MEMORANDUM FOR THE RECORD

SUBJECT: Department of the Army Environmental Assessment and Statement of Findings for the Above-Referenced Standard Individual Permit Application

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, as applicable, Public Interest Review, and Statement of Findings for the subject application.

1.0 Introduction and Overview: Information about the proposal subject to one or more of the Corps' regulatory authorities is provided in Section 1, detailed evaluation of the activity is found in Sections 2 through 11 and findings are documented in Section 12 of the memorandum.

1.1 Applicant: Virginia Electric & Power Company
Attn: Robert M. Blue; President & CEO
701 E. Cary Street; 12th Floor
Richmond, Virginia 23219

1.2 Activity location: The project will begin in Surry County near the Surry Nuclear Power Plant, cross the James River towards Skiffes Creek in James City County, and continue through Newport News, York County, and Hampton to the existing Whealton Substation. The project is located within the Lower James and Lynnhaven-Poquoson watersheds; specifically the James River, Skiffes Creek, Lee-Hall Reservoir, Harwood's Mill Reservoir, Woods Creek, Jones Run, Brick Kiln Creek, Newmarket Creek, and Whiteman Swamp. Hydrologic Unit Code (HUC): 02080206 & 02080108.

Approximate Coordinates ---
Start at Surry Nuclear Power Plant – 37°09'42.48"N & 76°41'47.41"W
Terminus at Whealton Substation – 37°01'59.39"N & 76°25'52.95"W

1.3 Description of activity requiring permit: Dominion Virginia Power proposes to construct new electrical transmission line infrastructure, known as Surry-Skiffes Creek -Whealton project. The proposed project involves the construction of two new overhead transmission lines, a 500kV line and a 230kV line, as well as an electrical switching station.

The proposed project consists of three components; (1) Surry – Skiffes Creek 500 kV Line, (2) Skiffes Creek 500 kV – 230 kV – 115 kV Switching Station, and (3) Skiffes Creek – Whealton 230 kV Line. The project will include overland routes and crossings of the James River and tidal portions of Wood Creek and Skiffes Creek. In total, the proposed project will

permanently impact 2712 square feet (0.06 acres) of subaqueous river bottom and 281 square feet (0.006 acres) of non-tidal wetlands, and convert 0.56 acres of palustrine forested non-tidal wetlands to palustrine scrub shrub non-tidal wetlands. Details regarding each portion of the project are provided below.

(1) Surry – Skiffes Creek 500kV Line --- This component consists of constructing a 7.92-mile single circuit 500 kV overhead transmission line that extends from an existing Surry Nuclear Power Plant Switching Station to the proposed Skiffes Creek Switching Station in James City County. This 7.92-mile segment would include a 4.11-mile crossing over the James River a navigable water of the US subject to regulation under The Rivers and Harbors Act (RHA) and the Clean Water Act (CWA). This crossing will involve the construction of 17 steel lattice towers and 4 fender protection systems resulting in 2712 square feet of direct impacts to subaqueous river bottom caused by the installation of (416) 24-inch steel piles encased within 26-inch fiberglass sleeves for transmission tower foundations and (240) 30-inch fiber piles for fender protection systems. The proposed aerial transmission line will span Tribell Shoal Federal Navigation Channel and neighboring dredge spoil disposal area, a secondary navigational channel, and several private oyster lease areas within the James River. The aerial transmission line has been designed with a minimum vertical clearance of 201 feet above mean high water at Tribell Shoal Federal Navigation Channel, 188 feet at the secondary channel, and ≥ 60 feet across the remainder of the river. There will be a minimum distance of 261 feet will be maintained between those structures adjacent to the federal navigational channel, and a minimum distance of 112 feet between those structures adjacent to the secondary navigational channel.

James River Tower Foundations: 17 steel lattice towers ranging in height from 128 feet to 297 feet are proposed with the James River. {Tower Numbers 582/12 – 582/28} Three different types of foundation support systems (PP4's, PP8's, & PP10's) are proposed. Foundations will consist of 24-inch steel hollow pile supports, encased in a 26-inch protective fiberglass sleeve, along with a concrete cap located 7 feet above mean high water. Towers will be constructed using barge work platforms. During construction, each pile will be impact driven into the river bottom to the required design depth and then encased with a fiberglass sleeve that will be hand jetted into the river bottom. The sleeve will be backfilled with grout poured from the surface.

James River Fender Protection Systems: Navigational protective structures will be installed on the channel side of the transmission tower structures

proposed adjacent to both the federal and secondary navigation channels. Each of the four fenders will be 600 linear feet and constructed of 12-inch by 12-inch fiberglass reinforced sea timber wales attached to 30-inch diameter hollow fiber piles on 10-foot centers. Installation of fiber piles will occur either by impact or vibratory methods. Five wales will be attached to each fiber pile starting at approximately mean high water elevation and extending 9 feet above mean high water to the top of the fiber pile. Each sea timber wale will be spaced using 8-inch by 12-inch by 12-inch sea timber blocks. A total of 60 fiber piles will be required for each fender.

Wood Creek Crossing: In addition to the James River crossing, the proposed alignment requires an aerial crossing of Wood Creek, a tidal tributary of the James River and a navigable water of the US subject to regulation under the RHA and The CWA The proposed crossing would span 183 feet and have 70 feet of minimum vertical clearance above mean high water. Corresponding towers needed to support the aerial crossing are to be located in uplands. {Towers Numbers 582/33 – 582/34}

Land Based Towers: One Double Dead End, 3-Pole tower structure will be replaced with a weathering steel 3-pole structure which utilizes a “pipe pile” foundation system for a total of 21 square feet of non-tidal wetland impacts. {Tower Number 7/16} These foundation types use a 42-inch diameter outer pile driven to an appropriate depth. Bottom material is excavated from within the pile and then a 30-inch diameter inner pile will be driven in place and the space between the inner and outer pile filled with grout. Leveling bolts which extend beyond the outer piles will be used to level the foundation. Each completed pipe pile foundation has a footprint of approximately 10 square feet per pile. All additional land based tower placements within this segment of the project are proposed outside of waters of the US, including wetlands.

Land Clearing: Approximately 14.9 acres of new and expanded right of way (ROW) will be cleared resulting in permanent conversion of 0.41 acres of palustrine forested wetlands to scrub shrub wetlands. Conversion of the forested wetlands will be performed by selective hand clearing, resulting in no discharge of fill material.

(2) Skiffes Creek Switching Station --- In addition to the transmission line construction, Dominion proposes to build a new Switching Station in James City County that includes the installation of one 500 kV terminal, five 230 kV terminals, and three 115 kV terminals, as well as transformers and additional transmission equipment. Storm water management will be provided onsite with the construction of a storm water pond to the northwest of the station. Approximately 20.6 acres of forest will be cleared. As part of this acreage,

0.02 acres of forested wetlands will be permanently converted to scrub shrub wetlands via selective hand clearing, resulting in no discharge of fill material. With exception to the aforementioned conversion impacts, all additional work associated with the proposed Station is proposed outside of waters of the US, including wetlands.

(3) Skiffes Creek – Whealton 230kV Line --- This component, involves construction of a new 230kV double circuit overhead transmission line that extends approximately 20.2 miles within an existing utility ROW from the proposed Skiffes Creek Switching Station to an existing Whealton Substation in Hampton. Proposed work will include construction of new transmission towers and replacement structures within the existing ROW which must be reconfigured to accommodate the new 230kV double circuit line.

Skiffes Creek Crossing: This segment requires an aerial crossing of Skiffes Creek, a tidal tributary of the James River and a navigable water of the US subject to regulation under the RHA and the CWA. The proposed crossing would span 629 feet and have 74 feet of minimum vertical clearance above mean high water. Corresponding towers needed to support the aerial crossing are proposed in uplands. {Towers Numbers 2138/20; 285/435 – 2138/21; 285/436}

Land Based Towers: Tower replacement will generally be at a 1:1 ratio with existing structures, and will be replaced as near as possible to the existing structure location. Along this segment, 26 structures are located within non-tidal wetlands determined waters of the US and subject to regulation under the CWA and cumulatively will involve 260 square feet (0.005 acres) of structural discharge. {Tower Numbers 2138/47; 285/463, 2138/49-2138/55; 58/276-58/282, 2138/60-2138/63; 58/287-58/290, 2138/65; 58/292, 2138/69; 58/296, 2138/73; 58/300, 2138/95; 292/594, 2138/96; 292/595, 2138/99; 292/598, 2138/108; 292/606, 2138/109; 292/607, 2138/114; 292/612, 2138/133-2138/136; 292/625-292/628, and 209/546} Foundations for these structures will utilize a pipe pile foundation system. These foundations use a 42-inch diameter outer pile driven to an appropriate depth. Bottom material is excavated from within the pile and then a 30-inch diameter inner pile will be driven in place and the space between the inner and outer pile filled with grout. Leveling bolts which extend beyond the outer piles will be used to level the foundation. Each completed pipe pile foundation has a footprint of approximately 10 square feet per pile. All additional tower installations are proposed outside of waters of the US, including wetlands.

Land Clearing: A 1.16-mile segment of existing right of way (ROW), located near Newport News/Williamsburg Airport, will be expanded to accommodate

the proposed project. The total proposed ROW expansion includes 6.5 acres of tree clearing, including 0.11 acres of permanent conversion of palustrine forested non-tidal wetlands to scrub shrub. An additional 0.30 acres of tree clearing at the existing Warwick Substation is also proposed, resulting in 0.02 acres of conversion of palustrine forested wetland to scrub shrub. All tree clearing within non-tidal wetland will be performed via selective hand clearing methods, resulting in no discharge of fill material.

1.3.1 Proposed avoidance and minimization measures: Each of the proposed projects segments have been designed to avoid and minimize impacts to the extent practicable.

• The proposed switching station has been designed entirely in uplands to avoid all discharges of dredged or fill material into waters of the US including wetlands.

• The overland portions of the project will minimize clearing and disturbance to forested areas, including wetlands, through the co-location of the proposed line within an existing cleared ROW currently occupied by transmission facilities. Utilizing the existing ROW minimizes the need to clear additional forested areas and minimizes the potential for additional environmental impacts. Support structures have been designed outside of wetlands to the maximum extent practicable and all tidal crossings outside of the James River will be spanned. Clearing of wetlands, as well as areas within 100 feet of stream channels will be done by hand rather than with mechanized heavy equipment. Construction access will be provided through existing roads, timber paths, and along existing rights-of-way.

• Tower placement in the James River has been designed to provide maximum span lengths, thereby minimizing the number of towers within the river. Through consultation with National Oceanic and Atmospheric Administration (NOAA), construction techniques have been incorporated to help further avoid and minimize aquatic resource impacts during construction. For example, bubble curtains will be used at all times during pile driving activities at all structures to attenuate the noise associated with impact hammering. Ramp-up methods will be used for all pile driving activities which will gradually increase impact hammer intensity over the course of single pile install. All pile driving work associated with structures 21, 22, and 24 - 26 located in deep water habitat areas will only

occur between November 16th and February 14th of any given year.

• To avoid impacts to historic resources Dominion will, in accordance with the “April 24, 2017 MEMORANDUM OF AGREEMENT AMONG VIRGINIA ELECTRIC AND POWER COMPANY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE, U.S. ARMY CORPS OF ENGINEERS NORFOLK DISTRICT, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION”, develop and implement an approved Avoidance Plan for all underwater and terrestrial archeological sites within the Direct Area of Potential Effect. By implementing this plan, Dominion will avoid direct impacts to any identified potential underwater resources and all terrestrial resources not specifically addressed in the impact assessment.

• In an attempt to further minimize impacts to historic resources Dominion will, in accordance with the “April 24, 2017 MEMORANDUM OF AGREEMENT AMONG VIRGINIA ELECTRIC AND POWER COMPANY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE, U.S. ARMY CORPS OF ENGINEERS NORFOLK DISTRICT, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION” executed May 2, 2017, examine all available and feasible tower coatings and finishing materials and methods in order to further minimize and/or maintain the visual intensity of the transmission line infrastructure crossing the James River.

1.3.2 Proposed compensatory mitigation:

Aquatic Resources – Dominion will provide compensatory mitigation for wetland conversion impacts at a 1:1 ratio through the purchase of non-tidal wetland mitigation credits from a Corps approved mitigation bank authorized to serve the watersheds where the proposed impacts are occurring. A total of 0.43 credits will be purchased within the Lower James River Watershed (Hydrologic Unit Code [HUC] 02080206) and 0.13 credits will be purchased within the Lynnhaven-Poquoson Watershed (HUC 02080108).

Historic Properties – Mitigation for adverse effects are defined by a series of initiatives, outlined in the “April 24, 2017 MEMORANDUM OF AGREEMENT AMONG VIRGINIA ELECTRIC AND POWER

COMPANY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE, U.S. ARMY CORPS OF ENGINEERS NORFOLK DISTRICT, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION", that are intended to enhance the affected values and integrity of the historic properties and the cultural landscape, and strengthen the general public and visitor's understanding of and experience at important places within and related to this landscape through enhanced heritage tourism opportunities including development of additional interpretive and orientation facilities. In line with SHPO's guidance on viewshed mitigation, Dominion has focused on enhancing the aspects of integrity (predominately setting and feeling) of those resources impacted by the project. With the proposed mitigation efforts, Dominion seeks to promote preservation of existing above-ground cultural landscape features, such as natural resources and systems, vegetation, landform and topography, land uses, circulation, buildings and structures, Native American settlements, views, and small-scale features through land acquisition, and acquisition of historic preservation and open space easements.

1.4 Existing conditions and any applicable project history: The majority of the proposed project would be constructed within existing right-of-way (ROW) currently occupied by other high voltage aerial transmission line infrastructure. This existing ROW presently traverses commercial, residential, industrial, and recreational areas.

On March 18, 2013, The Corps received Dominion's Nationwide Permit 12 Pre-Construction Notification package. The Corps asserted discretionary authority (33 CFR 330.4(e)) on April 30, 2013, after determining the project may have more than minimal adverse effects on navigation and safety. Other areas of concern included, potential adverse impacts to fish & wildlife values, historic properties, and federal projects in the area. As a result, the Corps advised Dominion that their proposal would be more appropriately evaluated through the Individual Permit review process.

Following assertion of Discretionary Authority, Dominion submitted a separate Nationwide Permit 12 Pre-Construction Notification package (NAO-2012-1096 / 13-V0885) on June 4, 2013 for improvements to an existing 230kV utility corridor between Skiffes Creek and Whealton. On June 25, 2013, the Corps received the requested Standard Permit Application for the proposed Surry-Skiffes Creek 500kV Transmission Line and Skiffes Creek Switching Station. The Corps determined this application incomplete for Public Notice issuance (33 CFR 325.1(d) and on July 1, 2013 requested additional information. This request included (1) corrections to impact table

data, (2) corrected and more detailed impact maps, plan view, and profile exhibits, (3) missing tower structure exhibits, and (4) detailed construction methodology describing “pipe pile design”. The requested information was provided July 15, 2013. On July 25, 2013, the Corps determined based on corresponding documents provided by Dominion, under PCN for NAO-2012-1096 / 13-V0885, that the Surry-Skiffes Creek 500kV Transmission Line with Switching Station and 230 kV Skiffes Creek – Whealton improvements should be considered as a single and complete project. Following this determination, the Corps made a second request for additional information. This request included (1) the 230 kV Skiffes Creek –Whealton PCN be withdrawn, and submitted along with the proposed 500kV/Switching Station as one application, (2) wetland impacts resulting from “pipe pile foundations”, (3) updated list of adjacent property owners to reflect entire project, and (4) updated mitigation statement. Between August 09 and August 14, 2013 Dominion submitted additional information and on August 15, 2013 USACE determined the standard permit application complete for Public Notice.

1.5 Permit Authority: Section 10 of the Rivers and Harbors Act (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

Multiple delineations identifying the limits of wetlands, streams, and other waters within the project corridor have been completed by Stantec, formerly Williamsburg Environmental Group. Department of Army preliminary jurisdictional determinations have been issued for the project under the following project numbers.

NAO-2012-01096:

- July 26, 2012: Preliminary jurisdictional determination for waters of the U.S. (including wetlands) along a 20.21 mile study corridor and 52 acre parcel for the Skiffes Creek – Whealton 230kV Transmission Line and Skiffes Creek Switching Station project in James City County, York County, City of Newport News, and City of Hampton, Virginia.
- June 13, 2013: Revised Preliminary jurisdictional determination to reflect “project limits” boundaries inaccurately depicted on Sheet 5, Exhibit 8.
- August 18, 2014: Preliminary jurisdictional determination for waters of the U.S. (including wetlands) on 24 separate access points associated with Skiffes Creek – Whealton 230 kV Transmission Line that begins at the proposed Skiffes Creek 500 kV – 230 kV – 115 kV Switching Station in James City County and extends southeast approximately 20.1 miles to the existing Whealton Substation in the City of Hampton.
- April 5, 2016: Preliminary jurisdictional determination for waters of the U.S. (including wetlands) on five areas, totaling 20.05 acres, along the Skiffes Creek-Whealton 230kV Transmission Line segment which needed additional delineation work due to the expansion of “project limits”.

NAO-2013-00451:

- May 6, 2013: Preliminary jurisdictional determination for waters of the U.S. (including wetlands) along the Surry – Skiffes Creek proposed 500kV Transmission Line project and James River crossing variations in James City and Surry County, Virginia.
- September 25, 2013: Revised preliminary jurisdictional determination to reflect modifications with the "study area" boundaries that resulting from tower locations being shifted on the landward side of Surry and James City Counties.
- March 18, 2015: Preliminary jurisdictional determination for +-0.56 mile corridor described as "BASF Alternative Route" associated with the Surry to Skiffes Creek 500 kV Transmission Line.

2.0 Scope of review for National Environmental Policy Act (i.e. scope of analysis), Section 7 of the Endangered Species Act (i.e. action area), and Section 106 of the National Historic Preservation Act (i.e. permit area)

2.1 Determination of scope of analysis for National Environmental Policy Act (NEPA):

The scope of analysis, guided by the Corps NEPA implementing regulations at 33 CFR 325 Appendix B, includes the specific activities requiring a Department of the Army permit. Other portions of the overall project are included where the Corps does have sufficient control and responsibility to warrant federal review.

FACTORS:

Much of the proposed project is configured based on existing right-of-way and infrastructure. The proposed transmission line will connect to existing switching stations and substations at the beginning and ending points. . In addition, the majority of the proposed project will be located within an existing overhead power line corridor, and in some cases utilize existing transmission towers and infrastructure.

The Surry – Skiffes Creek 500kV Line portion of the project includes crossing the James River and Wood Creek both navigable waters of the US. A substantial portion of this segment involves work subject to the permitting requirements of Section 10 of the RHA and/or discharges of fill material subject to the permitting requirements of Section 404 of the CWA.

The proposed Skiffes Creek Switching Station, including line portions

necessary to tie in to existing grid infrastructure will be entirely new construction on new location. The location and configuration of this facility is closely linked to the location of the Surry – Skiffes Creek 500kV Line and the location of one affects the location of the other. While there is not a regulated discharge of fill material associated with the construction, there are indirect impacts to Waters of the US.

The Skiffes Creek – Whealton 230kV Line portion of the project will take place entirely within existing developed right-of-way corridor. The location and configuration of this segment is determined by the existing infrastructure much more so than the location of the River crossing or substation. Indeed Dominion has confirmed that this infrastructure improvement would be necessary regardless of the alternative that increased energy supply to the NHRLA. There are Navigable Waters of the US subject to regulation under the RHA and/or the CWA are scattered throughout the 28.12 mile project corridor. Within this corridor, the proposed project will cross the James River, as well as two separate tidal tributaries of the James River. These crossings are subject to the permit requirements of Section 10 of the RHA. The proposed project will also include activities within approximately 16 separate areas of waters of the US. Each of these areas and impacts occurring within them were analyzed to determine whether the activities would be subject to the permit requirements of Section 404 of the CWA.

The extent of cumulative Federal control and responsibility is limited to area of Waters of the US where there is a regulated impact and the immediate vicinity where project elements would affect the location and configuration of the regulated activity. Based on the extent of impact within and affecting regulated waters, the entire Surry-Skiffes Creek 500kV line portion of the project is included in the permit area. Because the location and configuration of the Skiffes Creek Switching Station is closely linked to the location and configuration of the 500 kV line, the entire footprint of the Switching Station is included in the Permit Area. Because the location and configuration of the Skiffes Creek – Whealton 230kV Line portion of the project is controlled predominately by existing right-of-way and infrastructure and this portion of the project would likely occur even if Dominion were to pursue some alternative other than the 500kV River crossing, only those areas where impacts to regulated waters occur are included in the permit area. We have, in the process of this analysis examined larger areas of the project corridor for certain resources, and include that information here.

2.2 Determination of the "action area" for Section 7 of the Endangered Species Act (ESA):

The "Permit Area" is limited to only those areas of Waters of the US where there would be a regulated impact and the immediate vicinity. The Corps generally limits its ESA "Action Area" review to activities occurring within the permit area and the direct, indirect and cumulative effects resulting from those activities. The Corps will, when appropriate look outside the permit area to evaluate potential physical effects of the authorized activity on threatened or endangered species. While portions of the Skiffes Creek – Whealton 230kV Line segment are outside the Corps permit area, the applicant has conducted necessary surveys for threatened or endangered species along the entire route. In the interest of streamlining review this information was not segmented out but rather included in the consultation and in the final affect determination.

2.3 Determination of permit area for Section 106 of the National Historic Preservation Act (NHPA):

The permit area includes those areas comprising waters of the United States that will be directly affected by the proposed work or structures, as well as activities outside of waters of the U.S. because all three tests identified in 33 CFR 325, Appendix C(g)(1) have been met.

i. The need for such activities is dependent upon the authorization of the work or structures within the waters of the United States.
ii. Such activities are integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program)
iii. Such activities are directly associated (first order impact) with the work or structures to be authorized.

Final description of the permit area: The permit area includes the entire proposed Surry – Skiffes Creek 500kV Line segment and Skiffes Creek Switching Station and portions of the Skiffes Creek – Whealton 230kV Line segment where there is a regulated impact and where the location and configuration of the regulated activity and other project elements are determined interrelated using the above criteria. While portions of the Skiffes Creek – Whealton 230kV Line segment are outside the Corps permit area, the applicant has conducted necessary surveys for historic resources along the entire route. In the interest of streamlining review this information

was not segmented out but rather included in the consultation and in the final affect determination.

The Corps, after appropriate consultation and with concurrence of the Virginia Department of Historical Resources, State Historical Preservation Office (SHPO) established both a direct APE and indirect APE. The Direct APE consists of areas where land disturbing activities may occur. The limits of the Direct APE consist of the limits of the Project right of way (ROW) and identified construction access areas. For construction access areas, a 25-foot width was used along the centerline of field located paths and roads outside of the Project ROW. The Indirect APE extends approximately 10 miles upstream and 13 miles downstream from the proposed river crossing and includes a buffer of approximately 0.5-miles inland from the shoreline within this area. The Indirect APE for areas where the proposed work will not result in a change in structure height greater than 10% or 20 feet is defined by the adjacent parcel boundaries or a 0.5 mile buffer, whichever is less. Attachment A located in the "April 24, 2017 MEMORANDUM OF AGREEMENT AMONG VIRGINIA ELECTRIC AND POWER COMPANY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE, U.S. ARMY CORPS OF ENGINEERS NORFOLK DISTRICT, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION" executed May 2, 2017 includes Direct and Indirect APE maps.

3.0 Purpose and Need

Before discussing our independent efforts to establish and evaluate the purpose and need of this project, we note the decisions or statements made by the Virginia State Corporation Commission (SCC) and PJM, the Regional Transmission Organization (RTO) responsible for the region including the Commonwealth of Virginia. Each of these entities has reached the conclusion that the deactivation of two coal-fired generators at the Dominion Yorktown facility, in light of regional demand and transmission system stress, presents a clear need to improve system reliability.

State law required that the SCC determine whether there is a need for this project prior to granting a certificate of public convenience and necessity. VA Code § 56-46.1. "The statute specifically calls for 'verification of the applicant's load flow modeling, contingency analyses, and reliability needs presented to justify the new line and its proposed methods of installation,' in determining need." [BASF Corp. v. State Corp. Comm'n, 289 Va. 375, 394, (2015)].

In this case, the SCC found that "[t]he evidence is clear that the Proposed Project is necessary to continue reliable electric service to the hundreds of thousands of people who live and work across the broad region of Virginia."[APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY D/B/A DOMINION VIRGINIA POWER, PUE-2012-00029

(November 26, 2013)] The SCC further explained, “The reliability risks presented in this case are far reaching and significant. Engineering studies in this case show that when Dominion’s transmission system is stress-evaluated under federal and Virginia requirements, a number of transmission system overloads result. These overloads, which appear under the reasonable contingency conditions model in this case, identify a broad swath of the Commonwealth where the loss of electric service can be expected as early as 2015 unless Dominion’s electric system is reinforced.” The SCC decision was challenged in state court, and ultimately the Supreme Court of Virginia affirmed the decision. [BASF Corp. v. State Corp. Comm'n, 289 Va. 375 (2015)].

Similarly, PJM wrote to the Corps, explaining, “During the development of the 2012 [Regional Transmission Expansion Plan], PJM identified numerous grid reliability criteria violations in the Virginia Electric and Power Transmission system. The reliability criteria violations were driven by the scheduled deactivation of generators at the Dominion Yorktown facility in York County Virginia. PJM identified the Skiffes Creek project as the preferred and most effective solution to address the expected reliability problems. PJM’s subsequent RTEP restudies continue to validate the need for the project . . . Mandatory reliability standards approved by the Federal Energy Regulatory Commission require PJM to implement a solution to address the reliability criteria violations. The current Skiffes Creek 500 kV project is the most effective and efficient solution to address the reliability criteria violations.

3.1 Project Need as provided by the applicant and confirmed by the Corps: Dominion has historically supplied power to the North Hampton Roads Load Area (NHRLA) via generation from the Yorktown Power Station (approximately 1,141 MW) and two transmission corridors that deliver power into the service area. The NHRLA consist of approximately 285,000 customers comprised of the Peninsula (Counties of Charles City, James City and York and the Cities of Williamsburg, Yorktown, Newport News, Poquoson, and Hampton), Middle Peninsula (Counties of Essex, King William, King and Queen, Middlesex, Mathews, Gloucester, and City of West Point), and Northern Neck (Counties of King George, Westmoreland, Northumberland, Richmond and Lancaster, and the City of Colonial Beach). Yorktown Power Station is comprised of two coal fired Units (Yorktown 1 & 2) that produce approximately 323 MW combined and one oil fired Unit (Yorktown 3) that produces 818 MW.

With the current configuration (Yorktown Power Station and two existing transmission corridors) Dominion would be unable to maintain compliance with the North American Electric Reliability Corporation (NERC) standards after 2021. To meet NERC reliability standards, Dominion must have sufficient generation and transmission capacity to reliably serve the NHRLA, and the standards require that Dominion consider and account for certain contingencies. The standards take a regional look at the transmission grid, to ensure that generation and transmission systems are protective of the larger electric system in the region. Dominion is required to use NERC-

approved computer modeling to predict how its system elements, such as switches, transformers, and transmission lines, will behave under various operating circumstances. These circumstances include weather events, unanticipated equipment failure, cyber-attack, planned outages, and swinging load levels. The models use specified data inputs for all transmission system elements and account for future growth in the system and the load it serves. NERC has confirmed that these standards are absolute requirements that have no waiver provision. NERC has the authority to impose fines of up to $1 million per day, per violation.

Based on updated load projections, the NHRLA must maintain 656 MW of generating capacity, with a minimum of 276 MW available after or under certain contingencies to remain NERC compliant. Dominion's 2013 power flow studies projected the demand for electricity in this area would grow 8% between the summer of 2015 and 2020. Updated 2016 projections now only find a 3% growth for this same period of time. However, even with this reduced projection, the Yorktown Power Station along with the existing transmission lines would be insufficient to maintain the NHRLA without becoming non-compliant with reliability standards.

In December 2011, the United States Environmental Protection Agency (EPA) issued its Mercury Air and Toxics Standards (MATS) Rule requiring power generation facilities to reduce their toxic air pollutant emissions prior to April 2015. Dominion's Yorktown Power Station, is subject to these required reductions. In order to achieve compliance with MATS, Dominion must either retrofit, repower, or decommission Yorktown. As planned, to comply with MATS Dominion has terminated further use of Yorktown Units 1 & 2, and intends to continue using Unit 3 at only 8% capacity or less in a given year. Dominion has requested and received yearly extensions from both the Virginia Department of Environmental Quality and Environmental Protection Agency. Dominion's final extension, allowing Yorktown to operate only under emergency situations, was granted by EPA under an Administrative Order and expired April 15, 2017. We have confirmed with EPA that the Rule provides no additional time or waiver provisions beyond April 2017.

Power load analysis using current systems and user trends demonstrate an electrical need in the NHRLA immediately following the shutdown of the Yorktown Generators. Absent an improvement to the NHRLA electrical grid, Dominion will likely be required to implement pre-contingency load shedding (i.e., rolling blackouts) to prevent system overloads and the possibility of cascading outages impacting the reliability of the interconnected transmission system. The Regional Transmission Organization (PJM Interconnection), responsible for reliability of the electric transmission system in the Mid-Atlantic region, has independently evaluated the NHRLA electrical supply and demand and has concurred that this electrical deficiency will

occur with the shutdown of the Yorktown Generators. Based on a 2017 Load Forecast Report, PJM reaffirms the project need and believes Dominion's preferred alternative remains the most effective and efficient solution to address the NERC reliability criteria violations that will exist in both the short and long term.

Based on the above the Corps has determined there is valid and identified need for the proposed project.

3.2 Basic project purpose, as determined by the Corps: To continue providing the North Hampton Roads Load Area (NHRLA) with reliable, cost effective, bulk electrical service consistent with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards for transmission facilities and planning criteria.

3.3 Water dependency determination: The activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent.

3.4 Overall project purpose, as determined by the Corps: Provide sustainable electrical capacity into the NHRLA in a manner that addresses future load growth deficiencies, replaces aging infrastructure, complies with Federal regulations, including MATS, and maintains compliance with NERC Reliability Standards.

4.0 Coordination

4.1 Throughout the permitting process the Corps engaged with Federal, State, and Local agencies, consulting parties under the Section 106 of the National Historic Preservation Act (NHPA), and the general public under NEPA, including actions undertaken with the Council on Environmental Quality (CEQ) and the Department of Interior (DOI). This review process involved extensive outreach and dialogue with all interested parties. Sections 4.1.1 – 4.1.6 lists those parties specifically engaged in coordination. Substantive comments received through this coordination are addressed in Section 4.5. The Corps received substantial input during the NHPA Section 106 consultation process regarding both historic resource issues and general review procedures. We have addressed the general concerns here and those related to the Section 106 Coordination are addressed in Section 10.3.

4.1.1 Federal Agencies consulted and/or whom provided comment:

- Council on Environmental Quality
- U.S. Department of the Interior
- Federal Energy Regulatory Commission

- U.S. Department of Energy
- U.S. Environmental Protection Agency
- Advisory Council on Historic Preservation
- National Park Service
- National Oceanic Atmospheric Administration & National Marine Fisheries Service
- U.S. Fish and Wildlife Service
- U.S. Coast Guard
- U.S. Department of Defense Siting Clearinghouse
- U.S. Department of the Air Force Joint Base Langley-Eustis
- U.S. Department of the Navy Region Mid-Atlantic
- U.S. Naval Weapon Station Yorktown
- Department of Veteran Affairs
- Federal Aviation Administration
- Norfolk District Operations Branch
- Norfolk District Real Estate Branch

4.1.2 Federally Recognized Tribes consulted and/or whom provided comment:

- Pamunkey Indian Tribe
- Delaware Tribe of Indians
- Delaware Nation
- Catawba Indian Nation

4.1.3 State Agencies consulted and/or whom provided comment:

- Commonwealth of Virginia
- Virginia Department of Historic Resources
- Virginia Port Authority
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Conservation and Recreation

4.1.4 State Recognized Tribes consulted and/or whom provided comment:

- Chickahominy Indian Tribe
- Cheroenhaka Indian Tribe
- Eastern Chickahominy Indian Tribe
- Mattaponi Indian Tribe
- Nansemond Indian Tribe
- Nottoway Indian Tribe
- Rappahannock Indian Tribe
- Upper Mattaponi Indian Tribe

4.1.5 Local Agencies consulted and/or whom provided comment:

- James City County
- Charles City County
- York County
- Surry County
- City of Newport News
- City of Hampton
- City of Williamsburg

4.1.6 Other Consulting Parties consulted and/or whom participated in the NHPA process:

- National Parks Conservation Association
- Save the James Alliance
- Chesapeake Conservancy
- U.S. Department of Interior
  - National Park Service; Northeast Region
  - National Park Service; Colonial National Historic Park
  - National Park Service; American Battlefield Protection Program
- James City County
- The Colonial Williamsburg Foundation
- Preservation Virginia
- Scenic Virginia
- National Trust for Historic Preservation
- Christian & Barton, LLC; on behalf of BASF
- James River Association
- First California Company Jamestowne Society
- Delaware Tribe Historic Preservation Representatives
- Chickahominy Indian Tribe
- Council of Virginia Archaeologist
- Ms. Margaret Nelson Fowler
- Pamunkey Indian Tribe
- Escalante Kingsmill Resort LLC

4.2 The Corps issued four public notices requesting comments on the project, conducted one public hearing, held multiple meeting engagements with consulting parties to the Section 106 NHPA process, and used a project website (http://www.nao.usace.army.mil/Missions/Regulatory/SkiffesCreekPowerLine.aspx) to provide project related information and updates to the public ensuring informed involvement in the preparation of this environmental assessment.

4.3 Numerous comments, both supporting and in opposition to the proposed project, were received throughout the evaluation process. Opposition was largely centered on viewshed impacts that would result from the proposed 500kV aerial transmission line crossing the James River in proximity to nationally important historic and cultural resources. Many commenters suggested Dominion, explore alternatives that would avoid these viewshed impacts.

4.4 Throughout the Corps review, official transcripts for the Public Hearing and consulting partying meetings were captured. A summary and response to all comments received in response to public notices, including the Public Hearing held October 30, 2015, were provided to the Corps by Dominion. Dominion also provided the Corps with summary and response to comments received pursuant to the Section 106 of the NHPA process. At the request of the Corps, Dominion also provided response to a number of comments received outside of any specific comment window addressing purpose and need and alternatives.

4.5 Substantive Comments:

- On January 19, 2017, the Executive Office of the President, Council on Environmental Quality (CEQ), provided comments to the Corps. CEQ's correspondence letter indicated agreement with the Secretary of the Interior's January 17, 2017 recommendation that the Corps should evaluate the impacts and alternatives to the proposed project in an environmental impact statement. CEQ also expressed the need for increased public participation and a hard look at the environmental consequences of all reasonable alternatives. In addition, based on available information CEQ suggested avoidance as potentially the only acceptable way to mitigate direct impacts.

  RESPONSE – Following receipt of the CEQ's letter, the Corps engaged in writing and in person with CEQ to clarify information regarding the Corps National Environmental Protection Act (NEPA) evaluation and review efforts. On April 14, 2017, the Corps received a follow-up letter from CEQ superseding their January 19th letter. In this letter, CEQ commended "the diligent efforts" of the Corps "Throughout the permitting process to engage with other Federal agencies, consulting parties under Section 106 of the National Historic Preservation Act (NHPA), and the general public under NEPA." CEQ further recognized that the Corps has evaluated a range of alternatives and proposed a set of comprehensive mitigation measures for the proposed project. CEQ closed by stating their support of the Corps in its efforts to finalize an environmental assessment and Section 106 Memorandum of Agreement.

- On January 18, 2017, the Corps received comment from the Secretary for the Department of the Interior (DOI). The Secretary's correspondence letter indicated substantial concerns about the proposed project which has the potential to introduce a major intrusion into a landscape that has been largely unchanged since the earliest days of our Nation. The Secretary's letter also indicated a belief that no mitigation measures can effectively offset the impacts to the landscape that the presence of the transmission line would cause. DOI closed this letter by stating if the Corps believes that the permit cannot be denied, then it should conduct an Environmental Impact Statement.

  RESPONSE – Following receipt of the Secretary's letter, the Corps engaged in writing and in person with DOI to help provide them with clarification regarding the Corps NEPA evaluation and review process. On March 30, 2017, the Secretary of Interior provided follow-up correspondence to the Corps. The Secretary stated "The information provided by the Corps reflects thoughtful and thorough consideration of the issues raised by [DOI] related to potential impacts of the project, the need for the project, possible alternatives, and the role of mitigation." In addition, the Secretary concludes "The Corps has taken into account the concerns of various parties and vigorously participated in development of potential mitigation that is intended to enhance the visitors experience within the entire region." In closing, the Secretary indicated the Department of Interior stood ready to sign a final memorandum of agreement as a concurring party and would work with other signatories to carry out its terms if executed.

  On May 2, 2017 a memorandum of agreement was executed pursuant to Section 106 of the NHPA, and as indicated, DOI signed on behalf of the National Park Service as a concurring party to the agreement.

- The Federal Energy Regulatory Commission provided the following comment following the EPA Administrative Order, issued December 2, 2015. "Based on our review of Dominion's submission and attachments, we find that the loss of Dominion's Yorktown Unit Nos. 1 and 2 prior to the completion of the Skiffes Creek Project might result in violations of NERC Reliability Standards in the absence of load shedding. Accordingly, in our view, Dominion's Yorktown Unit Nos. 1 and 2 are needed during the administrative order period, as requested by Dominion, to maintain electric reliability and to avoid possible NERC Reliability Standard violations."

  RESPONSE – Comment acknowledged.

- The U.S. Department of Energy (DOE) participated in a group meeting held at CEQ on March 10, 2017. The representative explained the

possibilities of granting extensions to Dominion under the Federal Power Plan allowing continued temporary operations at Yorktown Power Facility if an emergency situation was truly eminent. Extension would only be granted in 90-day increments and Dominion would have to clearly demonstrate the nature of emergency.

RESPONSE – Comment acknowledged.

- The Environmental Protection Agency (EPA) requested the Corps consider requiring mitigation for conversion and temporary impacts to forested wetlands.

  RESPONSE – There are no temporary impacts proposed for the project. Dominion has agreed to compensate for wetland conversion impacts at a 1:1 ratio through the purchase of non-tidal wetland mitigation credits from a Corps approved mitigation bank authorized to serve the watersheds where the proposed impacts will occur. A total of 0.43 credits will be purchased within the Lower James River Watershed (Hydrologic Unit Code [HUC] 02080206) and 0.13 credits will be purchased within the Lynnhaven-Poquoson Watershed (HUC 02080108).

- The Advisory Council on Historic Properties (ACHP) participated in the Corps' Section 106 of the National Historic Preservation Act review. ACHP assisted the Corps by ensuring process compliance. On May 2, 2017, ACHP signed as a Signatory Party to the memorandum of agreement developed for the purpose of resolving adverse effects. This executed agreement formally concludes and shows Corps compliance with the Section 106 NHPA review.

  RESPONSE – See Section 10.3 for details regarding involvement

- The Corps consulted with the National Park Service (NPS) pursuant to Section 106 of the National Historic Preservation Act and the Wild and Scenic Rivers Act. Throughout the review process NPS raised concern regarding the NEPA review process, alternatives analysis and several issues addressed through the Section 106 coordination (Section 10.3).

  RESPONSE – With regard to the review process, NPS along with others, citing regulation implementing the National Historic Preservation Act and ACHP guidance, expressed that the Section 106 Review Process should be merged with the Corps NEPA review process. The Corps did convene these processes concurrently. The Cops does not interpret this to mean that the entire NEPA process be vetted through the Section 106 NHPA review. It simply is an effort to reduce duplication of effort especially in terms of public involvement. As NEPA requires, the USACE has made effort to engage consulting parties and the public in dialogue on this

proposed project. In addition, we have provided the most current information to consulting parties and the public as the information has become available. In addition to circulating information to the consulting parties, we have maintained a publicly accessible webpage, where we have posted current project information.

With regard to alternatives analysis, the Corps has conducted a thorough alternatives review as discussed in Section 5.0.

With the DOI letter of March 30, 2017 and DOI's May 3, 2017 concurrence on behalf of the NPS with the Memorandum of Agreement executed pursuant to Section 106 of the NHPA we conclude that NPS's concerns have been adequately addressed.

- As required under the Endangered Species Act (ESA) and implementing regulation, the Corps consulted with National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) pursuant to ESA Section 7.

  RESPONSE – Both USFWS and NMFS provided their concurrence with the Corps' effect determinations for specific species. See Section 10.1 for details.

- The United States Coast Guard (USCG) has specifically requested that each fender protection system be lit with a visible all around slow flashing amber light that has a minimum twenty-four (24) candela setting placed in the center of each fender. In addition to fender lighting, USCG has requested Towers 21, 22, 25, and 26 be also be lit with a minimum of one visible all around slow flashing white light with a minimum twenty-four (24) candela setting. This associated lighting equipment should be placed on the tower side opposite of the fender light and at a minimum height of 15 feet (FT) above mean high water (MHW). Towers 20, 23, 24, and 27 shall be lit with a minimum of two visible all around slow flashing white lights with a minimum candela setting of twenty-four (24). This lighting equipment should be placed on opposite sides of each tower in an approximate east/west alignment and at a minimum height of 15 FT above MHW. The USCG has also requested for approval the preparation and submission of a Private Aid to Navigation application (Form CG-2554). Finally, Dominion must notify, by email and/or letter, the Coast Guard office three weeks prior to the beginning of the project with pertinent information so it can be included in the Local Notice to Mariners (LNM).

  RESPONSE – USCG comments have been acknowledged and will be made Special Conditions of any Corps permit authorization should one

be issued for the proposed project. Dominion is agreeable to the above requests.

- On October 24, 2013, the Corps, via email, coordinated with the U.S. Department of Defense Siting Clearinghouse.

  RESPONSE – The Corps did not receive a response to the coordination, and therefore assumes the Siting Clearing House has no objections.

- Dominion held early coordination with the U.S. Joint Base Langley-Eustis concerning encroachment upon Terminal Instrument Procedure (TERPS) non-precision approach obstacle clearances associated with Felker Airfield. On October 24, 2013, the Corps, via email, coordinated with Fort Eustis in hopes of gaining formal comments from the Base as to the impacts the proposed project may or may not have. The Corps did not receive a response specific to its coordination. On February 12, 2015, Dominion provided the Corps with a copy of a September 5, 2012 letter from the Air Force to Dominion, confirming that the proposed project will not impact Felker Airfield. On August 26, 2015 and again on August 15, 2016, the Corps received letters from the Department of the Air Force on behalf of Joint Base Langley-Eustis respectfully requesting the Corps reach a favorable decision allowing Dominion's proposed project.

  RESPONSE – Correspondence acknowledged.

- On August 5, 2015 the Department of the Navy, U.S. Naval Region Mid-Atlantic (NRMA) Commander provided comments on the mission essential requirements for stable and reliable electric power source for military installations within the area of responsibility for NRMA. The Navy supports continued efforts in this area.

  RESPONSE – Correspondence acknowledged.

- On June 22, 2016, the U.S. Department of the Navy, Naval Weapons Station Yorktown provided comments on the mission essential requirements for stable and reliable electric power source for their military installation.

  RESPONSE – Correspondence acknowledged.

- On June 24, 2016, the Department of Veteran Affairs provided comment on behalf of the Veterans served by the Hampton VA Medical Center expressing concerns that the loss of electrical service of any duration would have a severe negative impact on the ability to provide uninterrupted health care.

RESPONSE – Correspondence acknowledged.

- The Federal Aviation Administration (FAA) has evaluated 311 air space cases filed by Dominion for the proposed project. The FAA has determined "no hazard for all towers and cranes". Dominion has provided the Corps with a tracking table and copies of correspondences between Dominion and the FAA.

  RESPONSE – Correspondence acknowledged.

- Through the Section 408 coordination (See Section 10.8) the Virginia Pilots Association expressed a concern about the location of tower 582/17 because of natural channel realignment drift and requested whether it could be located to shallower water to eliminate the possibility of a deep draft vessel strike.

  RESPONSE – A minimum distance of 261 feet will be maintained between those structures adjacent to the federal navigational channel, and a minimum distance of 112 feet between those structures adjacent to the secondary navigational channel. These offset distances will provide sufficient buffer for any potential natural channel realignment that may occur.

- Through the Section 408 coordination (See Section 10.8) Mr. David McNeel, Senior Policy Advisor, from the City of Richmond requested that the power line be at the same height as the Highway 895 Bridge (145 FT vertical clearance).

  RESPONSE – The aerial transmission line has been designed with a minimum vertical clearance of 201 feet above mean high water at Tribell Shoal Federal Navigation Channel and 188 feet at the secondary channel. Both of these clearances exceed the 145 ft minimum vertical clearance of the Bridge.

- On June 30, 2015, the Port of Virginia provided comment requesting the Corps support the proposed project due to its importance to the well-being of the port and many of its users.

  RESPONSE – Correspondence acknowledged.

- The Virginia Department of Game and Inland Fisheries (DGIF) provided comment to the Corps and Virginia Marine Resource Commission indicating that based on the information available to VDGIF, they do not have any concerns that this project will adversely impact Hog Island

Wildlife Management Area or its uses. As advised, the Corps consulted directly with Mr. Steve Living, VDGIF Region I Lands and Facilities Manager which resulted in no additional comments.

RESPONSE – Correspondence acknowledged.

- The Department of Conservation and Recreation (DCR) provided comments for the Skiffes Creek–Whealton portion of the project; recommending inventories for the following resources:
  • Rare plants in the area of the power line in the southwest corner of the Grafton Ponds Conservation Site. The site already has three known rare plants slender marsh pink (Sabatia campanulata), Cuthbert turtlehead (Chelone cuthbertii), and pine barren sandreed (Calamovilfa brevipilis) that should be re-inventoried to determine current status and location before recommendations can be provided.
  • Mabee's salamander, canebrake rattlesnake and barking treefrog in Grafton Ponds and the Airport-TABB Conservation Sites and Harwood's Mill Reservoir area intersected by the project site, and canebrake rattlesnake in the surrounding forested areas in the vicinity of Newmarket Creek and Sandy Bottom Conservation Site adjacent to the project area.
  • Grafton Ponds Natural Area Preserve has been documented in the project vicinity. DCR recommends avoidance of impacts to the preserve and associated natural heritage resources. Please coordinate with Rebecca Wilson, the DCR-Division of Natural Heritage Chesapeake Bay Region Steward at (804) 225-2303 or Rebecca.Wilson@dcr.virginia.gov for additional information.

  RESPONSE – Slender marsh pink, Cuthbert turtlehead, Pine barren sandreed, Mabee's salamander, Canebrake rattlesnake, and Barking treefrog are not federally threatened or endangered species and were therefore not considered as part of our review. Dominion has acknowledge that the proposed project will require no clearing or permanent habitat alteration within habitat areas for Mabee's salamander and Barking treefrog. Dominion has agreed to provide contractors with species identification sheets as an avoidance measure for the Canebrake rattlesnake. These species sheets will direct contractors to leave them alone if they are identified. The Grafton Ponds Natural Area Preserve does not intersect the proposed project corridor and required no consideration.

  • The project is within a section of the James River, which has been designated as a scenic river in the state of Virginia. Due to this designation, DCR recommends you contact Lynn Crump of the DCR Division of Planning and Recreation at (804) 786-5054 or Lynn.Crump@dcr.virginia.gov.

RESPONSE – Pursuant to Section 106 of the NHPA, viewshed impacts within the Area of Potential Effect, including the James River, were appropriately considered and mitigated with the execution of a memorandum of agreement. The proposed project will not negatively impact the James River's designation as a scenic river.

- As a participating consulting party to the Corps Section 106 National Historic Preservation Act review, James City County remained opposed to the proposed project, maintaining the position that Dominion bury the transmission line under the James River or explore another alternative.

  RESPONSE – The County's comments were fully addressed and considered pursuant to Section 106 NHPA review, as well as in Section 5.0.

- On October 30, 2015 and November 9, 2015 Charles City County's Center for Local History provided comments opposing the Chickahominy alternative route, indicating that the Corps is bound by the final decision of the State Corporation Commission, holding that the Chickahominy route would have a greater overall impact, especially to the Captain John Smith Chesapeake National Historic Trail.

  RESPONSE – Correspondence acknowledged.

- On June 20, 2014, the Corps consulted with York County and invited them to participate as a Consulting Party to the Section 106 National Historic Preservation Act review. This invitation went unanswered. On September 21, 2016, York County provided comments to the Corps expressing concerns that further delays in a permit decision will jeopardize public safety on a long term basis should intermittent power outages become an ongoing problem. The County urges the Corps to take into account the very material risks the community will face if the prospect of power disruption to street lights, traffic signals, public gather places, and medical facilities becomes a reality.

  RESPONSE – Correspondence acknowledged.

- On June 20, 2014, the Corps consulted with the City of Newport News and invited them to participate as a Consulting Party to the Section 106 National Historic Preservation Act review. This invitation went unanswered. On August 4, 2015, November 9, 2015, and September 27, 2016 the Mayor of Newport News and its Sherriff provided comments to the Corps expressing concerns regarding delay in issuing the permit necessary for the construction of the proposed project. The City expressed concerns that the absence of reliable and secure electric service would have impacts on the health and safety of its residents.

RESPONSE – Correspondence acknowledged.

- The City of Newport News shared with the Corps that the existing Dominion easement associated with this project traverses Oakland Industrial Park (OIP). This OIP parcel is currently undeveloped and is managed by the Industrial Development Authority (IDA), which the City considers marketable and highly valuable. Currently, a portion of the parcel is being evaluated by Virginia Department of Transportation (VDOT) for the future location of the proposed Route 60 Realignment Project. It appears the power lines and future bridge will intersect with one another.

  RESPONSE – The entire project is proposed within existing Dominion right-of-way (ROW). In this section of the project (e.g. structures 285/438 – 285/458), Dominion's proposal only involves "reconductoring" existing towers that will be painted and reused. No new towers will be constructed in this segment and therefore the City's concerns were simply acknowledge.

- On June 20, 2014, the Corps consulted with the City of Hampton and invited them to participate as a Consulting Party to the Section 106 National Historic Preservation Act review. This invitation went unanswered. On August 3, 2015, August 11, 2015, and October 4, 2016 the Mayor of City of Hampton and the Commissioner of Revenue provided comments to the Corps expressing concerns that the prospect of having rolling blackouts would be extremely detrimental to the local and regional economy. The City urges the Corps to work with Dominion to find and permit an electric transmission system that will sustain the City's and regions electric needs into the future.

  RESPONSE – Correspondence acknowledged.

- The Newport News Williamsburg International Airport provided comments to the Corps. The airport has two different runway projects programmed over the next 20 years according to the Airport Layout Plan (ALP), with a potential third project entering into the planning phase. Structures associated with the proposed project would become obstructions to Federal Aviation Regulation (FAR) Part 77 and deemed objects that affect navigable airspace. The airport finds a better solution to route the new 230 kV transmission line on the Dominion easement that is located on the north side of Oriana Road and crosses over George Washington Memorial Highway.

  RESPONSE – Dominion met with airport officials from Newport News/Williamsburg International and demonstrated with detailed

elevation analyses that the new structures would not penetrate the approach surface to the airport. The existing ROW located on the north and east side of the airport will encounter little to no change in tower heights. Any increase in tower height will be less than 5 feet. Dominion has coordinated with the Federal Aviation Administration and received their approval of the proposed project as designed.

- Outside of their role as a Consulting Party, BASF expressed concerns regarding Dominion's plan to bisect their property such that it reduces potential sale and development opportunities. More importantly, BASF expressed concerns with certain tower placements would negatively affect environmental remediation efforts that have occurred onsite.

  RESPONSE – On May 21, 2014 the Corps was invited to sit in on a group meeting between representatives from Dominion, BASF, the Environmental Protection Agency (EPA), and Virginia Department of Environmental Quality (VDEQ). At this meeting, the group discussed technical issues surrounding the proposed powerline and its impacts on existing remediation work at the BASF property. On August 12, 2014, BASF and Dominion reached agreement on route adjustments which avoid area 4C and the existing plume areas. Based on these adjustments, EPA and VDEQ responded to Dominion and the Corps on August 19, 2014, indicating they are not aware of any other environmental issues or concerns with this proposed route. Dominion incorporated these changes into its final plans.

- A number of commenters raised concerns that the project, if authorized, would set precedent that influence government review of future projects. The commenters do not here allege that the project will itself cause these effects; rather, they are concerned that approval of this project might increase the likelihood that future proposals would be permitted.

  RESPONSE – The decision regarding this project is not likely to have a substantive effect on future requests for authorization. These commenters did not identify any future planned or reasonably foreseeable projects of concern. Our review captures direct, indirect and cumulative effects of this project. Outside the analysis of cumulative effects conducted here, any effect this decision may have on future requests for authorization is purely speculative. In addition, issuance of this permit will have no effect on the Corps' responsibility to comply with Federal law and regulation in its review of future projects and any future proposals will be fully subject to all necessary and appropriate review requirements based on case specific information.

- A number of commenters requested the Corps deny the permit and require Dominion to explore other alternatives.

RESPONSE – The Corps would only be able to deny the project if it were to conclude that there is another practicable alternative that would be lesser environmentally damaging or the proposed project would be contrary to the public interest. The Corps has gathered information throughout its review to inform these final decisions.

- A number of commenters believed the impacts to be significant and therefore requested the Corps review the proposed project under an Environmental Impact Statement (EIS).

  RESPONSE – NEPA requires an EIS for any project that will result in significant affects to the human environment. The decision on significance is based on both context and intensity. The majority of environmental impacts associated with this project are minimal in nature, or have been minimized through mitigation. While the Corps agrees that certain historic resources potentially impacted are nationally important, the Corps concludes that the intensity of the, mostly secondary effects do not reach a level of significance to the human environment, especially in light of the proposed mitigation.

  Many of those that have asserted the need for an EIS based this decision not on the significance of the effects but on the need to further explore alternatives or on a need for further assessment. The Corps has taken a hard look at the alternatives to the proposed work, the resources being impacted, the nature of those impacts, and the proposed compensatory mitigation.

- A number of commenters, including receipt of a petition with over 2000 signatures, requested the Corps conduct a Public Meeting/Hearing.

  RESPONSE – The Corps held a Public Hearing on October 30, 2015. At the request of the Corps, Dominion provided summary and response of all comments from the Public Hearing. The Corps has reviewed all comments and the responses and has ensured that all substantive issues are addressed through this Environmental Assessment.

- A number of commenters questioned project need when considering electrical capacity requirements in the North Hampton Roads Load Area (NHRLA).

  RESPONSE – In multiple correspondence letters received from the Regional Transmission Operator, PJM, the need for the project remains valid. The need for the project was originally identified in 2012 to address

numerous grid reliability criteria violations in the Dominion transmission system driven by the scheduled deactivation of generators at the Dominion Yorktown facility in York County Virginia. These reliability criteria violations are expected to occur immediately following the deactivation of the Yorktown generators. PJM's subsequent RTEP restudies continue to confirm the need for the project even considering the updated load forecasts in the recently released 2017 PJM Load Forecast Report. As a result it is PJM's determination that the current Skiffes Creek 500 kV project remains the most effective and efficient solution to address the identified reliability criteria violations. Project need is further addressed in Section 3.0.

- A number of commenters believe there to be reasonable alternatives, including project modifications that are not being considered.

  RESPONSE – The Corps has taken a hard look at alternatives. Dominion has provided the Corps with their analysis of at least 23 alternatives including burial of the line under the James River, retrofitting of the Yorktown station, locating on alternate corridors and various combinations of actions. The Corps has utilized in-house electrical engineers to help review project related information and opposing challenges and recommendations for technical accuracy. The Corps also utilized PJM's assistance to verify project need, as well as NERC compliance regarding four alternatives proposed by TABORS CARAMANIS RUDKEVICH (TCR), on behalf of the National Trust for Historic Preservation. See Section 5.0 for details.

- A number of comments were received questioning the accuracy of reported project and alternative cost comparisons.

  RESPONSE – The Corps has relied on Dominion's reported cost for each alternative considered. The State Corporation Commission evaluated the accuracy of reported cost of several alternatives during its approval process. The Corps reviewed cost information provided by Dominion and finds no reason to suspect costs are erroneous or misrepresented. .

- A number of commenters believe Dominion's reference to "Rolling Brownouts" is merely a threat that would not materialize.

  RESPONSE – Both FERC and PJM have validated an electrical need in the NHRLA immediately following the shutdown of the Yorktown Generators. Absent an improvement to the NHRLA electrical grid Dominion will be required to implement pre-contingency load shedding (i.e., rolling brownouts) to prevent the possibility of cascading outages impacting the reliability of the interconnected transmission system. Due

to project delays, Dominion has developed a remedial action scheme, approved by PJM, granting permission under certain scenarios to shed load to approximately 150,000 customers in the NHRLA given the absence of generation availability from Yorktown.

- Several commenters questioned Dominion's obligations to comply under certain timeframes with EPA's Mercury Air Toxin Standards (MATS). Including bringing to question the continued existence of MATS given recent legal challenges and change in Administration.

  RESPONSE – Early in the evaluation process, the Corps consulted with EPA in order to better understand Dominion's compliance obligations and potential timeframe flexibilities. EPA confirmed that Yorktown Power Station is subject to compliance, and that the Rule provides no additional time or waiver provisions beyond April 2017. Throughout the process Dominion has requested and obtained the necessary extensions to ensure temporary compliance; however these extensions have expired. Although the Supreme Court found that EPA should have done more to consider economic impacts prior to issuing the MATS rule, the rule remains in effect. In December of 2015, the D.C. Circuit decided not to vacate the rule while EPA supplemented its findings. The EPA issued supplemental findings in 2016. While the Corps understands that these findings are also the subject of legal challenge and that EPA is further reviewing the rule, the MATS rule is presently in effect.

- Given the supposed reliability emergency facing the NHRLA, the National Trust for Historic Preservation questions why Dominion has not sought relief from the Department of Energy (DOE) under the FAST Act which could potentially allow Dominion to operate Yorktown in non-compliance without being subject to fines.

  RESPONSE – As stated by DOE in a group meeting held at CEQ on March 10, 2017, the possibilities of granting extensions to Dominion under the Federal Power Plan do exist, however extensions are reserved for emergency situations and would only be granted for 90-day intervals. While these extensions may allow for Dominion to provide the NHRLA with short term reliability, the Corps does not consider these 90-day extensions to be a viable solution which opens the practicality of another alternative besides Dominion's proposed project.

- Mr. Figg believes Dominion's proposed project fails NERC Reliability test in both Adequacy and Security.

RESPONSE – As verified by PJM, Dominion's proposed project meets all NERC Reliability Criteria Standards, including adequacy and security.

- Several commenters believe that generally the benefits of underground transmission over aerial transmission warrant further consideration.

  RESPONSE – The Corps acknowledges that installing submarine transmission lines across the James River would eliminate impacts surrounding viewshed. While underground transmission is less susceptible to weather related failures, any damage would be more difficult to locate, repair, and likely require longer outage times. Conversely, damage to an overhead line would be easier to locate and significantly less time to repair. In this specific scenario, aquatic resource impacts to the James River would be greater as a result of a submarine crossing. A submarine crossing would require additional cables in order to meet the same reliability as an overhead line and require multiple splice points to span the width of the river. Additional components are also required for a submarine crossing which corresponds to higher project costs versus an overhead transmission line.

- Several commenters requested that Dominion's preferred project cost include the cost that were necessary to build replacement generation in Brunswick and Greensville County.

  RESPONSE – The Corps has consulted both of Dominion's Department of Army permit applications (NAO-2011-1998 & NAO-2014-2035) for Brunswick County Power Station and Greensville County Power Station. Each facility cost approximately $1.3 Billion. Dominion's stated purpose of these facilities are to ensure reliability within the Dominion system. These facilities provide future electric generating capacity within Virginia helping to serve growing customer demand and provide replacement electricity for the retirement of coal-fired power stations.

  Technical grid reliability information provided by Dominion demonstrated that the Brunswick County Power Station and the Greensville County Power Station are part of a larger, more robust 500kV transmission network of interconnected power generation centers across Virginia. That network allows Dominion to take generation centers offline in some areas, but maintain reliability due to the generation from other plants on the same system. It is the size and capacity of the 500kV lines that allow for the transmission of power for longer distances from generation points to load areas.

  The NHRLA is not currently served by the 500kV transmission network. It is served by smaller 115kV and 230kV lines that lack the strength and capacity to bring in electricity generated from distance sources to

maintain the reliability of the grid in that area. The 115kV and 230kV lines were established to transmit electricity from a local generation source, the Yorktown plant. The proposed project will connect the NHRLA to this network, which transmits electricity generated by a number of plants, not just the Brunswick and Greensville plants. Moreover, the Brunswick and Greensville plants have utility independent from this transmission line.

The Corps does not consider the costs associated with these facilities to be tied to Dominion meeting purpose and need for this project, which is only addressed by either the injection of Dominion's 500kV transmission system into the NHLRA's Lower Peninsula or locating a generation source in this same area.

- The National Trust for Historic Preservation brought to the Corps attention, information related to two future Natural Gas Power Generating Facilities to be located in Charles City County. The NTHP commented that the likely presence of these future facilities by 2020 bring in question Dominion's purpose and need and stated justifications for a 500kV transmission line.

  RESPONSE – While both plants would be located in the NHRLA, they are not located in the specific region of, nor connect to, the NHRLA in a way that resolves NERC reliability violations. In order to resolve those violations these generation sources would need to be located physically and electrically within the load center on the Peninsula, or additional transmission facilities would be needed to bring this power into the load center. This proposed generation or any generation that is physically located outside of the load center within the NHRLA regardless of proximity does not change or improve the viability of any alternative evaluated to replace the proposed project. In order to resolve the NERC Reliability violations, any solution must directly inject power into the load zone, meaning generation must be physically located within that zone or adequate transmission paths into that zone must be created. The PJM Studies for the proposed generation nearby Dominion's Chickahominy substation, which are to ensure the power from these plants can flow onto the transmission system to serve load in a manner that does not violated the NERC Reliability standards, included the assumption that all PJM approved projects, including the proposed project, were constructed and in operation. Absent the proposed project being included in the PJM studies, the same NERC Reliability violations driving the proposed project would still exist. To summarize, this proposed generation does nothing to alter or change the purpose and need for the proposed project.

- A number of commenters raised concerns over impacts to the James River's ecological habitat, health, and pristine nature and detrimental impacts to the environment in general.
  RESPONSE – The proposed project is located in an area that has balanced historical conservation, environmental protection, and modern development with the surrounding landscape. The Corps has taken a hard look at the proposed projects impacts to the biotic and abiotic environment. This analysis and our conclusions are described throughout this Environmental Assessment. Generally, with the proposed mitigation measures the ecological impacts are minimal. Additionally, the MOA executed May 2, 2017 serves as resolution of adverse effects for purposes of NHPA Section 106. Finally, while the project will clearly be visible from several locations, we conclude that it is not out of character with this successful mix of progress and history.

- Several commenters raised general concerns regarding impacts to Atlantic Sturgeon, Oyster Beds, Habitat Fragmentation, and Invasive Species.

  RESPONSE – The proposed project, with incorporated protective measures, will not likely adversely affect the Atlantic sturgeon. See Section 10.1 for specific details.

  This segment of the James River includes privately leased oyster ground areas which are under the jurisdiction of the Virginia Marine Resource Commission. The proposed project crosses three lease areas, resulting in the displacement of 0.17 – 0.25 acres. It is Dominion's responsibility to obtain agreements with the individual lease holders and work with VMRC to obtain the necessary approvals to impact these areas. These impacts are further addressed in the Public Interest Review (Section 7.0).

  Impacts from habitat fragmentation will be minimal as Dominion's terrestrial portion of their proposed project primarily utilizes the presence of an existing aerial transmission line right of way.

  There are no invasive species issues associated with the proposed project. However, if the Corps should authorize the proposed project a permit condition will be included to help control the spread of invasive species, such that any seed mixes used for control of soil erosion or to stabilize disturbed areas anywhere in the vicinity of wetlands adjacent to the project shall be free of tall fescue, Bermuda grass, and other allelopathic turf grass species, as well as plant species on the Virginia Department of Conservation and Recreation's Invasive Alien Plant List.

This list of invasive plants may be found at http://www.dcr.virginia.gov/natural_heritage/documents/invlist.pdf .

- A number of comments were received regarding concerns with impacts on tourism and the local economy due to change in viewshed.

  RESPONSE – Potential impacts on heritage tourism were considered by the Corps. Reliable electricity in the NHRLA is crucial, such that if businesses are unable to operate due to a lack of reliable power the tourism economy would be adversely affected. The Corps agrees visual effects caused by the proposed project will alter setting and feeling, however the effects, while adverse, are subjective per individual. Historic visitor ship data derived from publically available sources, including National Park Service show temporary impacts to heritage tourism are primarily caused by seasonal weather patterns, large storms, and park closures, while construction and placement of modern intrusions, including infrastructure and industry have no negative impacts to visitor ship. The Corps consideration of historic data indicates there is no correlating variation in visitor ship when compared to past events.

- Several comments raised concerns with potential impacts on surrounding property values.

  RESPONSE – Industrial use property values would not be adversely impacted by the visual presence of power lines. Dominion will use their own property and existing right of ways for the proposed project, therefore impacts to existing private property uses and ownership will be minimally impacted. The secondary visual effects of the proposed project on surrounding properties will be similar to those experienced from properties assessed through the NHPA Section 106 process. The intensity and effects of visual intrusion has been addressed through that process. While properties within the projects view shed may experience some impact we expect it to be minimal and further assessing the impact of a secondary visual intrusion on real property values is speculative.

- Several commenters believe the overhead transmission line and its associated towers pose a threat to navigation and shipping traffic within the James River.

  RESPONSE – The Corps has appropriately considered impacts of the project on navigation. Dominion has worked collaboratively with the Corps and USCG to design a project that provides sufficient horizontal and vertical channel clearances, as well as proper lighting in the James River.

- Several commenters believe the overhead transmission line and associated towers pose a threat to aviation and neighboring military operations.

  RESPONSE – The Corps has appropriately coordinated and considered all correspondence received from FAA and all neighboring military installations. The results conclude that the proposed project will have no impact.

- Several commenters raised concerns with potential impacts to human health due to electromagnetic field (EMF) and noise/vibrations caused by transmission lines.

  RESPONSE – Public Health and Safety issues were considered during the State Corporation Commission approval process and found not to present a hazard. The Corps finds no compelling reason to repeat this analysis.

- Several commenters raised concerns over the disturbance to river bottom sediments, benthic organisms, release of kepone, and effects on water quality.

  RESPONSE – Dominion will be required to comply with all applicable erosion and sediment control requirements. Increased sedimentation and turbidity is likely during construction within the James River. These impacts will be temporary and concentrated in the areas immediately surrounding each tower during construction. Suspended sediments are expected to settle out of the water column within a few hours. Any turbidity will be short term and limited in scope. Total suspended solids are not expected to reach toxic levels for benthic communities. The permanent placement of towers and fenders in the substrate will directly remove or shade a small amount of river bottom reducing photosynthesis in these areas which could impact benthic communities. The reduction of photosynthesis could result in a loss of prey species for other marine life. The proposed project will result in a very small reduction in available benthic habitat due to permanent alteration and shading, and thus, any impacts to water quality and marine life will be insignificant.

  During the 1960's and 1970's, Allied Chemical located in Hopewell Virginia illegally disposed of kepone waste in to the James River. As a result, the fishery on the lower James River was temporarily closed to protect human health. In 1988 the ban was lifted. While kepone does not dissolve in water, its presence in the James River remains. After decades, the presence of kepone has disappeared in surface sediments

located on the river bottom. This section of the James River has historically been dredged for various projects and has resulted in no evidence of contamination. Therefore, the Corps concludes there will be no effect caused by disturbance of the river bottom that would re-introduce any contamination into the water column.

- A number of commenters believe that cumulative effects to historic properties have not been properly considered.

  RESPONSE – The Corps considered cumulative effects to all affected historic properties pursuant to its Section 106 NHPA review. While cumulative visual impacts will accumulate with past, present, and reasonable foreseeable actions, the incremental effect of the proposed project will not amplify the effects to a greater level. Numerous land conservation efforts prohibit and/or severely limit future development along the river and shoreline. Regardless, any future development must comply with applicable laws and regulations.

- A commenter believes if the proposed project is constructed Kingsmill Resort will lose its ability to develop to its full potential.

  RESPONSE – The proposed project will have no direct impact on the Kingsmill Resort property. All impacts will be limited to secondary visual effects. Visitors and residence are currently subject to modern infrastructure and development along the Resort's shoreline including a marina facility. The Corps finds no compelling evidence that the proposed project will substantively impact the Resort's development potential.

- Several commenters believe that the proposed transmission line, if constructed above ground, will be more vulnerable to weather related storm damage causing an increased likelihood for power outages.

  RESPONSE – Aerial transmission lines are susceptible to storm damage, to minimize damage Dominion has designed the transmission towers for 100 MPH winds. The National Electric Safety Code (NESC) defines the criteria required for the extreme wind load that apply to transmission facilities and Dominion has designed the project to be in compliance with NESC.

- Several commenters believe the proposed project, if allowed to cross the James River, will discourage further waterfront development.

  RESPONSE – It is unclear what the commenters are really focused on protecting. The proposed project will not prohibit any future waterfront

development along this section of the James River. The proposed right of way does not eliminate any properties in their entirety. Future development would strictly be limited based on other laws and regulations, but not the presence of a power line.

- A commenter believes the view from the Jamestown Scotland Ferry will be impacted by the proposed project.

  RESPONSE – Dominion's photo simulations show that the proposed project will not be visible from the Ferry route as suggested by the commenter.

- Several commenters believe required tower lighting will affect wildlife.

  RESPONSE – The Corps has appropriately consulted with experts from USFWS, DGIF, and DCR regarding potential impacts on threatened and endangered species and wildlife in general. While it is possible tower lighting could affect wildlife, at no time during our coordination efforts with these advisory agencies did they suggest that tower lighting would have an adverse effect on wildlife. The Corps believes any potential effects would be minimal.

- Several comments raise concerns with sedimentation.

  RESPONSE – Dominion will be required to comply with all applicable erosion and sediment control requirements.

- Several comments raise concerns with impacts to migratory birds.

  RESPONSE – The Corps has appropriately consulted with experts from USFWS, DGIF, and DCR regarding potential impacts on wildlife. At no time during our coordination efforts with these advisory agencies did they suggest that the proposed project would substantively impact migratory birds. The Corps believes any potential effects would be minimal.
- A number of commenters express concerns over the projects impact on proposed critical habitat for the Atlantic Sturgeon.

  RESPONSE – NOAA designated proposed critical habitat for Atlantic Sturgeon on June 3, 2016. This proposal included the entire James River. On January 28, 2016, NOAA provided the Corps with their concurrence of a "Not Likely to Adversely Affect" determination. This concurrence addressed habitat, and concluded impacts in the action area would be insignificant. The proposed project will not result in destruction or adverse modification of the proposed critical habitat. Previous

conferencing between the Corps, NOAA, and Dominion through informal discussions have allowed NOAA (i.e. Service) to make advisory recommendations on ways to minimize and avoid effects. Pursuant to 50 CFR §402.10, the Corps believes the appropriate consideration has been given to proposed critical habitat and therefore no further consideration is necessary.

- Several commenters expressed concerns with the Corps lack of Tribal consultation pursuant to the review of this project.

  RESPONSE – Pursuant to Section 106 of the NHPA and Tribal Trust Responsibilities, the Corps has appropriately consulted with Federal and State recognized Tribes. See Sections 10.3 and 10.4 for details.

- A number of commenters, including a signed petition from Colonial Heritage residents, expressed objection over any consideration of the Chickahominy-Skiffes 500 kV alternative. Commenters believe the negative impacts that would result if the Chickahominy Alternative become the default route, include: (1) require Dominion to develop new, previously undeveloped existing ROW, including ROW on both sides of the Chickahominy River that currently has little or no development on either side, creating an inconsistent use that would significantly affect the natural scenic character of the area that is a leg of the Captain John Smit Chesapeake National Historic Trail; (2) impact 28.53 miles of private land; (3) cross within 500 feet of 1,129 homes and cross over multiple subdivisions, three schools, and two public parks; (4) over 420 acres of trees would be cleared permanently, including approximately 107 acres of forested wetlands, as well as the only area in the lower James River region designated “outstanding” for its ecological integrity in the Virginia Natural Landscape Assessment conducted by the Natural Heritage Program at the Virginia Department of Natural Resources; (5) passes through the heart of the Chickahominy Indian community and may negatively impact the community and the view shed from its Tribal Center and Powwow grounds. Commenters implore the Corps not to permit the Chickahominy Alternative, but rather the proposed project which crosses the James River in an area where currently there is a power station and associated transmission lines, a chemical plant, an army base, and active shipping activities.

  RESPONSE – Correspondence acknowledged.

5.0 Alternatives Analysis (33 CFR Part 325 Appendix B(7), 40 CFR 230.5(c), and 40 CFR 1502.14). An evaluation of alternatives is required under NEPA and under the Section 404(b)(1) Guidelines. NEPA requires discussion of a reasonable range of alternatives, including the no action alternative. Under the Guidelines, practicability of alternatives is taken into consideration and no alternative may be permitted if there is a less environmentally damaging practicable alternative.

5.1 The Corps has considered information in support of, and in opposition to Dominion's proposed project (i.e. Surry-Skiffes Creek 500 kV Overhead) which includes three components; (1) Surry – Skiffes Creek 500 kilovolt (kV) aerial transmission line, (2) Skiffes Creek 500 kV – 230 kV – 115 kV Switching Station, and (3) Skiffes Creek – Whealton 230 kV aerial transmission line. A wide range of alternatives, including building new generation, upgrades to existing facilities, using existing transmission lines, and constructing new transmission at varying capacities and locations were considered. The Corps has independently evaluated information supplied by Dominion, as well as information on other alternatives supplied through public, agency, and consulting party comments, including the input and proposed alternatives provided by Princeton Energy Resources International, LLC (PERI) and TABORS CARAMANIS RUDKEVICH (TCR). To facilitate this analysis, Dominion provided further information addressing alternatives in response Corps requests and to comments received from the general public, Consulting Parties to the National Historic Preservation Act review, and independent electrical consultants. The Corps carefully evaluated each alternative it was presented against purpose & need and review criteria in order to determine its availability for further consideration.

5.1.1 Site selection/screening criteria: In order for an alternative to be practicable it must be available and capable of being accomplished when considering cost, logistics, and technology, and must achieve the project purpose (as defined by the Corps in Section 3.0).

Corps determined criteria for evaluating alternatives include:

- Sufficient electrical service to the NHRLA to meet current demand and projected future load growth
- Compliance with NERC Reliability Criteria Standards
- Compliance with MATS
- Cost
- Existing Technology/Engineering
- Siting/land use Restrictions

5.2 Alternatives Considered:

5.2.1 Alternatives Eliminated based on the failure to meet project purpose:

NPCA/PERI Co-fire Alternative: This alternative involves the continued operation of all units at the Yorktown Power Station utilizing only its co-firing fuels, natural gas and oil (i.e. no Coal). Continued operations at Yorktown Power Station solely on co-fire fuels without infrastructure modifications is not a viable alternative. These Units are currently designed to only generate maximum electrical capacity when powered by the primary fuel source. Units 1 & 2 are currently powered by coal, but utilize alternative fuels at startup and can utilize alternative fuels simultaneous with the primary fuel (co-fire) to boost output. However, Units 1 & 2 in their current configuration cannot approach maximum output on alternative fuels alone. This alternative would substantially limit generation capacity to levels significantly below what is required for NERC compliance.

Decommission: This alternative involves simply shutting down Yorktown Units 1 and 2. Decommissioning Yorktown Power Station addresses compliance with MATS, however decommissioning alone would not satisfy project need. This loss of generation capacity creates immediate NERC reliability criteria violations. Some “build” alternative, such as those explored below, would be required both to become compliant with the NERC reliability criteria and to meet projected electrical demands. The updated load flow modeling evidence and confirmation by PJM establishes a need for new electric infrastructure to address approaching NERC reliability violations that have been projected.

214/263 230 kV Line Rebuild (James River Bridge Crossing): Line 214 and Line 263 are located adjacent to the James River Bridge. Dominion evaluated rebuilding these lines to a higher capacity. However, the load flow analysis showed that the rebuild of these lines, without additional facilities, would not resolve all NERC criteria violations. In addition, rebuilding the 214 and 263 lines to a higher capacity would be significantly more expensive than the applicant’s preferred alternative.

Chuckatuck – Newport News 230 kV Line (Whittier Hybrid): The Whittier Hybrid, involves the building of a new 15.4 mile long

transmission line along new or expanded right-of-way (ROW) between the Chuckatuck and Whealton Substations. This alternative requires the construction of a new line through several miles of wetlands between Chuckatuck and the James River as well as the expansion of existing ROW in congested residential areas. This alternative also involved a new overhead crossing of the James River in the vicinity of the existing James River Crossing. In addition to logistical concerns, this proposed alternative does not resolve all of the NERC reliability criteria violations that will occur once Yorktown is decommissioned.

Chickahominy – Lanexa 500 kV: The existing Lanexa corridor extends from the Chickahominy Substation in Charles City County to the Lightfoot Substation in Lightfoot, Virginia. This alternative evaluated the potential to expand a 14.3 mile section of this existing corridor to construct a new overhead 500 kV line. The corridor is currently occupied by three 230 kV lines and one 115 kV line. While this alternative allowed for the construction of a 500 kV line, any event causing the loss of the entire ROW would result in cascading outages impacting the NHRLA, northern Virginia, the City of Richmond and parts of North Carolina therefore making this solution non-compliant with NERC.

Save The James Alliance Alt Solution: This alternative includes the closing of Yorktown Unit 1 and continued operation of Yorktown Unit 2, while building a submarine 230kV line across James River, and constructing future generation facilities. Continued operation of Yorktown Unit 2 in its present condition is not compliant with MATS. This hybrid alternative would require Dominion to run Yorktown Unit 2 in violation of MATS indefinitely or long enough to retrofit or repower one or both of the Yorktown Units or to develop new generation. Retrofitting or repowering Yorktown is addressed as a stand-alone alternative and in combination with other projects and as discussed later in the document is eliminated based on practicability.

Underwater 230kV Single Circuit (standalone): Dominion evaluated using a single circuit underwater 230kV transmission line crossing, however this single circuit alternative resulted in a number of violations, including overload of the proposed single circuit. While this alternative is further evaluated in combination with additional transmission facilities in other alternatives

presented here, this alternative alone would not meet NERC reliability standards.

Underwater 230kV Double Circuit (standalone): Dominion evaluated using a double circuit underwater 230kV transmission line crossing, however this alternative resulted in an overload to an existing transformer in Suffolk, VA creating a NERC violation. While this alternative is further evaluated in combination with additional transmission facilities in other alternatives presented here, this alternative alone would not meet NERC reliability standards.

230kV Phase Angle Regulating Transformer (LS Power Alternative): This alternative considered the construction of an underground or overhead 230kV line from Surry Power Station to the proposed Skiffes Creek Switching Station with a Phase Angle Regulating (PAR) transformer. The PAR device was proposed to be placed in series with the proposed 230kV line between Surry and Skiffes Creek. However, this alternative was shown to be ineffective in achieving NERC compliance as the PAR device and line overloaded and caused additional facilities to overload.

NPCA/PERI Surry-Skiffes 345kV Underwater Alternative: A 345kV line would not provide sufficient electrical supply to meet the capacity and energy requirements in the NHRLA. Additionally, Dominion's electrical transmission grid presently has no 345 kV transmission line infrastructure and integrating such a line presents substantial logistical and practicability challenges.

NTHP/TCR Alternative A: This alternative includes reconductoring and reconfiguring a number of existing transmission lines, in addition to enabling Yorktown Unit 3 to operate continuously as a synchronous condenser. PJM independently evaluated models for this alternative and concluded it fails to adequately address the electrical needs of the NHRLA and therefore is not NERC compliant.

NTHP/TCR Alternative B: Similar to the proposed solution offered by NPCA & PERI, this alternative proposes the use of Yorktown Unit 3 only during summer peak loads. PJM independently evaluated models for this alternative and concluded it fails to adequately address the electrical needs of the NHRLA and therefore is not NERC compliant.

NTHP/TCR Alternative C: This alternative would keep Yorktown Unit 3 as a standby generation supply under summer peak conditions upon the occurrence of a critical single-element contingency. As part of this alternative, Yorktown Unit 3 would be converted to run as a continuous synchronous condenser, in addition to reconfiguring transmission delivery during summer peak conditions. PJM independently evaluated models for this alternative and concluded it fails to adequately address the electrical needs of the NHRLA and therefore is not NERC compliant.

NTHP/TCR Alternative D: This alternative would bypass critical ROW's by tapping into existing 230kV transmission lines, building new 230kV transmission lines, reconductoring existing transmission lines, enabling Yorktown Unit 3 to run as a continuous synchronous condenser, and reconfiguring transmission delivery during summer peak conditions. PJM independently evaluated models for this alternative and concluded it fails to adequately address the electrical needs of the NHRLA and therefore is not NERC compliant.

Chickahominy Generation: This alternative would utilize, either individually or collectively, the future existence of two natural gas plants projected to be online in Charles City County by 2020. C4GT, LLC proposes to generate 1060 megawatts of electricity, while Chickahominy Power, LLC proposes 1650 megawatts. While both plants would be located in the NHRLA, they are not located in the specific region of, nor connect to, the NHRLA in a way that resolves NERC reliability violations. In order to resolve those violations these generation sources would need to be located physically and electrically within the load center on the Peninsula, or additional transmission facilities would be needed to bring this power into the load center. This proposed generation or any generation that is physically located outside of the load center within the NHRLA regardless of proximity does not change or improve the viability of any alternative evaluated to replace the proposed project. In order to resolve the NERC Reliability violations, any solution must directly inject power into the load zone, meaning generation must be physically located within that zone or adequate transmission paths into that zone must be created. The PJM Studies for the proposed generation nearby Dominion's Chickahominy substation, which are to ensure the power from

these plants can flow onto the transmission system to serve load in a manner that does not violated the NERC Reliability standards, included the assumption that all PJM approved projects, including the proposed project, were constructed and in operation. Absent the proposed project being included in the PJM studies, the same NERC Reliability violations driving the proposed project would still exist.

5.2.2 No Action Alternatives Considered:

Continued Operation: This alternative involves continued operation of the Yorktown Power Station in its current setup without any upgrades or modifications. This alternative would not satisfy NERC reliability criteria past 2021, leaving Dominion unable to address future load growth. Additionally, this alternative would violate federal law and potentially subject Dominion to possible fines and penalties pursuant to the MATS Rule. The Corps does not consider this to be a reasonable alternative as it fails to meet project purpose.

Demand-Side Management (DSM): Rather than approaching power usage from the supply side, DSM includes activities and programs undertaken to influence the amount and timing of electricity use, as well as market purchases from outside power generators to reduce overall demand. DSM practices are already included in the transmission planning process. Additional amounts cannot be assumed to be available to address NERC reliability violations due to transient and voluntary nature of these practices. The Corps finds that this alternative does not meet project purpose. The DSM practices currently included in the transmission planning would not alone address future load growth and the ability to implement DSM practices to the extent necessary to attain compliance with NERC criteria is not available to the applicant.

5.2.3 Other Alternatives Considered:

Retrofitting (environmental controls): Retrofitting Yorktown Power Station alone would not fully meet the project purpose and need and would not be practicable. The necessary air emission and environmental control devices needed to comply with environmental regulations alone would not increase the facilities generation capacity such that it addresses future load growth. Therefore, additional projects would be needed to

ensure NERC compliance beyond 2021. Additionally, the Yorktown Units are approximately 60 years old and would require substantial structural and environmental upgrades to become compliant with MATS. Dominion estimates that these upgrades would cost over $1 billion. Some have questioned the NHRLA's dependency on all Units at Yorktown. However, in order to meet the capacity levels necessary to satisfy NERC requirements, any retrofitting alternative must include continued operation of Units 1, 2, and 3 with unrestricted availability. The Corps finds this alternative not practicable due to unreasonably larger cost than the preferred, and its failure to meet project purpose based on an inability to meet future load growth.

Repowering (changing fuel source): Dominion has explored running all units at the Yorktown Power Station on alternative fuels, such as natural gas and oil. These Units are currently designed to only generate their maximum electrical capacity when powered by their primary fuel source. Units 1 & 2 are currently powered by coal. Units 1 & 2 can utilize alternative fuels at startup and can utilize alternative fuels simultaneous with the primary fuel (co-fire) to boost output. However, Units 1 & 2 in their current configuration cannot approach maximum output on alternative fuels alone. Without substantive upgrades, utilizing alternative fuels alone would substantially limit generation capacity. Dominion estimates the required upgrades to convert the Yorktown Units to burn alternative fuels would cost between $391 - $992 million. Presently, there exists no sufficient natural gas supply to support year-round operations at Yorktown. Additionally, since repowering would not substantially increase output capacity, additional projects would be needed before 2021 to avoid NERC non-compliance. Some have questioned the NHRLA's dependency on all Units at Yorktown. However in order to meet the capacity levels necessary to satisfy NERC requirements, any repowering alternative must include continued operation of Units 1, 2, and 3 with unrestricted availability. The Corps finds this alternative not practicable due to unreasonably larger cost than the preferred, logistical constraints associated with insufficient gas supply, and its failure to meet project purpose based on an inability to meet future load growth.

New Generation: New generation options throughout the area such as combined-cycle, combustion turbine, and coal generation were considered. Also considered were small scale generation sources such as biomass, wind, and solar. Dominion has estimated that a standalone generation solution would cost approximately $633 million with an additional $722 million required to provide sufficient infrastructure to meet NERC requirements. Bringing the total cost of new generation to an estimated $1.3 billion. New generation also faces siting constraints within the required load center (i.e. Peninsula) located in the NHRLA due to limited land availability. Based on these logistical constraints, as well as the unreasonably larger cost than the preferred the Corps finds this alternative not practicable.

214/263 230 kV Line Rebuild (James River Bridge Crossing) w/ additional Facilities: Lines 214 and 263 located adjacent to the James River Bridge were evaluated by Dominion for rebuild to a higher capacity. Load flow analysis showed that the rebuild of these lines, without additional facilities, would not resolve all NERC criteria violations. With additional facilities, this alternative presents serious logistical challenges in that the existing lines would need to be decommissioned during demolition and rebuild. This would result in temporary power outages. Without replacement generation, these outages would result in an inability to supply sufficient power to the NHRLA and corresponding NERC violations. Based on these logistical constraints, the Corps finds this alternative not practicable.

Surry – Whealton 500 kV Line: This alternative would entail a new 500 kV line, adjacent to the US Highway 17 James River Bridge from Surry to Whealton. Physical, electrical, routing, siting, and environmental constraints exist. The existing corridor contains a 230 kV line. This corridor is not sufficient to accommodate a 500 kV line and would need to be expanded. This would require acquisition of a new ROW through residential areas, public lands, historic districts, and wetlands. This alternative would also require the construction of a new crossing at the James River Bridge and a switching station. Therefore, the same obstacles outlined above in the Chuckatuck – Newport News 230 kV Line Whittier Hybrid alternative would apply to the River crossing. The likely location for the switching station would be either the Winchester or Whealton Substation. Either site would need to be expanded by at least 15 acres to

accommodate the electrical equipment required to convert the 500 kV line to the 230 kV connection. Winchester and Whealton Substations, are located in developed areas and would require the demolition of homes and businesses to obtain the necessary expansion required. Based on these logistical constraints, the Corps finds this alternative not practicable.

Chickahominy – Skiffes Creek 500 kV: The Chickahominy – Skiffes Creek alternative utilizes a ROW currently owned by Dominion that extends approximately 37.9 miles from the Chickahominy Substation in Charles City County to the proposed Skiffes Creek Switching Station in James City County. Approximately 13 miles of this route is existing, cleared ROW while the remaining 24.9 miles is unimproved ROW that would require clearing for construction of the proposed line. The Chickahominy – Skiffes Creek 500 kV, in addition to construction of the Skiffes-Whealton 230 kV Segment, resolves all NERC criteria violations caused by the retirement of Yorktown Power Station and therefore warrants further consideration.

Surry-Skiffes Creek 500 kV Overhead (Dominion's Proposed Project): This alternative consists of three components; (1) Surry – Skiffes Creek 500 kilovolt (kV) aerial transmission line, (2) Skiffes Creek 500 kV – 230 kV – 115 kV Switching Station, and (3) Skiffes Creek – Whealton 230 kV aerial transmission line. This alternative fully resolves all NERC criteria violations caused by the retirement of Yorktown Power Station and therefore warrants further consideration.

High Tension Low Sag Conductors (Transcendergy Alternative): Use of these conductors on Dominion's proposed project poses no reduction in the number of towers needed to cross the James River, but adds to proposed project costs. Use of these conductors would require Dominion to convert the majority of its 230kV/115kV system to handle the stress these conductors place on an individual tower. For these reasons the Corps does not consider the use of these conductors practicable.

Surry – Skiffes Creek 500 kV Underwater (High Voltage Direct Current): A high voltage direct current (HVDC) alternative would require the conversion of alternating current (AC) to direct current (DC), the installation of an underwater HVDC crossing in the James River, and the conversion of DC power back to AC.

The new infrastructure required would cost substantially more than the proposed project. Additionally, there are substantial siting constraints related to the required land-side converter stations. Based on these cost, and logistical constraints, the Corps finds this alternative not practicable.

Surry – Skiffes Creek 500 kV Underwater (Alternating Current): The placement of an underwater alternating current (AC) 500 kV line at 5000 MW capacity is on the cutting edge of technology. The SCC in its deliberations found that undergrounding a 500 kV transmission line is not technically viable. Existing underground and underwater projects were examined for comparison while evaluating the feasibility of this alternative. While other submarine 500kV lines do exist the Corps found no comparable lines capable of carrying 5000 MW capacity. All our findings corroborate the information being supplied by Dominion regarding the feasibility concerns associated with this alternative. Additionally, underwater lines in general present reliability and operational concerns, as locating and repairing damaged lines are significantly more difficult than locating and repairing overhead lines. From a standpoint of logistics and technology, the Corps finds this alternative not practicable.

Due to the limitations that exist with placing a 500kV (5000MW) transmission line underwater, Dominion evaluated a situation where the proposed Skiffes Creek Switching Station was relocated from its proposed site in James City County, north of the River to Surry County on the south side allowing Dominion's plan to step down from 500kV to 230 kV prior to crossing the James River. This configuration would require a total of eight transmission lines (five 230kV and three 115kV) crossing the James River, and based on analysis other alternatives involving multiple submarine cables would result in significantly increased project costs and environmental impacts, therefore the Corps has concluded this scenario is not practicable.

NPCA/PERI Surry-Fort Eustis Underwater Double Circuit 230kV Alternative: This alternative has the same short-comings as the double circuit 230kV crossing at the proposed project site. Without additional transmission facilities or generation factored into a double circuit 230kV solution, NERC compliance is unachievable. This route change would increase the overall line length by 100% (12.8 miles versus 6.3 miles for an underground alternative at the project site). Additionally, the alternative

would require acquisition of approximately 9 miles of new ROW including a section on Fort Eustis, a US Army installation. Based on these logistical constraints, the Corps finds this alternative is not practicable.

Hybrid Alternatives: Several combinations of retrofitting, repowering, and retirement combined with transmission construction were also evaluated. These included several configurations of 230 kV lines, both overhead and submarine, combined with retention of generation at Yorktown. The Corps finds none of these combination alternatives to satisfy the project purpose in a practicable manner.

5.3 Summary of alternative evaluated for practicability:

Table Summary for Alternatives Considered in Section 5.2

Alternatives	Electrically Compliant w/NERC	Estimated Construction Cost	Constraints	Practicable
Continued Operations at Yorktown Power Station with No Modifications to its Current Infrastructure or fuel source(s)	Y (until 2021)	None; but subject to possible Fines/Penalties	- Violates Federal Law - Doesn't comply with MATS - Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant.	No
Retrofit Yorktown Power Station (Units 1, 2, & 3) w/ Antipollution Control Equipment	Y(until 2021)	Est. $859 Million – 1.87 Billion	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. - Unreasonably more costly - > 4 Years to Construct	No
Repower Yorktown Power Station (Units 1, 2, & 3) with Alternative Fuel Source (i.e. Natural Gas)	Y (until 2021)	Est. $391 Million - $992 Million	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. - Inadequate supply of natural gas, requires an est. $72 Million per year for firm transport. - Unreasonably more costly > 4 Years to Construct	No
New Generation in the NHRLA (656 MW)	Y (Until 2021)	Est. 1.3 Billion	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. - Fuel Supply & Siting Issues - Unreasonably more costly - > 4 Years to Construct	No
High Tension Low Sag Conductors	Y (Until 2038)	Est. >$400 Million	- Use on 500kV S-S-W cost $370,000 more in cost and had no reduction in the number of towers needed to cross the James River. - Would require majority of the 230kV/115kV system to be rebuilt in order to accommodate the conductors.	No

(If used on Proposed Project)			- Unreasonably more costly	
Surry-Whealton 500kV	Y	Unreported because it is likely not constructible	- Not practicable due to logistical constraints. - Likely not available due to the inability to obtain the necessary ROW	No
Chickahominy-Skiffes 500kV *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2042)	Est. $213.2 Million	- 2.5 Years to Construct	Yes
Surry-Skiffes 500kV Overhead (Dominion's Proposed Project) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2042)	$178.7 Million	- 1.5 – 2 Years to Construct	Yes
Surry-Skiffes 500kV Underwater (HVDC) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2042)	Est. $1 Billion	- Siting issues with required converter stations - Unreasonably more costly - 8 years to construct	No
Surry-Skiffes 500kV Underwater (HVAC) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y	Unreported	- The placement of an underground Alternating Current (AC) 500 kV line of this capacity presents unacceptable technological risk.	No

Underwater Single Circuit 230kV (w/add'l Transmission Facilities) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2032)	Est. $488.6 Million	- Add'l Transmission Facilities are those required under the Double Circuit 230kV (Note: Single Circuit 230kV requires a 2nd line making this alternative a Double Circuit 230kV)	No
Underwater Double Circuit 230kV (w/add'l Transmission Facilities) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2032)	Est. $488.6 Million		No

			- 5 Years to Construct	
Line 214/263 230kV Rebuild James River Bridge Crossing (w/add'l Transmission Facilities)	Y (Until 2038)	Est. $391.5 Million	- Required power outages in order to rebuild lines 214 & 263 causing NERC violations without replacement generation. - Unreasonably more costly 10 Years to Construct	No
NPCA/PERI Surry-Fort Eustis Alternative — Underwater Double Circuit 230kV (w/add'l Transmission Facilities) *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2032)	Est. $ 611.5 Million	- Siting and ROW issues across Ft Eustis Military Installation - Unreasonably more costly 6 Years to Construct	No

HYBRID ALTERNATIVE – Line 214/263 230kV Rebuild James River Bridge Crossing Plus Retrofit Unit 3 and Repower Unit 2 at Yorktown Power Station, and relocate a planned combine cycle Unit to the NHRLA	Y (Until 2021)	Est. >$1 Billion	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. - Unreasonably more costly 8 Years to Construct	No
HYBRID ALTERNATIVE --Underwater Single Circuit 230kV Plus Retrofit Unit 3 and Repower Unit 2 at Yorktown Power Station, and relocate a planned combine cycle Unit to the NHRLA *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2021)	Est. $1.2 Billion	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. -Unreasonably more costly 4 Years to construct	No
HYBRID ALTERNATIVE –Underwater Double Circuit 230kV Plus Repower Unit 2 at Yorktown Power Station and relocate a planned combine cycle Unit to the NHRLA *(Requires add'l construction of the Skiffes-Whealton 230 kV Segment which is included in the cost)*	Y (Until 2021)	Est. $1.1 Billion	- Fails to provide adequate electrical capacity for future growth eventually becoming NERC non-compliant. - Unreasonably more costly - 5 Years to construct	No

5.4 Least environmentally damaging practicable alternative under the 404(b)(1) Guidelines (if applicable) and environmentally preferred alternative under NEPA:

After considering a multitude of alternative types, variations, and configurations the Corps has found only two alternatives to practicable. (1) Surry – Skiffes 500 kV Overhead (Dominion's Proposed Project), and (2) Chickahominy – Skiffes Creek 500 kV.

Dominion's Proposed Project and the Chickahominy – Skiffes Creek 500kV alternative are comparable when considering endangered species and cultural resource impacts. However, when considering aquatic resources the Chickahominy route far surpasses the proposed project with its 62 acres of required conversion. From SCC Order comparing Chickahominy and Surry-Skiffes: "The difference between the overall environmental impacts of these two projects only grows when one looks beyond the numbers for the few impacts that appear to weigh in favor of the Chickahominy Alternative Project. For example, variations of the James River crossing of the Proposed Project would involve a longer crossing of surface waters than the Chickahominy River crossing for the Chickahominy Alternative Project. Looking only at this statistic, one might conclude that a James River crossing would be more visually impacting than the Chickahominy River crossing. One might further conclude that, since both lines would cross the Captain John Smith National Historic Water Trail, the longer crossing of the James River would be a greater impact to a historic resource than the shorter crossing of the Chickahominy. But persuasive evidence supports a contrary finding. Namely, one of the experts retained by Staff highlighted (and other evidence supported) a stark difference between impacts already existing on the relevant portions of the James River but absent from those portions of the Chickahominy River. Staff testified that "there really is no comparison" between the two crossings because the Chickahominy route would traverse a pristine area of the Captain John Smith National Historic Water Trail. In contrast, the James River route is already heavily impacted by more modern developments. Such developments include the Surry Nuclear Power Plant, Kingsmill (including its marina), water towers, the Ghost Fleet, and tall theme park rides -- all of which are visible from this portion of the James River.

Based on this evaluation and feedback received during public notice comment periods as well as at the Public Hearing, the Chickahominy – Skiffes Creek 500kV alternative is not less environmentally damaging than the proposed project. Therefore, the Surry – Skiffes 500kV Overhead (Dominion's Proposed Project) is the least environmentally damaging practicable alternative.

General impact comparison:

Alternative	Aquatic Resource	Endangered Species	Cultural Resource	Est. Project Cost Including Mitigation	LEDPA
Surry-Skiffes 500kV Overhead (Dominion's Proposed Project)	• Conversion of 0.56 ac non-tidal wetlands • Direct loss of approx 3000 sq ft of tidal & non-tidal resources.	• Atlantic Sturgeon, Anadromous fish, Northern Long Eared Bat, Small Whorled Pogonia, Sensitive Joint Vetch, Bald Eagle, Hog Island Wildlife Manage Area • Not likely to adversely affect with incorporated protective measures.	• Direct adverse effects to Lower JR Historic District, Capt John Smith Trail, and 44JC0662 • Indirect adverse effects to Carters Grove, Jamestown Island, Colonial Parkway, Fort Crafford, Hog Island, and the Battle of Yorktown • Nationwide River Inventory	Project Cost = $178.7 Million Aquatic Resource Mitigation = $18,721.00 Historic Resource Mitigation = $90.4 Million Total = $269.12 Million	Yes
Chickahominy–Skiffes 500kV	• Approximately 62.00 ac of non-tidal wetland conversion for new ROW construction. • Direct losses of tidal & non-tidal aquatic resources are estimated to be comparable to Dominion's Proposed Project.	• Atlantic Sturgeon, Anadromous Fish, Northern Long Eared Bat, Small Whorled Pogonia, Sensitive Joint Vetch, Bald Eagle, Chickahominy Wildlife Management Area • Potential Impacts likely, but with protective measures affects should not be adverse and therefore comparable to Dominion's Proposed Project.	• Comprehensive Historic Property Identification has not been completed for this corridor; however resources such as Capt John Smith Trail, Colonial National Historic Park would be present, as well as potential impacts to Tribal resources. • Adverse Effects Likely • Nationwide River Inventory	Project Cost = $213.2 Million Est. Aquatic Resource Mitigation = $2.5 Million Est. Historic Resource Mitigation = $ Unknown Est. Total = $ Unknown	No
Alternative Summary Comparison:	Dominion's Proposed Project and the Chickahominy – Skiffes Creek 500kV alternative are comparable when considering endangered species and cultural resource impacts. However, when considering aquatic resources the Chickahominy route by far surpasses the proposed project with its 62 acres of conversion. Based on aquatic resource impacts and overall cost comparisons, the Surry – Skiffes 500kV Overhead (Dominion's Proposed Project) is the least environmentally damaging practicable alternative.				

5.5 Surry – Skiffes Creek 500 kV Route Considerations Across the James River:

Several variations of the James River crossing were evaluated. Four routes were identified as possible alternatives for crossing the James River, the Surry Alternative, James River Variation 1 (JRV1, Dominion's Proposed Project), James River Variation 2 (JRV2), and James River Variation 3 (JRV3). These variations were driven by the need to maintain minimum clearances across the federal and secondary navigational channels within the river while avoiding encroachment into the Terminal Instrument Procedure (TERPS) non-precision approach obstacle clearances associated with Felker Army Airfield at Joint Base Langley – Eustis. See "Location Map" Figure 1-1 prepared by Stantec dated 09-2014 for Surry-Skiffes Creek 500 kV Transmission Line BASF Alternative Route James City and Surry

Counties, Virginia and submitted to the Corps as part of a JPA Modification received November 13, 2014.

Surry Alternative: After leaving the shoreline in Surry, the considered route extend generally northeastward across the James River to the BASF property in James City County. This route would require the placement of 16 structures in the James River crossing three private oyster lease areas. In order to maintain a minimal vertical clearance (MVC) of 145 FT as required by the U.S. Coast Guard (USCG, Bridge Guide Clearances), as well as the additional 35 FT of clearance for 500 kV transmission lines, as required by the Corps (33 CFR Part 322.5 (i)), some towers would encroach upon TERPS non-precision approach obstacle clearances associated with Felker Army Airfield at Joint Base Langley – Eustis. To avoid penetration, the maximum tower height at the secondary navigational channel would be reduced to a MVC of only 69.4 FT. During the planning stages of the project, the Corps, USCG, and Joint Base Langley – Eustis were consulted. The Corps and Joint Base Langley Eustis expressed concern regarding the reduced MVC over the secondary channel and as such, Dominion determined the route to no longer be a viable option.

James River Variation 1 (JRV1): After leaving the shoreline in Surry County, JRV 1 parallels the eastern side of Hog Island WMA in its entirety, before turning east across the James River before making landfall on the BASF property in the same landing point as the Surry Alternative. JRV1 is the route across the James River which corresponds to Dominion's proposed project. This route required 17 structures in the James River crossing seven private oyster lease areas. The proposed route allows minimal vertical clearance at both the federal and secondary channels to be maintained without encroaching upon TERPS non-precision approach obstacle clearances associated with Felker Army Airfield at Joint Base Langley – Eustis.

James River Variation 2 (JRV2): After leaving the shoreline in Surry County, JRV2 turns to the northeast and parallels the southern edge of an existing underground pipeline corridor across the James River. This alternative makes landfall north of the landfall point for Surry Alternative and JRV1 in James City County. This route requires the placement of 15 structures in the James River to complete the crossing. Because the route parallels an existing easement, no encroachment on private oyster lease areas would be required. However, this route crosses several parcels zoned for industrial use, including a parcel owned by James City County's Industrial Development Authority (IDA). Dominion does not have the rights to exercise their power of Eminent Domain over County property, therefore the ability to acquire the required easement through the IDA parcel is uncertain. Height limitations at the channel crossings

would be problematic for this route. To maintain a minimum 180 FT clearance at both the federal and secondary channels, the required tower heights would penetrate the TERPS surface. Since JRV2 does not alleviate clearance interferences with the TERPS or provide any significant benefits relative to JRV1, this route was given no further consideration.

James River Variation 3 (JRV3): After leaving the shoreline in Surry, this route parallels Hog Island MWA offshore, but for a shorter distance than JRV1. The crossing includes 16 in-stream structures with four being located in privately owned oyster lease areas. This alignment places the transmission line far enough north to avoid tower height restrictions associated with Felker Airfield. However, JRV3 would face the same ROW acquisition constraints for the IDA parcel as those outlined for JRV2. This alternative route would require additional angle structures resulting in increased project costs. JRV3 places the line at its closest proximity to nationally significant historic resources resulting in greater impacts than any of the routes considered. As such, this route was given no further consideration.

The Corps has identified JRV 1 as the most viable alignment and least environmental damaging practicable alternative across the James River.

General Impact Comparison:

Route	# of Structures	# of Oyster Leases	Tower Height Restrictions with TERPS	General Proximity to Cultural Resources
Surry Alt	16	4	Yes	Nearest visible tower distance from Carter's Grove Main House 2.4 miles, with 7 towers visible from main house.
JRV1	17	7	No	Nearest visible tower distance from Carter's Grove Main House 1.7 miles, with 2 towers visible from main house.
JRV2	15	0	Yes	Nearest visible tower distance from Carter's Grove Main House 1.68 miles, with 6 towers visible from main house.
JRV3	16	4	No	Nearest visible tower distance from Carter's Grove Main House 0.8 miles, with 4 towers visible from the main house.

5.6 Conclusions:

The Corps has fully considered all information gathered and/or made available. Corps Electrical Engineers have independently evaluated the information for technical accuracy. In screening the various alternatives, the Corps focused on the ability to sustain sufficient power supply in order to meet current demand and predicted future growth, existing technology, implementation cost, and ability to maintain/achieve compliance with federal laws.

The Corps reviewed all input regarding alternatives. All alternatives, including Dominion's proposed project, would, at this point require Dominion to operate Yorktown Power Station in violation of MATS or shed service to certain portions of the NHRLA in the event of a contingency in order to ensure uninterrupted and NERC compliant service to NHRLA. However, there is substantial difference in the amount of time to construct the various alternatives. Longer construction windows mean contingency risks are borne by the system for a longer period of time which may increase the potential for load shedding. Among the alternatives in the length of time of non-compliance. Most of the alternatives reviewed would have a substantially greater cost than the applicant's proposed project, even after accounting for the cost of measures the applicant has proposed as mitigation for its proposal. Additionally, many present technical and logistical challenges. The Corps found Dominion's information in support of their proposed project compelling from a technical perspective and for the reasons elaborated upon above.

6.0 Evaluation for Compliance with the Section 404(b)(1) Guidelines. The following sequence of evaluation is consistent with 40 CFR 230.5.

6.1 Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 5. The statement below summarize the analysis of alternatives.

In summary, based on the analysis in Section 5.0 above, the no-action alternative, which would not involve discharge into waters, is not practicable.

For those projects that would discharge into a special aquatic site and are not water dependent, the applicant has demonstrated there are no practicable alternatives that do not involved special aquatic sites.

The Corps has determined that there are no alternatives to the proposed discharge that would be less environmentally damaging. (Subpart B, 40 CFR 230.10(a)). The proposed discharge in this evaluation is the practicable alternative with the least adverse impact on the aquatic ecosystem, and it does not have other significant environmental consequences.

6.2 Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)). Each disposal site shall be specific through the application of these Guidelines:

Discussion: Disposal sites include each impact site located in Waters of the U.S. There are 44 disposal sites including the 17 towers proposed in the James River and 27 towers located in terrestrial wetlands. The 4 fender

protection systems proposed in the James River are not included in this evaluation, as they do not involved a discharge of fill material and are consider only pursuant to Section 10 of the RHA jurisdiction.

6.3 Potential impacts on physical and chemical characteristics of the non-living environment (Subpart C). See Table 1:

Table 1 – Potential Impacts on Physical and Chemical Characteristics						
Physical and Chemical Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate			x			
Suspended particulates/ turbidity			x			
Water			x			
Current patterns and water circulation			x			
Normal water fluctuations			x			
Salinity gradients			x			

6.4 Potential impacts on the living communities or human uses (Subpart D, E, and F):

6.4.1 Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D) See Table 2:

Table 2 – Potential Impacts on Biological Characteristics						
Biological characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species			x			
Fish, crustaceans, mollusk, and other aquatic organisms			x			
Other wildlife			x			

6.4.2 Potential impacts on special aquatic sites (Subpart E). See Table 3:

Table 3 – Potential Impacts on Special Aquatic Sites						
Special Aquatic Sites	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Sanctuaries and refuges			x			
Wetlands			x			
Mud flats	x					
Vegetated shallows	x					
Coral reefs	x					
Riffle pool complexes	x					

6.4.3 Potential impacts on the human use characteristics (Subpart F). See Table 4:

Table 4 – Potential Impacts on Human Use Characteristics						
Human Use Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Municipal and private water supplies			x			
Recreational and commercial fisheries			x			
Water-related recreation					x	
Aesthetics					x	
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves					x	

6.5 Pre-testing evaluation (Subpart G, 40 CFR 230.60):

The following have been considered in evaluating the biological availability of possible contaminants in dredged or fill material. See Table 5:

Table 5 – Possible Contaminants in Dredged/Fill Material	
Physical characteristics	x
Hydrography in relation to known or anticipated sources of contaminants	x
Results from previous testing of the material or similar material in the vicinity of the project	x
Known, significant sources of persistent pesticides from land runoff or percolation	x
Spill records for petroleum products or designated (Section 331 of CWA) hazardous substances	x
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	x
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	x

Discussion: Proposed fill material used for tower construction, both within the James River and on land, is not likely to be a carrier of contaminants because fill will be comprised of sand, gravel, or other naturally occurring inert materials.

The lower James River has historically documented the elevated presence of polycyclic aromatic hydrocarbons, polychlorinated biphenyls (PCBs), DDT, and metals. As a result, the James River has been known to be a contributing source for PCBs into the Chesapeake Bay area. Based on this information, it is possible that the placement of towers in the river may mobilize minor concentrations of contaminates, however impacts related to sediment disturbance are expected to be very localized and temporary.

Associated with the maintenance and operation of the Tribell Shoal Channel dredging project, the Corps' has sampled sediments areas which overlap with the proposed project. In addition, the Corps has recently sampled sediments adjacent to the southern end of the Tribell Shoal Channel related to their dredging project at the Skiffes Creek Channel. Sampling efforts found that the sediments are generally consistent with water column and benthic impacts standards. The Corps concluded that dredging in this area would not be acutely toxic and would not increase the risk of bioaccumulation of toxins or contaminants in any marine species. In light of these conclusions regarding dredging, a far more invasive practice than installing piles for transmission line towers, any impacts related to the

mobilization of sediment in this area due to tower placement will be insignificant.

The proposed project comes ashore in James City County on property owned by BASF (8961 Pocahontas Trail). The facility has been inactive since 1993 and is currently undergoing remediation under the supervision of the VDEQ as a hazardous waste site. The compounds of concern (COCs) at the site include benzene, 1-dichloroethene, 4-dioxane, cis-1, 2-dichloroethene, perchloroethylene (tetrachloroethene), vinyl chloride, and zinc. The proposed project has been coordinate with BASF and the VDEQ regarding construction activities in the proximity of remediation activities. Placement of towers will not directly impact any remediation activities at the site. Per the SCC, Dominion is required to coordinate carefully with BASF and the VDEQ regarding any construction activities in the proximity of remediation activities. *Id*. at 18. Based on the forgoing, any hazardous materials or waste impacts related to the placement of Project components under the Proposed Alternative on BASF will be insignificant.

6.6 Evaluation and testing (Subpart G, 40 CFR 230.61):

Discussion: The Corps has determined that testing is not required.

6.7 Actions to minimize adverse impacts (Subpart H). The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. See Table 6:

Table 6 – Actions to Ensure Adverse Effects are Minimized	
Actions concerning the location of the discharge	x
Actions concerning the material to be discharged	x
Actions controlling the material after discharge	x
Actions affecting the method of dispersion	x
Actions affecting plant and animal populations	x
Actions affecting human use	x

6.8 Factual Determinations (Subpart B, 40 CFR 230.11). The following determinations are made based on the applicable information above, including actions to minimize effects and consideration for contaminants. See Table 7:

Table 7 – Factual Determinations of Potential Impacts						
Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical substrate			x			
Water circulation, fluctuation and salinity			x			
Suspended particulates/turbidity			x			
Contaminants			x			
Aquatic ecosystem and organisms			x			
Proposed disposal site			x			
Cumulative effects on the aquatic ecosystem			x			
Secondary effects on the aquatic ecosystem			x			

Discussion:

- Physical Substrate: Discharges related to the proposed project will result in negligible effects, individually and cumulatively, on the characteristics of the substrate at each impact site. As part of this evaluation the Corps considered particle size and shape similarities, the degree of compaction of the material resulting from each discharge, and the material constituting the substrate at each impact site. The Corps has considered potential changes in substrate elevation and bottom contours, including changes outside of the disposal sites which may occur as a result of erosion, slumpage, or other movement of the discharged material. The duration and physical extent of substrate changes were considered and found to be permanent at each impact site. The possible loss of environmental values and actions to minimize impacts were also considered in making these determinations. Changes in substrate elevation and bottom contours will be minimal. *See Existing Conditions and Permit Authority, Sections 1.4 & 1.5*.

- Water circulation, fluctuations, and salinity: Discharges related to the proposed project will result in negligible effects, individually and cumulatively, on water, current patterns, circulation including downstream flows, and normal water fluctuation. As part of this evaluation the Corps has considered water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, and eutrophication.

Consideration was given to the potential diversion or obstruction of flow, alterations of bottom contours, or other significant changes in the hydrologic regime. Additional consideration of the possible loss of environmental values and actions to minimize impacts, were used in making these determinations. Potential significant effects on the current patterns, water circulation, normal water fluctuation and salinity were evaluated on the basis of the proposed method, volume, location, and rate of discharge. *See Water Quality Certification, Section 10.5*.

- Suspended particulates/turbidity: Discharges related to the proposed project will result in negligible effects, individually and cumulatively, in terms of potential changes in the kinds and concentrations of suspended particulate/turbidity in the vicinity of the disposal site. The Corps has considered grain size of the material proposed for discharge, the shape and size of the plume of suspended particulates, the duration of the discharge and resulting plume and whether or not the potential changes will cause violations of applicable water quality standards. Consideration was given to the possible loss of environmental values and to actions for minimizing impacts. Considerations included the proposed method, volume, location, and rate of discharge, as well as the individual and combined effects of current patterns, water circulation and fluctuations, wind and wave action, and other physical factors on the movement of suspended particulates. Dominion will be required to comply with Virginia state stormwater and erosion and sediment control requirements, in order to minimize any downstream particulates or turbidity resulting from the authorized activities in terrestrial areas. Tower construction within the James River segment of the proposed project will cause a temporary increase in the amount of turbidity in area, but suspended sediments will settle out of the water within a few hours and any increase in turbidity will be short term and limited in scope.

- Contaminants: Discharges will not introduce, relocate, or increase contaminants into the aquatic environment related to the proposed disposal. Any authorization will include a General Condition requiring the use of clean fill.

- Aquatic ecosystem and organisms: Discharges related to the proposed project will result in negligible effects, individually and cumulatively, on the structure and function of the aquatic ecosystem and organisms. As part of this evaluation the Corps considered the effects at each disposal site and the potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities. Possible loss of environmental values and actions to minimize impacts were examined. *See Wetland and waters/Fish and Wildlife Value evaluation, Section 7.1*

- Proposed disposal site: The Corps has specified each disposal site through the application of these Guidelines and considered impacts negligible. The mixing zones have been confined to the smallest practicable zones within each disposal site and are consistent with the types of dispersion determined to be appropriate by the application of these Guidelines. *See Public interest, Section 7.0*

- Cumulative effects on the aquatic ecosystem: The Corps has considered cumulative effects attributed to the discharge of fill material at each disposal site and finds there to be no major impairment of the water resources, nor do they cause interference with the productivity or water quality of the existing ecosystem. The Corps has collected and solicited information from other sources regarding cumulative effects to the aquatic ecosystem and has concluded that these effects are reasonable and practical. *See Consideration of Cumulative Impacts, Section 8.0*

- Secondary effect on the aquatic ecosystem: The Corps has considered secondary effects on the aquatic ecosystem associated with the discharge of fill material. Effects outside of the actual placement of fill material are negligible. *See Consideration of Cumulative Impacts, Section 8.0*

6.9 Findings of compliance or non-compliance with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12). Based on the information above, including the factual determinations, the proposed discharge has been evaluated to determine whether any of the restrictions on discharge would occur. See Table 8:

Table 8 – Compliance with Restrictions on Discharge		
Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)		x
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		x
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?		x
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		x
5. Will the discharge violate standards set by the Department of		x

Table 8 – Compliance with Restrictions on Discharge		
Subject	Yes	No
Commerce to protect marine sanctuaries?		
6. Will the discharge cause or contribute to significant degradation of waters of the U.S.?		x
7. Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?	x	

7.0 General Public Interest Review (33 CFR 320.4 and RGL 84-09)

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest as stated at 33 CFR 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 CFR 320.4(b) through (r). The benefits which reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

7.1 All public interest factors have been reviewed and those that are relevant to the proposal are considered and discussed in additional detail. See Table 9 and any discussions that follows.

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
1. Conservation: See below for discussion.			x			
2. Economics: See below for discussion.			x			
3. Aesthetics: See below for discussion.		x				
4. General Environmental Concerns: See below for discussion.				x		
5. Wetlands: See below for discussion.				x		
6. Historic Properties: See below for discussion.		x				
7. Fish and Wildlife Values: See below for discussion.			x			

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
8. Flood Hazards: See below for discussion.				x		
9. Floodplain Values: See below for discussion.				x		
10. Land Use: See below for discussion.				x		
11. Navigation: See below for discussion.				x		
12. Shoreline Erosion and Accretion: See below for discussion.				x		
13. Recreation: See below for discussion.			x			
14. Water Supply and Conservation: See below for discussion.				x		
15. Water Quality: See below for discussion.				x		
16. Energy Needs: See below for discussion.					x	
17. Safety: See below for discussion.						x
18. Food and Fiber Production: See below for discussion.				x		
19. Mineral Needs: See below for discussion.	x					
20. Consideration of Property Ownership: See below for discussion.				x		
21. Needs and Welfare of the People: See below for discussion.					x	

Additional discussion of effects on factors above:

1. CONSERVATION (33 CFR §320.4(p)): Numerous land conservation efforts have been undertaken in the vicinity of the proposed project, specifically the James River. These efforts include the establishment of a National Park, Wildlife Management Area, and Resource Protection/Management Areas. The proposed project will have no direct impact on the property boundaries of these existing conservation areas; however the National Park and Wildlife Management Area were established with scenic viewshed as a contributing component to their conservation. Pursuant to Section 106 of the National Historic

Preservation Act, the Corps has concluded that the proposed project will have adverse impact on scenic viewsheds. The Corps believes that the proposed project does nothing to prohibit existing or future conservation efforts along the James River and other areas surrounding the project. The Corps considers conservation impacts neutralized based on the presence of an MOA that establishes mitigation measures that seek to promote preservation of existing above-ground cultural landscape features, such as natural resources and systems, vegetation, landform and topography, land uses, circulation, buildings and structures, Native American settlements, views, and small-scale features through land acquisition, and acquisition of historic preservation and open space easements.

2. ECONOMICS (33 CFR §320.4(q)): The Corps assumes when a private enterprise, such as Dominion, makes application for a permit that the appropriate economic evaluations have been completed, the proposal is economically viable, and is needed in the market place. Reliable electricity in the NHRLA is crucial, such that if businesses are unable to operate due to a lack of reliable power the economy, across all types would be adversely affected. The Corps acknowledges that the presence of an aerial transmission line will have adverse effects on historic properties, a number of which are the focal point on local heritage tourism; however the Corps believes that with the execution of mitigation outlined in the required MOA pursuant to Section 106 these economic impacts will be neutralized.

3. AESTHETICS (33 CFR §320.4(e)): The majority of input received regarding aesthetics were related to the impacts to surrounding historic resources. The Corps through the NHPA Section 106 process has considered the impacts of the proposed project on historic resources. The proposed project will have secondary adverse effects on viewshed, specifically related to historic resources around the James River. These impacts are subjective per individual and are isolated to those areas within line of sight to the proposed project. Corps believes that with the execution of mitigation outlined in the required MOA pursuant to Section 106 these visual impacts will be mitigated. The Corps further considered general aesthetics both inland and upon the James River. The majority of the land side work will take place within developed areas and largely along existing developed corridors. Therefore, aesthetic effects will be minimal. Upon the River, the proposed project will introduce a visual intrusion however, an individual transiting this segment of River is currently exposed to a number of modern visual intrusions (The Highway 17 Bridge, Ft. Eustis, Surry

Nuclear Plant, VDOT James River Ferry, etc.). Based on these facts the Corps finds that while the proposed project may have detrimental aesthetic effects, the proposed mitigation will balance those effects resulting in a net minimal effect.

4. GENERAL ENVIRONMENTAL CONCERNS (33 CFR §320.4(p)): This project is not expected to significantly degrade waters of the US. No adverse effects are anticipated to occur specific to spawning grounds, waterfowl habitat, movement of aquatic life, life stages of organisms dependent upon the aquatic ecosystem, ecosystem diversity, productivity, or stability. The Corps finds general environmental effects resulting from the permitted work to be minimal.

5. WETLANDS (33 CFR §320.4(b)): There are a variety of wetlands in the proposed project area. The entire area contains approximately 65 acres of non-tidal wetlands, 1.75 acres of tidal wetlands, 4,000 linear feet of non-tidal stream channel, 600 linear feet of tidal stream channel, and 3,300 linear feet of jurisdictional ditches. The majority of these aquatic resources in the project area will be avoided. However, the proposed project will permanently impact 2712 square feet (0.06 acres) of subaqueous river bottom and 281 square feet (0.006 acres) of non-tidal wetlands, and convert 0.56 acres of palustrine forested non-tidal wetlands to palustrine scrub shrub non-tidal wetlands. Temporary protective matting will be used in all wetlands to support construction vehicles, equipment, and materials during construction, so as to protect wetland soils from rutting and mixing. Conversion impacts (i.e. 0.56 acres) will be compensated for at a 1:1 ratio by Dominion. Based on the limited direct impacts and the proposed mitigation for habitat conversion, the Corps finds the proposed project to have negligible impacts on wetlands.

6. HISTORIC PROPERTIES (33 CFR §320.4(e)): Through consultation pursuant to Section 106 of the National Historic Preservation Act, 57 properties were considered for potential effects, including the Jamestown Island-Hog Island Cultural Landscape Historic District. The Corps assessed effects for each property individually receiving concurrence (*See "LIST OF IDENTIFIED ARCHEOLOGICAL AND ARCHITECTURAL RESOURCES AND CORRESPONDING EFFECT DETERMINATIONS TABLES" located in administrative record. These tables and corresponding effect determinations received VDHR's concurrence on February 17, 2016.)*. The applicant has designed the proposed project to avoid direct physical impacts to all historic properties, with exception of an archeological site (44JC0662) located at the proposed Switching Station and the Jamestown Island-Hog

Island-Captain John Smith Trail Historic District, which includes the contributing section of the Captain John Smith Chesapeake NHT within the APE . In addition to these physical impacts, the proposed project will visually adversely affect the Jamestown Island-Hog Island-Captain John Smith Trail Historic District, which includes the contributing section of the Captain John Smith Chesapeake NHT within the APE, Carter's Grove National Historic Landmark (VDHR #047-0001), Colonial National Historical Park/Colonial Parkway Historic District (VDHR #047-0002), Hog Island Wildlife Management Area (VDHR #090-0121), Jamestown National Historic Site/Jamestown Island/Jamestown Island Historic District (VDHR #047-0009), the Battle of Yorktown (VDHR #099-5283), and Fort Crafford (VDHR #121-0027). The Corps concluded its review under Section 106 of the National Historic Preservation Act on May 2, 2017 with the execution of a signed Memorandum of Agreement resolving adverse effects pursuant to 36 CFR §800.6. This MOA defines a series of mitigation initiatives that are intended to enhance the affected values and integrity of the historic properties and the cultural landscape, and strengthen the general public and visitor's understanding of and experience at important places within and related to this landscape through enhanced heritage tourism opportunities including development of additional interpretive and orientation facilities. Proposed mitigation seeks to promote preservation of existing above-ground cultural landscape features, such as natural resources and systems, vegetation, landform and topography, land uses, circulation, buildings and structures, Native American settlements, views, and small-scale features through land acquisition, and acquisition of historic preservation and open space easements. Based on these facts the Corps finds that while the proposed project may have detrimental effects to certain historic resources, implementation ntation of the proposed mitigation, designed to resolve adverse effects, will lead to a net minimal effect. *See Section 106 of the National Historic Preservation Act (Section 106), Section 10.3*

7. FISH AND WILDLIFE VALUES (33 CFR §320.4(c)): Through consulting pursuant to Section 7 of the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act all federally protected species and their habitat were assessed for potential effects. The Corps assessed effects on Northern long-eared bat (Myotis septentrionalis), Small whorled pogonia (Isotria medeoloides), Sensitive joint-vetch (Aeschynomene virginica), Bald Eagle (Haliaeetus leucocephalus), Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) New York Bight, Chesapeake Bay, South Atlantic, and Carolina DPS's, Northwest Atlantic Ocean DPS of loggerhead sea turtle(Caretta caretta), Kemp's ridley sea turtle (Lepidochelys kempi), Greenback sea turtle (Chelonia mydas), and Leatherback sea turtle (Dermochelys

coriacea). Effects on Essential Fish Habitat (EFH) in the James River for the egg, larvae, juvenile, and adult life stages of 13 species including windowpane flounder (Scopthalmus aquosus), bluefish (Pomatomus saltatrix), Atlantic butterfish (Peprilus triacanthus), summer flounder (Paralicthys dentatus), black sea bass (Centropristus striata), king mackerel (Scomberomorus cavalla), Spanish mackerel (Scomberomorus maculatus), cobia (Rachycentron canadum), red drum (Sciaenops ocellatus), dusky shark (Charcharinus obscurus), sandbar shark (Charcharinus plumbeus), yellowfin tuna (Thunnus albacares), and basking shark (Cetorhinus maximus) were assessed. The Corps also considered effects to anadromous fish use areas in the James River. Based on consultation with USFWS, NOAA/NMFS, and DGIF the Corps has received concurrence that all species are not likely to be adversely affected by the proposed project. To ensure protection of the Atlantic Sturgeon, EFH, and Anadromous Fish Waters the proposed project incorporates several construction techniques to help avoid and minimize effects during construction. Based on these protective measures the Corps finds that with the proposed mitigation measures, impacts to fish and wildlife values will be minimal. *See Section 7(a)(2) of the Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat, Section 10.1 and 10.2*

8. FLOOD HAZARDS (33 CFR §320.4(k)): The development must comply with local floodplain ordinances therefore the Corps finds impacts to be negligible.

9. FLOODPLAIN VALUES (33 CFR §320.4(l)): The development must comply with local floodplain ordinances therefore the Corps finds impacts to be negligible.

10. LAND USE (33 CFR §320.4(j)): The existing land use in the immediate vicinity of the project includes commercial and residential development, and this land use will not change. According to 33 CFR 320.4(j)(2), the primary responsibility for determining zoning and land use matters rests with state and local governments. The Corps will normally accept decisions by such governments on those matters unless there are significant issues of overriding national importance such as national security, navigation, national economic development, water quality, preservation of special aquatic sites, including wetlands, with significant interstate importance, and national energy needs. Since this project does not involve any of those issues, the Corps will not deny the permit or insert any land use-related conditions. The Corps finds impacts to be negligible.

11. NAVIGATION (33 CFR §320.4(o)): The proposed project is located in the vicinity of shipping channels, airports, and a military installation airfield. The Corps has consulted with federal agency representatives pursuant to each. As a result, the Corps has concluded that the proposed project has been designed such that is provides sufficient siting, vertical clearances, and proper lighting to have no impact on navigation, therefore the Corps considers impacts negligible.

12. SHORE EROSION AND ACCRETION (33 CFR §320.4(g)): The proposed project will be required to comply with Virginia state stormwater and erosion and sediment control requirements, therefore the Corps considers impacts negligible.

13. RECREATION (33 CFR §320.4(e)): The project area is located in proximity to various recreational areas, such as a wildlife management area, historical parks, and trails. The land based portions of the proposed project will have no impact on recreation. Impacts to recreational amenities are strictly limited to only the James River crossing. The proposed project crosses the James River in an area that is currently designated by the Commonwealth of Virginia as scenic and listed on the Nationwide River Inventory for it outstanding remarkable values pertaining to history. This portion of the river is also part of both the Captain John Smith and the Washington Rochambeau Revolutionary Trails. In addition, Colonial National Historic Park and Hog Island Wildlife Management Area are located in the vicinity. This section of the James River offers private residents and the local community with opportunities to enjoy water related activities such as fishing and water sports. As described above, this section of the James River provides individuals with multiple opportunities to enjoy recreation from land and water. The Corps does not consider any of these existing opportunities to be eliminated from further enjoyment as a result of the proposed project. The Corps finds that with the implementation of the proposed mitigation any adverse effects to recreation will be negligible.

14. WATER SUPPLY AND CONSERVATION (33 CFR §320.4(m)): The project will not directly impact a local water supply facility, therefore the Corps considers any impacts to be negligible.

15. WATER QUALITY (33 CFR §320.4(d)): Increased sedimentation and turbidity is likely during construction within the James River. These impacts will be temporary and concentrated in the areas immediately surrounding each tower during construction. Suspended sediments

are expected to settle out of the water column within a few hours and any turbidity will be short term and limited in scope. For the remainder of the corridor, the proposed project must comply with all applicable erosion and sediment control requirements therefore, the Corps finds impacts to water quality negligible.

16. ENERGY NEEDS (33 CFR §320.4(n)): Energy conservation and development are major national objectives. FERC, PJM, SCC, and Dominion have all confirmed the need for the proposed project and consequence that would result without. The Corps has concluded that the construction of the project from an electrical standpoint will have beneficial effects in addressing energy needs of the NHRLA and avoid the need to address contingencies through load shedding.

17. SAFETY OF IMPOUNDMENT STRUCTURES (33 CFR §320.4(k)): The project does not involve impoundment structures so this public interest review factor is not applicable.

18. FOOD AND FIBER PRODUCTION: The proposed project site spans several oyster lease areas used for commercial aquiculture purposes. The proposed project will only result in the displacement of less than a quarter acres of leased area. These impact while minimal will be mitigated by the terms of negotiated entry and use agreements between Dominion and the lease holder. The remainder of the proposed project corridor resides primarily within an existing utility easement which offers little to no opportunity for food and fiber production. The Corps considers impacts within its purview to be negligible.

19. MINERAL NEEDS: There has been no evidence of valuable mineral needs brought the Corps attention within the proposed project site.

20. CONSIDERATION OF PROPERTY OWNERSHIP (33 CFR §320.4(g)): The proposed project will have minimal impact on private property, as the proposed route uses Dominion owned property and existing right of way, therefore the Corps is considering impacts negligible.

21. NEEDS AND WELFARE OF THE PEOPLE (33 CFR §320.4(j)): Power load analysis using current systems and user trends have demonstrated throughout the Corps' evaluation an electrical need in the NHRLA, a need which is accelerated immediately following the shutdown of the Yorktown Generators. Absent an improvement to the NHRLA electrical grid, Dominion will be required to implement pre-

contingency load shedding (i.e., rolling blackouts) to prevent the possibility of cascading outages impacting the reliability of the interconnected transmission system. The Regional Transmission Organization (PJM Interconnection), responsible for reliability of the electric transmission system in the Mid-Atlantic region, has independently evaluated the NHRLA electrical supply and demand and concurs. Based on a 2017 Load Forecast Report, PJM reaffirms the project need and believes Dominion's preferred alternative remains the most effective and efficient solution to address the NERC reliability criteria violations that will exist in both the short and long term. In the 21st century businesses, families, and individuals have become dependent on reliable electricity. The Corps believes the proposed project, if authorized, will maintain the need and welfare of people who have come to expect its availability without question. Assuming the proposed project is authorized, the Corps believes it would provide electric reliability to the NHRLA that is beneficial for years to come.

7.2 The relative extent of the public and private need for the proposed structure or work:

The NHRLA includes 14 counties and 7 cities largely located along the peninsula area of southeastern Virginia. This area consists of approximately 590,000 citizens, and has a diverse mix of government defense and other public facilities, industrial sites, commercial sites, and residential end users, all of whom rely on reliable electricity. In addition to private residents, the area includes Joint Base Langley-Eustis, Yorktown Naval Weapons Station, NASA, Newport News Ship Building, Cannon, Anheuser-Busch Brewery, Thomas Jefferson National Accelerator Facility, College of William and Mary, Christopher Newport University, Busch Gardens, Water Country USA, Distribution Centers (like Wal-Mart, Food Lion) and the Historic Jamestown-Colonial Williamsburg Complex. All would be impacted without a reliable source of electricity. In addition, services such as 911 call centers, fire and emergency response centers, water and sewer treatment facilities, and hospitals located in the NHRLA localities would also be impacted if reliable electricity cannot be provided. Therefore the Corps has concluded there is both public and private need for the proposed project. *See Purpose and Need, Section 3.0*

7.3 If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered.

Discussion: There were no unresolved conflicts identified as to resource use. As described in Section 5.0 above, there has been detailed discussions and document exchanges addressing whether certain alternatives meet purpose and need. While there are those that still object to certain issues, the Corps has left no issue unaddressed.

7.4 The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited:

Detrimental effects are expected to be minimal and permanent.

Beneficial effects are expected to be minimal and permanent.

Based on the Corps determinations throughout Section 7, the proposed project has been found to be in the Public Interest.

8.0 Consideration of Cumulative Impacts

(40 CFR 230.11(g) and 40 CFR 1508.7, RGL 84-9) Cumulative impacts result from the incremental environmental impact of an action when added to all other past, present, and reasonably foreseeable future actions. They can result from individually minor direct and indirect but collectively significant actions taking place over a period of time. A cumulative effects assessment should consider both direct and indirect, or secondary, impacts. Indirect impacts result from actions that occur later in time or are farther removed in distance from the original action, but still reasonably foreseeable.

8.1 Aquatic Resources

8.1.1 Identify/describe the direct and indirect effects of the proposed activity:

Roughly 10% of the impacts in waters of the US will result from transmission tower and fender protection system construction. The remaining impacts are associated utility corridor clearing and/or widening. The proposed project includes direct impacts to 2712 square feet (0.06 acres) of subaqueous bottom, 281 square feet (0.006 acres) of non-tidal wetlands, and the conversion of 0.56 acres of palustrine forested non-tidal wetlands to palustrine scrub shrub non-tidal wetlands. See Description of activity requiring permit, Section 1.3 for further details regarding the project. Indirect effects are minimal and will be limited to habitat

fragmentation and added stormwater inputs associated with newly cleared utility corridor right of way and switching station site.

8.1.2 The geographic scope for the cumulative effects assessment is:

The proposed project has jurisdictional impacts in two watershed areas, HUC 02080206 (Lower James River) and HUC 02080108 (Lynnhaven-Poquoson).

Approximately 24.79% of the watershed area in HUC 02080206 / Lower James River is wetland. There are also approximately 3,655.43 stream miles contained within the watershed comprised of perennial, intermittent, and ephemeral tributaries. Corps permits for the period May 22, 2012 – May 22, 2017 has authorized the fill of 1,076.41 acres of wetland impacts, has 58.04 acres of permanent loss, and 42,579.6 linear feet of stream impacts.

Approximately 37.41% of the watershed area in HUC 02080108 / Lynnhaven-Poquoson is wetland. There are also approximately 539.82 stream miles contained within the watershed comprised of perennial, intermittent, and ephemeral tributaries. Corps permits for the period May 22, 2012 – May 22, 2017 has authorized the fill of 43.57 acres of wetland impacts, has 23.78 acres of permanent loss, and 34,382.87 linear feet of stream impacts.

The projection for both of these adjacent watersheds is that authorizations will continue at the current rate increase because development has occurred continuously in the projects study area and is expected to continue. Natural resource issues of particular concern [from USACE & non-USACE activities] are habitat loss, land-clearing, and hardening of surfaces which contribute to increased runoff and sediment inputs to streams and wetlands. We do not anticipate an increase in these impacts as a result of the regional power supply introduced by this project.

8.1.3 The temporal scope of this assessment covers:

Corps permits for the period May 22, 2012 – May 22, 2017, have authorized the fill of 1,076.41 acres of wetland impacts and 42,579.6 linear feet of stream impacts within HUC 02080206 and the fill of 43.57 acres of wetland impacts and 34,382.87 linear feet of stream impacts within HUC 02080108. The projection is that authorizations will continue at the current rate increase because development has occurred continuously in the projects study area and is expected to continue for foreseeable projects in the next 10-20 years.

8.1.4 Describe the affected environment:

The proposed project is minimal compared to other activities in the watershed. Utility projects with similar aquatic resource impacts to the proposed project are typically authorized under Nationwide Permit No. 12. The Lower James and Lynnhaven-Poquoson watersheds have experienced widespread residential, commercial, and institutional development in the last 50 years limiting future opportunities for new utility type corridor projects.

8.1.5 Determine the environmental consequences:

Due to the minimal and widespread natural of impacts to wetlands across the project corridor, the Corps does not anticipate any increased flooding potential due to a loss of flood storage provided by wetlands, or any additional degradation to resources or continued loss of habitat outside of direct impacts.

8.1.6 Discuss any mitigation to avoid, minimize, or compensate for cumulative effects:

The work will permanently impact 2712 square feet (0.06 acres) of subaqueous bottom in the Lower James River. 281 square feet (0.006 acres) of non-tidal wetlands will be lost and 0.56 acres of palustrine forested non-tidal wetlands will be converted and maintained as a palustrine scrub shrub non-tidal wetland habitat. These impacts occur throughout the lower James River and Lynnhaven-Poquoson watersheds. The magnitude of the proposed effects to the aquatic resource environment are minor within the two watersheds. Avoidance and minimization methods have included: (1) designing tower placements within the James River to utilize maximum span lengths, thereby reducing the number of tower required to complete the aerial river crossing; (2) designing overland portions such that clearing and disturbance to forested areas are minimized, including wetlands, through the co-location of the proposed project within an existing utility right of way; (3) designing transmission towers in locations outside of wetlands to the maximum extent practicable; (4) requiring any clearing in wetlands and/or within 100 feet of streams to be done by hand and without the use of heavy equipment; (5) limiting construction access through existing roads, timber paths, and along existing right or ways; and (6) locating a required switching station entirely in uplands to avoid additional impact to waters of

the US. Based on the minimal loss of aquatic resources, the Corps does not typically require compensatory mitigation for impacts less than a 1/10th of an acre. However, in this situation VDEQ has recommended the need for compensatory mitigation for wetland conversion impacts. As a result Dominion has agreed to provide compensation, involving the purchase of 0.56 credits from an approved mitigation bank, to offset conversion impacts in the watershed. The Corps finds the proposed avoidance, minimization, and compensation measures sufficient to replace of lost functions and values of aquatic resources individually and cumulatively.

8.1.7 Conclusion regarding cumulative impacts:

When considering the overall impacts that will result from this project, in relation to the overall impacts from past, present, and reasonably foreseeable future projects, the cumulative impacts are not considered to be significantly adverse. Dominion will be required to provide compensatory mitigation to help offset the impacts.

8.2 Historic Properties

8.2.1 Identify/describe the direct and indirect effects of the proposed activity:

The proposed project will directly impact 8 archeological sites and 1 historic district with the replacement and/or construction of transmission towers. In addition, 20 architectural sites will be indirectly impacted visually by the proposed project. *See Section 106 of the National Historic Preservation Act (Section 106), Section 10.3 for further details regarding impacts to historic properties.*

8.2.2 The geographic scope for the cumulative effects assessment is:

The geographical scope for cumulative effects is limited to visually impacted properties within the Area of Potential Effect (APE) defined pursuant to the Section 106 NHPA. No cumulative effects are expected for any archeological resources, or those architectural properties that are not visible to the proposed project. All remaining architectural resources contribute to the cumulative effects analysis.

8.2.3 The temporal scope of this assessment covers:

Consideration has been given to impacts from surrounding development projects occurring over the last 50 years. The majority of construction related activities along the shoreline of the James River, such as Surry Nuclear Power Plan, Kingsmill, and Bush Gardens, began in the 1970's.

8.2.4 Describe the affected environment:

The affected properties have experienced a diminished integrity of setting and feeling from past and present actions in the surrounding area. These actions include, but are not limited to, Jamestown-Scotland Ferry and Terminal, Surry Nuclear Power Station and surrounding utilities, Bush Gardens Amusement Park, Kings Mill Resort/Marina/Residential development, Grove Waste Water Treatment Plant, former BASF Industrial Site, Water Towers, Joint Base Langley-Eustis, Ghost Fleet, Lawnes Point residential development, Interstate 64, and Williamsburg-Newport News Airport. It is reasonable to believe this integrity could be diminished from other reasonably foreseeable actions, however the presence of existing conservation and preservation properties, as well as limited available space will drastically reduce the potential for future development that could add to cumulative impacts.

8.2.5 Determine the environmental consequences:

While cumulative visual impacts will accumulate with past, present, and reasonable foreseeable actions, the incremental effect of the proposed project will not amplify the effects to a greater level. The purpose of the proposed project is to maintain reliable power to a large region, and thus alleviate the need to locate similar activities in the area. Numerous land conservation efforts will prohibit and/or severely limit future development along the river and shoreline. Including the fact, that land based developments have required buffers and setbacks along the river and its shoreline that would limit their visibility. Regardless, any future development must comply with applicable laws and regulations and the presence of a powerline does not grant automatic approval.

8.2.6 Discuss any mitigation to avoid, minimize, or compensate for cumulative effects:

Carter's Grove, Colonial National Historic Park/Colonial Parkway Historic District, Jamestown National Historic Site, Hog Island Wildlife Management Area, Jamestown National Historic Site/Jamestown Island/Jamestown Island Historic District including the contributing section of the Captain John Smith Chesapeake National Historic Trail, Battle of Yorktown, and Fort Crafford were all determined to be adversely affected visually by the proposed project. Methods considered and incorporated to avoid and minimize impacts include: (1) selecting an alternative, route, and design that avoids and minimizes the visibility and intensity of the transmission line infrastructure to the maximum extent practicable from historic properties while balancing constraints imposed by conservation easements, land use restrictions, military and aviation restrictions, and navigation restrictions; (2) using naturally weathered galvanized steel towers for visibility reduction; (3) coordinate all project maintenance and repair operations that have the potential to cause effect for the life of the project; (4) prohibit any construction or placement of new or additional transmission line infrastructure within the project area; (5) prohibit any height increase or otherwise scale of the proposed project after its construction; (6) examine the ongoing electrical need of the proposed project in 10 year increments and if, at any time, prior to the projects 50 year life span it is determined the river crossing is no longer needed all associated infrastructure within the river and terrestrial areas shall be removed and returned to pre-project conditions; and (7) at the conclusion of the project's 50 year life span, if the project is still needed, the viability and feasibility of submerging the river crossing must be examined and replaced if, at that time, industry accepted technology is available.

Based on the diminished integrity of setting and feeling, the Corps is requiring additional mitigation beyond avoidance and minimization to compensate for impacts. These additional mitigation measures are outlined in full detail in the April 24th MOA executed on May 2, 2017. Examples of Mitigation include: (1) Interpretative Signage; (2) Landscape Documentation; (3) Tower Coatings; (4) Heritage Tourism and Visitor Experience Study and Enhancement; (5) fund and complete projects related to protecting and/or enhancing the early Colonial agricultural landscape and setting; (6) fund and complete projects related to preserving and/or enhancing the overall landscape of the Jamestown Island-Hog Island-Captain John Smith Trail Historic District and thematically

related areas; (7) fund and complete projects related to preserving and enhancing Historic Jamestown and Jamestown Island and heritage tourism; (8) fund and complete projects related to enhancing the visitor experience and the setting and feeling of sites along the Captain John Smith Chesapeake National Historic Trail; (9) fund and complete projects related to natural resource enhancement and cultural resource identification and interpretation at Hog Island WMA; (10) fund and complete projects related to water quality improvements that will maintain the setting and feeling of the James River in the project areas; and (11) fund and complete projects related to Landscape and Battlefield protection within the Jamestown Island-Hog Island-Captain John Smith Trail Historic District.

The Corps finds the proposed avoidance, minimization, and compensation measures sufficient to offset the diminished setting and feeling impacts to historic properties individually and cumulatively.

8.2.7 Conclusion regarding cumulative impacts:

When considering the overall impacts that will result from this project, in relation to the overall impacts from past, present, and reasonably foreseeable future projects, the cumulative impacts are not considered to be significantly adverse. Dominion will be required to provide compensatory mitigation to help offset the impacts.

9.0 Aquatic Resource Mitigation (33 CFR 320.4(r), 33 CFR Part 332, 40 CFR 230.70-77, 40 CFR 1508.20, and 40 CFR 1502.14)

9.1 Avoidance and Minimization: When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those waters. Avoidance and minimization measures are described above in Sections 1 and 3.

9.2 Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States? Yes

9.3 Type and location of compensatory mitigation

9.3.1 Is the impact in the service area of an approved mitigation bank? Yes

9.3.2 Is the impact in the service area of an in-lieu fee program? Yes

If yes, does the in-lieu fee program have the appropriate number and resource type of credits available? Yes

9.3.3 Select compensatory mitigation type/locations(s). See Table 10:

Table 10 – Mitigation Type and Location	
Mitigation bank credits	x
In-lieu fee program credits	
Permittee-responsible mitigation under a watershed approach	
Permittee-responsible mitigation, on-site and in-kind	
Permittee-responsible mitigation, off-site and/or out of kind	

9.3.4 Does the selected compensatory mitigation option deviate from the order of options presented in §332.3(b)(2)-(6)? No

9.4 Amount of compensatory mitigation:

A total of 0.43 credits will be purchased within the Lower James River Watershed (Hydrologic Unit Code [HUC] 02080206) and 0.13 credits will be purchased within the Lynnhaven-Poquoson Watershed (HUC 02080108).

9.5 Rational for require compensatory mitigation amount:

Compensation for wetland conversion impacts will be provided at a 1:1 ratio per an agreement reached between Dominion and the Virginia Department of Environmental Quality (DEQ).

10.0 Compliance with Other Laws, Policies, and Requirements

10.1 **Section 7(a)(2) of the Endangered Species Act (ESA):** Refer to Section 2.2 for description of action area for Section 7.

10.1.1 Has another federal agency take steps to document compliance with Section 7 of the ESA and completed consultation(s) as required? No

10.1.2 Known species/critical habitat present: Yes

10.1.3 Species Considered:

- U.S. Fish and Wildlife Service
  - Northern long-eared bat (Myotis septentrionalis)
  - Small whorled pogonia (Isotria medeoloides)
  - Sensitive joint-vetch (Aeschynomene virginica)
  - Bald Eagle (Haliaeetus leucocephalus)

- National Oceanic and Atmospheric Administration
  - Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) New York Bight, Chesapeake Bay, South Atlantic, and Carolina DPS's
  - Northwest Atlantic Ocean DPS of loggerhead sea turtle(Caretta caretta)
  - Kemp's ridley sea turtle (Lepidochelys kempi)
  - Greenback sea turtle (Chelonia mydas)
  - Leatherback sea turtle (Dermochelys coriacea)

10.1.4 Effect Determinations: The Corps has concluded that those species jurisdictional pursuant to U.S. Fish and Wildlife Service will not likely be adversely affected. The Corps has based its determination on Dominion's habitat surveys for Small Whorled pogonia and Sensitive joint-vetch which conclude the presence of only marginal habitat and the absence of individual species in these areas and a habitat assessment for Northern long-eared bat which concluded low quality roost habitat. Effects to the Bald Eagle will be addressed through permit conditioning if granted.

The Corps has concluded that those species jurisdictional pursuant to the National Oceanic and Atmospheric Administration will not likely be adversely affected. The Corps based its determination on the fact that the proposed project site is approximately 30 miles upstream from the confluence with the Chesapeake Bay in water depths ranging from 2 to 20 feet at a river width of approximately 2.84 miles. A total of 656 steel and fiber pilings ranging in diameter from 24 inches to 30 inches will be impact driven into the river bottom for tower foundations and fender protection systems resulting in a direct loss of 2712 square feet of subaqueous bottom. The use of vibratory hammers were recommended and considered by the applicant; however the use of impact hammers must be used for all steel pile foundations to ensure proper load capacities are achieved. Dominion has incorporated several construction techniques to help avoid and minimize these effects during construction. Bubble curtains will be used at all times during pile driving activities at all structures to attenuate the noise associated with impact hammering. Ramp-up

methods will be used for all pile driving activities which will gradually increase impact hammer intensity over the course of single pile install. All pile driving work associated with structures 21, 22, and 24-26 located in deep water habitat areas will only occur between November 16th and February 14th of any given year. Impacts as a result of this activity will be limited to the acoustics, water quality, habitat, and vessel interaction during construction.

10.1.5 Consultation with the U.S. Fish and Wildlife Service (USFWS) was initiated, maintained, and completed as required, for any determinations other than “no effect”. USFWS provided concurrence that the proposed project will not likely adversely affect listed species on November 13, 2013, April 9, 2015, and April 12, 2016. Final concurrence was updated by the Corps and forward to USFWS on May 10, 2017 for re-verification under a 14-day review. This 14-day suspense period expired May 24, 2017. To date USFWS has provided no follow-up communication. Pursuant to agreed upon operating procedures, the Corps may assume this to USFWS concurs with the updated determination that the project will not likely adversely affect listed species.

10.1.6 Consultation with the National Oceanic and Atmospheric Administration (NOAA) was initiated and completed as required, for any determinations other than “no effect. NOAA provided their final concurrence that the proposed project will not likely adversely affect listed species on January 28, 2016.

10.1.7 Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under Section 7(a)(2) of the ESA.

10.2 **Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH).**

10.2.1 Has another federal agency taken steps to comply with the EFH provisions of the Magnuson-Stevens Act? No

10.2.2 Did the proposed project require review under the Magnuson-Stevens Act? Yes

10.2.3 EFH species or complexes considered: The James River contains Essential Fish Habitat (EFH) for the egg, larvae, juvenile, and adult life stages of 13 species including windowpane flounder (Scopthalmus aquosus), bluefish (Pomatomus saltatrix), Atlantic butterfish (Peprilus triacanthus), summer flounder (Paralicthys

dentatus), black sea bass (Centropristus striata), king mackerel (Scomberomorus cavalla), Spanish mackerel (Scomberomorus maculatus), cobia (Rachycentron canadum), red drum (Sciaenops ocellatus), dusky shark (Charcharinus obscurus), sandbar shark (Charcharinus plumbeus), yellowfin tuna (Thunnus albacares), and basking shark (Cetorhinus maximus).

This segment of the James River is also a confirmed anadromous fish use waterway; however no submerge aquatic vegetation (SAV) is present.

10.2.4 Effect determination and basis for that determination: The habitat affected consists of both shallow & deep water subaqueous bottom. A total of 656 steel and fiber pilings ranging in diameter from 24 inches to 30 inches will be impact driven into the river bottom for tower foundations and fender protection systems resulting in a direct loss of subaqueous bottom. The proposed route crosses four private oyster lease areas, resulting in seven towers (i.e. 17-20, 23, 27, & 28) having direct impacts. Additional impacts as a result of this activity will be limited to the noise, vibrations, and increases in turbidity duration of construction. Any authorization will require several construction techniques to help avoid and minimize these effects during construction. Bubble curtains will be used at all times during pile driving activities at all structures to attenuate the noise associated with impact hammering. Ramp-up methods will be used for all pile driving activities which will gradually increase impact hammer intensity over the course of single pile install. All pile driving work associated with structures 21, 22, and 24-26 located in deep water habitat areas will only occur between November 16th and February 14th of any given year. It was concluded that the project will not have a substantial adverse effect on EFH and/or anadromous fish. Our rationale for this determination was based on the minimal direct impacts to subaqueous bottom, minimal increases in turbidity caused by the proposed work, the absence of direct impacts to vegetated wetlands and/or submerged aquatic vegetation.

10.2.5 Consultation with the National Marine Fisheries Service was initiated and completed as required. The National Oceanic and Atmospheric Administration provided their final concurrence that the proposed project will not have a significant adverse effect on EFH on January 28, 2016.

10.2.6 Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under EFH provisions of the Magnuson-Stevens Act.

10.3 **Section 106 of the National Historic Preservation Act (Section 106):** Refer to Section 2.3 for permit area determination.

10.3.1

Taken together, NHPA Section 106, regulations found at 36 CFR § 800 implementing Section 106, and the USACE procedures for the protection of historic properties found at 33 CFR § 325 Appendix C, require that Corps consider the effects of the proposed power line on historic properties and consult at various stages of the review process with the ACHP, the State Historic Preservation Office, Virginia Department of Historic Resources (VDHR), and other invited consulting parties.

Following applicable procedures, the Corps maximized opportunity for coordination and comment by providing the most current information to consulting parties and the public as the information became available. In good faith effort, the Corps appropriately initiated consultation, identified historic properties, assessed the effects to historic properties, and resolved adverse effects by following the sequential process described in both the 800 regulations and Appendix C.

10.3.2 Public Involvement:

The Corps issued four separate Public Notices (August 28, 2013, November 13, 2014, May 21, 2015 and October 1, 2015) providing opportunity for the public to offer comment on various aspects of the project including historic resource identification and effects. Many commenters requested the Corps conduct a public hearing and after careful consideration the Corps conducted a public hearing on October 30, 2015. Additionally, the Corps met numerous times with individuals and groups throughout this review process. Indeed, at no time during the process did the Corps turn away input from consulting parties or the public. Throughout the Section 106 process, general information was made, available at the following web link (http://www.nao.usace.army.mil/Missions/Regulatory/SkiffesCreekPowerLine.aspx). This website contained links to the applicant's and

consulting party websites, which contained additional information and perspectives on the project.

10.3.3 Consulting Parties:

As a result of the August 2013 Public Notice and the State Corporation Commission review process, the Corps, in coordination with the Virginia Department of Historic Resources (VDHR), identified organizations that demonstrated an interest in the effects of the undertaking on historic properties. In addition to requests received in response to the first public notice, Kings Mill Community Services Association and Southern Environmental Law Center (SELC) were also invited to participate as consulting parties in a letter dated March 5, 2014. On June 20, 2014, the Corps notified local governments within the limits of the project (Surry County, City of Williamsburg, York County, City of Newport News, and City of Hampton) by mail, inviting their participation as consulting parties. Due to Kings Mill, SELC, and the localities failure to respond, it was assumed they declined to participate. A separate invite included First California Company Jamestowne Society who accepted the invite to participate. On November 25, 2014, written correspondence was received from the new steward of Carter Grove Plantation indicating an inability to participate. On March 16, 2017, written correspondence was received from Kingsmill Resort requesting participation. The Corps accepted the request and engaged the Resort, offering them a brief opportunity to provide input on the projects potential effects on historic properties and resolution of any adverse effects. The Resort provided no additional follow-up.

10.3.4 Tribal Consultation:

The Corps coordinated with Federal and State recognized Tribes. To address Tribal Trust Responsibilities and NHPA Section 106 requirements to involve tribes, the Corps consulted with several Federally recognized tribes. At the initial stages of the project, when consulting parties were invited (summer, 2014), no federally recognized tribes or tribal lands were located within the Commonwealth of Virginia. However, tribal consultation initiated for other projects in this area of Virginia may be of interest to the Delaware Tribe of Indians, the Delaware Nation, and the Catawba Indian Nation. Therefore, the Corps initiated government to government consultation with these tribes. Initial consultation began with a letter sent to several tribes on August 25, 2014. Dominion's consultants developed a

summary of the historic properties potentially affected by the project, with an emphasis on properties with prehistoric Native American components, and this summary was included with the August 25, 2014 letter. The Delaware Tribe of Indians accepted the consulting party invitation, and the Catawba Indian National and the Delaware Nation declined to participate.

The Pamunkey Tribe, became federally recognized on January 28, 2016. The Corps did invite the Pamunkey to consult as a State recognized Tribe in August 25, 2014. The Pamunkey did not initially engage in the consultation. On October 5, 2016, Chief Robert Gray with the Pamunkey Indian Tribe reached out to the Corps requesting to participate. The Corps acknowledged and accepted the Pamunkey Tribe's request and on October 31, 2016, the Corps held a government to government meeting with Chief Gray and the Pamunkey Indian Tribe. With the Chief's agreement, the Corps facilitated other communication opportunities between Dominion and the Pamunkey Tribe to discuss project related impacts and mitigation opportunities.

In addition, the Corps coordinated with the following state recognized tribes to determine their interest in participating as consulting parties: Cheroenhaka, Chickahominy, Eastern Chickahominy, Mattaponi, Upper Mattaponi, Nansemond, Nottoway, and Rappahannock Tribes. The Chickahominy Tribe elected to participate, but the other state-recognized tribes either declined or provided no response.

10.3.5 Summary of comments received and response: This Section summarizes substantive comments specific to historic resources received through the NHPA Section 106 consultation process and from the general public and the Corps response.

Several Commenters have suggested that the USACE is obligated to make "official determinations" regarding "documents containing research, analysis and statements of Section 106 findings . . . prepared by the project proponent" prior to releasing such information to the consulting parties or the public. (See NPS 1.12.2017 Letter). Though information has at all times been circulated by the Corps with a Corps request for consulting party input on the distributed information, commenters have alleged that releasing information without Corps commentary "leaves the consulting parties uncertain

whether [the applicant's submissions] represent official determinations made by the federal agency." (NPS 1.12.2017 Letter).

RESPONSE – The commenters seem to suggest that the Corps is obligated to make incremental "official determinations" at various points in the Section 404 permit application review and Section 106 consultation processes. Based on our read of the Advisory Council on Historic Preservation's Section 106 regulations, these comments represent a misunderstanding of the consultation process. The 800 regulations require that action agencies seek input from consulting parties at various points during the Section 106 process (§ 800.2(a)(4)). Per the regulations, agencies are to seek information from consulting parties on the presence of historic properties in the undertaking's area of potential effects (APE) (§ 800.4(a)(3)); invite the views of consulting parties on the undertaking's effects (§ 800.4(d)(2)); and consult with such parties to evaluate measures to avoid, minimize, or mitigate adverse effects (§ 800.6(a)).

The approach these commenters support would require agencies to make several iterations of "official determinations" in a vacuum—prior to obtaining input from the public and consulting parties. Presumably, the agency would then be required to revisit its "official determination" after a comment period or else risk the appearance that it has ignored public input. We see nothing in the law or regulations that requires this inefficient approach to consultation.

A number of commenters believed there to be information deficiencies on the effects to historic properties and therefore questioned the Corps process pursuant to the Section 106 NHPA review.

RESPONSE – The Corps, with guidance from ACHP and VDHR, made a good faith effort to appropriately follow the sequential processes described in both 800 regulations and Appendix C when assessing effects to historic properties.

Pursuant to NHPA Section 106 implementing regulations, the Corps worked with VDHR and consulting parties to identify all potentially impacted historic properties within the APE. The Corps determined, with concurrence form VDHR that the

proposed project would result in an overall adverse effect to historic properties within the APE. These effects came largely through secondary, visual impacts.

Dominion presented TruScape simulations to depict the visual impact of the proposed project from key vantage points within the APE. Additionally, Dominion provided scaled photography of an existing powerline crossing adjacent the James River (Highway 17) Bridge. The existing line provided opportunity to view comparable towers (similar height and structure) from known distances. Corps staff compared model simulations and photographs depicting the existing line and directly observed the existing line. The model simulations were found relatively comparable to actual towers viewed at similar distances. As a result, the Corps concluded that Dominion's simulations provided enough accuracy to sufficiently analyze effects to both historic properties and a visitor's experience. Therefore, the information provided was sufficient to inform consultation. While there are various methods for predicting visual impact it is not likely that employing further methods will result in substantively different views or information.

Several commenters expressed concerns with impacts from tower lighting on historic properties and visitor experience.

RESPONSE – The Corps acknowledges that Dominion's model simulations do not capture the effects from lighting in day or night time scenarios. Many of the affected properties are closed to the public at night. Therefore, the impact to the visitors experience in these locations will be minimal. Visitors upon the James River predominately visit during the day when landscapes and historic resources are visible. A visitor on the River at night would currently be exposed to light pollution from existing residential, commercial and military infrastructure as well as large scale commercial River Traffic. Based on these factors, the Corps concludes that, with the proposed mitigation, the impacts to the visitors experience will be minimal.

A number of commenters raised concerns that the proposed project would impact Jamestown's ability to be designated as a UNESCO World Heritage Site.

RESPONSE – No evidence has been provided supporting that the proposed project would affect any potential designation if pursued. Further, we have been provided no information related to the active pursuit of such recognition. From a procedural perspective, the chance of designation is statistically very low so assessing its chance involves pure speculation.

A number of commenters believe the Corps is failing to consider impacts Washington Rochambeau Revolutionary Route Trail.

RESPONSE – The Corps received concurrence that the Trail is not an eligible property pursuant to Section 106 of the National Historic Preservation Act, therefore assessment of effects as a historic property were not warranted. However, pursuant to NEPA and Public Interest Review, potential impacts to the Trail were considered. While the Trail is not a direct focus of Dominion's mitigation plan, it will benefit indirectly from the holistic approach that mitigation projects bring to this section of the James River.
A number of commenters believe that impacts to historic properties, viewshed, and visitor experience resulting from the proposed project cannot be mitigated.

RESPONSE – The Corps acknowledges these comments, however on May 2, 2017 Signatories pursuant to Section 106 of the National Historic Preservation Act executed a Memorandum of Agreement which outlines specific avoidance, minimization, and mitigation measures that serve as resolution of adverse effects for purposes of NHPA Section 106. The Corps has worked to insure mitigation measures were developed in accordance with SHPO guidance on assessing and mitigating viewshed impacts. Additional information describing the nexus between mitigation measures and specific effects is provided in "Basis for Proposed Memorandum of Agreement to Resolve Adverse Effects to Historic Properties" included as Attachment F to the MOA executed on May 2, 2017.

10.3.6 The Corps appropriately and sequentially worked through the process described in the applicable regulations.

On August 28, 2013, the Corps released a public notice describing the proposed undertaking and inviting public comment. In response to this notice, several organizations requested to join

consultation as consulting parties. The Corps worked with VDHR to identify and invite other potential consulting parties. On March 3, 2014, the Corps formally invited all requesting parties to participate as consulting parties in the NHPA Section 106 process. Additional invitations were sent to Tribes and Local Governments.

Following the procedures of 36 CFR § 800.4, and in consultation with VDHR, the Corps identified the Area of Potential Effect (APE) and initiated collection of available information regarding historic properties and potential effects. Prior to submitting its permit application to the Corps, the applicant collected a vast amount of historic resource information vetted through VDHR as part of the Virginia State Corporation Commission (SCC) process. With VDHR concurrence, and pursuant to 36 CFR § 800.4(a), the Corps determined it appropriate to accept this information to inform the Section 106 consultation process. Using this and additional information, the Corps worked with VDHR to establish the APE for the undertaking. On January 28, 2014, VDHR concurred with the APE as defined. To facilitate further consultation, the Corps, on May 8, 2014, distributed information regarding historic property identification and potential effects to VDHR, consulting parties, and ACHP.

In response to this distribution, consulting parties raised concerns about compression of Section 106 process steps. On June 20, 2014, the Corps reiterated its intent to follow Section 106 coordination procedures and clarified to ACHP and consulting parties that the May 8, 2014, circulation was not a final coordination. The Corps again requested input on historic property identification pursuant to 36 CFR § 800.4 (b). Working with VDHR and ACHP, the Corps also developed and circulated a Section 106 Consultation and Public Involvement Plan.

On September 25, 2014, the Corps held an in-person meeting with the consulting parties to finalize the historic property identification and discuss potential effects. To further inform this step and facilitate the evaluation of historic significance pursuant to 36 CFR § 800.4(c), Dominion provided additional cultural resource surveys, reports, and documentation. Based on input received from the public and consulting parties, the Corps in consultation with VDHR modified the initial APE by identifying direct and indirect boundaries. While VDHR fully participated at the time of this APE modification, to assuage concern they, on January 15, 2015, provided formal written concurrence with the direct and indirect APE's.

After incorporating input from consulting parties, the Corps, on November 13, 2014, issued a public notice soliciting final comments on historic property identification. In response to questions raised by consulting parties, the Corps also included information on project alternatives. On December 9, 2014, the Corps held a second consulting parties meeting focused on concluding historic property identification and discussing potential effects. By letters received May 1 and May 11, 2015, VDHR provided their concurrence with the Corps' Identification of Historic Properties pursuant to 36 CFR § 800.4. However, based on later correspondence received from ACHP on June 19, 2015, the Corps consulted with the Keeper of the National Register of Historic Properties (Keeper) concerning the eligibility status of the Captain John Smith National Historic Trail (CAJO). On August 14, 2015, the Keeper rendered a final decision, concluding that "The entire area encompassed by the Indirect APE is eligible for the National Register of Historic Places as a historic district" and that the section of the CAJO within the project APE was "eligible for the National Register of Historic Places as a contributing element in the larger historic district." In response, the Corps added the newly defined Historic District to its list of historic properties and added the CAJO as a contributing resource to the Historic District. The Corps welcomed an October 22, 2015, letter from the National Park Service indicating their agreement that the Corps has completed and satisfied the requirements under 800.4.

Following receipt of VDHR's May 2015 concurrence on "Historic Property Identification," the Corps, in consultation with VDHR, applied the criteria of adverse effects as specified in 36 CFR § 800.5. On May 21, 2015, the Corps released a public notice and request for comment stating that the Corps, in consultation with VDHR, "has determined that the undertaking will have an overall adverse effect." As directed by 36 CFR § 800.5 (d) (2), the Corps requested input on the resolution of adverse effects. Because new information had been received since the list of historic properties was finalized, the notice also requested comments from VDHR, ACHP, consulting parties, and the public concerning effects specific to individual historic properties. The Corps hosted a third consulting party meeting on June 24, 2015, to discuss avoidance minimization and mitigation of adverse effect. Though not required by the 800 Regulations, VDHR on November 13, 2015, provided a letter formally concurring with the adverse effect determination, thereby confirming the completion of 36 CFR § 800.5.

To inform and aid in discussions on the resolution of adverse effects, the Corps provided further information regarding the nature of effects. Based on feedback received in response to the May 21, 2015 public notice and at the June 24, 2015, Consulting Party meeting, Dominion prepared a Consolidated Effects Report discussing effects to individual properties within the APE. Ahead of the fourth Consulting Party meeting, the Corps provided this information, along with confirmation of the previously provided final effect determinations for individual historic properties within the APE. With its November 13, 2015 letter, VDHR concurred with all effect determinations for individual properties except the Battle of Yorktown Site and Fort Crawford. Following further discussion with VDHR and the applicant, these properties were identified as adversely affected.

Many consulting parties objected to our determination that several individual properties within the APE would not be adversely affected, and/or commented that the final effect determinations for individual properties were not clear. On January 29, 2016, the Corps provided all parties with tables that reflected the final effect determinations for identified archaeological and architectural resources. These final effect determinations were consistent with VDHR's November 13th concurrence. The USACE clarified during the fifth consulting party meeting held February 2, 2016, that the tables distributed January 29, 2016, were final effect determinations for individual properties. To clarify the record further, VDHR, on February 17, 2016, provided formal written concurrence with these tables and the effect determinations made for individual historic properties.

On June 20, 2016, in response to ACHP's May 3, 2016 letter outlining "Ongoing Concerns of Consulting Parties" the Corps provided ACHP, VDHR, and Consulting Parties, via email, with a general summary addressing each item of concern along with additional information where relevant. General summary addressed (1) Methods and adequacy of Visual Effects Analysis; (2) Long-term and Cumulative Effects; (3) Visitor and Tourism Experience; (4) Sufficiency of focus on Captain John Smith Chesapeake National Historic Trail; (5) Concerns about Potential Submerged Resources; (6) The Washington-Rochambeau Revolutionary (WRRR) National Historic Trail; (7) Socioeconomic Analysis focusing on Impacts to Preservation Efforts and Tourism in the APE; and (8) Corps Compliance with Section 110(f) of the NHPA for Effects to Carters Grove, a National Historic Landmark.

The approach outlined above fully complies with the organization of 36 CFR § 800.5. 36 CFR § 800.5(a) provides the criteria for assessing adverse effect of an undertaking. 36 CFR § 800.5(b) details the steps and coordination necessary should the agency find that the undertaking has no adverse effect on historic properties, and 36 CFR § 800.5(c) prescribes necessary consulting party review should the agency propose a finding of no adverse effect. 36 CFR § 800.5(d)(2) instructs the agency, upon finding an adverse effect, to "consult further to resolve the adverse effect pursuant to 36 CFR § 800.6." The Corps evaluated the effects of the undertaking and circulated its adverse effect findings. After finding an overall adverse effect, the Corps proceeded in accordance with § 800.5(d)(2) by consulting to resolve the adverse effect pursuant to § 800.6.

The Memorandum of Agreement (MOA) development process included requests for written comments from all consulting parties on draft MOA's that were circulated December 30, 2015, June 13, 2016, and December 7, 2016.

The December 7, 2016 coordination of a draft MOA was the final opportunity for consulting parties to inform a decision on whether Dominion's proposed mitigation plan adequately avoids, minimizes, and/or mitigates adverse effects to historic properties. A teleconference was held January 19, 2017 with Dominion, VDHR, ACHP, and consulting parties to discuss MOA comments and the path forward.

On March 24, 2017, the Corps solicited final comments from VDHR and ACHP. On April 24, 2017, the Corps circulated for signature a final MOA with Signatories, Invited Signatories, and consulting parties. On May 2, 2017, the MOA was executed. Signatures were received from all required Signatories (Corps, VDHR, and ACHP). Dominion and the Commonwealth of Virginia signed as Invited Signatories. The Chickahominy Indian Tribe and the Department of Interior, on behalf of the National Park Service, signed as concurring parties. All other consulting parties afforded the opportunity sign as concurring, either declined or provided no response.

Milestone	Initiation Date	Description	Completion Date
Initial Public Notice (800.3)	August 28, 2013	- Established Undertaking - Identified State Historic Preservation Officer as (VDHR) - Requested Public Comment - Identified Cultural Resources of Concern	• Comment period closed September 28, 2013
Identify Consulting Parties (800.3)	August 28, 2013	- August 28, 2013 Public Notice Issued - Dec 3, 2013 Compiled consulting party list based on PN & coordinated w/ VDHR for any add'l parties - Mar 3, 2014 notified all requesting parties of acceptance as consulting parties - Mar 5, 2015 Add'l consulting party invites were sent based on VDHR recommendations - June 20, 2014 participation invitations sent to Local Governments - August 25, 2014 invited Tribal Participation - November 21, 2014 invited Mr. Mencoff, new owner of Carters Grove Plantation, to participate. - October 6, 2016 Pamunkey Indian Tribe joined as a consulting party. - March 23, 2017 Kingsmill Resort joined as a consulting party.	• May 2, 2017
Identify Historic Properties (800.4)	August 28, 2013	- August 28, 2013 Public Notice - Established APE w/ VDHR ➢ Initial APE concurrence Jan 28, 2014 ➢ Refined APE into Direct & Indirect boundaries; rec'd concurrence (verbal) Sept 2014, written Jan 15, 2015 ➢ Minor modification to Direct APE; concurrence Oct 5, 2015 (5 tower locations) ➢ Direct APE Exhibits were refined to accurately depict boundary around proposed fender protection systems; June 28, 2016 - Consulted surveys/data used in part for the VA State Corporation Commission process - May 8, 2014 coordinated w/ VDHR, ACHP, & consulting parties on Historic Property Identification, Surveys, and potential effects. - Re-coordinated June 20, 2014 with VDHR, ACHP, & consulting parties to finalize Historic Property Identification - Sept 25th & Dec 9th Consulting Party Meetings - November 13, 2014 Public Notice - Comments rec'd were considered in part from the multiple coordination opportunities. - May 1st & May 11, 2015 VDHR provided documentation of completion of 800.4. - Sept 4, 2015 VDHR concurrence with Addendum to Phase I Cultural Resources Report for five (5) tower locations not included in previous studies. - June 24, 2016 VDHR concurrence with Revised Phase I Remote Sensing Underwater Archaeological Survey & Phase II assessment for buffer and cluster anomalies located within 200 feet of any construction activities.	• Initially completed May 11, 2015 • Updated Oct 5, 2015 to reflect minor APE expansions due to minor project modifications • Updated June 28, 2016 to capture Direct APE expansion and additional underwater survey work within the James River.

1st Agency & Consulting Party Meeting (800.4)	September 25, 2014	- Status of permit evaluation - Corps jurisdiction - Project Overview, Purpose & Need, Alternatives, Construction Methods - Historic Property Identification Efforts - Potential Effects on historic properties	• September 25, 2014
2nd Public Notice (800.4)	November 13, 2014	- Requested Public Comment on Historic Property Identification and Alternatives	• Comment Period Closed December 6, 2014
2nd Agency & Consulting Party Meeting (800.4)	December 9, 2014	- General Item Updates - Historic Property Identification - Historic Property Eligibility - Potential Effects - Potential Mitigation ➢ Requested written comments on identification, alternatives, effects, and potential mitigation from meeting participants.	• Comment Period closed January 15, 2015
Evaluate Historic Significance (800.4)	May 8, 2014	- Within the indirect APE, several Historic Properties are present which are Listed on the National Register or were previously determined Eligible for the National Register No further evaluation of Historic Significance was required for those properties. - June 12, 2014 VDHR provided recommendations of eligibility for certain historic properties and requested additional information on others. - September 2014 - February 2015: Stantec conducted additional cultural resource surveys, submitted reports and other documentation. - May 11, 2015 SHPO provided final concurrence pertaining to individual eligibility for all identified historic resources. - July 2, 2015 Consulted with Keeper of the National Register on eligibility status of Captain John Smith Trail ➢ Aug 14, 2015 decision rendered by Keeper that the Trail was eligible for the National Register - June 24, 2016 SHPO provided concurrence with additional Underwater Archaeological Survey work; including a Not Eligible determination based on the results of Phase II assessment for buffer and cluster anomalies located within 200 feet of any construction activities. Note: Oct 22, 2015 Letter from NPS indicated satisfaction with the Corps that CFR 800.4 was completed.	• Initially Completed May 11, 2015 • Updated Aug 14, 2015 upon receipt of Keeper of the NPS Eligibility Determination • Updated June 24, 2016 upon receipt of VDHR Eligibility Concurrence with Phase II Underwater Archaeological Assessments.
Assessment of Adverse Effects (800.5)	May 11, 2015	- Applied Criteria of Adverse Effects in consultation with VDHR, considering views of consulting parties and public ➢ Dominion's Effects Reports; which included visual assessments (Mar 2014, Oct 29, 2014, & Nov 10, 2014) ➢ Consulting Party Effects Analyses - May 21, 2015 Public Notice determined undertaking will have an Overall Adverse Effect Note: Nov 13, 2015 VDHR concurred with the Corps that undertaking will have	• Completed May 21, 2015

		an Adverse Effect confirming the process is at 800.6 "resolution of adverse effect"	
3rd Public Notice (800.6)	May 21, 2015	- Request Public Comments on effects to final list of historic properties and in preparation to moving to resolution of adverse effects.	• Comment Period Closed June 20, 2015
3rd Agency & Consulting Party Meeting (800.6)	June 24, 2015	- General Updates - Effects to individual historic properties - Discussion of Resolution of Adverse Effects	• June 24, 2015
4th Public Notice (800.6)	October 1, 2015	- October 1, 2015 Announced Public Hearing seeking input on views, opinions, and information on the proposed project. - November 5, 2015 f PN comment period extended	• Comment Period Closed November 13, 2015
Resolve Adverse Effects (800.6)	May 21, 2015; Restated Oct 13, 2015	- May 21, 2015 Public Notice requested comments on Resolution of Adverse Effects. - May 29, 2015 consulted with the Director NPS in accordance with 36 CFR 800.6 and 800.10 re: Carters Grove NHL and adverse effects. (No Response to date) - June 24, 2015 Consulting Party Meeting - October 1, 2015 provided consulting parties with Dominion Consolidated Effects Report (CER) dated September 15, 2015 and stamped rec'd by the Corps Sept 29, 2015. ➢ CER was developed to address comments from VDHR and Consulting Parties. - October 15, 2015 Consulting Party Meeting - December 30, 2015 consulted with VDHR, ACHP, & consulting parties to seek input on Dominion's Draft MOA with Mitigation Stipulations and Context Document - January 6, 2016 Dominion's response to comments regarding the December 30th MOA coordination were provided to VDHR, ACHP, and consulting parties by email. - Feb 2, 2016 Consulting Party Meeting - Feb 17, 2016 VDHR gave their concurrence with the Jan 29th tables forwarded ahead of Feb 2nd Consulting Party Meeting that show effect determinations for individual historic properties. - June 13, 2016 consulted with VDHR, ACHP, and consulting parties to seek input on Dominion's Draft MOA and Context Document. ➢ On June 20, 2016, the Corps provided ACHP, VDHR, and Consulting Parties with general updates and additional information addressing "outstanding concerns of consulting parties" outlined in ACHP's May 3, 2016 letter. - July 27, 2016 VDHR confirms the MOA and its mitigation measures sets forth an acceptable framework to resolve adverse effects. - December 7, 2016 consulted with VDHR, ACHP, and consulting parties to seek input on Dominion's Draft MOA. - December 12, 2016 Dominion's response to MOA comments regarding the June	• Completed May 2, 2017

		13th coordination were provided by email, along with revised Context document and MOA attachments, to VDHR, ACHP, and consulting parties. - January 19, 2017 VDHR, ACHP, and Consulting Party Teleconference - January 27, 2017 facilitated meeting between the Pamunkey Indian Tribe and Dominion. - February 12, 2017 Chief Gray with the Pamunkey Indian Tribe confirmed mitigation measures are agreeable to the Tribe. - March 21, 2017 Chairman of ACHP Site Tour of Colonial Parkway and Jamestown Island. - March 24, 2017 coordinated final draft MOA with Signatory Parties for final comment. - April 24, 2017 coordinated final MOA with Signatories, Invited Signatories, and consulting parties for signature. - May 2, 2017 Final MOA Executed	
4th Agency & Consulting Party Meeting (800.6)	October 15, 2015	- General Updates - NPS Visual Effects Analysis - Stantec Consolidated Effects Report - Resolution of Adverse Effects ➢ Requested written comments on adverse effects from meeting participants.	• Comment Period Closed November 12, 2015
Public Hearing (800.6)	October 30, 2015	- Hearing held for the purpose of seeking input on views, opinions, and information on the proposed project.	• Comment Period Closed November 13, 2015
5th Consulting Party Meeting (800.6)	February 2, 2016	- General Updates - Resolution of Adverse Effects TOPICS: ➢ Cumulative Effects ➢ Architectural Viewshed &. Cultural Landscape ➢ Socioeconomic Impacts ➢ Visitor Experience ➢ Tourism Economy Impacts ➢ CAJO Evaluated on its Own Merit ➢ Submerged Cultural Resources ➢ Washington Rochambeau Revolutionary Trail	• February 2, 2016
Consulting Party Teleconference (800.6)	January 19, 2017	- Opening Remarks - Discussion Topic ➢ Refine MOA & Identify Measures that may more effectively Resolve Adverse Effects ➢ Gather information to inform whether further consultation in the development of an MOA is warranted.	January 19, 2017

10.3.7 Are known cultural resource sites present? Yes

57 resources were determined listed, eligible for listing, or treated as eligible for listing in the NRHP for the purposes of Section 106 compliance and are considered historic properties for purposes of the Project. This includes the Jamestown Island-Hog Island Cultural Landscape Historic District and 76 submerged anomalies

in the James River. *See "FINAL DETERMINATION OF ELIGIBILITY CONCURRENCE FOR ARCHEOLOGICAL AND ARCHITECTURAL RESOURCE TABLES" located in administrative record.*

The Corps, in consultation with the SHPO, ACHP, and Consulting Parties, determined that the undertaking will have an adverse effect on archaeological site 44JC0662, the Jamestown Island-Hog Island-Captain John Smith Trail Historic District, which includes the contributing section of the Captain John Smith Chesapeake NHT within the APE, Carter's Grove National Historic Landmark (VDHR #047-0001), Colonial National Historical Park/Colonial Parkway Historic District (VDHR #047-0002), Hog Island Wildlife Management Area (VDHR #090-0121), Jamestown National Historic Site/Jamestown Island/Jamestown Island Historic District (VDHR #047-0009), the Battle of Yorktown (VDHR #099-5283), and Fort Crafford (VDHR #121-0027).

10.3.8 Based on an assessment of all identified historic resources, the Corps has determined that the undertaking will have an overall adverse effect.

Effects on historic properties per segment include:

Surry – Skiffes Creek 500 kV Line Segment: This portion of the project primarily involves the construction of a single circuit overhead line requiring the placement of 17 towers and 4 fender protection systems within the James River. Dominion will avoid direct effects to all underwater archaeological resources identified, as tower construction are proposed outside of established buffers surrounding these resources. The proposed river crossing will adversely affect Jamestown Island – Hog Island Cultural Landscape through direct placement of towers within the landscape. The proposed river crossing will also adversely affect Carters Grove (National Historic Landmark), Colonial National Historic Park, Hog Island Wildlife Management Area, a portion of Jamestown Island (Black Point), the Battle of Yorktown, and Fort Crafford as a result of impacts to the surrounding view sheds. The proposed transmission line and towers will introduce elements that diminish the integrity of these architectural properties' significant historic features and may change physical features within the properties' settings.

Switching Station Site: Dominion's proposed switching station will impact portions of archeological site 44JC0662 resulting in an adverse effect.

Skiffes Creek – Whealton 230 kV Line Segment: This portion of the project involves tower replacements at varying heights or simply stringing transmission cable onto existing towers. The proposed upgrades will occur within an existing overhead power line easement and therefore will not alter the visual characteristics of the surrounding area from current conditions. Dominion will avoid impacts to archaeological sites by replacing towers in their same location and utilizing timber matting during construction to protect areas from ground disturbing activity. Impacts within this segment of the project are not likely to be adverse.

Overland Construction Access Points throughout the Corridor: All construction access will be from existing roads where possible. Timber mats will be used in wetlands, and upland areas may be matted or top-dressed with gravel to provide a stable, non-erodible driving surface as necessary. No ground disturbing activities are required for construction access.

General effects on historic properties:

The Corps acknowledges that this project will intrude upon the viewsheds of historic properties and on a unique and highly scenic section of the James River. Corps personnel, including the District Engineer, visited the area several times during this review, traveling the James River by boat and observing the river from the important vantage points and concludes that these vistas are clearly impressive and historically important. At an October 2015 consulting party meeting, the District Engineer referred to the project area as a "national treasure."

In our effort to evaluate the severity of these effects, we first note that aesthetic impacts are inherently subjective and do not lend themselves to quantitative or statistical analysis. For this reason, the Corps visited the sites several times, considered Truescape simulations of the proposed power line in photographs of the project area, and conducted a qualitative assessment of the effects. The Corps has also considered the Cultural Resources Affects Assessment prepared by Dominion's consultant, as well as visual simulations and evaluations prepared by commenters, such as the National Trust for Historic Preservation and the National Parks Service. The Corps compared the Truescape photo simulations to existing power line towers of similar height and design at the James River Bridge from comparable distances (see Section 10.3.5). The Corps concludes that the Truescape simulations provide a realistic depiction of the proposed project.

The Corps emphasizes that the project will cross the James River roughly one and a half to five miles from the landward vantage points of greatest interest. In many landward areas, such as the vast majority of Jamestown Island, the project will not be visible due to existing tree cover and vegetation. Where the project will be visible, it is generally at such a distance that it is on the horizon (e.g., from Black Point on Jamestown Island). We note that from the vantage points closest to the project, (limited areas of Colonial Parkway, Grounds at Carters Grove, Jamestown Island –Hog Island – Captain John Smith Trail Historic Distirct) the project will be a modern intrusion on the view, but we emphasize that it is not a blockage to viewing the river or the surroundings. Due to the distances from important vantage points, we conclude that the project will not dominate the view.

We also note that the project area is currently exposed to a number of modern visual intrusions, such as Busch Gardens, Kingsmill Resort, communication towers, the Highway 17 Bridge, Ft. Eustis, Surry Nuclear Plant, VDOT James River Ferry, and others. The area of the crossing also includes the Federal navigation channel supporting the Port of Richmond and other Commercial Facilities. As the SCC concluded, this area of the James River has mixed progress with history, but has done so successfully. While the project will clearly be visible from several locations, we conclude that it is not out of character with this successful mix of progress and history.

See "LIST OF IDENTIFIED ARCHEOLOGICAL AND ARCHITECTURAL RESOURCES AND CORRESPONDING EFFECT DETERMINATIONS TABLES" located in administrative record. These tables and corresponding effect determinations received VDHR's concurrence on February 17, 2016.

10.3.9 Mitigation initiatives that are intended to enhance the affected values and integrity of the historic properties and the cultural landscape, and strengthen the general public and visitor's understanding of and experience at important places within and related to this landscape through enhanced heritage tourism opportunities including development of additional interpretive and orientation facilities have been developed to resolve adverse effects. This mitigation will promote preservation of existing

above-ground cultural landscape features, such as natural resources and systems, vegetation, landform and topography, land uses, circulation, buildings and structures, Native American settlements, views, and small-scale features through land acquisition, and acquisition of historic preservation and open space easements.

Signatories agreed, on May 2, 2017, to the proposed mitigation measures that this MOA employs, as the resolution of the Project's adverse effects on the historic properties in compliance with Section 106 of the NHPA and 36 C.F.R. § 800.6.

10.3.10 Based on a review of the information above, the Corps has determined that it has fulfilled its responsibilities under Section 106 of the NHPA.

10.4 Tribal Trust Responsibilities

10.4.1 Was government-to-government consultation conducted with Federally-recognized Tribe(s)? Yes

10.4.2 Provide a description of any consultation(s) conducted including results and how concerns about significant effects to protect tribal resources, tribal rights, and/or Indian lands were addressed:

Consultation with interested Tribes is discussed in Section 10.3.4, Tribal Consultation, above. The general federal trust responsibility to Indian tribes applies to all federal entities, including the Corps of Engineers. Federal agencies must consult with tribes before taking actions which affects their property and rights. For this project, the Corps consulted with several federally recognized tribes, and issues of specific tribal treaties, resources, and/or rights did not arise. The project location does not intersect with Indian land and no protected tribal resources or tribal rights treaty rights were identified by any Tribes within the project boundaries.

10.4.3 The Corps has determined that it has fulfilled its tribal trust responsibilities.

10.5 Section 401 of the Clean Water Act – Water Quality Certification (WQC)

10.5.1 Is a Section 401 WQC required, and if so, has the certification been issued or waived? Yes

An individual water quality certification is required, and has not been issued or waived to date. A provisional permit will be issued for this activity.

10.6 **Coastal Zone Management Act (CZMA)**

10.6.1 Is a CZMA consistency concurrence required, and if so, has the concurrence been issued, waived or presumed? Yes

An individual CZMA consistency concurrence was issued by the Commonwealth of Virginia on September 15, 2014.

10.7 **Wild and Scenic Rivers Act**

10.7.1 Is the project located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system? No

10.7.2 Based on the National Park Service (NPS) data, Virginia has approximately 49.350 miles of river, but presently no designated National Wild and Scenic Rivers. The Commonwealth has a number a river segments listed on the Nationwide River Inventory (NRI) which are considered potentially eligible for inclusion in the National Wild and Scenic River System. Specifically, a 62 mile segment of the James River (between Mogarts Beach to Hopewell) is listed on the NRI. Dominion's proposed project falls within this segment which possesses "Outstanding Remarkable Values" (ORV) based on history.

10.7.3 On May 29, 2015, the Corps requested NPS's assistance in determining the significance or severity of the projects effects on the rivers ORV's.

On June 29, 2015, NPS responded, indicating in their opinion that the proposed project would have a significant adverse impact on the free flow of the James River, the undeveloped scenic character of the area, as well as associated historic and natural outstanding remarkable values of this NRI listed segment of the James River including certain species described by NPS as natural outstanding remarkable values for Wild and Scenic River purposes.

10.7.4 As outlined in Section 10.3 above, the Corps appropriately evaluated, considered, and addressed all effects to historic properties under Section 106 of the National Historic Preservation Act. The Corps believes its consideration pursuant to history for this segment of the James River have been adequately addressed and therefore determined that it has fulfilled its responsibilities under the Wild and Scenic Rivers Act.

The Corps has appropriately considered and addressed potential impacts to threatened or endangered species through proper application of the ESA Section 7 coordination process.

The Corps has considered NPS' comments regarding free flow within the James River and finds that the proposed work will have minimal effect.

10.8 **Effects on Federal Projects (33 USC 408)**

10.8.1 Does the applicant also require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would alter, occupy, or use a Corps Civil Works project? Yes.

On June 12, 2017, pursuant to Section 408 of the Rivers and Harbors Act, the Norfolk District Operations Branch provided their internal review and comments to the Regulatory Branch specific to Tribell Shoal Federal Navigation Channel and neighboring overboard disposal area.

On December 4, 2013 Norfolk District Real Estate Branch provided the results of their internal review to the Regulatory Branch which concluded the Corps has no real estate issues and permits can be issued, subject to Dominion acquiring consent from Operations that the proposed work will not affect the federal project channel and/or disposal area.

10.9 **Corps Wetland Policy (33 CFR 320.4(b))**

10.9.1 Does the project propose to impact wetlands? Yes

10.9.2 Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.

11.0 Special Conditions

11.1 Are special conditions required to protect the public interest, ensure effects are not significant and/or ensure compliance of the activity with any of the laws above? Yes

11.2 Required special condition(s)

- Pursuant to aquatic resources, Dominion shall purchase a total of 0.56 acres of non-tidal wetland mitigation credit from a Corps approved mitigation bank authorized to serve the watersheds where the proposed impacts are occurring. A total of 0.43 credits will be purchased within the Lower James River Watershed (Hydrologic Unit Code [HUC] 02080206) and 0.13 credits will be purchased within the Lynnhaven-Poquoson Watershed (HUC 02080108).

- Pursuant to Section 106 of the National Historic Preservation Act, Dominion shall implement and complete all mitigation initiatives, as outlined in the "April 24, 2017 MEMORANDUM OF AGREEMENT AMONG VIRGINIA ELECTRIC AND POWER COMPANY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICE, U.S. ARMY CORPS OF ENGINEERS NORFOLK DISTRICT, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION" executed on May 2, 2017.

- Pursuant to Section 7 of the Endangered Species Act and the Magnuson-Stevens Act, Dominion shall utilize bubble curtains at all times during pile driving activities associated with tower construction in the James River.

- Pursuant to Section 7 of the Endangered Species Act and the Magnuson-Stevens Act, Dominion shall use ramp-up methods which will gradually increase impact hammer intensity over the course of single pile install in the James River.

- Pursuant to Section 7 of the Endangered Species Act and the Magnuson-Stevens Act, Dominion shall ensure all pile driving work associated with structures 21, 22, and 24 - 26 located in deep water habitat areas of the James River must only occur between November 16th and February 14th of any given year.

- Per the United States Coast Guard (USCG), each fender protection system shall be lit with a visible all around slow flashing amber light that has a minimum twenty-four (24) candela setting placed in the center of each fender.

- Per the United States Coast Guard (USCG), Towers 21, 22, 25, and 26 within the James River shall be lit with a minimum of one visible all around slow flashing white light with a minimum twenty-four (24) candela setting. This associated lighting equipment should be placed on the tower side opposite of the fender light and at a minimum height of 15 feet (FT) above mean high water (MHW).

- Per the United States Coast Guard (USCG), Towers 20, 23, 24, and 27 within the James River shall be lit with a minimum of two visible all around slow flashing white lights with a minimum candela setting of twenty-four (24). This lighting equipment should be placed on opposite sides of each tower in an approximate east/west alignment and at a minimum height of 15 FT above MHW.

- The preparation and submission of a Private Aid to Navigation application (Form CG-2554) must be filed for approval by the United States Coast Guard (USCG).

- Dominion must notify, by email and/or letter, the Coast Guard office three weeks prior to the beginning construction of the project with pertinent information so it can be included in the Local Notice to Mariners (LNM).

- Pursuant to 408 permission letter (33 USC 408), Dominion shall ensure the following special conditions are implemented:

    - Prior to the start of construction, obtain all applicable federal, state, and local permits required to perform the requested construction activity.
    - A three-week advance notice of the start of construction must be submitted to the U.S. Coast Guard that includes pertinent information for their inclusion in their Local Notice to Mariners (LNM).
    - Construction work in or near the Federal channel shall be coordinated with the U.S. Coast Guard for the life of the project including a plan to manage and minimize impacts to local navigation. A minimum 60 day advance notice must be submitted to the Coast Guard for any full or partial channel

closures to allow time for them to publish a Temporary Final Rule which will limit marine traffic in the area.

- During all channel closures or restrictions, Dominion shall conduct work in phases that will allow waiting vessels to pass safely through the work zone between the phases to the maximum extent possible. At other times, it is required that adequate space be provided in the channels to allow for safe, efficient navigation.
- At no time shall any installed transmission line, equipment or structure, where it crosses the Federal navigation channel, extend lower than an elevation of 180 feet above mean high water.
- As the 2 towers on either side of the Federal channel are over 200 feet tall, the towers must be appropriately lighted and marked to meet Federal Aviation Administration (FAA)ICAO regulations.
- The new towers and lines across the James River must be added to the National Oceanic and Atmospheric Administration (NOAA)'s nautical charts regarding locations and vertical clearances.
- Markings and lighting for all fenders and towers shall meet U.S. Coast Guard requirements including submittal of their Private Aids to Navigation Application, Form CG-2554, for their review and approval.
- Upon completion of the permitted construction, Dominion shall perform an as-built survey, clearly indicating the locations of the installed transmission line, in plan and profile views, in relation to the Tribell Shoal Channel Reach of the James River Federal Navigation Project, associated overboard disposal area for dredged material placement, and the adjacent barge channel. Dominion shall perform and submit the as-built survey to the references and standards established by the Chief of Operations Branch, USACE Norfolk District, at the time of the survey and provide a digital copy of the survey to the Chief, Operations Branch, as soon as practicable after completion of the survey.

- To control the spread of invasive species, Dominion shall ensure that any seed mixes used for control of soil erosion or to stabilize disturbed areas anywhere in the vicinity of wetlands adjacent to the project shall be free of tall fescue, Bermuda grass, and other allopathic turf grass species, as well as plant species on the Virginia

Department of Conservation and Recreation's Invasive Alien Plant List.

12.0 Findings and Determinations

12.1 Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed deminimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibilities and general cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

12.2 Presidential Executive Orders (EO):

12.2.1 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians: This action has no substantial effect on one or more Indian tribes, Alaska or Hawaiian natives.

12.2.2 EO 11988, Floodplain Management: Alternatives to location within the floodplain, minimization and compensatory mitigation of the effects were considered above.

12.2.3 EO 12898, Environmental Justice: The Corps has determined that the proposed project would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

12.2.4 EO 13112 Invasive Species: There are no invasive species issues involved in this proposed project.

12.2.5 EO 13212 and EO 13302, Energy Supply and Availability: The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy related project while maintaining safety, public health, and environmental protections.

12.3 Findings of No Significant Impact:

As discussed above, the general environmental impacts of this project are minimal. However, many have suggested that the USACE should prepare an environmental impact statement for this proposal. These comments are largely centered on the proposed projects impacts to cultural resources. The commenters suggest that an EIS should be prepared to further evaluate alternatives and better inform the public.

While the affected cultural resources are clearly important, our inquiry does not end here. NEPA significance requires that we evaluate the intensity of the effects on those resources. The Corps does not minimize the value of the surrounding area. However, we conclude that the actual aesthetic effect of this project will be moderate at most.

Based on a thorough review of our record and the comments we received, we conclude that the comments requesting that the Corps prepare an EIS represent passion for the affected resources (i.e., opposition to the project based on importance placed on the resources), rather than substantive dispute over size, nature, or effect of the action. Because the effects of greatest concern are subjective, we conclude that the qualitative analysis we have conducted as part of our environmental assessment is as informed and reliable as it would be through preparation of a much more costly and time-consuming environmental impact statement.

After careful consideration of the context and intensity of the project's effects, we have decided not to prepare an EIS for this action.

12.4 Compliance with the Section 404(b)(1) Guidelines: Having completed the evaluation above, I have determined that the proposed discharge complies with the Guidelines.

12.5 Public Interest determination: Having reviewed and considered the information above, I find that the proposed project is not contrary to the public interest.

PREPARED BY:

Date: 12 June 2017

Randy L. Steffey
Project Manager; Southern Virginia Regulatory Section

REVIEWED BY:

Date: 12 June 2017

William T. Walker
Chief, Regulatory Branch

APPROVED BY:

Date: 12 June 2017

Jason E. Kelly, PMP
Colonel, U.S. Army Commanding