on known or proposed historic sites located beyond the immediate environs of the proposed site.

In its application, Dominion has stated that, prior to any activities that would disturb existing ground conditions, it would assess the need, in coordination with the Virginia Department of Historic Resources, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. In addition, Dominion has stated that it would implement the necessary administrative steps to make proper notifications in the event of an unanticipated discovery (including human remains). Enclosed for your information is a cultural resources survey of the North Anna site, prepared for the owner of the site in 2001 (Enclosures 2 and 3). The NRC staff has previously discussed this report with you during its review of the license renewal application for the existing North Anna Power Station, Units 1 and 2.

We invite you and your staff to participate in the review of the North Anna ESP application. We will also be contacting any Native American Tribes that may have a potential interest in the proposed undertaking, affording them the opportunity to participate in this process and identify issues of concern to them. These tribes are identified by records research with the Bureau of Indian Affairs, State and local governments, tribal organizations, and through other historical documentation.

On December 8, 2003, the NRC will conduct a public environmental scoping meeting at the Louisa County Middle School, 1009 Davis Highway, Mineral, Virginia. You and your staff are invited to attend. Your office will receive a copy of the draft EIS along with a request for comments. This draft EIS will include identification of historic sites, assessment of impacts, and our preliminary determination. The anticipated publication date for the draft EIS is October 2004.

If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler at 301-415-2828 or ajk1@nrc.gov.

Sincerely,

Stephen T. Hoffman

for Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

Enclosure: As stated
1) North Anna ESP Application
2) Assession No. ML020160087
3) Assession No. ML020160094

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 3, 2003

Ms. Deanna Beacham
Virginia Council on Indians
P.O. Box 1475
Richmond, VA 23218

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA POWER STATION SITE

Dear Ms. Beacham:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. If built, the new unit(s) would be located at the existing North Anna Power Station site near Mineral in Louisa County, Virginia, on the southern shore of Lake Anna. The application for an ESP was submitted by Dominion Nuclear North Anna, LLC (Dominion), on September 25, 2003, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52). The application is available through the web-based version of the NRC's Agencywide Documents Access and Management System (ADAMS) which can be found at http://www.nrc.gov/reading-rm/adams.html. The application is under accession number ML032731517.

As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act (NEPA). In addition, as outlined in 36 CFR 800.8, "Coordination with the National Environmental Policy Act," the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act in meeting the requirements of NEPA. A draft EIS is scheduled for publication in October of 2004, and will be provided to you for review and comment.

If approved, the ESP will document the NRC staff's determination regarding the suitability of the proposed site for the construction and operation of one or more new nuclear plants. The ESP would not authorize the applicant to begin construction of the unit(s). However, in its review, the NRC staff will evaluate the environmental impacts of construction and operation and will also consider alternatives, including alternative sites.

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. See Part 4 of the application for the associated site redress plan. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

D. Beacham -2-

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for this ESP review is the area at the power plant site and its immediate environs which may be impacted by land-disturbing activities associated with the construction and operation of the new unit(s). The APE may extend beyond the immediate environs in those instances where these land-disturbing activities may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

In its application, Dominion has stated that, prior to any activities that would disturb existing ground conditions, it would assess the need, in coordination with the Virginia Department of Historic Resources, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. In addition, Dominion has stated that it would implement the necessary administrative steps to make proper notifications in the event of an unanticipated discovery (including human remains).

Pursuant to 36 CFR 800.2(c)(i), the NRC wishes to ensure that Indian tribes that might have an interest in any potential historic properties in the APE are afforded the opportunity to identify their concerns, provide advice on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, and, if necessary, participate in the resolution of any adverse effects to such properties.

On December 8, 2003, the NRC will conduct a public environmental scoping meeting at the Louisa County Middle School, 1009 Davis Highway, Mineral, Virginia. Representatives of the Council or any of the Virginia tribes are invited to attend. Your office will receive a copy of the draft EIS along with a request for comments. The anticipated publication date for the draft EIS is October 2004. If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler, at 301-415-2828 or ajk1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 3, 2003

Mr. Neil Patterson, Jr., Director
Tuscarora Environmental Program
Tuscarora Nation
2045 Upper Mtn. Road
Sanborn, NY 14132

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA POWER STATION SITE

Dear Mr. Patterson:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. If built, the new unit(s) would be located at the existing North Anna Power Station site near Mineral in Louisa County, Virginia, on the southern shore of Lake Anna. The application for an ESP was submitted by Dominion Nuclear North Anna, LLC (Dominion), on September 25, 2003, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52). The application is available through the web-based version of the NRC's Agencywide Documents Access and Management System (ADAMS) which can be found at http://www.nrc.gov/reading-rm/adams.html. The application is under accession number ML032731517.

As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act (NEPA) of 1969. In addition, as outlined in 36 CFR 800.8, "Coordination with the National Environmental Policy Act of 1969," the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act of 1966 in meeting the requirements of NEPA. A draft EIS is scheduled for publication in October of 2004, and will be provided to you for review and comment.

Representatives of the Bureau of Indian Affairs (Department of the Interior) had previously expressed their interest in ensuring that the NRC provide you with the opportunity to share your views on licensing actions in Louisa County, Virginia. Therefore, the NRC staff is contacting you regarding this ESP review. The North Anna Power Station site, which is the subject of this review, is a considerable distance from the Neuse and Roanoke Rivers. It is located on Lake Anna, 10 miles Northeast of Mineral, VA.

If approved, the ESP will document the NRC staff's determination regarding the suitability of the proposed site for the construction and operation of one or more new nuclear plants. The ESP would not authorize the applicant to begin construction of the unit(s). However, in its review, the NRC staff will evaluate the environmental impacts of construction and operation and will also consider alternatives, including alternative sites.

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. See Part 4 of the application for the associated site redress plan. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for this ESP review is the area at the power plant site and its immediate environs which may be impacted by land-disturbing activities associated with the construction and operation of the new unit(s). The APE may extend beyond the immediate environs in those instances where these land-disturbing activities may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

In its application, Dominion has stated that, prior to any activities that would disturb existing ground conditions, it would assess the need, in coordination with the Virginia Department of Historic Resources, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. In addition, Dominion has stated that it would implement the necessary administrative steps to make proper notifications in the event of an unanticipated discovery (including human remains).

Pursuant to 36 CFR 800.2(c)(i), the NRC wishes to ensure that Indian tribes that might have an interest in any potential historic properties in the APE are afforded the opportunity to identify their concerns, provide advice on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, and, if necessary, participate in the resolution of any adverse effects to such properties.

On December 8, 2003, the NRC will conduct a public environmental scoping meeting at the Louisa County Middle School, 1009 Davis Highway, Mineral, Virginia. Representatives of the tribes are invited to attend. Your office will receive a copy of the draft EIS along with a request for comments. The anticipated publication date for the draft EIS is October 2004. If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler, at 301-415-2828 or ajk1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 3, 2003

The Honorable Arnold Hewitt, Chief
5616 Walmore Road
Lewiston, NY 14092

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA POWER STATION SITE

Dear Chief Hewitt:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. If built, the new unit(s) would be located at the existing North Anna Power Station site near Mineral in Louisa County, Virginia, on the southern shore of Lake Anna. The application for an ESP was submitted by Dominion Nuclear North Anna, LLC (Dominion), on September 25, 2003, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52). The application is available through the web-based version of the NRC's Agencywide Documents Access and Management System (ADAMS) which can be found at http://www.nrc.gov/reading-rm/adams.html. The application is under accession number ML032731517.

As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act (NEPA) of 1969. In addition, as outlined in 36 CFR 800.8, "Coordination with the National Environmental Policy Act of 1969," the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act of 1966 in meeting the requirements of NEPA. A draft EIS is scheduled for publication in October of 2004, and will be provided to you for review and comment.

Representatives of the Bureau of Indian Affairs (Department of the Interior) had previously expressed their interest in ensuring that the NRC provide you with the opportunity to share your views on licensing actions in Louisa County, Virginia. Therefore, the NRC staff is contacting you regarding this ESP review. The North Anna Power Station site, which is the subject of this review, is a considerable distance from the Neuse and Roanoke Rivers. It is located on Lake Anna, 10 miles Northeast of Mineral, VA.

If approved, the ESP will document the NRC staff's determination regarding the suitability of the proposed site for the construction and operation of one or more new nuclear plants. The ESP would not authorize the applicant to begin construction of the unit(s). However, in its review, the NRC staff will evaluate the environmental impacts of construction and operation and will also consider alternatives, including alternative sites.

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. See Part 4 of the application for the associated site redress plan. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for this ESP review is the area at the power plant site and its immediate environs which may be impacted by land-disturbing activities associated with the construction and operation of the new unit(s). The APE may extend beyond the immediate environs in those instances where these land-disturbing activities may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

In its application, Dominion has stated that, prior to any activities that would disturb existing ground conditions, it would assess the need, in coordination with the Virginia Department of Historic Resources, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. In addition, Dominion has stated that it would implement the necessary administrative steps to make proper notifications in the event of an unanticipated discovery (including human remains).

Pursuant to 36 CFR 800.2(c)(i), the NRC wishes to ensure that Indian tribes that might have an interest in any potential historic properties in the APE are afforded the opportunity to identify their concerns, provide advice on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, and, if necessary, participate in the resolution of any adverse effects to such properties.

On December 8, 2003, the NRC will conduct a public environmental scoping meeting at the Louisa County Middle School, 1009 Davis Highway, Mineral, Virginia. Representatives of the tribes are invited to attend. Your office will receive a copy of the draft EIS along with a request for comments. The anticipated publication date for the draft EIS is October 2004. If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler, at 301-415-2828 or ajk1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 3, 2003

The Honorable Leo Henry, Chief
2006 Mt. Hope Road
Lewiston, NY 14092

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA POWER STATION SITE

Dear Chief Henry:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. If built, the new unit(s) would be located at the existing North Anna Power Station site near Mineral in Louisa County, Virginia, on the southern shore of Lake Anna. The application for an ESP was submitted by Dominion Nuclear North Anna, LLC (Dominion), on September 25, 2003, pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52). The application is available through the web-based version of the NRC's Agencywide Documents Access and Management System (ADAMS) which can be found at http://www.nrc.gov/reading-rm/adams.html. The application is under accession number ML032731517.

As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) under the provisions of 10 CFR Part 51, the NRC rules that implement the National Environmental Policy Act (NEPA) of 1969. In addition, as outlined in 36 CFR 800.8, "Coordination with the National Environmental Policy Act of 1969," the NRC plans to coordinate compliance with Section 106 of the National Historic Preservation Act of 1966 in meeting the requirements of NEPA. A draft EIS is scheduled for publication in October of 2004, and will be provided to you for review and comment.

Representatives of the Bureau of Indian Affairs (Department of the Interior) had previously expressed their interest in ensuring that the NRC provide you with the opportunity to share your views on licensing actions in Louisa County, Virginia. Therefore, the NRC staff is contacting you regarding this ESP review. The North Anna Power Station site, which is the subject of this review, is a considerable distance from the Neuse and Roanoke Rivers. It is located on Lake Anna, 10 miles Northeast of Mineral, VA.

If approved, the ESP will document the NRC staff's determination regarding the suitability of the proposed site for the construction and operation of one or more new nuclear plants. The ESP would not authorize the applicant to begin construction of the unit(s). However, in its review, the NRC staff will evaluate the environmental impacts of construction and operation and will also consider alternatives, including alternative sites.

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. See Part 4 of the application for the associated site redress plan. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

In the context of the National Historic Preservation Act of 1966, as amended, the NRC staff has determined that the area of potential effect (APE) for this ESP review is the area at the power plant site and its immediate environs which may be impacted by land-disturbing activities associated with the construction and operation of the new unit(s). The APE may extend beyond the immediate environs in those instances where these land-disturbing activities may potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

In its application, Dominion has stated that, prior to any activities that would disturb existing ground conditions, it would assess the need, in coordination with the Virginia Department of Historic Resources, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. In addition, Dominion has stated that it would implement the necessary administrative steps to make proper notifications in the event of an unanticipated discovery (including human remains).

Pursuant to 36 CFR 800.2(c)(i), the NRC wishes to ensure that Indian tribes that might have an interest in any potential historic properties in the APE are afforded the opportunity to identify their concerns, provide advice on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, and, if necessary, participate in the resolution of any adverse effects to such properties.

On December 8, 2003, the NRC will conduct a public environmental scoping meeting at the Louisa County Middle School, 1009 Davis Highway, Mineral, Virginia. Representatives of the tribes are invited to attend. Your office will receive a copy of the draft EIS along with a request for comments. The anticipated publication date for the draft EIS is October 2004. If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler, at 301-415-2828 or ajk1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 21, 2003

Ms. Mary Colligan
Assistant Regional Administrator
Protected Resources
Northeast Regional Office
NOAA Fisheries
One Blackburn Drive
Gloucester, MA 01930-2298

SUBJECT: APPLICATION FOR AN EARLY SITE PERMIT FOR THE NORTH ANNA POWER STATION SITE

Dear Ms. Colligan:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna LLC (Dominion), for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. As part of the review of this application the NRC is preparing an environmental impact statement (EIS). The impact analysis in the EIS includes the potential impacts of the construction and operation of a new nuclear power plant at the preferred or alternate sites, including the potential impacts to fish and wildlife and threatened and endangered species.

Dominion's preferred alternative for the location of the proposed new power plant is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. Lake Anna is an impoundment of the North Anna River, a tributary to the Pamunky river north of Richmond. One of the alternate sites considered within the ESP application is the existing Surry Power Station located on the south bank of the James River in Surry County, Virginia. Each of these sites were evaluated in 2001 and 2002 regarding the renewal of operating licenses for existing nuclear power plants at these locations.

To support the environmental impact statement preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the North Anna and Surry Sites. In addition, please provide any information you consider appropriate under the provisions of the Fish and Wildlife Coordination Act of 1934. The NRC has also contacted the Fish and Wildlife Service and requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the North Anna and Surry Sites.

If you have any questions concerning the ESP application, or other aspects of this project, please contact Mr. Andrew Kugler, Environmental Project Manager, at (301) 415-2828 or by e-mail at AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 21, 2003

Mr. John Wolflin, Supervisor
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

SUBJECT: APPLICATION FOR AN EARLY SITE PERMIT FOR THE NORTH ANNA POWER STATION SITE

Dear Mr. Wolflin:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna LLC (Dominion) for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. As part of the review of this application the NRC is preparing an environmental impact statement (EIS). The impact analysis in the EIS includes the potential impacts of the construction and operation of a new nuclear power plant at the preferred or alternate sites, including the potential impacts to fish and wildlife and threatened and endangered species.

Dominion's preferred alternative for the location of the proposed new power plant is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. Lake Anna is an impoundment of the North Anna River, a tributary to the Pamunkey River north of Richmond. One of the alternate sites considered within the ESP application is the existing Surry Power Station located on the south bank of the James River in Surry County, Virginia. The electricity generated by a new plant at either site would most likely be transmitted to the regional grid via existing transmission lines. Each of these sites were evaluated in 2001 and 2002 regarding the renewal of operating licenses for existing nuclear power plants at these locations.

To support the EIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the North Anna and Surry Sites. In addition, please provide any information you consider appropriate under the provisions of the Fish and Wildlife Coordination Act of 1934.

The NRC intends to inspect the proposed and alternate sites, consult the National Wetland Database, and work with the Virginia Department of Environmental Quality to assess potential impacts to wetlands at this site. NRC staff also will interact with the appropriate State agencies concerning potential environmental impacts of constructing and operating a new nuclear power plant at either the North Anna or Surry sites.

If you have any questions concerning the ESP application or other aspects of this project, please contact Mr. Andrew Kugler, Environmental Project Manager, at (301) 415-2828 or by e-mail at AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 21, 2003

Mr. Roger L. Banks
Field Supervisor
Charleston Ecological Services Office
U.S. Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

SUBJECT: APPLICATION FOR AN EARLY SITE PERMIT FOR THE NORTH ANNA POWER STATION SITE

Dear Mr. Banks:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna LLC (Dominion), for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. As part of the review of this application the NRC is preparing an environmental impact statement (EIS). The impact analysis in the EIS includes the potential impacts of the construction and operation of a new nuclear power plant at the preferred or alternate sites, including the potential impacts to fish and wildlife and threatened and endangered species.

Dominion's preferred alternative for the location of the proposed new power plant is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. One of the alternate sites considered within the ESP application is the U.S. Department of Energy's Savannah River Site (SRS), located in Aiken and Barnwell Counties, South Carolina. A new plant located at this site would likely utilize a closed cycle cooling system, drawing make-up water from either the Savannah River or from Parr Pond on the SRS. The electricity generated by a new plant most likely would be transmitted to the regional electrical grid via new transmission lines that would cross the SRS and the Savannah River and connect to the switchyard at the Vogtle Nuclear Station in Burke County, Georgia.

To support the EIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the SRS. In addition, please provide any information you consider appropriate under the provisions of the Fish and Wildlife Coordination Act of 1934.

The NRC intends to inspect the proposed alternate site, consult the National Wetland Database, and work with SRS staff to assess potential impacts to wetlands at this site. NRC staff will also interact with the South Carolina Department of Natural Resources concerning potential environmental impacts of constructing and operating a new nuclear power plant at the SRS.

If you have any questions concerning the ESP application, or other aspects of this project, please contact Mr. Andrew Kugler, Environmental Project Manager, at (301) 415-2828 or by e-mail at AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 21, 2003

Dr. Mary Knapp
Field Supervisor
Reynoldsburg Ecological Services Office
U.S. Fish and Wildlife Service
6950-H Americana Parkway
Reynoldsburg, OH 43068-4127

SUBJECT: APPLICATION FOR AN EARLY SITE PERMIT FOR THE NORTH ANNA POWER STATION SITE

Dear Dr. Knapp:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna LLC (Dominion), for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. As part of the review of this application the NRC staff is preparing an environmental impact statement (EIS). The impact analysis in the EIS includes the potential impacts of the construction and operation of a new nuclear power plant at the preferred or alternate sites, including the potential impacts to fish and wildlife and threatened and endangered species.

Dominion's preferred alternative for the location of the proposed new nuclear power plant is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. One of the alternate sites considered within the ESP application is the U.S. Department of Energy's Portsmouth Site, located in Pike County, Ohio. The electricity generated by a new power plant at this location most likely would be transmitted to the regional electrical grid via new transmission lines that would be routed completely within the boundaries of the Portsmouth site.

To support the EIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act of 1973, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the Portsmouth Site. In addition, please provide any information you consider appropriate under the provisions of the Fish and Wildlife Coordination Act of 1934.

The NRC intends to inspect the proposed site, consult the National Wetland Database, and work with Portsmouth Site staff to assess potential impacts to wetlands at this site. NRC staff also will interact with the Ohio Department of Natural Resources concerning potential environmental impacts of constructing and operating a new nuclear power plant at the Portsmouth Site.

If you have any questions concerning the ESP application, or other aspects of this project, please contact Mr. Andrew Kugler, Environmental Project Manager, at (301) 415-2828 or by e-mail at AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 5, 2004

Mr. Don Klima, Director
Office of Federal Agency Programs
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 809
Washington, DC 20004

SUBJECT: EARLY SITE PERMIT REVIEW FOR THE NORTH ANNA SITE

Dear Mr. Klima:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application for an early site permit (ESP) submitted by Dominion Nuclear North Anna, LLC (Dominion) on September 25, 2003. An ESP allows an applicant to set aside a site for potential future construction of one or more new nuclear power plants, and provides the opportunity to resolve site safety and environmental issues before construction begins. An ESP does not allow actual construction of a nuclear plant, which must be requested through another application. The ESP site proposed by Dominion is on property within the site boundary of the existing North Anna Power Station site near the town of Mineral in Louisa County, Virginia. The application was submitted by Dominion pursuant to NRC requirements at Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52).

Dominion has also included a site redress plan in its application in accordance with 10 CFR 52.17(c) and 52.25. If a site redress plan is included in an ESP approved by the NRC, the applicant may carry out certain site preparation and limited construction activities. Dominion would still be required to obtain the appropriate local, State, and other Federal permits required for these activities prior to starting work.

As part of its review of the application, the NRC staff will prepare an environmental impact statement (EIS) pursuant to 10 CFR Part 51, the NRC regulations that implement the National Environmental Policy Act of 1969 (NEPA). In accordance with 36 CFR 800.8, the EIS will include analyses of potential impacts to historic and cultural resources. A draft EIS is scheduled for publication in October 2004, and will be provided to you for review and comment.

If you have any questions or require additional information, please contact the Environmental Project Manager for the North Anna ESP project, Mr. Andrew Kugler at 301-415-2828 or AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 5, 2004

Ms. Georgia Cranmore
Acting Assistant Regional Administrator
for Protected Resources
Southeast Regional Office
NOAA Fisheries
9721 Executive Center Dr, N.
St. Petersburg, FL 33702

SUBJECT: APPLICATION FOR AN EARLY SITE PERMIT FOR THE NORTH ANNA POWER STATION SITE

Dear Ms. Cranmore:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna LLC (Dominion), for an early site permit (ESP) for the potential future construction of one or more new nuclear power plants. As part of the review of this application the NRC is preparing an environmental impact statement (EIS). The impact analysis in the EIS includes the potential impacts of the construction and operation of a new nuclear power plant at the preferred or alternate sites, including the potential impacts to fish and wildlife and threatened and endangered species.

The location of the proposed new power plant is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. One of the alternate sites considered within the ESP application is the U.S. Department of Energy's Savannah River Site (SRS), located in Aiken and Barnwell Counties, South Carolina. A new plant located at this site would likely utilize a closed cycle cooling system, drawing make-up water from either the Savannah River or from Parr Pond on the SRS. The electricity generated by a new plant most likely would be transmitted to the regional electrical grid via new transmission lines that would cross the SRS and the Savannah River and connect to the switchyard at the Vogtle Nuclear Station in Burke County, Georgia.

To support the environmental impact statement preparation process, the NRC requests a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the SRS. The NRC has also contacted the Fish and Wildlife Service and requested a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the SRS.

If you have any questions concerning the ESP application, or other aspects of this project, please contact Mr. Andrew Kugler, Environmental Project Manager, at (301) 415-2828 or by e-mail at AJK1@nrc.gov.

Sincerely,

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 52-008

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

JAN -6 2004

Pao-Tsin Kuo
Program Director, License Renewal and Environmental Impacts
Division of Regulatory Improvement Projects
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Docket No. 52-008

Dear Mr. Kuo,

This responds to your letter dated December 21, 2003, requesting information on the presence of any federally listed threatened or endangered species and/or designated critical habitat for listed species under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) in the vicinity of two sites for potential new nuclear power plants. The US Nuclear Regulatory Commission (NRC) is currently reviewing an application submitted by Dominion Nuclear North Anna LLC for an early site permit for the potential future construction of one or more new nuclear power plants. The preferred alternative for the location of the proposed new power plants is within the site boundaries of the existing North Anna Power Station, located on the south shore of Lake Anna Reservoir in Louisa County, Virginia. One of the alternate sites is within the site boundaries of the existing Surry Power Station located on the south bank of the James River in Surry County, Virginia.

No federally listed or proposed threatened or endangered species under the jurisdiction of NOAA Fisheries are known to exist in the vicinity of the existing North Anna Power Station. However, several threatened and endangered species are known to exist in the Chesapeake Bay, of which the James River is a tributary. While several species of sea turtles are known to be seasonally present in the Chesapeake Bay, none are likely to occur in the vicinity of the Surry Power Station.

The federally endangered shortnose sturgeon (*Acipenser brevirostrum*) is known to be present in the Chesapeake Bay. The NOAA Fisheries recovery plan (1998) indicates that shortnose sturgeon found in the Chesapeake Bay and its tributaries are considered part of the Chesapeake Bay population. The US Fish and Wildlife Service Reward Program for Atlantic Sturgeon began in 1996. Shortnose sturgeon have been incidentally captured via this program. As of spring 2003, fifty-two shortnose sturgeon were captured via the reward program in the Chesapeake Bay and its tributaries – four from the lower Susquehanna River, two in the Bohemia River, six in the Potomac River, two south of the Bay Bridge near Kent Island, one near Howell Point, one just

north of Hoopers Island, one in the Elk River and two in Fishing Bay. The remaining shortnose sturgeon were captured in the upper Bay north of Hart-Miller Island. These fish were captured alive in either commercial gillnets, poundnets, fykenets, eel pots, hoop nets, or catfish traps. No critical habitat has been designated for shortnose sturgeon. On October 22, 2003, one shortnose sturgeon was observed in a pre-dredge trawl operation in Thimble Shoals Channel. This capture provides the only concrete evidence of recent shortnose sturgeon presence in the vicinity of the James River. However, the occurrence of shortnose sturgeon in other areas of the Bay suggests that this species is likely present in Virginia waters of the Chesapeake Bay and may be present in the James River. Habitat analysis in the James River has revealed that this river contains suitable spawning habitat for shortnose sturgeon. As such, shortnose sturgeon may be present in the vicinity of the Surry Power Station.

Section 7(a)(2) of the Endangered Species Act (ESA) states that each Federal agency shall, in consultation with the Secretary, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Because shortnose sturgeon may be present in the vicinity of the Surry Power Station and may be affected by the construction and operation of a new nuclear power project, an action at the Surry site would have to undergo Section 7 consultation. The federal action agency, in this case the NRC, would be responsible for initiating Section 7 consultation. If the Surry Power Station alternative is chosen, please submit a description of the project along with an assessment of the projects impacts on shortnose sturgeon to the attention of the Endangered Species Coordinator, NOAA Fisheries, Northeast Regional Office, One Blackburn Drive, Gloucester, MA 01930. After reviewing this information, NOAA Fisheries will then be able to conduct a consultation under Section 7 of the ESA. If you have any questions or concerns about these comments or about the consultation process in general, please contact Julie Crocker of my staff at (978) 281-9328 ext. 6530.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

File Code: Sec 7 NRC Virginia

TOTAL P.03

United States Department of the Interior

FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

January 15, 2004

Mr. Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: North Anna Power Station Alternate
Barnwell County, South Carolina
FWS Log No: 4-6-04-T-110

Dear Mr. Kuo:

We have reviewed the information received December 21, 2003, concerning the above-referenced project. The following comments are provided in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531-1543).

We believe there is potential habitat for federally protected species and/or the presence of designated or proposed critical habitat within the action area of the alternate project location at the Savannah River Site. You did not provide detailed information on the location of the potential alternate site and we can provide you with only general comments at this time.

Therefore, we are providing a list of the federally endangered (E) and threatened (T) and candidate (C) species which potentially occur in Aiken County and Barnwell County, South Carolina to aid you in determining the impacts your project may have on protected species. The list also includes species of concern identified by the Service. Species of concern (SC) are not legally protected under the Endangered Species Act, and are not subject to any of its provisions, including Section 7, unless they are formally proposed or listed in the future as endangered/threatened. We are including these species in our response for the purpose of giving you advance notification. These species may be listed in the future, at which time they will be protected under the Endangered Species Act.

Therefore, it would be prudent for you to consider these species early in project planning to avoid any adverse effects.

In-house surveys should be conducted by comparing the habitat requirements for the attached listed species with available habitat types at the project site. Field surveys for the species should be performed if habitat requirements overlap with that available at the project site. Surveys for protected plant species must be conducted by a qualified biologist during the flowering or fruiting period(s) of the species. Surveys for the red-cockaded woodpecker should be conducted in accordance with the "Guidelines for preparation of biological assessments and evaluations for the red-cockaded woodpecker" by Gary Henry. A copy of these guidelines is available from this office. Please notify this office with the results of any surveys for the below list of species and an analysis of the "effects of the action," as defined by 50 CFR 402.02 on any listed species including consideration of direct, indirect, and cumulative effects.

We also recommend you contact the S.C. Department of Natural Resources (SCDNR), Data Manager, Wildlife Diversity Section, Columbia, SC 29202, concerning known populations of federal and/or state endangered or threatened species, and other sensitive species in the project area. Additional habitat information may also be available from SCDNR. The National Marine Fisheries Service, 9721 Executive Center Drive North, St. Petersburg, FL 33702-2449 should be contacted for consultation on species under their jurisdiction.

Aiken County

Bald eagle	*Haliaeetus leucocephalus*	T
Wood stork	*Mycteria americana*	E
Red-cockaded woodpecker	*Picoides borealis*	E
Shortnose sturgeon	*Acipenser brevirostrum**	E
Relict trillium	*Trillium reliquum*	E
Piedmont bishop-weed	*Ptilimnium nodosum*	E
Smooth coneflower	*Echinacea laevigata*	E
Southern Dusky Salamander	*Desmognathus auriculatus*	SC
Gopher frog	*Rana capito*	SC
Small-flowered buckeye	*Aesculus parviflora*	SC
Sandhills milk-vetch	*Astragalus michauxii*	SC
Elliott's croton	*Croton elliottii*	SC
Dwarf burhead	*Echinodorus parvulus*	SC
Shoals spider-lily	*Hymenocallis coronaria*	SC
White-wicky	*Kalmia cuneata*	SC
Bog spicebush	*Lindera subcoriacea*	SC
Boykin's lobelia	*Lobelia boykinii*	SC
Carolina bogmint	*Macbridea caroliniana*	SC
Awned-meadowbeauty	*Rhexia aristosa*	SC
Pickering's morning-glory	*Stylisma pickeringii var. Pickeringii*	SC

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Reclined meadow-rue	*Thalictrum subrotundum*	SC
Bachman's sparrow	*Aimophila aestivalis*	SC
Henslow's sparrow	*Ammodramus henslowii*	SC
American kestrel	*Falco sparverius*	SC
Loggerhead shrike	*Lanius ludovicianus*	SC
Painted bunting	*Passerina ciris ciris*	SC
Redhorse, Robust	Moxostoma robustum	SC
Arogos skipper	*Atrytone arogos arogos*	SC
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	SC
Gopher tortoise	*Gopherus polyphemus*	SC
Southern hognose snake	Heterodon simus	SC
Pine or Gopher snake	*Pituophis melanoleucus melanoleucus*	SC

Barnwell County

Bald eagle	*Haliaeetus leucocephalus*	T
Wood stork	*Mycteria americana*	E
Red-cockaded woodpecker	*Picoides borealis*	E
Shortnose sturgeon	*Acipenser brevirostrum**	E
Smooth coneflower	*Echinacea laevigata*	E
Pondberry	*Lindera melissifolia*	E
Canby's dropwort	*Oxypolis canbyi*	E
Piedmont bishop-weed	*Ptilimnium nodosum*	E
American chaffseed	*Schwalbea americana*	E
Southern Dusky Salamander	*Desmognathus auriculatus*	SC
Gopher frog	*Rana capito*	SC
Sandhills milk-vetch	*Astragalus michauxii*	SC
Elliott's croton	*Croton elliottii*	SC
Dwarf burhead	*Echinodorus parvulus*	SC
Creeping St. John's wort	*Hypericum adpressum*	SC
Bog spicebush	*Lindera subcoriacea*	SC
Boykin's lobelia	*Lobelia boykinii*	SC
Carolina bogmint	*Macbridea carolinlana*	SC
Awned meadowbeauty	*Rhexia aristosa*	SC
Bachman's sparrow	*Aimophila aestivalis*	SC
Henslow's sparrow	*Ammodramus henslowii*	SC
American kestrel	*Falco sparverius*	SC
Loggerhead shrike	*Lanius ludovicianus*	SC
Painted bunting	*Passerina ciris ciris*	SC
Yellow lampmussel	*Lampsilis cariosa*	SC
Southern hognose snake	*Heterodon simus*	SC

We are particularly concerned about potential project impacts to mussel species of concern and anadromous fish in the Savannah River. The Savannah River continues to support remnant but nationally important populations of anadromous fishes including

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American shad, blueback herring, striped bass, Atlantic sturgeon, and the federally listed endangered shortnose sturgeon. Populations of these species have been seriously diminished as a result of dam construction, over-fishing, habitat degradation, and pollution. The Service is seeking, through Federal Energy Regulatory Commission relicensing and Corps project modifications, to restore access to needed spawning habitat for these fishes from New Savannah Bluff Lock and Dam to Thurmond Dam.

In addition, the Savannah River basin supports one of the most diverse unionid mussel faunas of all Atlantic Slope river systems in North America. Freshwater mussels are currently experiencing a nationwide decline, and considering channel alterations, impoundment, and flow regulation, the Savannah River is almost certainly no exception to these national trends. The extensive forested wetlands of the Savannah River floodplain below Augusta are important habitat for many significant fish and wildlife species, including neotropical migratory birds as well as many other plants and animals of management concern.

Your interest in the protection of endangered species is appreciated. If you have further questions or require additional information, please contact Ed EuDaly of this office at (843) 727-4707 ext. 13. In future correspondence concerning this project, please reference FWS Log No. 4-6-04-T-110.

Sincerely yours,

Timothy N. Hall
Field Supervisor

TNH/EME

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6950 Americana Parkway, Suite H
Reynoldsburg, Ohio 43068-4127

February 3, 2004

Pao-Tsin Kuo,
U.S. Nuclear Regulatory Commission
License Renewal and Environmental Impacts
Washington , D.C. 20555-0001

re: Docket Nos.: 52-008

Dear Mr. Kuo:

This responds to your letter of December 21, 2003 requesting Federally listed threatened and endangered species information for the U.S. Department of Energy's Portsmouth Site in Pike County, Ohio. We understand that the Portsmouth Site is being considered as an alternate location for the construction of a nuclear power plant. Such a power plant would also entail construction of new transmission lines completely within the Portsmouth site.

In general, we recommend that proposed industrial developments minimize water quality impacts. We are especially concerned with impacts to fishery resources from water contamination, depletion, or warming associated with cooling systems and other water supply and discharge operations. Impingement and entrainment of fish should also be considered in your environmental impact statement. Impacts to fish and wildlife habitat, such as forests, streams, and wetlands should be avoided where possible. Construction and operation techniques should be used that minimize erosion and run-off of other pollutants, particularly on slopes. All disturbed areas should be mulched and vegetated with native plant species.

ENDANGERED SPECIES COMMENTS: This project lies within the range of the Indiana bat (Myotis sodalis), a federally listed endangered species, and the timber rattlesnake (Crotalus horridus), a species for which a federal pre-listing conservation plan exists.

Summer habitat requirements for the Indiana bat are not well defined but the following are thought to be of importance:

1. Dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas.
2. Live trees (such as shagbark hickory) which have exfoliating bark.
3. Stream corridors, riparian areas, and upland woodlots which provide forage sites.

Should the proposed site contain trees exhibiting any of the characteristics listed above, we recommend that they and surrounding trees be saved wherever possible. If they must be cut, they should not be cut between April 15 and September 15.

If potential bat roost trees are present, and if the above time restriction is unacceptable, mist net or other surveys should be conducted to determine if bats are present. The survey should be designed and conducted in coordination with the endangered species coordinator for this office. The survey should be conducted in June or July, the period when peak bat populations could be expected.

We recommend that if potential bat roost trees with the above characteristics are encountered in the project area, they and surrounding trees should be saved wherever possible. If they must be cut, they should not be cut between April 15 and September 15.

The project also lies within the range of the timber rattlesnake *(Crotalus horridus horridus)*, a species with a pre-listing Conservation Plan. Your proactive efforts to conserve this species now may help avoid the need to list the species under the Endangered Species Act in the future. In Ohio, the timber rattlesnake is restricted to the un-glaciated Allegheny Plateau. Winters are spent in dens usually associated with high, dry ridges. In the fall, timber rattlesnakes return to the same den.

It may be helpful to inquire about timber rattlesnake sightings with local resource agency personnel or reliable local residents. Local herpetologists may have knowledge of historical populations as well as precise knowledge of the habits, especially the specific local types of habitats that may contain timber rattlesnakes.

In areas where timber rattlesnakes or their dens are known or likely to exist, clearing, construction, and maintenance activities (mowing, cutting, burning, etc.) should be avoided at least 100 feet, or more, from ridges and areas of exposed rock, and should be conducted from November 1 to March 1 when timber rattlesnakes are hibernating.

The timber rattlesnake is a large shy rattlesnake that is declining throughout its national range. No Federal listing status has been assigned to this species. Instead, the U.S. Fish and Wildlife Service has initiated a pre-listing Conservation Action Plan to support state and local conservation efforts. Your proactive efforts to conserve this species now may help avoid the need to list the species under the Endangered Species Act in the future. The timber rattlesnake is protected throughout much of its range and is listed as endangered by the State of Ohio. Due to their rarity and reclusive nature, we encourage early project coordination to avoid potential impacts to timber rattlesnakes and their habitat.

In Ohio, the timber rattlesnake is restricted to the un-glaciated Allegheny Plateau and utilizes the specific habitat types, depending upon season. Winters are spent in dens usually associated with high, dry ridges. These dens may face any direction, but southeast to southwest are most common. Such dens usually consist of narrow crevices in the bedrock. Rocks may or may not be present on the surface. From these dens, timber rattlesnakes radiate throughout the surrounding hills and move distances as great as 4.5 miles. In the fall, timber rattlesnakes return to the same den. Intensive efforts to transplant timber rattlesnakes have not been successful. Thus protection of the winter dens is critical to the survival of this species. Some project management ideas include the following:

1) At a minimum, project evaluations should contain delineations of timber rattlesnake habitat within project boundaries. Descriptions should indicate the quality and quantity of timber rattlesnake habitat (den sites, basking sites, and foraging area, etc.) that may be affected by the project.

2) In cases where timber rattlesnakes are known to occur or where potential habitat is rated moderate to high, timber rattlesnake surveys may be necessary. If surveys are to be conducted, it may be helpful to inquire about timber rattlesnake sightings with local resource agency personnel or reliable local residents. In addition, local herpetologists may have knowledge of historical populations as well as precise knowledge of the habits, and especially the specific, local types of habitats that may contain timber rattlesnakes. Surveys should be performed during the periods of spring emergence from dens (usually a narrow window in April or May) and throughout the

active season until October. The species is often easiest to locate during the summer months when pregnant females seek open areas in early morning, especially after cool evenings.

3) In portions of projects where timber rattlesnakes will be affected, clearing and construction activities should occur at distances greater than 100 feet from known dens. Most importantly, tops of ridges and areas of exposed rock should be avoided.

4) In areas where timber rattlesnake dens are known or likely to exist, maintenance activities (mowing, cutting, burning, etc.) should be conducted from November 1 to March 1, when timber rattlesnakes are hibernating.

Two divisions of the Ohio Department of Natural Resources, the Division of Wildlife (614-265-6300) and the Division of Natural Areas and Preserves (614-265-6472), maintain lists of plants and animals of concern to the State of Ohio. If you have not already done so, you may wish to contact these agencies to obtain site-specific information on species of state concern.

This technical assistance letter is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C.661 et seq.), the Endangered Species Act of 1973, as amended, and is consistent with the intent of the National Environmental Policy Act of 1969, and the U.S. Fish and Wildlife Service's Mitigation Policy.

We expect that there will be further coordination with our office if the Portsmouth site is chosen as the location for construction of a new nuclear power plant.

If you have questions or we may be of further assistance in this matter please contact Mr. Bill Kurey of this office at 614-469-6923 ext. 14.

Sincerely,

Mary Knapp

Mary Knapp, Ph.D.
Supervisor

JUN-22-2004 17:55 P.02

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312, FAX 570-5517
http://caldera.sero.nmfs.gov

MAY 19 2004

F/SER3:JAM

Pao-Tsin Kuo
Division of Regulatory Improvements Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Kuo:

We have received your letter dated January 5, 2004, requesting a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of the potential future construction of one or more new nuclear power plants. One of the proposed sites is the U.S. Department of Energy's Savannah River Site, located in Aiken and Barnwell Counties, South Carolina.

Enclosed is a list of federally-protected species under the jurisdiction of NOAA Fisheries for the state of South Carolina. Biological information on federally protected sea turtles, sturgeon, and other listed species and candidate species can be found at the following website addresses: NOAA Fisheries Southeast Regional Office (http://caldera.sero.nmfs.gov/protect/protect.htm); NOAA Fisheries Office of Protected Resources (http://www.nmfs.noaa.gov/prot_res/prot_res.html); U.S. Fish and Wildlife Service (http://noflorida.fws.gov/SeaTurtles/seaturtle-info.htm), http://endangered.fws.gov/wildlife.html#Species; the Ocean Conservancy (http://www.cmc-ocean.org/main.php3); the Caribbean Conservation Corporation (http://www.cccturtle.org/); Florida Fish and Wildlife Conservation Commission (http://floridaconservation.org/psm/turtles/turtle.htm); http://www.turtles.org; http://www/seaturtle.org; http://alabama.fws.gov/gs/; http://obis.env.duke.edu/data/sp_profiles.php; www.mote.org/~colins/Sawfish/SawfishHomePage.html; www.floridasawfish.com; http://www.flmnh.ufl.edu/fish/Sharks/sawfish/srt/srt.htm www.flmnh.ufl.edu/fish/sharks/InNews/sawprop.htm.

We look forward to continued cooperation with the Nuclear Regulatory Commission in conserving our endangered and threatened resources. If you have any questions, please contact Ms. Jennifer Moore, natural resource specialist, at (727) 570-5312, or by e-mail at jennifer.moore@noaa.gov.

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

Enclosure

File: 1514-22 .M. NRC

Endangered and Threatened Species and Critical Habitats under the Jurisdiction of the National Marine Fisheries Service South Carolina

Listed Species	Scientific Name	Status	Date Listed
Marine Mammals			
blue whale	*Balaenoptera musculus*	Endangered	12/02/70
finback whale	*Balaenoptera physalus*	Endangered	12/02/70
humpback whale	*Megaptera novaeangliae*	Endangered	12/02/70
right whale	*Eubalaena glacialis*	Endangered	12/02/70
sei whale	*Balaenoptera borealis*	Endangered	12/02/70
sperm whale	*Physeter macrocephalus*	Endangered	12/02/70
Turtles			
green sea turtle	*Chelonia mydas*	Threatened[1]	07/28/78
hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	06/02/70
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	12/02/70
leatherback sea turtle	*Dermochelys coriacea*	Endangered	06/02/70
loggerhead sea turtle	*Caretta caretta*	Threatened	07/28/78
Fish			
shortnose sturgeon	*Acipenser brevirostrum*	Endangered	03/11/67

Species Proposed for Listing

None

Designated Critical Habitat

None

Proposed Critical Habitat

None

Candidate Species[2]	Scientific Name
Fish	
Atlantic sturgeon	*Acipenser oxyrhynchus oxyrhynchus*
dusky shark	*Carcharhinus obscurus*
night shark	*Carcharinus signatus*
sand tiger shark	*Odontaspis taurus*
speckled hind	*Epinephelus drummondhayi*
Warsaw grouper	*Epinephelus nigritus*

1. Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.
2. Candidate species are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

Date: October 25, 2004

Project name: NRC's North Anna and Surry Power Stations

Project number: 9064 City/County, VA Surry, Louisa, Hanover, Caroline, Orange, + Spotsylvania

The U.S. Fish and Wildlife Service (Service) has reviewed your request for information on federally listed or proposed endangered or threatened species and designated critical habitat for the above referenced project. The following comments are provided under provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

_____ We believe that the proposed action will not adversely affect federally listed species or federally designated critical habitat because no federally listed species are known to occur in the project area. Should project plans change or if additional information on listed and proposed species becomes available, this determination may be reconsidered.

_____ We recommend that you contact **both** of the following State agencies for site specific information on listed species in Virginia. Each agency maintains a different database and has differing expertise and/or regulatory responsibility:

Virginia Dept. of Game & Inland Fisheries
Environmental Services Section
P.O. Box 11104
Richmond, VA 23230
(804) 367-1000

Virginia Dept. of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 2nd Floor
Richmond, VA 23219
(804) 786-7951

If either agency indicates a federally listed species **is present**, please resubmit your project description with letters from both agencies attached.

✓ If **appropriate habitat may be present**, we recommend surveys within appropriate habitat by a qualified surveyor. Enclosed are county lists with fact sheets that contain information the species' habitat requirements and lists of qualified surveyors. If this project involves a Federal agency (Federal permit, funding, or land), we encourage the Federal agency to contact this office if appropriate habitat is present and if they determine their proposed action is likely to affect federally listed species or critical habitat.

_____ Enclosed is information about communication towers and measures to minimize and avoid impacts to migratory birds, including a list of types of work that do not require further coordination with the Service.

_____ Determinations of the presence of waters of the United States, including wetlands, and the need for permits are made by the U.S. Army Corps of Engineers. They may be contacted at: Regulatory Branch, U.S. Army Corps of Engineers, Norfolk District, 803 Front Street, Norfolk, Virginia 23510, telephone (757) 441-7652.

Our website http://virginiafieldoffice.fws.gov contains many resources that may assist with project reviews. Point of contact is Eric Davis at (804) 693-6694, ext. 104.

Sincerely,

for Karen L. Mayne
Supervisor
Virginia Field Office

cc: CBFO (David Sutherland)

KEY

LE - federally listed endangered.

LT - federally listed threatened.

PE - federally proposed endangered.

PT - federally proposed threatened.

EX - believed to be extirpated in Virginia.

LE(S/A) - federally listed endangered due to similarity of appearance to a federally listed species.

LT(S/A) - federally listed threatened due to similarity of appearance to a federally listed species.

C - candidate species; the U.S. Fish and Wildlife Service has enough information to list the species as threatened or endangered, but this action is precluded by other listing activities.

SOC - species of concern; those species that have been identified as potentially imperiled or vulnerable throughout their range or a portion of their range. These species are not protected under the Endangered Species Act.

G - global rank; the species rarity throughout its total range.

G1 - extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

G2 - very rare and imperiled with 6 to 20 occurrences or few remaining individuals; or because of some factor(s) making it vulnerable to extinction.

G3 - either very rare and local throughout its range or found locally (abundantly at some of its locations) in a restricted range; or vulnerable to extinction because of other factors. Usually fewer than 100 occurrences are documented.

G_T_ - signifies the rank of a subspecies or variety. For example, a G3T1 would apply to a subspecies of a species that is very rare and local throughout its range or found locally in a restricted range (G3) but the subspecies warrants a rank of T1, critically imperiled.

G_Q - The taxon has a questionable taxonomic assignment.

SURRY COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
PLANTS		
Aeschynomene virginica	Sensitive joint-vetch	LT

Species of Concern (No official Federal status)

INVERTEBRATES		
Speyeria diana	Diana fritillary	G3
Stygobromus araeus	Tidewater interstitial amphipod	G2
VASCULAR PLANTS		
Carex decomposita	Epiphytic sdege	G3
Chamaecrista fasciculata var. macrosperma	Marsh senna	G5T2
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3
Rudbeckia heliopsidis[2]	Sun-facing coneflower	G2
Trillium pusillum var. virginianum	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]Surveys needed within 5-miles of Prince George County species location.

March 22, 1999
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

LOUISA COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedgemussel	LE

Species of Concern (No official Federal status)

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3

February 8, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

HANOVER COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedgemussel	LE
VASCULAR PLANTS		
Aeschynomene virginica[1]	Sensitive joint-vetch	LT
Helonias bullata[2]	Swamp pink	LT
Isotria medeoloides[2]	Small whorled pogonia	LT

Species of Concern (No official Federal status)

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
Sigara depressa	Virginia Piedmont water boatmen	G1G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma[1]	Marsh senna	G5T2

[1]This species has been documented in an adjacent county and may occur in this county.
[2]This species has been documented in an adjacent county & may occur in this county east of I-95.

November 12, 2002
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CAROLINE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
VASCULAR PLANTS		
Aeschynomene virginica[2]	Sensitive joint-vetch	LT
Helonias bullata	Swamp pink	LT
Isotria medeoloides	Small whorled pogonia	LT

Species of Concern (No official Federal status)

BIRDS		
Aimophila aestivalis	Bachman's sparrow	G3
INVERTEBRATES		
Sigara depressa	Virginia piedmont water boatman	G1G3
Stygobromus indentatus	Tidewater amphipod	G2G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma[2]	Marsh senna	G5T2
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3
Eriocaulan parkeri	Parker's pipewort	G3
Juncus caesariensis	New Jersey rush	G2
Sabatia kennedyana	Plymouth gentian	G3

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the Rappahannock River.
[2]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

ORANGE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
INVERTEBRATES		
Alasmidonta heterodon[1]	Dwarf wedgemussel	LE

Species of Concern (No official Federal status)

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green Floater	G3
Speyeria idalia	Regal fritillary	G3

[1]This species has been documented in an adjacent county and may occur in this county.

September 19, 2002
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

SPOTSYLVANIA COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedge mussel	LE
VASCULAR PLANTS		
Helonias bullata[1]	Swamp pink	LT
Isotria medeoloides	Small whorled pogonia	LT

Species of Concern (No official Federal status)

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
Sigara depressa	Virginia Piedmont water boatmen	G1G3
Speyeria idalia	Regal fritillary	G3
NON-VASCULAR PLANTS		
Sphagnum carolinianum	Carolina peatmoss	G3

[1]This species has been documented in an adjacent county & may occur in this county east of I-95.

November 12, 2002
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

U.S. Fish & Wildlife Service

Bald Eagle

Haliaeetus leucocephalus

Description - The bald eagle occurs throughout the United States. It is a large bird-of-prey with dark brown plumage, a white head and tail, and a yellow bill, feet, and eyes. Juvenile eagles generally have a dark brown body, sometimes with white patches on the tail, belly, and underwings. The head and tail become completely white when full adult plumage is reached at four to five years of age.

Life History - The majority of Virginia's eagle population is found on the coastal plain. The bald eagle breeding season begins in mid-November when large nests are built (or the previous year's nest is repaired) usually in loblolly pine trees that are in close proximity to water. Eagles lay one to three eggs between mid-January and late March. In March, most eggs hatch and by June or July most young have fledged. However, the young will continue to use the nest for several weeks. In Virginia, during the summer and winter months, juvenile and nonbreeding adult eagles congregate along large rivers in areas with abundant food and little human disturbance. During the day, these eagles feed and perch along the river shoreline. In late afternoon, they move inland to roost either singly or communally. Roosts are typically located away from human disturbance and near water and a food source. Bald eagles feed primarily on fish, but will also eat carrion, waterfowl, small mammals, snakes, and turtles.

Conservation - The bald eagle was federally listed as an endangered species in the Chesapeake Bay Region on March 11, 1967. On July 12, 1995, the bald eagle was reclassified to threatened throughout the 48 lower states because the population had increased due to the banning persistent pesticides, habitat protection, and other recovery activities. On July 6, 1999, the bald eagle was proposed for removal from the list of endangered and threatened wildlife in the lower 48 states. This action was proposed because the available data indicated that this species has recovered. The recovery is due in part to habitat protection and management actions initiated under the Endangered Species Act. It is also due to reduction in levels of persistent pesticides occurring in the environment. If and when the eagle is no longer protected by the Endangered Species Act, it will still be protected by the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and state laws. Until the eagle is officially delisted, it will continue to receive protection pursuant to the Endangered Species Act. Bald eagles in the Chesapeake Bay are increasing. However, habitat destruction through urban and residential development and human disturbance in nesting, roosting, and foraging habitats continue to be a threat.

What You Can Do To Help - If you know of a bald eagle nest on or near property proposed for clearing, development, or logging please contact one of the following agencies for assistance:

Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

U. S. Fish and Wildlife Service
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

U.S. Fish and Wildlife Service. 1990. Chesapeake Bay Region bald eagle recovery plan: first revision. Newton Corner, Massachusetts.

U.S. Fish and Wildlife Service. 1999. Proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. Federal Register 64(128): 36453-36464.

Watts, B.D., K.W. Cline, and M.A. Byrd. 1994. The bald eagle in Virginia: An information booklet for land planners. The Center for Conservation Biology, College of William and Mary, Williamsburg, Virginia.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

U.S. Fish & Wildlife Service

Sensitive Joint-Vetch

Aeschynomene virginica

© M. Rollins

Description - The sensitive joint-vetch is an annual legume native to the eastern United States. Populations currently exist in Maryland, New Jersey, North Carolina, and Virginia. The historical range for the species extended to Delaware and Pennsylvania. In Virginia, populations are found along the Potomac, Mattaponi, Pamunkey, Rappahannock, Chickahominy, and James Rivers and their tributaries. This plant usually attains a height of three to six feet in a single growing season, but may grow as tall as eight feet. The flowers are yellow, streaked with red and the fruit is a pod, turning dark brown when ripe.

Life History - The joint-vetch occurs in fresh to slightly brackish tidal river systems, within the intertidal zone where populations are flooded twice daily. It typically occurs at the outer fringe of marshes or shores; its presence in marsh interiors may be a result of nutrient deficiencies, ice scouring, or muskrat herbivory. The sensitive joint-vetch is found in localities where plant diversity is high and annual species are prevalent. Bare to sparsely vegetated substrates appear to be a habitat feature of critical importance for establishment and growth of this species. Plants flower from July through September and into October in some years. Fruits are produced from July through late October, concurrent with flowering.

Conservation - The sensitive joint-vetch was federally listed as a threatened species on June 19, 1992. Threats to the species include sedimentation, competition from non-native plant species, dams, dredging, filling, recreational activities, shoreline stabilization, shoreline structures, road and bridge construction, commercial and residential development, water withdrawal projects, water quality degradation, agricultural practices, introduced pest species, mining, timber harvest, over-visitation, declines in muskrat populations, rise in sea level (this may also be a result of natural cycles), and collection. Natural threats are often identified with disturbances, such as wave and ice action associated with severe storm events, competition, herbivory, channel migration, sea level rise and natural sedimentation processes. Adequate habitat conservation for this species will only be achieved through on-site protection of marshes supporting plant populations when coupled with protection of the natural ecological processes responsible for creating and maintaining habitat for the sensitive joint-vetch.

What You Can Do To Help - Avoid the use of herbicides in or near waterways. If you are planning construction or stabilization activities along the shoreline in one of the counties indicated on the attached map, please contact the U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

References

Davison, S.E. and L.P. Bruderle. 1984. Element stewardship abstract for *Aeschynomene virginica* - sensitive joint vetch. The Nature Conservancy. Arlington, Virginia.

Hershner, C. and J.E. Perry. 1987. Population status of potentially threatened vascular plants from coastal plain tidal rivers in Virginia. College of William and Mary, Virginia Institute of Marine Science, Gloucester Point, Virginia.

Rouse, G.D. 1994. Sensitive joint-vetch life history and habitat study, 1993 Field Season, Mattaponi and Rappahannock River systems, Virginia. Schnabel Environmental Services. Richmond, Virginia.

U.S. Fish and Wildlife Service. 1995. Sensitive joint-vetch (*Aeschynomene virginica*) recovery plan. Hadley, Massachusetts.

U.S. Fish & Wildlife Service

Dwarf Wedge Mussel

Alasmidonta heterodon

B. Windsor

Description - The dwarf wedge mussel has a spotty distribution in Atlantic coast drainage rivers and their tributaries from Canada to North Carolina. It is a small mussel whose shell rarely exceeds 1.5 inches in length. The shell outline is ovate or trapezoidal. The female shell is shorter, trapezoidal, and inflated in the back whereas the male shell is elongate, compressed, and ovate. The outer shell layer is brown to yellowish-brown, with greenish rays in young or pale-colored specimens. This mussel is unique in that it has two lateral teeth on its right valve and only one tooth on its left valve (opposite of all other North American mussel species).

Life History - The dwarf wedge mussel lives in shallow to deep rivers and creeks of various sizes where the current is slow to moderate. This mussel lives on muddy sand, sandy, and gravel stream bottoms that are nearly silt free. Like other freshwater mussels,
this species is a filter feeder. It feeds on plankton collected from water that is passed over its gills. Reproduction occurs sexually. Females carry eggs in their gills. During spawning, the male releases sperm into the water column and the sperm is taken into the female through the gills. The resulting larvae (known as glochidia) are released from the female into the water column and must attach to a fish host to survive. While attached to the fish host, development of the glochidia continues. Once metamorphosis is complete, the juvenile mussel drops off the fish host and continues to develop on the stream bottom. Fish hosts for this species include the mottled sculpin (*Cottus bairdi*), slimy sculpin (*Cottus cognatus*), tessellated darter (*Etheostoma olmstedi*), and johnny darter (*Etheostoma nigrum*).

Conservation - The dwarf wedge mussel was federally listed as an endangered species on March 14, 1990. The decline of this species is due to human degradation of habitat and water quality which have resulted in the continuing decline and subsequent loss of this species from previously occupied habitat. Threats to the species include agricultural, domestic, organic, and industrial pollution; impoundments that destroy habitat and cause silt deposits, low oxygen levels, and fluctuations in water levels and temperatures of the flooded area; and erosion and siltation from land clearing and construction of bridges or roads.

What You Can Do To Help - If you reside on property that borders a stream or other waterway, avoid using chemicals or fertilizers. To help control erosion and reduce runoff, maintain a buffer of natural vegetation along streambanks. Install fencing to prevent livestock from entering streams to reduce trampling of mussels, siltation, and input of waste products. Protecting water quality is the most effective way to conserve mussels.

To find out more about the dwarf wedge mussel contact:

Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

References

Michaelson, D.L. and R.J. Neves. 1995. Life history and habitat of the endangered dwarf wedgemussel *Alasmidonta heterodon* (Bivalvia:Unionidae). Journal of the North American Benthological Society 14(2):324-340.

U.S. Fish and Wildlife Service. 1993. Dwarf wedge mussel (*Alasmidonta heterodon*) recovery plan. Hadley, Massachusetts.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

U.S. Fish & Wildlife Service

Swamp Pink

Helonias bullata

Description - The swamp pink is a perennial evergreen herb found in scattered populations from New Jersey south to Georgia. Historically, this plant was found from Staten Island, New York to the southern Appalachians. In Virginia, this lily has been documented in four counties. Its bright green, lance-shaped leaves form a basal rosette. A hollow flower stalk rises one to two feet from the center of the rosette and produces a pink or lavender flower head that consists of 30 to 50 small fragrant flowers. Few of the plants in a population produce flowers.

Life History - Swamp pink occurs in a variety of wetland habitats that include bogs, spring seeps, stream edges, wet meadows, and headwater wetlands. Sites are saturated year-round, but are rarely flooded and soils are generally neutral to acidic. Wetland habitat is easily altered through both direct and secondary disturbance. It is difficult for seedlings to get established and they are particularly vulnerable to human foot traffic. Flowering occurs from March to May. The basal leaves turn reddish-brown in the winter and lie flat on the ground or are slightly raised. These winter leaves are often hidden by fallen leaf litter. Reproduction is primarily asexual and seed dispersal is limited.

Conservatlou - The swamp pink was federally listed as a threatened species on September 9, 1988 due to population decline and threats to its wetland habitats. Historically, wetland drainage and/or filling associated with urban and agricultural development have been the primary threat to this species. However, with the enactment of the federal Clean Water Act and state wetland legislation, direct habitat loss has been slowed. Secondary effects from activities such as timber clearing, land development, siltation from run-off associated with adjacent development, and agriculture have become the major threat. These activities affect the hydrologic regime and increase the release of sediments and pollution. Plant collection and soil compaction from trampling are also threats to this species.

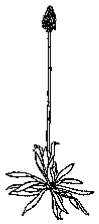
What You Can Do To Help - If you find a plant that appears to be the swamp pink, take note of the location and photograph the plant, if possible. Please do not remove the plant!

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

U.S. Fish & Wildlife Service

Swamp Pink

Helonias bullata



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What You Can Do To Help - If you find a plant that appears to be the swamp pink, take note of the location and photograph the plant, if possible. Please do not remove the plant!

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

Contact one of the following agencies for assistance:

Virginia Department of Agriculture
and Consumer Services
Office of Plant Protection
P.O. Box 1163
Richmond, Virginia 23209
(804) 786-3515

Virginia Department of
Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, Virginia 23219
(804) 786-7951

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

Stevens, E.C. 1991. Swamp pink. Pages 88-89 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

U.S. Fish and Wildlife Service. 1991. Swamp pink *(Helonias bullata)* recovery plan. Newton Corner, Massachusetts.

U.S. Fish & Wildlife Service

Small Whorled Pogonia

Isotria medeoloides

© D.D. Tyler

Description - The small whorled pogonia is a herbaceous perennial orchid. It has a widely scattered distribution in the eastern United States along the Atlantic coast from Maine to Georgia with outlying occurrences in the midwest and Canada. This species has pale green, elliptical leaves, usually five or six, that grow in a single whorl at the top of a hairless, grayish-green stem. The one or two flowers per plant are yellowish-green, unscented, and form in the center of the whorl.

Life History - In Virginia, the small whorled pogonia is found in ordinary looking third-growth upland forests with an open understory and a closed canopy where the topography is typically moderately sloping or almost level. The plants are usually associated with decaying vegetative matter such as fallen trunks and limbs, leaf litter, bark, and tree roots. The pogonia is found in soils that are acidic sandy loams with low nutrient content. The flowers appear in late April to mid-May. The small whorled pogonia reproduces primarily through self-pollination and occasionally vegetatively. It is often confused with the Indian cucumber-root (*Medeola virginiana*) and the large whorled pogonia *(Isotria verticillata*). The Indian cucumber-root has deep green leaves with a stem that is thin, hairy, and wiry. The large whorled pogonia has a reddish-purple stem and dark green leaves; its flower is reddish-purple.

Conservation - The small whorled pogonia was federally listed as an endangered species on September 10, 1982. It was reclassified as threatened on November 7, 1994. This was possible because at the time of reclassification 61% of the viable populations had been protected. The small whorled pogonia and its habitat continue to be threatened, directly and indirectly, by residential and commercial development. The upland habitat where it is found is seldom protected by federal or state laws unless it occurs on federally-owned property. Without voluntary landowner protection many pogonia populations have been and will be destroyed. Other threats to this species are collection by plant enthusiasts and browsing by white-tailed deer and invertebrates.

What You Can Do To Help - If you find a plant that appears to be the small whorled pogonia, take note of the location and photograph the plant, if possible. Please do not remove the plant!

Contact one of the following agencies for assistance:

Virginia Department of Agriculture and Consumer Services
Office of Plant Protection
P.O. Box 1163
Richmond, Virginia 23209
(804) 786-3515

Virginia Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, Virginia 23219
(804) 786-7951

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

U.S. Fish and Wildlife Service. 1992. Small whorled pogonia (*Isotria medeoloides*) recovery plan, first revision. Newton Corner, Massachusetts.

Ware, D.M.E. 1991. Small whorled pogonia. Pages 95-97 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
August 1999

SENSITIVE JOINT-VETCH
(Aeschynomene virginica)
SURVEY CONTACTS IN VIRGINIA

This list contains individuals who we have already determined are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on this pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. Please send copies of all survey results to this office. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you to ensure that a project avoids or minimizes adverse effects to rare species and their habitats. Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency. Listed alphabetically. September 8, 2004

John Brooks, III
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Ashland, Virginia 23005-6160
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Chris Ludwig
Virginia Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, VA 23219
(804) 371-6206
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lsmith_botanist@hotmail.com

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524 S. New Hope Road
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ATLANTIC SLOPE FRESHWATER MUSSELS
SURVEY CONTACTS IN VIRGINIA

This list contains individuals who we have already determined are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on this pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. Please send copies of all survey results to this office. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you to ensure that a project avoids or minimizes adverse effects to rare species and their habitats. Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency. Listed alphabetically. September 9, 2004

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SWAMP PINK
(*Helonias bullata*)
SURVEY CONTACTS

This list contains individuals who we have already determined are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on this pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. Please send copies of all survey results to this office. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you t ensure that a project avoids or minimizes adverse effects to rare species and their habitats. Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency. Listed alphabetically. September 8, 2004

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SMALL WHORLED POGONIA
(Isotria medeoloides)
SURVEY CONTACTS IN VIRGINIA

This list contains individuals who we have already determined are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on this pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. Please send copies of all survey results to this office. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you to ensure that a project avoids or minimizes adverse effects to rare species and their habitats. Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency. Listed alphabetically. September 8, 2004

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COMMONWEALTH of VIRGINIA

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January 5, 2005

Mr. Pao-Tsin Kuo, Program Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: COMMENTS ON DOCKET NO.: 52-008
Draft EIS for an ESP at the North Anna ESP Site
DHR File No. 2000-1210

Dear Mr. Kuo:

Thank you for your request for comments on the Draft Environmental Impact Statement (DEIS) for the project referenced above. In accordance with Section 4.6 of the DEIS, we request that Dominion continue to consult with our office on the potential impacts of ground disturbing activities on historic properties. We look forward to working with the NRC and Dominion throughout this project.

If you have any questions about these comments, please do not hesitate to contact me at (804) 367-2323, ext. 153; fax (804) 367-2391; e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

Cc: Mr. David Christian
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January 31, 2005

Mr. David Sutherland
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

SUBJECT: BIOLOGICAL ASSESSMENT FOR THE EARLY SITE PERMIT (ESP) OF THE NORTH ANNA ESP SITE AND A REQUEST FOR INFORMAL CONSULTATION

Dear Mr. Sutherland:

The U.S. Nuclear Regulatory Commission (NRC) has prepared the enclosed biological assessment (BA) to evaluate whether the proposed action of the North Anna ESP would have adverse effects on listed species. The North Anna ESP site is located within the North Anna Power Station (NAPS) site adjacent to Lake Anna near Mineral, Virginia. The proposed Federal action is the issuance, under provisions of Title 10 of the *Code of Federal Regulations* Part 52 (10 CFR Part 52), of an ESP for the North Anna ESP site for postulated additional nuclear power facilities, and to conduct site preparation and limited construction activities. The site preparation and limited construction activities allowed by 10 CFR 52.25 include clearing, grading, and constructing non-safety-related facilities. The proposed action does not include approval to construct and operate new units; therefore, the BA does not analyze environmental impacts that could result from construction and operation of two new nuclear units at the North Anna ESP site. Impacts associated with actual facility construction and operation will be assessed during the NRC staff's review of an application for a combined license or construction permit, should the applicant choose to go forward with the project.

The existing transmission system at the NAPS is sufficient to transmit all power generated by existing and proposed nuclear units at NAPS. The NRC's recent analysis of the existing transmission system at NAPS (NRC 2002) concluded that continued operation would not impact threatened or endangered species. Because no changes to transmission lines or rights-of-way are anticipated, this BA does not consider them for further analysis.

By letter dated December 21, 2003, (NRC 2003b), the NRC requested the Federally listed threatened or endangered species that may be in the vicinity of NAPS and its associated transmission lines. In a letter dated October 25, 2004, (FWS 2004a) the U.S. Fish and Wildlife Service (FWS) provided the Federally listed threatened or endangered species. The FWS identified the following: one endangered species, dwarf wedgemussel (*Alasmidonta heterdon*); and four threatened species, bald eagle (*Haliaeetus leucocephalus*), small whorled pogonia (*Isotria medeoloides*), sensitive joint-vetch (*Aeschynomene virginica*), and swamp pink (*Helonias bullata*). For documentation purposes, the NRC has addressed the potential impact of the North Anna ESP site on these five species in the enclosed BA.

The NRC has determined that the proposed action would not affect the dwarf wedgemussel because there is no suitable habitat for the dwarf wedgemussel on the North Anna ESP site.

Because bald eagles have been observed in the vicinity of the project site, the NRC determined that the proposed action may affect, but is not likely to adversely affect, the bald eagle. The NRC concluded that the proposed action would not affect the small whorled pogonia, sensitive joint-vetch, and swamp pink because no known habitats exist for these protected plant species on the North Anna ESP site. Finally, no designated critical habitat exists for any of the five listed species.

We are placing this BA in our project files and are requesting your concurrence with our determination. In reaching our conclusion, the NRC staff relied on information provided by the applicant, on research performed by NRC staff, and information from FWS (i.e., current listings of species provided by the FWS, Gloucester, Virginia Field Office).

If you have any questions regarding this BA or the staff's request, please contact Mr. Jack Cushing, Environmental Project Manager, at 301-415-1424, or by e-mail at jxc9@nrc.gov.

Sincerely,
/RA/

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

Enclosure: As stated

cc w/encl.: See next page

ENCLOSURE
BIOLOGICAL ASSESSMENT

BIOLOGICAL ASSESSMENT

North Anna
Early Site Permit Application

Louisa County, Virginia

Docket Number 52-008

January 2005

1.0 Introduction

On September 25, 2003[1], the U.S. Nuclear Regulatory Commission (NRC) received an application from Dominion Nuclear North Anna, LLC (Dominion) for an early site permit (ESP) for an ESP site (the North Anna ESP site) located within the existing North Anna Power Station (NAPS) site near the town of Mineral, in Louisa County, Virginia (Figure 1). Under the NRC regulations in Title 10 of the Code of Federal Regulations (CFR) Part 52 and in accordance with the applicable provisions of 10 CFR Part 51, which are the NRC regulations implementing the National Environmental Policy Act of 1969 (NEPA), the NRC is required to prepare an environmental impact statement (EIS) as part of its review of an ESP application. The NRC staff published in the Federal Register a Notice of Intent (68 FR 65961) to conduct scoping, prepare an EIS, and publish a draft EIS for public comment. The comment period for the draft EIS ends on March 1, 2005. The draft EIS is available on the NRC website at www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1811/ index.html. The final EIS will be issued after considering public comments on the draft. A separate safety evaluation report will also be prepared in accordance with 10 CFR Part 52.

The North Anna ESP site proposed by Dominion is located in Louisa County in central Virginia, near the town of Mineral. It is completely within the confines of the current NAPS site, which is located on a peninsula on the southern shore of Lake Anna, approximately eight kilometers (km) (five miles [mi]) upstream of the North Anna Dam. Lake Anna is approximately 27 km (17 mi) long, with 435 km (272 mi) of shoreline. The lake was created in 1971 by the construction of a dam on the main stem of the North Anna River. Virginia Electric and Power Company (Virginia Power), a subsidiary of Dominion Resources, Inc., owns the land above and below the lake surface and around the lake up to the expected high-water mark.

As part of the environmental review process, the NRC staff sent letters to staff at the United States Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries (NRC 2003a,b) requesting lists of threatened and endangered species that potentially could be affected by the construction and operation of new power plants at NAPS. Specifically, the staff requested a list of species and information on protected, proposed, and candidate species, and critical habitat that may be in the vicinity of North Anna.

In a letter dated January 6, 2004 (NOAA 2004), NOAA Fisheries stated that "no federally listed or proposed threatened or endangered species under the jurisdiction of NOAA Fisheries are known to exist in the vicinity of the North Anna Power Station." The FWS replied by letter dated October 25, 2004 (FWS 2004a) with attached tables that identify two animal and three plant species listed by the Endangered Species Act (ESA) that occur or may occur in the counties adjacent to the NAPS. These species are the dwarf wedgemussel (*Alasmidonta heterodon*), bald eagle (*Haliaeetus leucocephalus*), small whorled pogonia (*Isotria medeoloides*), sensitive joint-vetch (*Aeschynomene virginica*), and swamp pink (*Helonias bullata*).

[1] The September 25, 2003, Environmental Report (ER) for this application was revised by letters dated October 2, 2003 (Revision 1), July 15, 2004 (Revision 2), and September 7, 2004 (Revision 3). Any reference in this Biological Assessment (BA) to the ER refers to Revision 3 (Dominion 2004), unless otherwise stated.

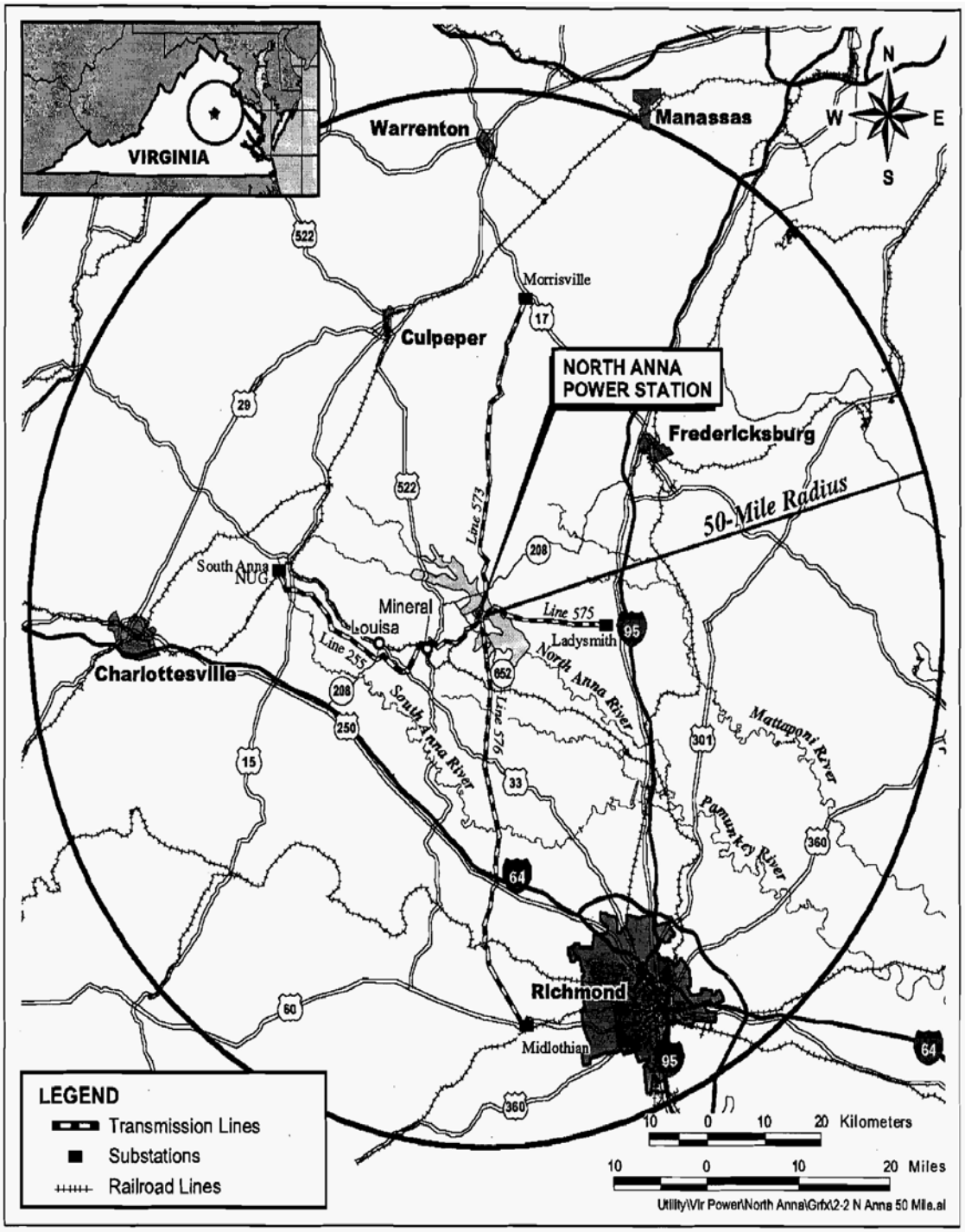

Figure 1. Location of North Anna ESP Site, 80-km (50-mi) Region

2.0 Project Description

The proposed Federal action is the issuance, under the provisions of 10 CFR Part 52, of an ESP for the North Anna ESP site for additional nuclear power facilities, and to conduct site preparation and limited construction activities identified in the application. The proposed action does not include approval to construct and operate new units but rather allows limited construction associated with site preparation activities. The complete construction and operation of new units are not presently proposed; therefore, this BA does not analyze the environmental impacts that could result from the actual construction and operation of two new nuclear units at the North Anna ESP site. Site preparation impacts are analyzed to determine whether activities proposed under the site redress plan might impact threatened and endangered species that occur in the vicinity of the NAPS.

No specific plant design has been selected by Dominion for the ESP site; instead, a set of bounding plant parameters has been specified to envelope future site development. This plant parameter envelope is based on the addition of power generation from two distinct units, to be designated as North Anna Units 3 and 4. Cooling water for Unit 3, the first of the proposed new units, would be provided by Lake Anna. Unit 4 would use dry cooling towers.

In this BA, the proposed ESP site is evaluated only for those activities related to the site preparation activities and the limited construction activities allowed by 10 CFR 52.25. The site redress plan provides for redress of impacts associated with site preparation and limited construction activities, if the applicant ultimately decides not to pursue construction of one or more nuclear units after the permitted activities have occurred. The activities permitted under 10 CFR 52.25 would allow for these site preparation and limited construction activities such as clearing and grading, and the construction of non-safety related facilities, which could include intake and discharge structures, cooling towers, turbine buildings, and non-safety related support facilities.

Dominion evaluated the existing transmission system that connects the NAPS site with the regional transmission grid, and determined that the existing transmission lines are sufficient to transmit all of the power generated by the existing and the postualated new nuclear units at the NAPS site. Therefore, no changes to the existing transmission system are proposed. The NRC examined the potential impacts of continued operation of the NAPS transmission lines in connection with the license renewal for NAPS Units 1 and 2 (NRC 2002) and determined that there would be no effect to threatened or endangered species. Because no changes to the lines or rights-of-way are anticipated, the transmission lines are not considered in this BA.

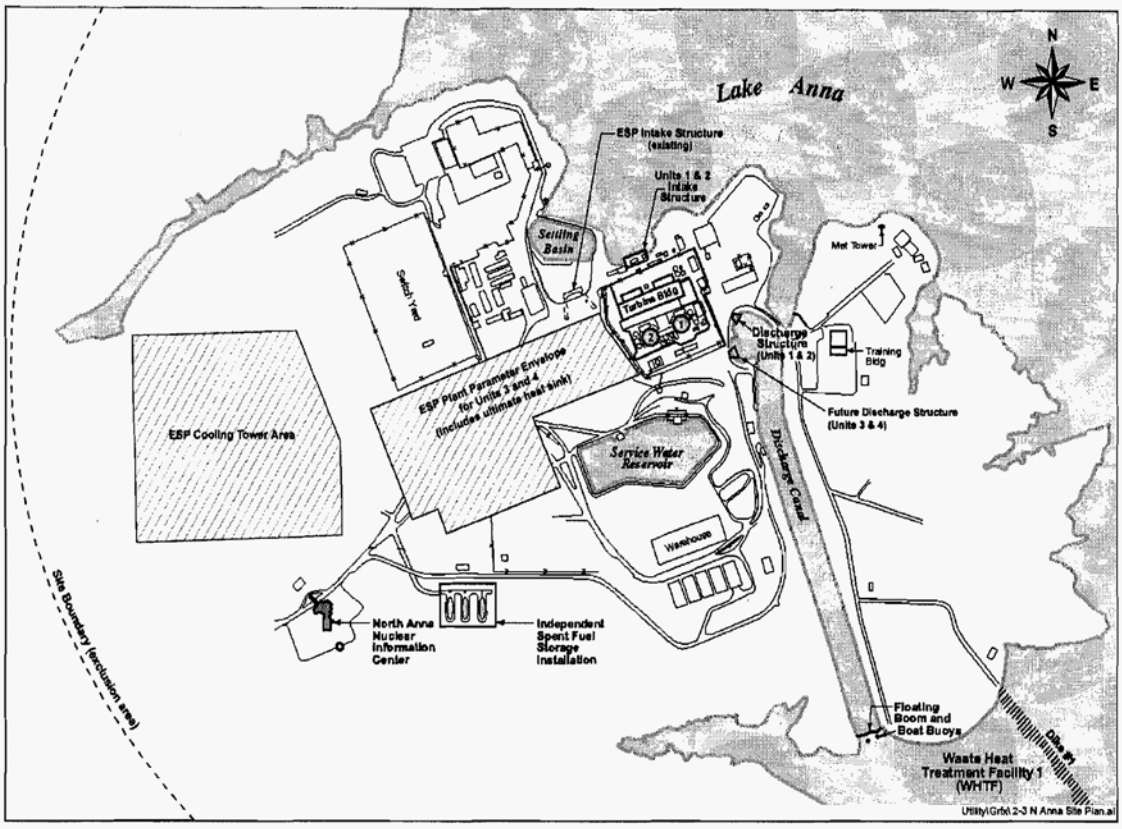

Figure 2. North Anna ESP Site Boundaries within the Existing NAPS Site

3.0 Potential Environmental Impacts

Site preparation activities may result in the removal of approximately 32 hectares (ha) (80 acres [ac]) of forested habitats, as well as grading of areas previously disturbed during construction of the existing NAPS units. In addition to direct habitat loss, there would likely be a temporary increase in ambient noise levels typical of land development and construction activities. Construction of intake and discharge structures would impact small portions of the Lake Anna shoreline.

Much of the proposed North Anna ESP site construction area consists of dirt roads, cleared areas, parking lots, buildings, and early succession habitats (Figure 2). The western portion of the current and proposed laydown area, located northeast of the current switchyard, can be classified as "old-field" habitat. None of the current or proposed laydown area is forested. The area proposed for temporary offices, located east of the switchyard, is an existing office complex; thus, undisturbed habitats would not be impacted. The proposed cooling tower site consists primarily of forested habitat.

4.0 Description of the Project Area

4.1 Terrestrial Biological Communities of the North Anna Site

The ESP site is located within the Piedmont Physiographic Province as described by Omernik (1987). Although forests in the Piedmont Province are nominally characterized by oak-hickory-pine forest (Woods et al. 1999), this portion of north-central Virginia has been settled since the colonial era and, therefore, no longer contains virgin forests. Vegetative cover surrounding the ESP site is an irregular patchwork of row crops, pastures, pine plantations, abandoned (old) fields, and second-growth forests of hardwoods and mixed pine-hardwoods (Dominion 2004).

Approximately 30 percent of the North Anna site consists of power generation and maintenance facilities, parking lots, roads, cleared areas, and mowed grass. Hardwood forests and planted pines exist on approximately 70 percent of the site that has not been cleared for the construction or operation of the existing units. These wooded areas are remnants of forests that were used for timber production prior to acquisition by Virginia Power and are dominated by a variety of oaks (*Quercus* spp.), yellow poplar (*Liriodendron tulipifera*), sweet gum (*Liquidambar styraciflua*), and red maple (*Acer rubrum*) trees. Scattered loblolly pines (*Pinus taeda*), Virginia pines *(P. virginiana*), and short-leaf pines *(P. echinata*) exist in some wooded areas (Dominion 2004).

The Piedmont region of Virginia is characterized as an irregular plain with low, rounded ridges and shallow ravines (Woods et al. 1999). There are no steep ridges on the ESP site. The rolling terrain at the site extends down slope to the waters of Lake Anna, resulting in essentially no marsh habitat along the shoreline at the site. Hydrophytic vegetation, such as cattail (*Typha* spp.) and rushes (*Juncus* spp.), are typically absent or extend only to approximately 0.3 meters (m) to 1 m (one to three feet [ft]) beyond the shoreline (Dominion 2004). Two intermittent streams flowing north into an unnamed arm of Lake Anna, just northwest of the power-block area, bisect the area where cooling towers are proposed to be located. A narrow band of wetlands is associated with each of these streams. A small (<.5 ha [one ac]) isolated wetland is located within the ESP site.

Wildlife species found in the forested portions of the North Anna site are those typically found in upland Piedmont forests of north-central Virginia. Frequently observed mammals, such as the white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), and gray fox (*Urocyon cinereoagenteus*), exist at the site, as do smaller mammals such as moles (Talpidae), shrews (Soricidae), and a variety of mice (Muridae) and voles (*Microtus* spp.). Woodchucks (*Marmota monax*) live in the grassy areas near forest edges at the site, and beavers (*Castor canadensis*) occur in Lake Anna and its tributaries. Various birds and herpifauna (e.g., snakes, turtles, lizards, and toads) live in the uplands and along the edge of Lake Anna (Dominion 2004).

Virginia Power has cooperated with the National Audubon Society in conducting periodic "Christmas Bird Counts" during December or January. Common bird species recorded in upland areas on and near the North Anna site during these surveys include the American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), Carolina chickadee (*Poecile carolinensis*), mourning dove (*Zenaida macroura*), black vulture (*Coragyps atratus*), turkey vulture (*Cathartes aura*), European starling (*Sturnus vulgaris*), song sparrow (*Melospiza melodia*), white-throated sparrow (*Zonotrichia albicollis*), dark-eyed junco (*Junco hyemalis*), northern cardinal (*Cardinalis*

cardinalis), house finch (*Carpodacus mexicanus*), tufted titmouse (*Baeolophus bicolor*), red-bellied woodpecker (*Melanerpes carolinus*), downy woodpecker (*Picoides pubescens*), and northern flicker (*Colaptes auratus*) (Audubon Society 2004). Species known to nest within forested areas at the North Anna site, along forested edges, and in open areas (for example, northern cardinal, Carolina chickadee, blue jay) are those that commonly nest in upland Virginia habitats. Virginia Power has placed bluebird nest boxes in suitable habitats at the North Anna site and has constructed roofed structures for swallows in some locations. Eastern bluebirds (*Sialia sialis*) annually use the nest boxes, and barn swallows (*Hirundo rustica*) nest beneath the roofed structures (Dominion 2004).

Several species of residential and migratory wading birds and waterfowl use Lake Anna. Numerous gulls, ducks, and geese were noted during Christmas Bird Counts (Audubon Society 2004), as were great blue herons (*Ardea herodias*). Virginia Power biologists have documented breeding at Lake Anna by mallards (*Anas platyrhynchos*), wood ducks (*Aix sponsa*), and Canada geese (*Branta canadensis*) (VEPCo 1986). Virginia Power, in association with the Louisa County Chapter of Ducks Unlimited, has placed wood duck nest boxes on Lake Anna, and wood ducks have used several of these nest boxes (VEPCo 1986). Belted kingfishers (*Ceryle alcyon*), great blue herons, and green-backed herons (*Butorides virescens*) are present at Lake Anna throughout the year, and belted kingfishers and green-backed heron presumably nest on or near the Lake Anna shoreline. There are no known great blue herons rookeries at Lake Anna (Dominion 2004). Waterfowl are typically most abundant at Lake Anna during the winter. Lake Anna provides important habitat for migratory waterfowl on the Atlantic flyway, especially during extremely cold winters when the elevated water temperature from station operation maintains a large ice-free body of water. The most common ducks observed during winter are mallard, American black duck (*Anas rubripes*), bufflehead (*Bucephala albeola*), and greater scaup (*Aythya marila*). The Canada goose, American coot (*Fulica americana*), ringed-billed gull (*Larus delawarensis*), and herring gull (*L. argentatus*) are also abundant on Lake Anna during the winter (Audubon Society 2004; VEPCo 1986).

4.2 Aquatic Biological Communities of the North Anna Site

The aquatic resources in the vicinity of the North Anna ESP site, the Waste Heat Treatment Facility (WHTF), and the North Anna River, are associated with Lake Anna (VEPCo 2001). Lake Anna was created to serve as the cooling water source for NAPS. The lake was formed during 1971 by erecting a dam on the main stem of the North Anna River, just upstream of the confluence of the North Anna River and Northeast Creek.

Lake Anna is typical of many shallow reservoirs found in the southern and mid-Atlantic states. Since impoundment, Lake Anna has gone through the typical ecological succession of reservoirs. The initial biotic community was highly productive because initial nutrient levels were high. Productivity subsequently decreased and ultimately stabilized (Paterson and Fernando 1970; Voshell and Simmons 1978). Aquatic communities in Lake Anna experienced gradual post-impoundment changes from riverine to lake communities. Some of these communities had stabilized in Lake Anna by 1975 (VEPCo 1986), and all have been relatively stable since 1985 (VEPCo 1986; VEPCo 2002).

Lake Anna contains numerous phytoplankton, zooplankton, and benthic macroinvertebrate communities. Seventy-seven genera of phytoplankton have been identified, and diatoms, green algae, blue-green algae (Cyanobacteria), and cryptomonads are the dominant forms. The zooplankton are dominated by small-bodied forms (rotifers and copepods). This has been attributed to selective predation upon larger-bodied zooplankton by landlocked schooling clupeids such as various shad species (Brooks and Dodson 1965). A total of 124 benthic taxa have been identified from Lake Anna (VEPCo 1986). Three bivalve species were collected in the North Anna basin prior to impoundment: *Elliptio complanatus*, *E. productus*, and *Sphaerium striatum* (AEC 1973).

In more recent years, the introduced Asiatic clam (*Corbicula* spp.) has dominated collections from both Lake Anna and the lower North Anna River. The Asiatic clam has spread rapidly throughout the United States since its first discovery in 1938 (VEPCo 1986). Its populations expand rapidly when they invade a new habitat, and densities stabilize as the species reach carrying capacity of the habitat. Asiatic clams are present throughout Lake Anna with the greatest population densities found at mid-lake (VEPCo 1989). After its initial invasion of Lake Anna, densities increased sharply from 1979 to 1981. Populations remained relatively stable between 1984 and 1988 (VEPCo 1989). Virginia Power received approval from VDEQ to discontinue Asiatic clam sampling in 1989. The zebra mussel (*Dreissena polymorpha*) has not been observed in Lake Anna.

Small numbers of unionid mussels (*Elliptio* spp.) and fingernail clams (Sphaeriidae) have also been collected. Acid drainage and sediment from the Contrary Creek mine site historically depressed freshwater mussel populations downstream from the Contrary Creek-North Anna River confluence; the first major mussel beds prior to the inpoundment of Lake Anna did not occur until 100 m (328 ft) downstream of the confluence of the North and South Anna Rivers (Reed and Simmons 1972). There are indications that mussel populations (*Elliptio* spp.) are recovering in the lower North Anna River (VEPCo 1986).

Thirty-nine species of fish (representing 12 families) have been identified in Lake Anna (VEPCo 1986). Species include those historically found in the North Anna River, those that had been in local farm ponds inundated by the new reservoir, and species introduced by the Virginia Department of Game and Inland Fisheries (VDGIF).

Recreational species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), striped bass (*Morone saxatilis*), walleye (*Stizostedion vitreum*), bluegill (*Lepomis macrochirus*), yellow perch (*Perca flavescens*), black crappie (*Pomoxis nigromaculatus*), white perch (*M. americana*), pumpkinseed (*L. gibbosus*), redear sunfish (*L. microlophus*), redbreast sunfish (*L. auritus*), channel catfish (*Ictalurus punctatus*), and white catfish (*Ameiurus catus*). Forage species include threadfin shad (*Dorosoma petenense*) and gizzard shad (*D. cepedianum)*. Striped bass and walleye are stocked annually by VDGIF. In 1994, sterile triploid herbivorous grass carp (*Ctenopharyngodon idella*) was stocked by Virginia Power to control the growth of the nuisance submerged aquatic plant hydrilla (*Hydrilla verticillata)* with the approval of the VDGIF.

Before the North Anna River was impounded, the fish community of the river downstream of the Contrary Creek inflow was dominated by pollution-tolerant species. In the years following impoundment (and reclamation of the Contrary Creek mine site), there was a steady increase in measures of abundance and diversity of fish. During 1984 to 1985, 38 species from ten families

were found in the North Anna River, compared to 25 species from eight families in the control stream, the South Anna River (VEPCo 1986). When species from the North Anna Reservoir were subtracted from the North Anna River totals, the two fish communities (North and South Anna River communities) showed striking similarities, indicating that the operation of the existing units had little or no effect on fish populations downstream from the dam.

The WHTF is the body of water into which waste heat from the existing units is discharged via the discharge canal. It is physically separated from the rest of Lake Anna by a series of dikes. The same aquatic communities occur in the WHTF that occur in the main reservoir. Fish can swim from the main reservoir into the WHTF and back. However, fish are not stocked in the WHTF, and angler access to this fishery is restricted to the land owners along this part of the shoreline.

There is no commercial fishing in Lake Anna or the North Anna River. There are no runs of anadromous fish in the North Anna River. The North Anna River is a tributary of the Pamunkey River, which has an annual run of American shad, but these shad do not move into the North Anna River (Jenkins and Burkhead 1994; Bilkovic et al. 2002). The Pamunkey Fish Hatchery in King William County, Virginia, is approximately 121 km (75 mi) downstream of the North Anna Dam. Shad reared at this facility are normally stocked in the Pamunkey River and the James River as fry. Young American eels (*Anguilla rostrata*) are found in the North Anna River, but are not sought by commercial fishermen. The American eel is a catadromous species, meaning that these fish begin their lives in the open ocean and migrate into coastal rivers where they spend much of their lives in fresh water (Rohde et al. 1994). Upon reaching sexual maturity, at age five to seven years, the eels migrate back to the ocean where they spawn and die. Eels in the North Anna River are juveniles, also known as "yellow eels."

The lower North Anna River downstream from the North Anna Dam is small, approximately 23 to 46 m (75 to 150 ft) wide, but supports a diverse assemblage of stream fishes. It is a popular fishing spot. Unless stream flow is unusually high, powerboats are impractical. Most anglers fish from shore or from canoes and kayaks. Recreational fishermen generally seek largemouth and smallmouth bass or redbreast sunfish. Bluegill and redear sunfish are present as well, but receive less attention from anglers.

5.0 List of Federally Threatened and Endangered Species

This section describes the threatened and endangered animal and plant species that potentially exist at or near the proposed ESP site. The FWS provided a list of species in the counties of interest (FWS 2004a) and also maintains current lists of threatened or endangered species on its website (FWS 2004b). The Virginia Department of Game and Inland Fisheries (VDGIF) (VDGIF 2004) and Virginia Department of Conservation and Recreation (VDCR 2004) also maintain lists of State-protected species on their websites. Species potentially occurring near the proposed North Anna ESP site that are listed as threatened or endangered by the FWS are listed in Table 1.

Table 1. Federally Threatened or Endangered Species Known or Potentially Occurring Near the Proposed North Anna ESP Site .

Scientific Name	Species	Counties	Status*
Invertebrates			
Alasmidonta heterdon	dwarf wedgemussel	Louisa, Orange, Hanover	FE
Birds			
Haliaeetus leucocephalus	bald eagle	Louisa, Orange, Caroline, Spotsylvania, Hanover	FT
Vascular Plants			
Isotria medeoloides	small whorled pogonia	Spotsylvania, Hanover, Caroline	FT
Aeschynomene virginica	sensitive joint-vetch	Hanover, Caroline	FT
Helonias bullata	swamp pink	Spotsylvania, Hanover, Caroline	FT

Status*: FE = Federally endangered, FT = Federally threatened
Sources: FWS 2004a, 2004b, VDCR 2004, VDGIF 2004

6.0 Description of Species and Habitats

In this section, each of the species listed in Table 1 is described, including its habitat requirements, status, and distribution in relation to the proposed project.

Dwarf Wedgemussel

The dwarf wedgemussel (*Alismidonta heterodon*) occurs sporadically in Atlantic coast rivers from Canada to North Carolina (FWS 1993). It is a small freshwater mussel (< 55 millimeters [2.17 inches]) long and roughly trapezoidal in shape. The outside of the shell is brown or yellowish-brown, with greenish rays visible in young or pale-colored specimens. The interior of the shell is bluish or silvery white and is iridescent in the posterior part of the shell. The hinge teeth are small but distinct. This species is unique in that it has two lateral teeth in the right valve and one in the left; other species have two lateral teeth in the left valve and one in the right (Environment Canada 2004).

The mussel is found in small streams to medium-sized rivers with slow to moderate current and fine sediment, sand, or gravel substrates. It appears to have poor tolerance for suspended silt. Stream-side vegetation seems to be required. The mussel releases a parasitic larvae, but the host fish species for the larvae is not known. The maximum life span of the mussel is believed to be 12-18 years. The mussel is vulnerable to pesticide and metal contamination, and to low oxygen levels. Impoundment of rivers has been a major negative factor on continued persistence of this species throughout its range, possibly due to dams blocking movements of host fish species (Environment Canada 2004).

The dwarf wedgemussel is known to occur in the South Anna River in Louisa County, VA (FWS 1993), but it has not been reported in the North Anna River or its tributaries. There are no rivers

or streams on the proposed North Anna ESP site that are suitable habitat for the dwarf wedgemussel.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) in Virginia are most common along the Chesapeake Bay, and along the lower reaches of several of the larger river systems such as the Potomac, Rappahannock, York, and James Rivers (VDGIF 2004, Watts and Byrd 2003). Most nest sites are found in the midst of large wooded areas adjacent to marshes or bodies of water, or in isolated trees located in marshes, on farmland, or in logged over areas where scattered seed trees remain (VDGIF 2004). Most eagle nests are less than 1.6 km (one mi) from feeding areas, although some can be as much as 3.2 km (two mi) from primary food sources. Wintering roost sites typically have the same characteristics as nest sites (VDGIF 2004). Bald eagle habitat usually occurs in undeveloped areas with little human activity. Bald eagles are primarily fish eaters but will prey upon mammals and birds when necessary, and they will eat carrion.

Bald eagles are occasionally observed along Lake Anna (six were observed during the 2003 Christmas Bird Count) (Audubon Society 2004). However, there are no known eagle nests near the proposed ESP site (NRC 2002). The VDGIF database indicates that one nest was located approximately eight km (five mi) downstream from Lake Anna Dam in 2000, but later surveys indicate this nest was not in use in 2003 (Watts and Byrd 2003). Dominion biologists indicated that there is a bald eagle nest near the north end of Lake Anna, approximately 16 km (10 mi) upstream of the existing units (Dominion 2004). Although the VDGIF information service does not include records of bald eagle nests on Lake Anna upstream from the NAPS, Watts and Byrd (2003) found that there was an occupied territory, but not an active nest, within the Mineral United States Geological Survey quadrangle in 2003. The Mineral quad is located west of the North Anna Power Station and includes the upper reaches of Lake Anna.

Small Whorled Pogonia

The small whorled pogonia (*Isotria medeoloides*) generally grows in open, dry, deciduous woods with acidic, sandy, loamy soil with low nutrient content. Suitable habitat for this species is limited on the NAPS site. It is not known to occur at the proposed North Anna ESP site (Dominion 2004; NRC 2002) and has not been reported in Louisa County. It has been reported to occur in the adjacent Spotsylvania and Caroline Counties, and potentially occurs in Hanover County (FWS 2004a, VDCR 2004).

Sensitive Joint-Vetch

The sensitive joint-vetch (*Aeschynomene virginica*) occurs in fresh to slightly-brackish tidal river systems in the intertidal area where the plants are flooded twice daily. Lake Anna and the North Anna River are not tidally influenced, and therefore, no habitat for the sensitive joint-vetch occurs at the proposed ESP site. The species is thought to potentially occur in Caroline and Hanover Counties (FWA 2004a) because suitable habitat is located within these counties, and the sensitive joint-vetch is known to occur in adjacent counties. However, any potential habitat would be located at least 48 km (30 mi) from the proposed North Anna ESP site.

Swamp Pink

The swamp pink (*Helonias bullata*), occurs in a variety of wetland habitats such as bogs, spring seeps, stream edges, and wet meadows. Sites are typically saturated year-round, but are rarely flooded. Soils are usually neutral to acidic. There is very little saturated ground or wetlands on the proposed North Anna ESP site; therefore, it is unlikely that there is suitable habitat within the affected area. The swamp pink is not known to occur at the North Anna site (Dominion 2004; NRC 2002) and has not been reported in Louisa County. It has been reported in Caroline County and is considered as potentially occurring in Hanover and Spotsylvania Counties (FWS 2004a).

7.0 Evaluation of Potential Impacts

Site preparation and limited construction activities would result in the removal of up to approximately 32 ha (80 ac) of forested habitat within the site. The ESP site does not contain any old growth timber, unique or sensitive plants, or unique or sensitive plant communities. Therefore, construction activities would not noticeably reduce the local or regional diversity of plants or plant communities. There are no areas designated by the FWS as critical habitat for endangered or threatened species at or near the site. No threatened or endangered plant species have been reported near the North Anna ESP site or in Louisa County, and no suitable habitat for threatened or endangered plant species is known to exist on the North Anna ESP site.

Movement of construction workers, materials, and equipment, and the operation of construction equipment (e.g., earth-moving equipment, portable generators, pile drivers, pneumatic equipment, and hand tools) would generate noise. Noise from human activities can affect wildlife by inducing physiological changes, nest or habitat abandonment, and behavioral modifications, or it may disrupt communications required for breeding or defense (Larkin 1996). However, it is not unusual for wildlife to adapt to noise from human activities (Larkin 1996). Although short-term noise levels from construction activities could be as high as approximately 110 decibels (e.g., impulse noise during pile-driving activities), these noise levels would not extend far beyond the boundaries of the ESP site. At a distance of 120 m (400 ft) from the construction site, noise levels from these activities would range from approximately 60 to 80 decibels. These noise levels are below the 80-to-85-decibel threshold at which birds and small mammals are startled or frightened (Golden et al. 1980). Thus, noise from construction activities would not be likely to disturb wildlife beyond 120 m (400 ft) from the construction site. Additionally, construction would occur adjacent to the existing operating Units 1 and 2, where wildlife has presumably become accustomed to typical, existing operating facility noise levels of approximately 50 to 60 decibels at the NAPS security fence (Dominion 2004).

There are no small streams to medium-sized rivers with slow-to-moderate current and fine sediment, sand, or gravel substrates on the ESP site. Two intermittent streams exist on the North Anna ESP site (Dominion 2004); however, they are not expected to support a population of dwarf wedgemussels. Besides being intermittent streams, they do not support fish populations that are essential to the life cycle of the dwarf wedgemussel. Proposed activities authorized under 10 CFR 52.25 would not adversely affect the North Anna River.

The 32 ha (80 ac) of forested habitat removed during construction presumably could be used by bald eagles for perching, roosting, or nesting. Eagles are occasionally observed in the vicinity of NAPS, but there is no indication that the proposed project site is regularly utilized by bald eagles. The nearest known bald eagle territory is believed to be approximately 16 km (ten mi) from site

preparation and construction activities at the proposed ESP site. The *Bald Eagle Protection Guidelines for Virginia* (USFWS and VGDIF 2000) recommends a buffer of 400 m (0.25 mi), in which construction activities should be limited. Although bald eagles may occasionally be observed near the plant, no nesting or roosting activity has ever been observed within an area that could be affected by construction or operational noise. No avian collisions with existing structures at the NAPS site have been noted (Dominion 2004); therefore, such collisions during the site preparation and construction phase would be unlikely.

8.0 Management Actions Related to the Species

To minimize construction-related impacts to wildlife, Dominion has stated that it would adhere to State permit conditions that may restrict the timing of certain construction activities (Dominion 2004). Dominion maintains a migratory bird protection program, including protection of nests and reporting bird (especially raptor) strikes and other events (Dominion 2001).

A few small wetland areas and two intermittent streams exist on the North Anna ESP site (Dominion 2004). Watercourses and wetlands would be avoided to the extent possible during any construction. Dominion has stated (Dominion 2004) that any work that has the potential to impact a wetland would be performed in accordance with applicable laws, regulations, permits, and authorizations. Wetland delineations and surveys would be conducted prior to commencement of construction activities. The Army Corps of Engineers has jurisdiction over wetlands under Section 404 of the Clean Water Act . If the areas are determined to be wetlands under the Clean Water Act, disturbance of the areas would either be avoided or other appropriate mitigation actions would be implemented as required by any applicable permits and regulations (Dominion 2004).

9.0 Conclusions

The proposed action is the issuance of an ESP for two additional nuclear power units at the North Anna ESP site. This BA has considered the potential impacts of site preparation and limited construction activities at the proposed site on species listed as threatened or endangered under the ESA, species proposed for such status, species considered candidates for listing under the ESA, or designated critical habitats for such listed species.

There is no habitat for the dwarf wedgemussel on the North Anna ESP site, and the proposed site preparation activities would not have an effect on, or occur near, the North Anna River or any other potential habitat areas. Therefore, the staff concludes that the proposed action would have no effect on the dwarf wedgemussel.

Because bald eagles have been observed in the vicinity of the North Anna ESP site, but have never been observed to nest or roost in the vicinity, the staff has concluded that the proposed action may affect, but are not likely to adversely affect bald eagles.

It is very unlikely that three protected plant species, small-whorled pogonia, sensitive joint-vetch, and swamp pink, may occur at the NAPS site. These species have never been reported in Louisa county, and there is no known habitat for these species on the North Anna ESP site. Therefore, the staff concludes that the proposed action would have no effect on the small-whorled pogonia, sensitive joint-vetch, and swamp pink.

10.0 References

10 CFR Part 51. Code of the *Federal Regulations*, Title 10, *Energy,* Part 51, " Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

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Pamela F. Faggert
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Phone: 804-273-3467

Dominion

March 21, 2005

Ms. Ellie Irons
Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, 6th Floor
Richmond, VA 23219

Re: Federal Consistency Certification for North Anna Early Site Permit;
Coastal Zone Management Act

I have enclosed a copy of the federal consistency certification prepared by Dominion Nuclear North Anna, LLC. (Dominion) in connection with its application to the U.S. Nuclear Regulatory Commission (NRC) for issuance of an Early Site Permit at the North Anna site in Louisa County, Virginia. This certification revises the certification submitted on behalf of DNNA on November 6, 2003, and subsequently withdrawn at the request of Virginia Department of Environmental Quality (VDEQ) until the NRC had issued its draft environmental impact statement (EIS) regarding the ESP application. Since that time, the following events have occurred:

- Dominion revised its application to the NRC by committing to using dry cooling for Unit 4 (letter to NRC dated March 31, 2004).
- Dominion answered Requests for Additional Information from the NRC regarding environmental issues (letters to NRC dated May 17 and July 12, 2004).
- Dominion submitted Revision 3 of its application to NRC (letter to NRC dated September 7, 2004). Many of the revisions address informal State comments on our earlier certification submittal.
- NRC issued its draft EIS for an Early Site Permit at the North Anna site (December 2, 2004).
- Dominion has committed to the Commonwealth of Virginia to support the development and stocking of a more thermally-tolerant fishery if Dominion obtains approval and decides to build an additional unit at the North Anna site (Letter from P. Faggert to G. Martel dated January 12, 2005).
- Dominion staff have verified with VDEQ staff that the preference for the scope of this federal consistency certification be limited to site preparation activities, which are the only activities that may be conducted under the Early Site Permit. These activities are detailed on Page 3 of the attached certification. If Dominion later decides to apply to the NRC for a combined construction permit and operating license (COL) at the North Anna site, it will prepare an additional federal consistency certification for such construction and operation.

We have provided your office with references to our revised application and the NRC draft EIS. These documents are available on the NRC website at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html.

Dominion has determined that impacts to Virginia coastal resources would be small and would be further mitigated through use of best management practices in accordance with the Virginia Erosion and Sediment Control Handbook. NRC issuance of an ESP would be consistent with the enforceable provisions of the Virginia coastal zone management program.

As your office coordinates state review of federal consistency certifications, we request that you distribute the attached certification to appropriate cooperating state agencies for comments and concurrence. We respectively request that the state complete its review and notify NRC and us regarding its concurrence by June 17, 2005, if possible, or as soon as reasonably achievable.

If you have any questions, please contact Jud White at 804-273-2948 or Tony Banks at 804-273-2170.

Sincerely,

Pamela F. Faggert

Pamela F. Faggert

Cc: Michael Murphy - VDEQ
Jack Cushing – NRC

Enclosure

FEDERAL CONSISTENCY CERTIFICATION FOR NORTH ANNA EARLY SITE PERMIT[1]

This is the Dominion Nuclear North Anna, LLC (Dominion) certification that U. S. Nuclear Regulatory Commission (NRC) issuance of an early site permit (ESP) at the North Anna site in Louisa County, Virginia would be consistent with the Commonwealth of Virginia's federally approved coastal zone management program. Dominion is providing a copy of this certification to the Virginia Department of Environmental Quality pursuant to 10 CFR 930.57.

CONSISTENCY CERTIFICATION

Dominion has determined that the activities that would be permitted by NRC issuance of an ESP would comply with the enforceable polices of, and will be conducted in a manner consistent with, the Commonwealth of Virginia's federally approved coastal zone management program. The certification addresses certain site preparation activities that may be permissible with the issuance of the ESP. Separate certification would be required should Dominion decide to apply to NRC for a license to construct and operate a new nuclear unit.

NECESSARY DATA AND INFORMATION

The Federal Coastal Zone Management Act (16 USC 1451 et seq.) imposes requirements on an applicant for a federal permit to conduct an activity that could affect a state's coastal zone. The Act requires the applicant to certify to the permitting agency that the proposed activity would comply with the enforceable policies of and be consistent with the state's federally approved coastal zone management program. The Act also requires the applicant to provide to the state a copy of the certification statement and requires the state, at the earliest practicable time, to notify the federal agency and the applicant whether the state concurs or objects to the consistency certification [16 USC 1456(c)(3)(A)]. The Commonwealth of Virginia has a federally approved coastal zone management program (Ref. 1, Appendix E; and Ref. 2), described below.

Proposed Action

Dominion is an indirect, wholly owned subsidiary of Dominion Resources, Inc. Virginia Electric and Power Company (Virginia Power), which operates the existing nuclear units on the NAPS site, is also a wholly-owned subsidiary of Dominion Resources, Inc. Dominion has submitted an application to the NRC for an ESP for a location in Louisa County, Virginia, identified as the North Anna ESP site.

An ESP is an NRC permit issued pursuant to 10 CFR Part 52, Subpart A, approving a proposed site as suitable for new nuclear plants. Regulation 10 CFR 52, Subpart A authorizes a permit duration of up to 20 years.

An ESP is not an approval to construct or operate such plants and Dominion is not proposing to construct or operate new nuclear plants. The purpose of an ESP is to determine whether a proposed site is suitable for new units before incurring the substantial additional time and expense of designing and seeking approval to construct and operate such facilities. However, under the NRC rules at 10 CFR 52.25(a), the holder of an ESP may perform certain site preparation activities listed in 10 CFR 50.10(e)(1), provided that: 1) the ESP application contains a site redress plan, and 2) the NRC's Final Environmental Impact Statement on the ESP application concludes that such activities will not result in any significant environmental

[1] This certification is patterned after the draft model certification included as Appendix E of Reference 1.

impact that cannot be redressed. Dominion has included a site redress plan as Part 4 of its ESP application.

In order to determine whether the proposed site may be environmental suitable for new nuclear units, NRC regulations require an applicant to submit an environmental report and NRC to prepare an environmental impact statement that evaluates environmental effects from the following activities:

- Site Preparation
- Construction, Operation, and Decommissioning

A complete copy of Dominion's application, including the environmental report and site redress plan, and the NRC draft environmental impact statement has been provided to the Virginia Department of Environmental Quality. These documents are also available on the NRC website at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html.

The NAPS site is located on a peninsula on the southern shore of Lake Anna and is not within the Virginia coastal zone. However, Spotsylvania County, located across Lake Anna from NAPS, is within the coastal zone and, due to its proximity, future activities at the North Anna ESP site could affect it. In addition, NAPS transmission lines traverse several counties within Tidewater Virginia. Figures 1 and 2 show the NAPS 50-mile and 10-mile regions, respectively. Figure 1 also shows NAPS transmission lines and Figure 3 shows county boundaries within 50 miles. Figure 4 shows Lake Anna, together with the station location, area roads and communities, and local county boundaries.

The site selected for the ESP is a parcel of land within the NAPS site, where two existing nuclear units are currently located and operated. NRC originally licensed the NAPS site for four reactors, but Virginia Power constructed and operates only Units 1 and 2. The Original Units 3 and 4 were cancelled before construction was completed. The site selected for the ESP is adjacent to and generally west of the existing units where the original Units 3 and 4 were going to be built.

NRC recently renewed the operating licenses for Units 1 and 2 and Virginia Power had obtained Commonwealth concurrence with the coastal zone certification for that renewal (Ref. 3). The renewal certification described NAPS operations, permits, and environmental impacts, and how NAPS operations conform to the Virginia coastal zone management program (Ref. 4). The renewal certification summarized information that Virginia Power had presented in an environmental report in accordance with NRC requirements for license renewal applications. Dominion subsequently prepared an environmental report in accordance with NRC requirements for early site permit applications.

If in the future Dominion were to decide to proceed with the development of new nuclear units at the North Anna ESP site, it would have to obtain separate approval from the NRC (as well as other federal and state approvals) before proceeding with those activities. Regulation 10 CFR 52 Subpart C contains NRC requirements for combined licenses.[2] If Dominion decides to pursue construction and operation of new nuclear units at the ESP site, it would apply for a combined license. As part of its review of such an application, NRC would determine whether

[2] NRC regulation 10 CFR 50 established a two-step construction and operation approval process that is based on separate review and approval processes for a construction permit and an operating license. The 10 CFR 52 process combines the construction and operation approvals into one, hence 10 CFR 52 Subpart C phrase "combined license."

the construction, operation, and decommissioning impacts would be within the bounds of those assumed and analyzed at the time of early site permit issuance.

The focus of the Dominion coastal certification is site preparation activities that may be authorized by the ESP. Dominion has made a preliminary determination that the existing NAPS transmission lines have sufficient capacity to carry the total output of the existing units and the new units and Dominion has no plans for line corridor modifications to support new units. Dominion would prepare a separate certification in conjunction with preparing a combined license application for nuclear unit construction and operation.

The ESP site is located on the west side of the existing units developed area, beginning approximately 570 feet west of the center of the Unit 1 containment building. The area that would be affected on a long-term basis as a result of permanent facilities is approximately 130 acres. The additional areas that would be disturbed on a short-term basis (e.g., as a result of temporary facilities, laydown areas) total approximately 70 acres. Of these 200 acres, most are open areas used to stage equipment and materials for the existing Units 1 and 2 construction, operation and maintenance activities, and former Units 3 and 4 construction. Approximately 80 acres are wooded. The ESP site is located entirely within the boundaries of the existing NAPS site and, like the rest of the NAPS site, is zoned for industrial use. Figure 5 shows the footprint of the ESP site.

Currently, the entire North Anna site is operated and controlled by Virginia Power, which maintains the site including the portion designated as the ESP site under its existing licenses and authority. If Dominion decides to proceed with any site preparation activities, it would first be required to: 1) obtain appropriate state approvals to enter into an agreement between Dominion and Virginia Power to authorize Dominion to perform such site preparation activities subject to Dominion's obligation to perform such site redress as may be required by the Site Redress Plan approved by the NRC; and 2) obtain any other permits or authorizations necessary to conduct such site preparation activities.

Dominion estimates that site preparation could take between 12 and 18 months to complete and include the following:

- Preparation of the site for construction of the facility (including such activities as clearing, grading, construction of temporary access roads, and preparation of borrow areas);
- Installation of temporary construction support facilities (including items such as warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and construction support buildings);
- Excavation for facility structures;
- Construction of service facilities (including items such as roadways, paving, railroad spurs, fencing, exterior utility and lighting systems, switchyard interconnects, and sanitary sewage treatment facilities);
- Construction of structures, systems and components which do not prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public, including but not limited to:
  - Cooling towers,
  - Intake and discharge structures,
  - Circulating water lines,

- Fire protection equipment,
- Switchyard and on-site interconnections,
- Microwave towers,
- Underground utilities.

Before commencing any of these activities, Dominion would:

- Create a record of the existing site conditions within the proposed ESP site by way of photographs, surveys, listings of existing facilities and structures, or other documentation. This record would serve as the baseline for redressing the site in the event ESP site preparation activities are terminated as a result of project cancellation or expiration of the ESP.
- Obtain any state and local permits and authorizations necessary to perform the site preparation activities.
- Provide to NRC a guaranty by Dominion of financial assurance for Dominion's obligation to comply with the Site Redress Plan.

In addition, any work on the intake structure or cooling water system would be subject to compliance with the Clean Water Act, including the State's authority to determine that the location, design, construction and capacity of the intake structures reflect best technology available for minimizing adverse environmental impact. The current certification is limited to the construction activities that would be permitted under the early site permit, and State concurrence will not constitute any determination concerning the acceptability of operational impacts. If Dominion decides to proceed with an application to construct and operate new units, the additional certification at that stage will address operational impacts.

The objective of the Site Redress Plan is to ensure that the site, should it not be fully developed for the intended purpose of new nuclear power generation, would be returned to an unattended, environmentally stable and aesthetically acceptable condition suitable for such non-nuclear use as is consistent with local zoning laws.

Site redress activities would be commensurate with the level of site modification created by the proposed site preparation activities. Redress activities would reflect applicable land use and/or zoning requirements of local, state and federal agencies. Redress activities would consider the following:

- Recontouring, revegetation, and replanting of cleared areas
- Restoration of sensitive water resource features disturbed for intake and/or discharge structures
- Habitat replacement
- Use of constructed facilities for alternative purposes, or their removal
- Remediation of contamination resulting from site preparation or site redress activities

In planning for site redress, two general categories of conceptual options would be considered:

- Topographic approaches that accomplish the objective stated above as well as preserve the potential of the site for future industrial use

- Completion or addition of site development features that enhance the value of the site for potential future industrial use.

Redress activities would begin (in concert with local and/or state land use agencies and industrial development authorities) either when the ESP has expired or reactor construction plans have been abandoned. The redress activities would include those actions necessary to terminate or transfer local and state permits and would identify site features or improvements that would remain and those that must be removed. A detailed redress scope and schedule consistent with this plan would be implemented at that time. The schedule would include adequate preparation time to secure additional input from regulators and local municipalities. The redress activities would comply with applicable environmental requirements. If, prior to commencement of the redress activities, industrial or other acceptable uses for the site are identified that are consistent with its development, the redress would be performed in a manner that accommodates and is consistent with the alternative use. Dominion would carry out the Site Redress Plan to the greatest extent possible consistent with the alternative use.

Prior to the commencement of site redress activities, environmental control of local water quality, air quality, storm water runoff, solid waste, and the protection of critical ecological elements, if any, would be maintained in compliance with approved permits and regulatory requirements.

Environmental Impacts

As indicated above, the NAPS site (within which the ESP site resides) is not located within the Virginia coastal zone. Spotsylvania County, located across Lake Anna, is located within the Virginia coastal zone. Dominion has concluded that the only way that the proposed action, NRC approval of the ESP site, could affect Virginia coastal resources is through potential impacts to the Spotsylvania County side of Lake Anna. For this reason, the Dominion certification focuses on water impacts.

During site preparation activities that would involve land disturbance, Dominion would employ best management practices (BMPs) described in the Virginia Erosion and Sediment Control Handbook (Ref. 5) to control erosion and minimize the sediment load to Lake Anna in accordance with an approved erosion and sediment control plan. Best management practices may include sediment basins, sediment barriers, vegetative stabilization and filter strips, rip rap, rock filter berms, and mulching. Other than two ephemeral streams, discussed below, there are no existing defined drainage channels or streams in the proposed area of construction. Visual inspections of erosion control measures would be performed to monitor the effectiveness of the control measures and to aid in determining if other mitigation measures are necessary. Where necessary, special erosion control measures would be implemented to further minimize impacts to the lake, lake users, and existing units operations. Site redress activities would include the use of appropriate stabilization methods to mitigate the long-term delivery of sediment into the lake.

Construction of a cooling water intake structure for any new units at the ESP site would not significantly affect the open water habitat of Lake Anna.[3] The intake structure would be constructed in the vicinity of the existing units' cooling water intake structure. The modification to open water habitat resulting from construction of the intake structure would not be considered significant in comparison to the amount of open water habitat found on Lake Anna. If the intake structure were removed as part of site redress activities, the shoreline would be redressed by

[3] Lake Anna consists of a Waste Heat Treatment Facility (WHTF) and the larger North Anna Reservoir.

grading and revegetation to control erosion. Any significant sediment deposition in the vicinity of the intake structure would be removed.

Portions of two small ephemeral streams that discharge to Lake Anna, designated Streams A and B on Figure 6, may be filled to level the area should the construction of cooling towers in that area become a part of the final plant design. Dominion estimates that about 1500 feet of stream channel would require filling. The site drainage system would be designed to incorporate the flow currently conveyed by these streams to the lake. By providing alternate drainage facilities to convey the stream flows, no short-term or long-term adverse hydrologic impacts on site drainage would result. Therefore, the need to redress the streams to their original condition, should construction be terminated, would be evaluated at that time to determine the best way to ensure long-term stability of the site. If considered necessary, the stream channels would be re-excavated and stabilized by vegetation and/or riprap to return the area to an acceptable long-term condition.

New onsite pipelines that cross freshwater streams would be constructed so that no permanent alteration to the streams occurs. Should site preparation activities be terminated, an evaluation would be made at that time regarding removal of these facilities as part of the site redress activities. Should removal be considered necessary, it would be accomplished in such a manner as to minimize disruption to the streams, and the streams would be redressed to an acceptable long-term condition.

The floodplain along the Lake Anna shoreline has been determined using the Federal Emergency Management Agency Flood Insurance Rate Map (Ref. 6). Any flooding that might occur during construction of the new units would be limited to areas adjacent to the lake shoreline (i.e., below elevations of 255 feet above mean sea level). Limited construction activity would occur within the lake floodplain for the construction and installation of a new water intake structure. Any construction work conducted within the floodplain would be performed in accordance with the applicable regulatory requirements. Therefore, no construction-related impacts are expected to affect current land uses within floodplains.

Recreational use of the North Anna Reservoir is controlled by the Virginia Department of Conservation and is open to the public. Construction of a new water intake system would generally be limited to activity along a small portion of the North Anna Reservoir shoreline. Any work conducted immediately adjacent to the lake would be performed in accordance with applicable federal, Virginia, and local laws and regulations, permits, and authorizations. Therefore, construction-related impacts would not affect the recreational uses of the lake.

Virginia Power has monitored fish populations in Lake Anna and the North Anna River for more than 25 years. No federally- or state-listed fish species has been collected in any of these monitoring studies, nor has any listed species been observed in creel surveys or occasional special studies conducted by Virginia Power biologists. No state- or federally-listed fish species' range includes Lake Anna or the North Anna River, and none is believed to occur in counties adjacent to Lake Anna or the North Anna River (i.e., Caroline, Hanover, Louisa, Orange, and Spotsylvania Counties).

Based on Commonwealth (Division of Natural Heritage) databases, one federally-listed mussel species, one state-listed mussel species, and one mussel species that is a candidate for federal listing occur in counties that border Lake Anna or the North Anna River. None of the three has been found in Lake Anna or the North Anna River.

State Program

Like many states, the Virginia coastal zone management program is a "networked" program, which means that it is based on a variety of existing commonwealth authorities rather than a single law and set of regulations. The U. S. Department of Commerce and the Virginia Department of Environmental Quality have published programmatic documentation of the Virginia program (Ref. 7), called Virginia's Coastal Resources Management Program. The Virginia Department of Environmental Quality administers the program and has identified enforceable regulatory authorities that comprise the program (Ref. 8).

Table 1 lists the enforceable regulatory authorities and discusses for each the applicability to NAPS and, where applicable, how Dominion would comply. The table documents which program elements are not applicable to NAPS and, for those that are applicable, the ESP activities that represent program compliance.

Findings

1. Dominion has determined that impacts to Virginia coastal resources would be small and would be further mitigated through use of best management practices in accordance with the Virginia Erosion and Sediment Control Handbook.
2. NRC issuance of an ESP would be consistent with the enforceable provisions of the Virginia coastal zone management program.

STATE NOTIFICATION

By this certification that NRC issuance of an ESP is consistent with Virginia's coastal zone management program, the Commonwealth of Virginia is notified that it has six months from receipt of this letter and accompanying information in which to concur or object with Dominion's certification. However, pursuant to 15 CFR 930.63(b), if the Commonwealth of Virginia has not issued a decision within three months following the commencement of state agency review, it shall notify the contacts listed below of the status of the matter and the basis for further delay. The Commonwealth's concurrence, objection, or notification of review status shall be sent to:

Jack Cushing
US Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Tony Banks
Dominion Resources Services, Inc.
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, VA 23060

REFERENCES

1. *NRR Office Instruction LIC-203, "Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues,"* U. S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, June 21, 2001.
2. *Virginia Coastal Program: About the Program*, Virginia Department of Environmental Quality, http://www.deq.state.va.us/coastal/about.html. Accessed February 11, 2005.
3. Letter, Irons (Virginia Department of Environmental Quality) to White (Dominion Virginia Power Company), *North Anna Power Station License Renewal Application by Dominion Virginia Power Company to U. S. Nuclear Regulatory Commission for Renewed Operating License; Federal Consistency Certification under the Coastal Zone Management Act, DEQ-01-187F*, February 21, 2002.

4. Letter, White (Dominion Virginia Power Company) to Irons (Virginia Department of Environmental Quality), *Coastal Zone Consistency Certifications for Surry and North Anna Power Stations, Applications for Renewed Operating Licenses DEQ 01-186F (Surry) and DEQ-01-187F (North Anna)*, October 11, 2001; as revised by Letter, White (Dominion Virginia Power Company) to Irons (Virginia Department of Environmental Quality), *Federal Consistency Certifications for Surry and North Anna Power Station License Renewals*, October 31, 2001.

5. *Virginia Erosion and Sediment Control Handbook, 3rd Edition*, Virginia Department of Conservation, Division of Soil and Water Conservation, 1992.

6. *Flood Insurance Rate Map, Louisa County, VA and Incorporated Areas*, Federal Emergency Management Agency, U.S. Department of Interior, November 1997.

7. *Virginia Coastal Resources Management Program Final Environmental Impact Statement*, U. S. Department of Commerce and Council on the Environment, Commonwealth of Virginia, July 1985, reprinted April 1999.

8. Department of Environmental Quality Federal Consistency Fact Sheet, available online at http://www.deq.virginia.gov/eir/pdf/factcons.pdf; and Federal Consistency Information Package For Virginia Coastal Resources Management Program, available online at http://www.deq.virginia.gov/eir/pdf/fcman04.pdf. Accessed February 11, 2005.

Table 1. Dominion Nuclear North Anna, LLC: Early Site Permit Application Compliance With Enforceable Regulatory Programs Composing Virginia's Coastal Resources Management Program

Item	Topic and Virginia Code Citation[1]	Compliance Status
Wetlands Management		
1.	§28.2-1301 through §28.2-1320	This applies to wetlands development. Dominion has no plans for development in wetlands located in the coastal zone. For wetlands work onsite, Dominion would obtain the appropriate permit approval.
2.	§62.1-44.15.5	This applies to excavation in a wetland. Dominion has no plans to excavate in a wetland located in the coastal zone. For excavation in onsite wetlands, Dominion would apply for the appropriate Virginia Water Protection Permit approval.
Fisheries Management		
3.	§28.2-200 to §28.2-713	This applies to activities that Dominion has not undertaken at the North Anna site and for which Dominion has no plans to undertake as the result of ESP issuance; recreational and commercial fishing, oystering, claming, and crabbing.
4.	§29.1-100 through §29.1-570	This applies to activities that Dominion has not undertaken at the North Anna site , fishing, trapping, and hunting and for which Dominion has no plans to undertake as the result of ESP issuance with the exception of scientific collection, for which Dominion staff have required permits.
5.	§3.1-249.59 through §3.1-249.62	This applies to activity that Dominion has not undertaken at the North Anna site and for which Dominion has no plans to undertake as the result of ESP issuance : use of marine antifouling paint containing tributylin.
Subaqueous Lands Management		
6.	§28.2-1200 through §28.2-1213	This requires a permit for use of state-owned bottomlands. Dominion has no plans for construction on state-owned bottomlands located within the coastal zone. For construction onsite of the intake structure, Dominion would obtain the appropriate permit approval.

Item	Topic and Virginia Code Citation[1]	Compliance Status
Dunes Management		
7.	§28.2-1400 though §28.2-1420	This applies to activity that Dominion has not undertaken at the North Anna site and for which Dominion has no plans to undertake for ESP: development in coastal dunes.
Point Source Air Pollution Control		
8.	§10-1.1300	For ESP site preparation activates, Dominion would obtain appropriate state permit approval for temporary construction emission sources such as a concrete batch plant.
Point Source Water Pollution Control		
9.	§62.1-44.15	Virginia Pollutant Discharge Elimination System Permit Number VA0052451 authorizes discharges from North Anna Power Station Units 1 and 2. . Dominion would obtain appropriate state permit approval for ESP activities such as storm water management.
Non-Point Source Water Pollution Control		
10.	§10.1-560 et seq.	Dominion would follow best management practices in accordance with the Virginia Erosion and Sediment Control Handbook and an approved erosion and sediment control plan.
Shoreline Sanitation		
11.	§32.1-164 through §32.1-165	This applies to activities that Dominion does not undertake at the North Anna site and for which Dominion has no plans to undertake for ESP: operation of septic tanks and land disposal of sewerage.
Coastal Lands Management -- Chesapeake Bay Preservation Act		
12.	§10-1.2100 through §10-1.2114	This is a developing part of the program. It is Dominion's understanding that implementation will be through existing permit and regulatory control programs. Dominion is committed to complying with these requirements.
Water Withdrawal (Water Protection)		
13.	§62.1-44.15.10 (9 VAC 25-210-10)	It is Dominion's understanding that implementation will be through existing permit and regulatory control programs. For site preparation activities regarding intake structures and water withdrawal under an ESP, Dominion is committed to complying with these requirements.

1 VDEQ 2005

Reference:

VDEQ (Virginia Department of Environmental Quality). 2005. *Virginia Coastal Program: Program Laws and Policies*. Available online at http://www.deq.state.va.us/coastal/lawpols.html. Accessed March 16, 2005

ESP Part 3 (Environmental Report) Figure 2.1-3, page 3-2-5, goes here

Figure 1. North Anna Power Station 50-Mile Map.

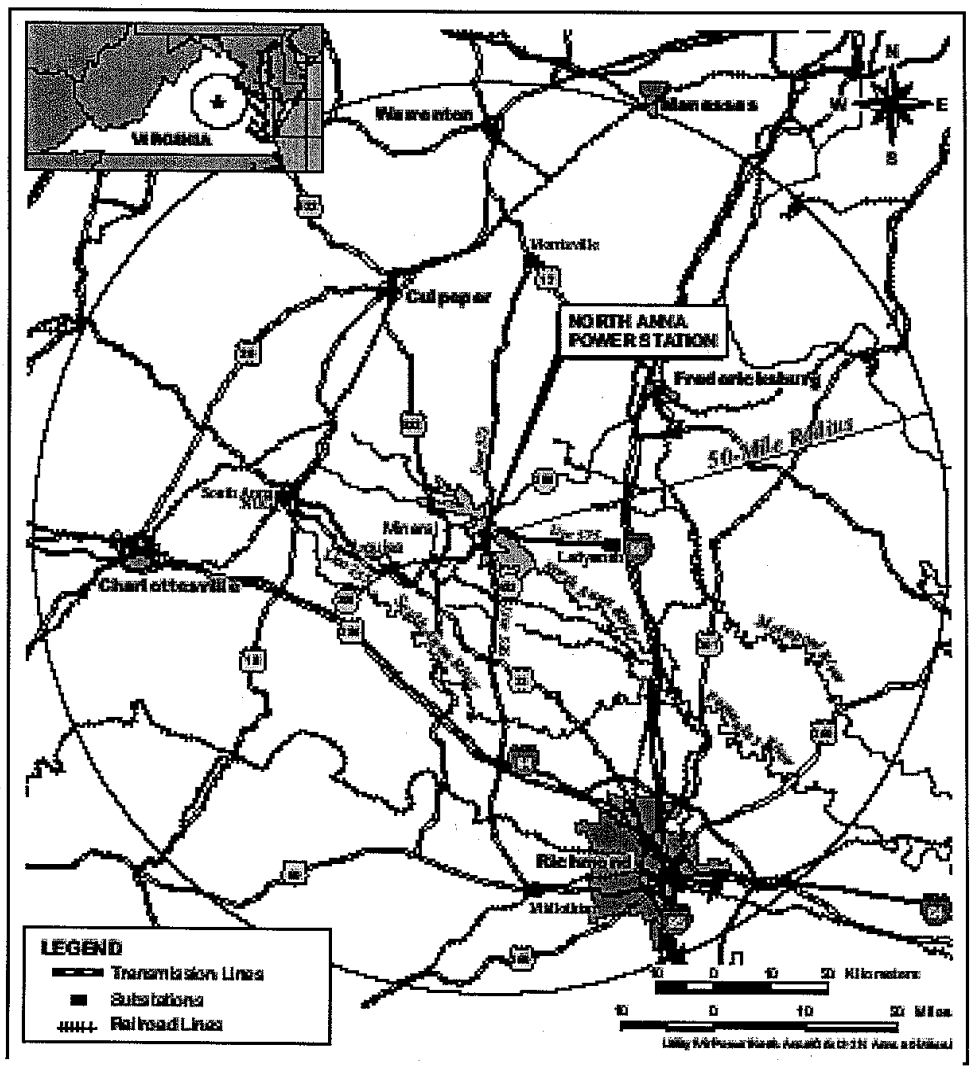

Figure 2.1-3 North Anna Power Station 50 Mile View

ESP Part 3 (Environmental Report) Figure 2.1-2, page 3-2-4, goes here

Figure 2. North Anna Power Station 10-Mile Map.

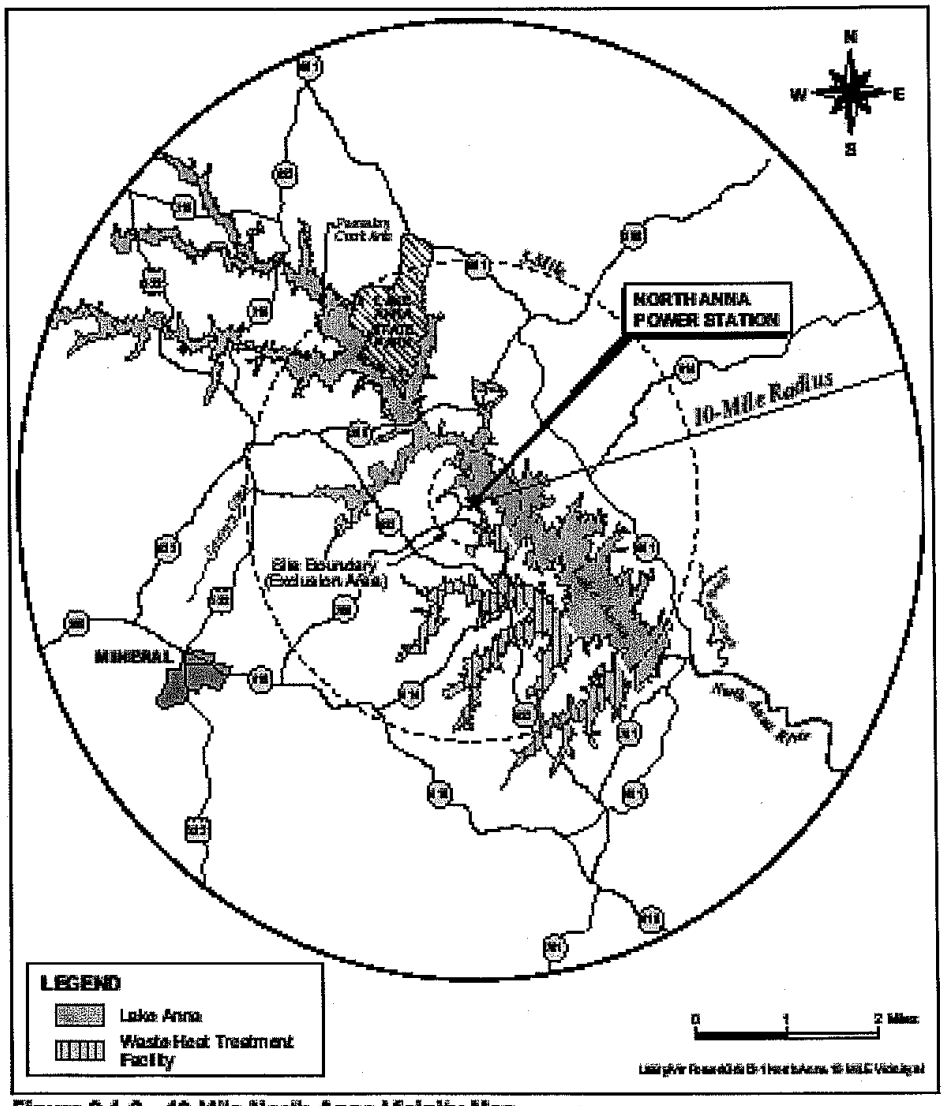

Figure 2.1-2 10 Mile North Anna Vicinity Map

ESP Part 3 (Environmental Report) Figure 2.5-16, page 3-2-143, goes here

Figure 3. North Anna Power Station Area Counties.

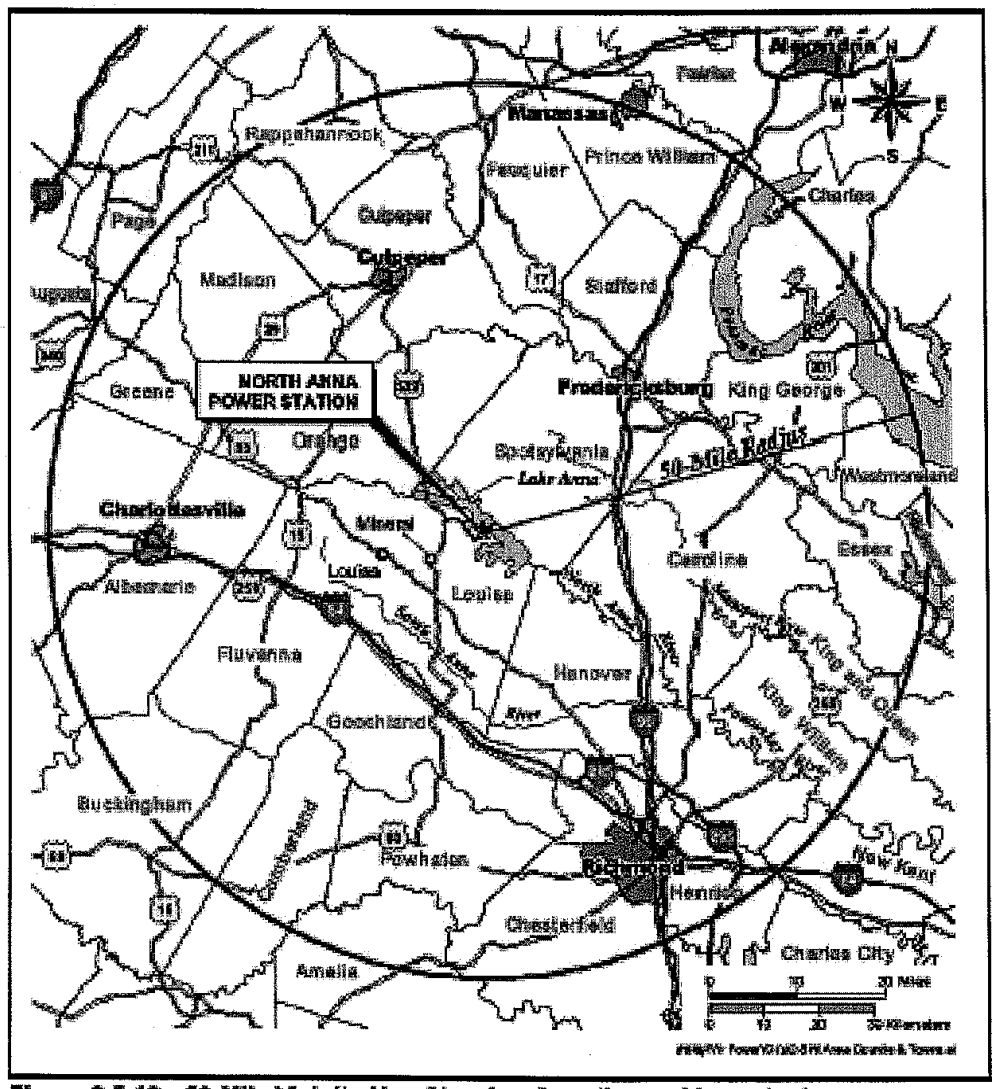

Figure 2.5-16 50-Mile Vicinity Map Showing Counties and Important Towns and Cities

Source: North Anna Power Station, Units 1 and 2 Application for Renewed Operating Licenses Appendix E – Environmental Report, Figure 2-8

ESP Part 3 (Environmental Report) Figure 2.3-1, page 3-2-51, goes here

Figure 4. Lake Anna

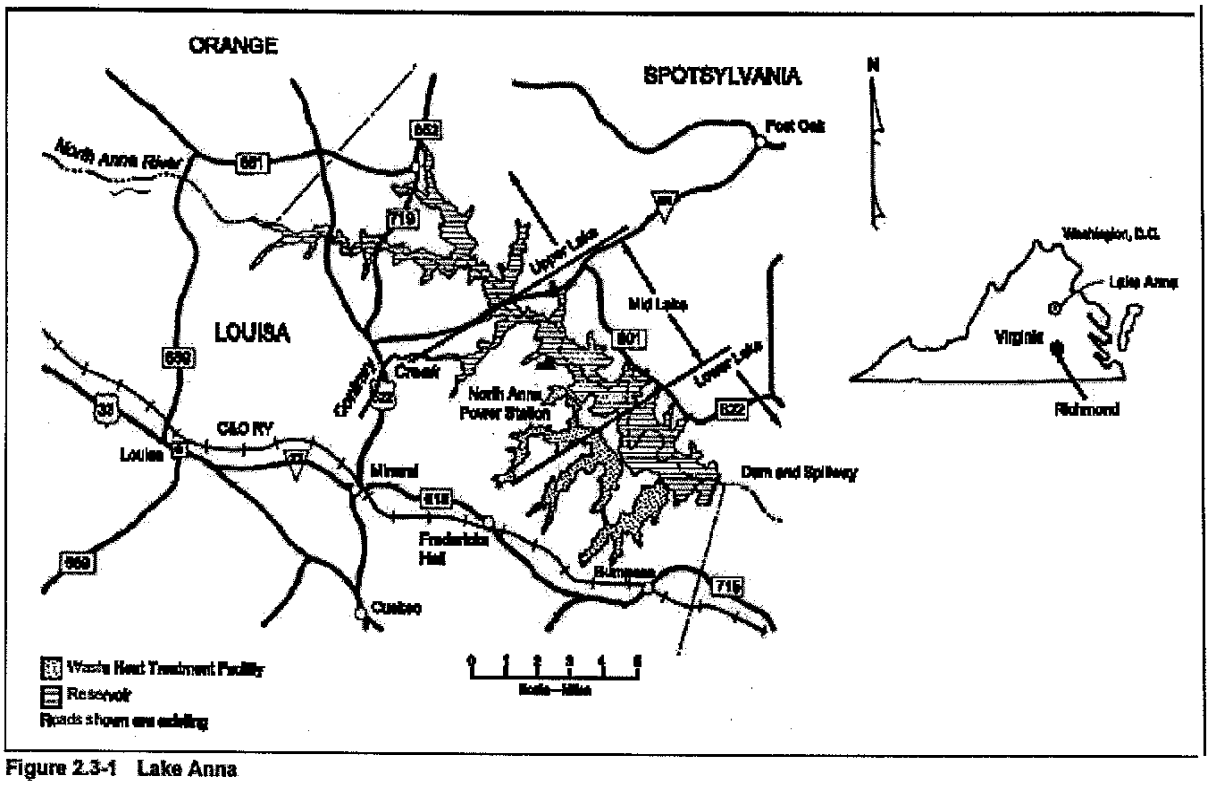

Figure 2.3-1 Lake Anna

ESP Part 3 (Environmental Report) Figure 2.1-1, page 3-2-3, goes here

Figure 5. Early Site Permit Footprint

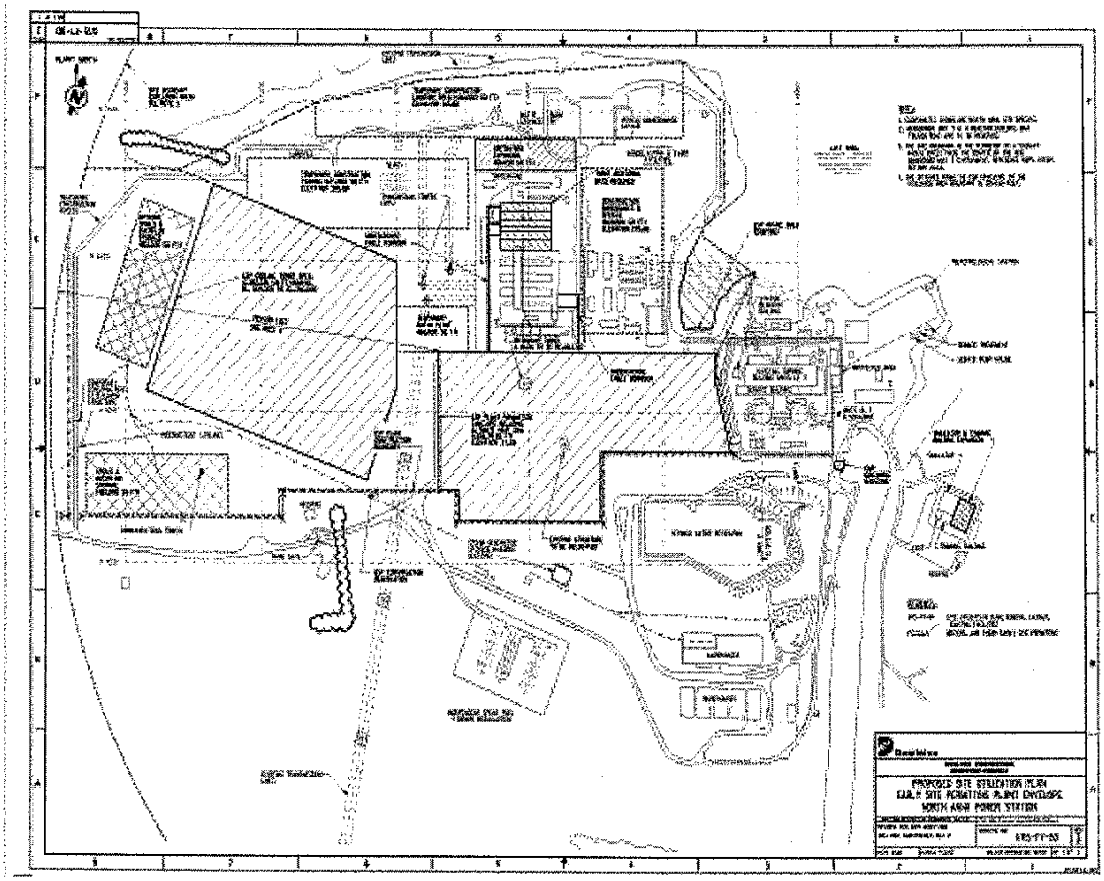

Figure 2.1-1 North Anna ESP Site Boundaries

ESP Part 4 (Site Redress Plan) Figure 1.2-1, page 4-1-8, goes here

Figure 6. Emphemermal Stream Locations

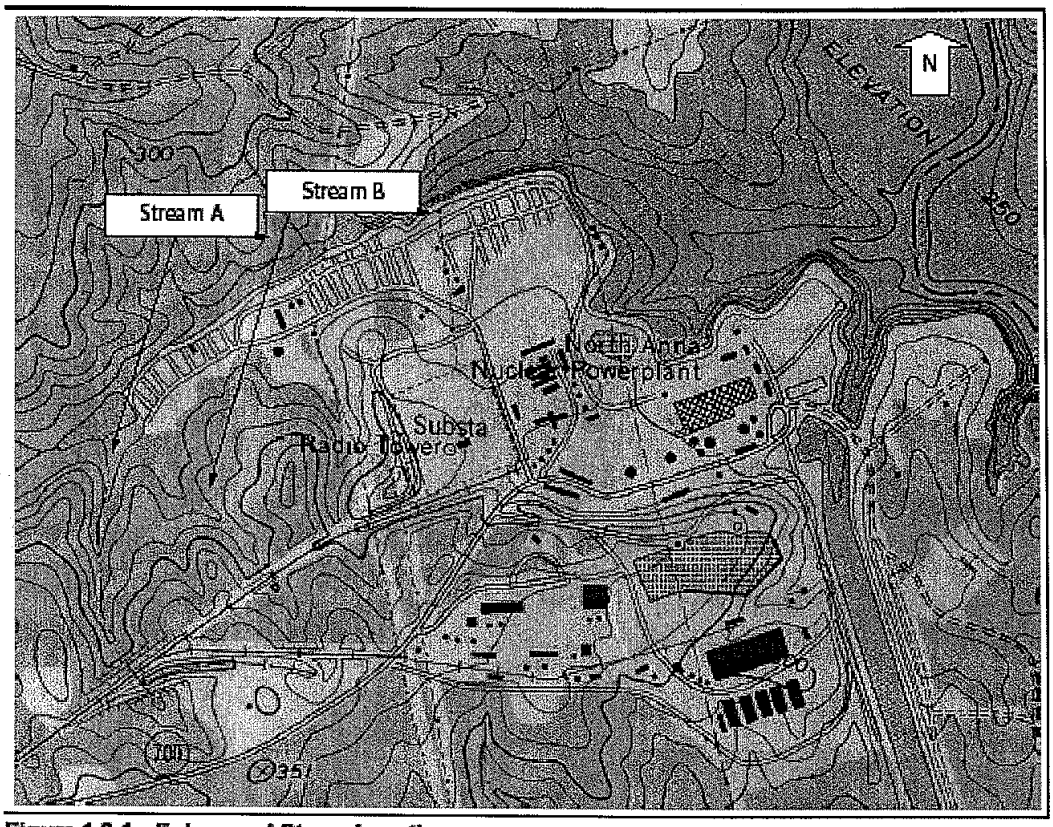

Figure 1.2-1 Ephemeral Steam Locations
Source: *Lake Anna West, VA*, USGS 7.5 Minute Topographic Map, 1983.

COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
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June 17, 2005

Ms. Pamela F. Faggert
Vice-President and Chief Environmental Officer
Dominion Virginia Power Co./Dominion Nuclear North Anna, LLC.
5000 Dominion Boulevard
Glen Allen, Virginia 23060

RE: Federal Consistency Certification for North Anna Early Site Permit
DEQ-05-079F: Status of Review

Dear Ms. Faggert:

The Department of Environmental Quality ("DEQ") is responsible for coordinating Virginia's review of federal consistency certifications submitted pursuant to the Coastal Zone Management Act of 1972 and to the Virginia Coastal Resources Management Program. Pursuant to the Act, all activities located within Virginia's designated coastal management area that require a federal permit, license, or approval must be consistent with the Virginia Coastal Resources Management Program (VCP). The VCP is comprised of a network of enforceable policies administered by several agencies. Accordingly, DEQ is coordinating the review of this project with agencies administering the enforceable policies of the VCP.

This is an interim status report on our review of the federal consistency certification as prescribed by the Federal Consistency Regulations that implement the Coastal Zone Management Act (see "Review Procedures," item 1, below).

Status of this Review

Based on the comments of reviewing agencies, DEQ's Office of Environmental Impact Review has prepared a draft response to the federal consistency certification. This response is under review. If you desire copies of the comments of reviewing agencies that we have received thus far, please feel free to contact me (telephone 698-4325 or e-mail elirons@deq.virginia.gov) or

Charlie Ellis of this Office (telephone 698-4488 or e-mail chellis@deq.virginia.gov).

Under the Federal Consistency Regulations, we must provide our concurrence with or objection to the federal consistency certification within six months from our receipt of the certification or at the earliest practicable time, whichever occurs first (see 15 CFR Part 930, section 930.62(a)). Accordingly, our response must be delivered to Dominion not later than September 22, 2005.

Project Description

Dominion Nuclear North Anna, LLC ("applicant" or "Dominion") has applied to the Nuclear Regulatory Commission for an Early Site Permit at the North Anna Power Station site at Lake Anna. The proposed site for two new nuclear power units is in Louisa County near Mineral, on the existing North Anna Power Station site which is on a peninsula on the southern shore of Lake Anna about 5 miles upstream from the North Anna Dam. Dominion is considering adding the new units to the two that are in place. Cooling water for the third unit would be drawn from the Lake; the fourth unit would use dry cooling towers (Draft EIS, pages 1-5 and 1-6, section 1.2). Three additional sites are considered in the Draft EIS: one is at Dominion's Surry Power Station in Surry County, Virginia; a second is at a U.S. Department of Energy site in Ohio; and a third site is at a Department of Energy site in South Carolina (Draft EIS, page 1.6, section 1.4; see also Chapter 8). (The federal consistency certification does not address alternative sites.) The Nuclear Regulatory Commission's Early Site Permit would, if issued, allow Dominion to "reserve" the site for as long as 20 years for a new nuclear power unit, and to undertake site preparation and preliminary construction activities (Draft EIS, page 1-1, section 1.1).

According to the federal consistency certification, site preparation and preliminary construction activities would include the following (pages 3-4):

- Long-term disturbance of approximately 130 acres, and short-term disturbance (for temporary facilities, laydown areas, etc.) of approximately 70 acres;
- Site preparation, including clearing, grading, construction of temporary access roads, and preparation of borrow areas);
- Excavation for facility structures;

- Construction of temporary facilities including warehouses, shops, concrete mixing plants, utilities, docking and unloading facilities, and construction support buildings;

- Construction of cooling towers, intake and discharge structures, and circulating water lines as well as fire protection equipment, switchyard and other inter-connections, and microwave towers.

According to the recent Draft EIS, and based on Dominion's proposal to add two nuclear reactors to the site, NRC has defined "bounding plant parameters' within which a future site design would be developed. Dominion has not selected a specific plant design for the new units, but will work within the "plant parameter envelope" ("PPE") to develop the early site permit. The early site permit ("ESP") will include a site redress plan, if issued (Draft EIS, page 1-5, section 1.2).

Review Procedures

1. Mandate. On March 22, 2005, DEQ's Office of Environmental Impact Review received the federal consistency certification prepared by Dominion Virginia Power Company (hereinafter "Dominion" or "the applicant") for the proposed North Anna Early Site Permit application to the Nuclear Regulatory Commission. Pursuant to the Federal Consistency Regulations implementing the Coastal Zone Management Act (Title 15, Code of Federal Regulations, Part 930, sub-part D (sections 930.50 through 930.66)), there is a six-month review period allowed to the State for review of federal consistency certifications (section 930.62(a)). If the review is not completed within three months, or June 22, 2005 in this case, the State must notify the applicant of the status of the review and the basis for further delay (section 930.62(b)). The federal agency considering a license or permit for the activity may not approve the permit application in the absence of the State's concurrence with the certification unless the concurrence is presumed, but irrespective of a state concurrence, the federal agency may deny approval of the application if that is its judgment (section 930.62(c)).

2. Agency Review Participation. The federal consistency certification update submitted in September 2004 has been reviewed by the following agencies and/or offices (starred offices (*) administer Enforceable Policies of the VCP):

Department of Environmental Quality:
  Division of Water Resources*
  Northern Virginia Regional Office*
Department of Game and Inland Fisheries*
Marine Resources Commission*

Department of Historic Resources
Thomas Jefferson Planning District Commission
Spotsylvania County
Town of Mineral.

This selection of agencies and entities reflects those that have commented previously and those that have some legal responsibility for the natural resources or public resources potentially affected by the project.

3. Public Participation.

(a) Authority. The Federal Consistency Regulations require the State, in conducting its review of a federal consistency certification, to ensure timely public notice of the proposed activity and allow the State to hold one or more public hearings. In combination, these actions are calculated to reasonably inform the public, obtain sufficient comment, and allow development of a decision on the matter (15 CFR Part 930, section 930.61).

(b) This Review. In accordance with 15 CFR Part 930, section 930.42 which addresses public participation, DEQ published a public notice concerning this review on its web site from April 15 through May 2, 2005. No comments were received.

. I hope this information is helpful to you.

Sincerely,

Ellie L. Irons
Program Manager
Office of Environmental Impact Review

cc: (next page)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

May 20, 2005

United States Nuclear Regulatory Commission
Mr. Pao-Tsin Kuo,
Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvements Programs
Office of Nuclear Reactor Regulation
Washington, D.C. 20555-0001

Re: North Anna Nuclear Power Station ESP

Dear Mr. Kuo:

As requested in your January 31, 2005, letter, we have reviewed your Biological Assessment for the Early Site Permit (ESP) of the North Anna Power Station, located in Louisa County near Mineral, Virginia. The proposed action, as described in the assessment, is to allow for new site preparation, (i.e., clearing and grading) of approximately 80 acres of land within the existing grounds of the North Anna Power Station. Five federally listed species may be affected as a result of the project. The species include: the dwarf wedgemussel (*Alasmidonta heterdon*), the bald eagle (*Haliaeetus leucocephalus*), small whorled pogonia (*Isotria medeoloides*), sensitive joint-vetch (*Aeschyomene virginica*), and the swamp pink (*Helonias bullata*). We have reviewed the information you have enclosed, and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat.884, as amended: 16 U.S. C. 1531 *et seq.*).

The Service concurs with the conclusion of your assessment that the proposed site preparation and limited construction activities for two additional nuclear power units at the North Anna site will have "no-effect" to the small-whorled pogonia, sensitive joint-vetch, and swamp pink, since none of these species have been documented in Louisa County and no appropriate habitat for the latter two species occurs on the power station site. The dwarf wedgemussel is known to occur in the South Anna River in Louisa County and may occur in other streams and rivers in the county. However, because no appropriate habitat occurs on the power plant site, no impact to this species is expected to result from ESP activities.

Bald eagles have been documented by the Virginia Department of Game and Inland Fisheries (VDGIF) to forage areas of Lake Anna. During winters of 2003 and 2004, up to six transient bald eagles had been observed along the forested shoreline. Two nesting territories also had been located ; one site was 10 miles upstream of the project area and a second site located five miles downstream of the Lake Anna Dam (2000). Since the eagle nests are significantly

downstream of the Lake Anna Dam (2000). Since the eagle nests are significantly distanced from the proposed project site and transient eagles have adequate foraging areas throughout Lake Anna and the increase of two new power station units will not involve additional transmission grids, the Service believes that the proposed expansion of the North Anna Power Station will not likely adversely effect bald eagles. It is foreseeable that as the Chesapeake Bay bald eagle population continues to expand and shoreline development pressures increase at other locations, more eagles will be attracted to lakes and other man-made reservoirs, such as Lake Anna, and may require additional protection measures to ensure successful nesting.

In summary, we concur with the conclusion of the Biological Assessment that early site permit actions at the North Anna Nuclear Power Station are not likely to adversely affect any of the Federally listed species potentially occurring there. If we can be of further assistance, please contact Craig Koppie, of the Endangered Species Branch at 410/573-4534.

Sincerely,

G. A. Moon

for John Wolflin,
Supervisor

cc: Ray Fernald, VDGIF

June 30, 2005

Ms. Regena Bronson
U.S. Army Corps of Engineers
Potomac Virginia Field Office
P.O. Box 1704
Leonardtown, MD 20650

SUBJECT: NORTH ANNA EARLY SITE PERMIT REVIEW (TAC NO. MC1128)

Dear Ms. Bronson:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing an application submitted by Dominion Nuclear North Anna, LLC (Dominion) for an early site permit (ESP). The proposed action requested in Dominion's application is for the NRC to: (1) approve a site within the existing North Anna Power Station (NAPS) boundaries as suitable for the construction and operation of one or more new nuclear power generating facilities; and (2) issue an ESP for the proposed site located at NAPS. An ESP does not authorize construction or operation of a nuclear power plant. Rather, the ESP application and review process makes it possible to evaluate and resolve certain safety and environmental issues related to siting before the applicant makes large commitments of resources. If the ESP is approved, the applicant can "bank" the site for up to 20 years for future reactor siting. To construct or operate a nuclear power plant, an ESP holder must obtain a construction permit and an operating license, or a combined license.

As part of its environmental review of Dominion's ESP application, the NRC prepared a draft environmental impact statement (DEIS) in accordance with 10 CFR 52.18. The DEIS includes the NRC staff's analysis of the environmental impacts of constructing and operating two nuclear units at the North Anna ESP site, or at alternative sites. It also includes the staff's preliminary recommendation to the Commission regarding the proposed action. In addition, as described in the DEIS, if the ESP includes a site redress plan, the ESP holder can conduct certain site preparation and preliminary construction activities allowed by Title 10 of the *Code of Federal Regulations* Section 50.10(e)(1) (10 CFR 50.10 (e)(1)), provided the final EIS concludes that such activities will not result in any significant environmental impact that cannot redressed. Dominion has included a site redress plan in its application. If the ESP is approved, Dominion would be allowed to conduct site preparation and preliminary construction activities pursuant to 10 CFR 52.25 and 10 CFR 50.10(e)(1), subject to receipt of any other necessary Federal, State, and/or local approvals. Dominion has stated that it does not plan to conduct such activities at this time. However, these activities, if performed, could include dredging and other activities potentially subject to Clean Water Act requirements. The environmental impacts of these activities are discussed in the DEIS.

R. Bronson -2-

Pursuant to the "Memorandum of Understanding Between the Corps of Engineers, United States Army, and the United States Nuclear Regulatory Commission for Regulation of Nuclear Power Plants" (40 FR 37110 (dated August 25, 1975)), we request that the Army Corps of Engineers review and provide to the NRC any comments on the DEIS.

Enclosed is a copy of NUREG-1811 "The Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site." We request your comments no later than August 12, 2005. Enclosed to aid in your review is a CD containing Dominion's application for an ESP. If you have any questions concerning the ESP application or other aspects of this project, please contact Mr. Jack Cushing, Senior Environmental Project Manager, at 301-415-1424 or by e-mail at JXC9@nrc.gov.

Sincerely,

/RA/

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

Enclosure: As stated

cc wo/encl.: See next page

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

July 15, 2005

Northern Virginia Regulatory Section
(Lake Anna)

US Nuclear Regulatory Commission
OWFN 11 F-1
Attn: Mr. Jack Cushing
Washington, DC 20555-0001

Dear Mr. Cushing:

This is in reference to your request for Corps' comments on the "Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site" project in Caroline County.

Based on the ESP draft submitted by you, fill may be proposed in waters of the United States regulated under Section 404 of the Clean Water Act (33 U.S.C. 1344) and may require a Department of the Army Permit. However, before we could make such a decision, the following additional information is required for review:

1. A USGS topo map depicting the location and boundaries of the project site for the proposed Units 3 and 4.

2. If the project would impact wetlands, a wetland delineation utilizing the Corps 1987 Delineation Manual would be required to be submitted for our review and confirmation. The delineation must include sample locations on a plan and correspond to your data sheets.

3. The entire proposed plan of development with a depiction of all work that is subject to regulation under Section 404 of the Clean Water Act (i.e. intake and outfalls structures within jurisdictional waters and/or wetlands).

4. A survey for the federally listed threatened species; swamp pink (Helonias bullata), small whorled pogonia (Isotria medeoloides), and sensitive joint vetch (Aeschynomene virginica.

5. Identification of any archaeological, cultural, and historic properties that may exist on the subject site within the Corps' permit area.

6. Evidence that discharges of dredged or fill material into waters of the United States are avoided or minimized to the maximum extent practicable at the project site.

Any work in these areas may require authorization by state and local agencies. Thank you for providing us the opportunity to provide early comment on the project.

Should you have questions, please call Ms. Regena Bronson at 301.475.2720 in our Potomac Field Office.

Sincerely,

for

Bruce F. Williams
Chief, Northern Virginia
Regulatory Section

2

September 27, 2005

Dr. Ethel Eaton, Manager
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

SUBJECT: NORTH ANNA EARLY SITE PERMIT REVIEW (TAC NO. MC1128)

Dear Dr. Eaton:

This letter responds to your request for a programmatic agreement with the U.S. Nuclear Regulatory Commission (NRC) under the National Historic Preservation Act (NHPA) raised during our teleconference conducted on May 23, 2005, with members of your staff and Dominion Nuclear North Anna, LLC (Dominion). The Virginia Department of Historic Resources (VDHR) request for a programmatic agreement (PA) relates to Dominion's application for an early site permit (ESP) at the North Anna site in Louisa County, Virginia.

The NRC stated the actions that it expected Dominion to take based on representations made in Dominion's environmental report (ER), which is reflected in the NRC's draft environmental impact statement (DEIS). Specifically, Dominion stated in its ER:

> "Prior to any activities that would disturb existing ground conditions, Dominion would assess the need, in coordination with VDHR, to undertake subsurface investigations for the identification of potentially significant historic or cultural resources in the area(s) to be disturbed. The investigations would be conducted in accordance with professional archeological practices and recommendations as developed in coordination with VDHR. Additionally, Dominion would implement the necessary administrative steps to make proper notifications in the event of any unanticipated discovery (including human remains). These steps would include stop-work, assessment, and notification protocol." [ER Revision 5 Section 4.1.3, Page 3-4-6].

The above statement regarding coordination by Dominion with VDHR before ground disturbing activities was relied on and is reflected in DEIS Section 4.6.

As set forth in our November 21, 2003, letter to you, the NRC staff is using the National Environmental Policy Act (NEPA) process to comply with the obligations imposed under § 106 of the NHPA in accordance with the provisions in 36 CFR 800.8. Consistent with our November 21 letter, the NRC has described in the EIS analyses of potential impacts to historical and cultural resources and measures in place at the ESP site that would be expected to avoid, minimize or mitigate any adverse effects on historic properties. The NRC staff also forwarded the draft EIS to you for your review and comment. Accordingly, the NRC staff does not believe a PA is warranted.

E. Eaton -2-

If you have any questions concerning the ESP application or other aspects of this project, please contact Mr. Jack Cushing, Senior Environmental Project Manager, at 301-415-1424 or by e-mail at JXC9@nrc.gov.

Sincerely,
/RA Jacob Zimmerman For/

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 52-008

United States Department of the Interior

NATIONAL PARK SERVICE
Colonial National Historical Park
Post Office Box 210
Yorktown, Virginia 23690

IN REPLY REFER TO:

L76

October 25, 2005

Mr. Jack Cushing
Senior Project Manager
U.S. Nuclear Regulatory Commission
Mailstop O-11F1
11555 Rockville Pike
Rockville, MD 20852

Dear Mr. Cushing:

Per your request, we are providing written comments on the National Park Service's concerns with regards to the impacts that the proposed expansion of the Surry Nuclear Power Plant would have on Colonial National Historical Park's resources.

The park includes Jamestown, Yorktown Battlefield, and Colonial Parkway, which are all on the National Register of Historic Places as nationally significant. The view shed from Jamestown and the Colonial Parkway along the James River is a critical component of the integrity of both resources. In addition, there are several bald eagle nests along the Parkway and at Jamestown, which are protected under federal law.

The current design and height of the Surry Nuclear Power Plant structures are barely visible from the Parkway and Jamestown. At the meeting you held with park staff on September 21, you described a structure that would be more intrusive due to its height, design and the visible plume of steam. These additions would have an adverse effect on the viewshed from both Jamestown and the Colonial Parkway, especially the pull-offs along the James River.

Prior to the implementation of this proposal, the impact on the park's and surrounding area's cultural and natural resources would need to be fully assessed through the development of an Environmental Impact Statement. Please keep us advised as to the status of this proposal, as we are requesting to formally review any documents prepared that assess the impacts of the proposed expansion.

Sincerely,

Skip Brooks
Deputy Superintendent

COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
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www.dhr.virginia.gov

November 3, 2005

Mr. Pao-Tsin Kuo, Program Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: North Anna Early Site Permit Review (TAC No. MC1128)
Louisa County, Virginia
DHR File No. 2000-1210

Dear Mr. Kuo:

We have received your September 27, 2005 letter concerning the action referenced above. According to your letter, the Nuclear Regulatory Commission (NRC) is of the opinion that the consideration given to potential impacts to historical and cultural resources in the draft Environmental Impact Statement (EIS), prepared pursuant the National Environmental Policy Act (NEPA), is sufficient to satisfy NRC's responsibilities under Section 106 of the National Historic Preservation Act. While 36 CFR 800.8 encourages Federal agencies to coordinate their Section 106 compliance with their NEPA responsibilities, it does not support a lower threshold for the identification of historic properties and assessment of effects. These steps of the process can be satisfied during the preparation of an EIS, but must be completed prior to the approval of the undertaking.

It is our opinion that if NRC does not wish to complete the identification and effect determination steps prior to finalizing the EIS, then the only alternative is to execute a Programmatic Agreement, which puts in place a set of procedures for future consultation and would allow this undertaking to proceed according to its stipulations. Such alternate procedures could apply not only to the Early Site Permit, but also to later permitting actions related to construction and operation and could ease and expedite future consultation. The conditional approval of the EIS by NRC without SHPO approval does not afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment and may be inconsistent with the Federal regulations.

We urge the NRC to reconsider the appropriateness and benefit of a Programmatic Agreement. Pursuant 36 CFR Part 800.2(b)(2), we have requested guidance from the ACHP on this matter. We will forward to you

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10 Courthouse Avenue
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Tidewater Region Office
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Newport News, VA 23608
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Fax: (757) 886-2808

Roanoke Region Office
1030 Penmar Ave., SE
Roanoke, VA 24013
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Winchester Region Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535

Page 2
November 3, 2005
Mr. Pao-Tsin Kuo

for consideration any comments received. If you have any questions, please do not hesitate to contact me at (804) 367-2323, ext. 153 or e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

Cc: Mr. Jack Cushing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Mr. David Christian
Dominion Nuclear North Anna, LLC
5000 Dominion Blvd.
Glen Allen, VA 23060

Mr. Don Klima
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN VIRGINIA REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3801
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Jeffery A. Steers
Regional Director

June 16, 2006

Mr. Jack Cushing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Dominion Nuclear North Anna Early Site Permit Application, § 401 Certification of the Federal Clean Water Act

Dear Mr. Cushing:

The Department of Environmental Quality (DEQ) is providing the Commission with justification as to why, at this time, we cannot provide §401 Certification under the Federal Clean Water Act for Dominion Nuclear North Anna's Early Site Permit Application. It is our understanding that a specific scope and schedule for pre-construction activities and determination of specific activities that would result in impacts to state/federal waters or wetlands have not been established. Before the § 401 Certification, through the issuance of a Virginia Water Protection Permit can be authorized, DEQ must know the extent of the surface water impacts and conduct a project review to ensure that all avoidance and minimization to surface waters has occurred.

To address the timing of this certification, DEQ recommends that the ESP should include a condition prohibiting Dominion from conducting any pre-construction activity that would result in a discharge into navigable waters without first submitting to the NRC a Virginia Water Protection Permit (which under Virginia's State Water Control Law at Va. Code § 62.1-44.15:5(A) constitutes the certification required under FWPCA § 401) or a determination by the Virginia DEQ that no certification is required. This condition would make it clear that the ESP does not constitute a license or permit to conduct any activity resulting in a discharge, and therefore, a 401 certification would not be required for issuance of the ESP.

Mr. Jack Cushing
June 16, 2006
Page Two

Our inability to make a permitting determination outside of having received an application should not be construed to mean that this project would not be approvable for permitting under the VWP program. Clearly, should any future application submitted by Dominion meet the appropriate regulatory requirements for permitting, the agency would be prepared to act on said application, while following all administatrative procedures.

Should you need any further information or clarification in this matter, please contact Ms. Joan Crowther of this office at (703) 583-3828.

Sincerely,

Jeffery A. Steers
Regional Director

cc: Nitin Patel, NRC
Tony Banks, Dominion
Jud White, Dominion
Mike Murphy, DEQ/CO
Joan Crowther, DEQ/NVRO

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 3, 2006

Dr. Ethel Eaton, Manager
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

SUBJECT: NORTH ANNA EARLY SITE PERMIT REVIEW (TAC NO. MC1128)

Dear Dr. Eaton:

In your August 9, 2006, letter to the U.S. Nuclear Regulatory Commission (NRC), you recommended an additional archaeological survey with respect to the North Anna ESP site described in the application of Dominion Nuclear North Anna, LLC (Dominion or Applicant) for an early site permit (ESP). On September 21, 2006, Dominion forwarded the report *"Archaeological Survey, Dominion Early Site Permit Project, North Anna Power Station, Louisa County, Virginia,"* to your office. The report provides the results of an archaeological survey for the area of potential effects associated with potential future site development at the North Anna ESP property. With the exception of two previously recorded historic period cemeteries (Sites 44LS0221 and 44LS0222), no artifacts, cultural features, or cultural deposits were identified during the subsurface testing and pedestrian activities. The report concludes that additional evaluation would be required to determine if either of the cemeteries is eligible for inclusion in the National Register of Historic Places. Both cemeteries would be avoided during any construction activities associated with future development at the North Anna ESP site.

Based on results outlined in the report, and following a telephone conference on October 12, 2006, with Mr. Roger Kirchen of your office, the NRC concludes that there would be no adverse effect upon historic properties resulting from the North Anna ESP (see 36 CFR 800.5). This finding also satisfies the NRC's consultation responsibilities for this undertaking under Section 106 of the National Historic Preservation Act.

If you have any questions concerning the ESP application or other aspects of this project, please contact Mr. Jack Cushing, Senior Environmental Project Manager, at 301-415-1424 or by e-mail at JXC9@nrc.gov.

Sincerely,

Brent Clayton, Acting Chief
Environmental Projects Branch A
Division of Site and Environmental Reviews
Office of New Reactors

Docket No. 52-008

cc: See next page

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

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www.dhr.virginia.gov

October 20, 2006

Mr. Jack Cushing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: *Archaeological Survey Dominion Early Site Permit Project North Anna Power Station, Louisa County, Virginia*
DHR File No. 2000-1210; NUREG-1811; DEQ #06-125F

Dear Mr. Cushing:

We have received for consideration the above-referenced document prepared by The Louis Berger Group, Inc. for Dominion Nuclear North Anna, LLC. We are pleased to inform you that the report meets the Secretary of the Interior's *Standards and Guidelines for the Documentation of Archaeological Sites* (48 FR 44734-44742) and our Department's *Survey Guidelines* (revised 2001).

The survey builds on two previous site assessments conducted on the property and employs a probability model based upon physiographic situation and field inspection. We find that the model is properly developed and executed and represents a reasonable and good faith effort to identify archaeological resources that may be affected by this project. The Area of Potential Effect (APE) contains two known historic-era cemeteries recorded as sites 44LS221 and 44LS222. No additional archaeological resources were identified within the APE. The consultant recommends that these cemeteries are *potentially eligible* for listing on the National Register of Historic Places and that additional archaeological evaluation is necessary to determine eligibility. We concur with these recommendations. We further recommend that these sites be avoided. If avoided, this project would likely have no negative impact on these resources.

Provided that the cemeteries can be avoided, the execution of this survey and submission of this report adequately satisfies the Commission's identification responsibilities, pursuant to 36 CFR

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14415 Old Courthouse Way, 2nd Floor
Newport News, VA 23608
Tel: (757) 886-2807
Fax: (757) 886-2808

Roanoke Region Office
1030 Penmar Ave., SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Winchester Region Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535

800 and preempt the necessity of a Programmatic Agreement, as encouraged in previous correspondence. We look forward to receiving the Commission's determination of effect for this undertaking. If you have any questions, please contact me at (804) 367-2323, ext. 153 or e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

Cc: Mr. Charles H. Ellis III, DEQ
Mr. John M. Fowler, Advisory Council on Historic Preservation

November 3, 2006

Mr. Michael T. Chezik
Regional Environmental Officer
United States Department of the Interior
Office of the Secretary
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, PA 19106-2904

SUBJECT: REQUEST BY THE U.S. FISH AND WILDLIFE SERVICE FOR A MEMORANDUM OF AGREEMENT REGARDING EAGLE MANAGEMENT AT LAKE ANNA

Dear Mr. Chezik:

On August 21, 2006, you provided us with the Department of Interior's comments on the U.S. Nuclear Regulatory Commission's (NRC) NUREG-1811, Supplement to the Draft Environmental Statement for an Early Site Permit (ESP) at the North Anna ESP Site. You stated that "with the exception of the issue discussed in the paragraph below, the Draft Environmental Impact Statement adequately addresses issues of concern to the Department, including those regarding fish and wildlife resources, as well as species protected by the Endangered Species Act." In the subsequent paragraph you recommended that the NRC develop an eagle management plan to protect eagle habitat along sections of the lake shore while allowing development in others. Further, you expressed interest in pursuing a Memorandum of Agreement with the NRC, Virginia Dominion Power, and the Virginia Department of Game and Inland Fisheries (VDGIF) to address eagle management at Lake Anna. As suggested in your letter, we contacted Eric Davis of the U.S. Fish and Wildlife Service's (FWS's) Virginia Field Office and held a conference call with the above parties on September 26, 2006.

The purpose of the call was to discuss the request for a Memorandum of Agreement between FWS and other parties regarding development of an eagle management plan. The participants in the call were: Jack Cushing, NRC, Mike Sackchewsky, Pacific Northwest National Laboratory, Eric Davis, FWS, Tony Banks, Dominion Nuclear North Anna, LLC, and Andrew Zdanik and Jeff Cooper from VDGIF.

FWS confirmed that consultation was completed and that this request was not being made as part of the consultation process. The concern FWS expressed was that with the potential de-listing of the bald eagle, it would no longer be protected under the Endangered Species Act, but would be protected under the Bald and Golden Eagle Protection Act. Mr. Davis, thought that protection of the bald eagle may be more difficult under the Bald and Golden Eagle Protection Act than under the Endangered Species Act, therefore, an eagle management plan at Lake Anna would make protection easier.

Dominion suggested that FWS may want to consider working with Louisa County on its shoreline management guidelines as a possible means to address eagle management around the lake. VDGIF express concern that there may not be funding for VDGIF to work on eagle management once the eagle is delisted, because VDGIF is funded for the protection of endangered species.

The NRC stated that it does consult with the FWS on the eagle under the Endangered Species Act; however, the NRC does not have the regulatory authority to develop or enforce an eagle management plan. Therefore, there is no reason for the NRC to develop such a plan or enter into a memorandum of agreement regarding one.

If you have any further questions regarding the request for a memorandum of agreement, please contact the NRC Environmental Project Manager, Jack Cushing, at 301-415-1424, or JXC9@nrc.gov.

Sincerely,

/RA/

Brent Clayton, Acting Chief
Environmental Projects Branch A
Division of Site and Environmental Reviews
Office of New Reactors

Docket No. 52-008

cc: See next page

NRC FORM 335
(9-2004)
NRCMD 3.7

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

1. REPORT NUMBER
(Assigned by NRC, Add Vol., Supp., Rev., and Addendum Numbers, if any.)

NUREG-1811 Vol. 2

2. TITLE AND SUBTITLE

NUREG-1811: Final Environmental Impact Statement (FEIS) Regarding Early Site Permit (ESP) for North Anna ESP Site
Final Report

3. DATE REPORT PUBLISHED

MONTH	YEAR
December	2006

4. FIN OR GRANT NUMBER

5. AUTHOR(S)

See Appendix A of report

6. TYPE OF REPORT

7. PERIOD COVERED *(Inclusive Dates)*

8. PERFORMING ORGANIZATION - NAME AND ADDRESS *(If NRC, provide Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)*

Division of Site and Environmental Reviews
Office of New Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

9. SPONSORING ORGANIZATION - NAME AND ADDRESS *(If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.)*

Same as 8. above

10. SUPPLEMENTARY NOTES

Docket Nos. 52-008

11. ABSTRACT *(200 words or less)*

This environmental impact statement (EIS) has been prepared in response to an application submitted to the U.S. Nuclear Regulatory Commission (NRC) by Dominion Nuclear North Anna, LLC (Dominion), for an early site permit (ESP). The proposed action requested in Dominion's application is for the NRC to (1) approve a site within the existing North Anna Power Station (NAPS) boundaries as suitable for the construction and operation of one or more new nuclear power generating facilities and (2) issue an ESP for the proposed site located at NAPS. The proposed action does not include any decision or approval to construct or operate one or more units; these are matters that would be considered only upon the filing of applications for a construction permit and an operating license, or an application for a combined license.

The staff's recommendation to the Commission related to its environmental review of the proposed action is that the ESP should be issued. This recommendation is based on (1)the Environmental Report (ER) submitted by Dominion; (2) consultation with Federal, State, Tribal, and local agencies; (3) the staff's independent review; (4) the staff's consideration of public comments on both the Draft EIS and the SDEIS; and (5) the assessments summarized in this Final EIS, including the potential mitigation measures identified in the ER and in the EIS. In addition, in making its recommendation, the staff has concluded that the alternative sites considered are not obviously superior to the proposed site. Finally, the staff concludes that the site preparation and preliminary construction activities enumerated in 10 CFR 50.10(e)(1) would not result in any significant adverse environmental impact that cannot be redressed.

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

North Anna ESP Site
National Environmental Policy Act
NEPA
Environmental Impact Statement
EIS
Early Site Permits
ESP
New Reactors
North Anna

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION

(This Page)

unclassified

(This Report)

unclassified

15. NUMBER OF PAGES

16. PRICE

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