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December 18, 2014
File: 203446520

**Attention: Mr. Randy Steffey**
U.S. Army Corps of Engineers
Norfolk District Office
803 Front Street
Norfolk, VA 23501

Dear Mr. Steffey,

**Reference: NAO-2012-0080 Surry – Skiffes Creek – Whealton Alternatives Analysis Summary**

On behalf of Dominion Virginia Power (Dominion), Stantec Consulting Services, Inc. (Stantec) is pleased to provide this additional information in response to your email dated December 2, 2014, The following provides a comparison of environmental impacts for the proposed Surry – Skiffes Creek – Whealton 500kV/230kV line project as well as electrically viable alternatives presented in the Alternatives Analysis submitted on November 6, 2014. The intent of this submission is to assist the Corps with their alternatives analysis under the Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The following is a summary of the approach, assumptions made and available data used to develop the environmental factors associated with the analyzed alternatives.

**Practicability**

Dominion conducted an extensive alternatives study which was presented in the submitted Alternatives Analysis. Environmental impacts were not evaluated for all of the alternatives discussed as many of the proposed options were determined to be not practicable. Under 40 CFR 230.10(a)(2), an alternative is considered practicable if:

> "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."

Dominion first evaluated potential project alternatives to determine whether each could meet the overall project purpose and need. As stated in the Joint Permit Application (JPA) submitted in August 2013 and the Alternatives Analysis, the overall purpose of the project is:

> "to provide reliable, cost-effective bulk electric power delivery to the North Hampton Roads Load Area (NHRLA) to maintain compliance with North American Electric Reliability Corporation (NERC) reliability standards."

Alternatives were evaluated on whether they could electrically address the NERC reliability standards that must be met due to the retirement of Yorktown Units 1 and 2, regardless of whether the project could address the reliability needs within the required timeframe. The Alternatives Analysis provided detail on why the alternatives in Table 1 would not electrically

address the NERC reliability standards. As these options are not electrically viable, they are not considered further.

Table 1. Alternatives that do not electrically address NERC violations

| Alternative | Section in Alternatives Analysis |
|---|---|
| No Action | 3.0 |
| Demand-Side Management | 3.2.2 |
| Line 214/263 230 kV Rebuild (James River Bridge Crossing) | 3.2.3.1 |
| Chuckatuck – Newport News 230 kV Line (Whittier Hybrid) | 3.2.3.2 |
| Chickahominy – Lanexa 500 kV | 3.2.3.4 |
| Underground 230 kV Hybrid Single Circuit | 3.3.1 |
| Underground 230 kV Hybrid Double Circuit | 3.3.1 |
| Alternative 230 kV Underground Crossing (PAR) | 3.3.1.1 |

After eliminating alternatives that are not electrically viable, and therefore do not meet the overall purpose, Dominion evaluated the practicability of the remaining alternatives based upon cost, existing technology, and logistics. At the time of the initial analysis, all alternatives except for the proposed project and Chickahominy – Skiffes 500kV alternative were determined to be not practicable based upon cost and logistics[1]. Logistical constraints include engineering, available space, and the capability to meet the schedule dictated by the MATS rule and NERC reliability criteria. As such, detailed evaluations for environmental impacts were only assessed for these two options as they were, at the time, the only two practicable alternatives.

**Environmental Impacts**

At the request of the Corps, Stantec is providing qualitative information concerning environmental impacts for alternatives shown in Table 3-1 of the Alternatives Analysis, as well as impacts for the Surry – Skiffes Creek 500 kV underground (HVDC) and Surry – Whealton 500 kV alternatives. The practicability of each of these alternatives from an electrical and logistical standpoint was extensively discussed in the previously submitted Alternatives Analysis. The following information provides only an environmental assessment of these alternatives, and does not change the ultimate determination of practicability previously presented.

Dominion and Stantec conducted detailed field studies on both the Surry – Skiffes Creek 500 kV route and the Chickahominy – Skiffes Creek 500 kV route as part of the planning process. The information presented in the modified Table 3-1 (attached) reflects the results of these studies.

[1] Original analysis was completed in 2012 and early 2013 and presented during the State Corporation Commission (SCC) hearing. At this time, only the Surry – Skiffes Creek 500 kV alternative is potentially able to meet the required schedule and in-service date of April 2016.

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However, detailed studies were not conducted for other alternatives as they are not practicable alternatives. Relative impacts for these alternatives were assessed utilizing available desktop resources, agency databases and aerial imagery. As such, the information presented is based on best professional judgment given the anticipated project engineering and construction methods. A modified Table 3-1 is attached that provides environmental impact comparison of the following resources:

- Tidal wetland impacts
- Palustrine forested (PFO) wetland conversion
- Subaqueous bottom impacts
- Direct oyster lease impacts
- Water quality impacts
- Nature of any proposed river crossing
- Federally protected species impacts
- Potential for visual effects to architectural resources
- Archaeological sites within ROW
- Underwater archaeological sites within ROW
- Homes within 500 feet of ROW

Note that all alternatives would require the Skiffes Creek – Whealton 230 kV rebuild; therefore, environmental impacts for this portion of the project are not included in Table 3-1. A discussion of the assumptions made for the evaluation of each alternative follow.

Surry – Skiffes 500 kV (Proposed Project)

Impacts associated with the proposed project are provided in the JPA and BASF modification. Fieldwork was conducted to identify the extent of jurisdictional wetlands and assess the presence/absence of federally protected species. Concurrence with federally protected species affect determinations has been obtained from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Water quality impacts are expected to be minimal given the use of erosion and sediment controls.

Chickahominy-Skiffes Creek 500 kV (Section 3.2.3.5)

The environmental impacts of this route were evaluated in detail during the SCC approval process; therefore, fieldwork for wetlands and cultural resources was conducted. Environmental impacts for this alternative were provided in Table 4-1 of the JPA. Detailed habitat or presence/absence surveys were not conducted for the federally threatened small-whorled pogonia and sensitive joint-vetch; however, potential habitat for these species appears to occur in multiple areas along the route. No affect determination has been made for the Atlantic sturgeon. Bald eagles nest within the vicinity of this alternative; however, a determination of the

effect has not been made. Impacts to water quality are assumed to be the same as for the proposed alternative.

Underground 230 kV Single and Double Circuit plus Retrofit Generation (Sections 3.3.1 and 3.2.1)

As stated in the Alternatives Analysis, no 230kV solution could meet the project purpose and need. Each of the 230 kV options presented must therefore be evaluated in conjunction with additional generation retrofits. It is assumed that a 230 kV option would include a submarine crossing of the James River, and generally follow the Surry – Skiffes Creek 500 kV route on the overland portions of the project. Impacts to PFO wetlands from the overland portions of this line would be the same as the impacts provided in Table 4-1 of the JPA. Additional impacts may occur due to the need to construct a transition station to convert the overhead line to submarine on the Surry side and back to overhead on the James City County side. Section 3.3.1 of the Alternatives Analysis discusses ROW widths and possible construction methodology. This information was used to evaluate potential impacts to subaqueous bottom, oyster leases, and water quality.

NMFS has not evaluated the effect this alternative would have on Atlantic sturgeon; however, adverse effects may occur depending upon the timing and duration of any proposed dredging. Like the proposed project, these alternatives would be unlikely to disturb bald eagles.

There are eight underwater anomalies located within the proposed crossings for these alternatives. The effect to these underwater resources from directional drilling or the dredging of required splice pits was not evaluated, but it is possible that they may be impacted whereas the proposed alternative was able to avoid all located anomalies. Direct impacts to private oyster lease areas may occur.

No environmental impacts are expected to occur for the retrofitting of Yorktown Units 1 or 2.

Line 214/263 230 kV Rebuild (James River Bridge Crossing) plus Retrofit Generation (Sections 3.2.3.1 and 3.2.1)

As stated above, this 230 kV option is evaluated only in conjunction with additional generation upgrades. Some temporary impacts to tidal wetlands could occur during structure rebuilds on the Isle of Wight County side of the James River crossing. Since this alternative involves a rebuild, no additional PFO wetland conversion, subaqueous bottom encroachment, or direct impacts to oyster leases would be expected. As with the proposed project, minimal impacts to water quality would be expected.

NMFS did not make an Atlantic sturgeon affect determination; however, it is assumed that this alternative would have the same effect as the proposed project. It appears that adequate

buffer occurs between the existing line and known bald eagle nests and the alternative would not be expected to disturb bald eagles.

Archaeological resources were not evaluated; however, as this alternative is a rebuild of an existing line, it is not expected that the project would adversely affect any archaeological site potentially eligible for listing on the NRHP. Architectural resources may be affected if tower heights were required to increase. The number of homes within 500 feet of the ROW required for the Line 214/263 230 kV Rebuild alternative was not evaluated; however, since this alternative would use existing ROW, little effect is assumed to occur.

New Generation (Section 3.2.1)

Environmental impacts are difficult to evaluate without an identified site for a new generation facility and associated natural gas pipeline; however, several assumptions can be made. Tidal wetland impacts and encroachment over subaqueous bottom may occur due to the construction of the facility intake structure. Similarly, the pipeline ROW may cause impacts to tidal wetlands and would likely result in PFO wetland conversion. The facility itself would be unlikely to have direct encroachment on subaqueous bottom, but the pipeline ROW may require encroachments. Best management practices and erosion and sediment controls would minimize water quality impacts during construction. Any new facility would also be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the Clean Water Act for the discharge of cooling and process water.

It is assumed that the location of a new generation facility could avoid impacts to threatened or endangered species through careful siting of the facility. However, any proposed intake would need to comply with the Section 316(b) rule for new cooling water intakes, and the effect to Atlantic sturgeon would need to be evaluated if the intake were proposed on the James River.

The facility itself, including the associated intake structure, would need to be evaluated for effect on any architectural resources eligible for listing on the NRHP. Archaeological surveys would need to occur for the facility and pipeline. Due to the limited footprint and near shore nature of the intake structure, minimal impacts to underwater cultural resources would be expected. It is unknown how many homes or businesses would be in the vicinity of any proposed new generation facility or the pipeline ROW; however, it is likely that some would be affected.

Surry – Whealton 500 kV (Section 3.2.3.3)

The Surry – Whealton 500 kV alternative would require new ROW and would cross approximately 5 acres of tidal wetlands at the Isle of Wight County side of the James River. Although potential structure locations were not determined for this alternative, it appears that at least one structure may need to be located with tidal wetlands and temporary and permanent impacts would

occur. Although the width and location of the required expanded ROW were not evaluated, there are extensive PFO wetlands on both sides of the existing 230 kV line and significant PFO wetland conversion would be expected. Based upon the number of existing structures in the James River and the structure footprints needed for the Surry – Skiffes 500 kV proposed project, it is estimated that approximately 0.5 acre of subaqueous bottom encroachment would occur. A total of 10 oyster leases would be crossed by this alternative, and new towers would need to be constructed within the oyster lease areas. Water quality impacts would be similar to that of the proposed project.

NMFS did not make a determination of the effect to Atlantic sturgeon; however, it is assumed that this alternative would have the same effect as the proposed project. It appears that adequate buffer occurs between the existing line that would have expanded ROW and known bald eagle nests; therefore, this alternative would not be expected to disturb bald eagles.

The placement of larger structures required for the 500 kV line could lead to visual impacts to architectural resources where there are not currently any from the 230 kV line. Structure placement on the overland portions could potentially avoid any adverse impacts to archaeological sites eligible for listing on the NRHP. Although the new 500 kV line would be located adjacent to an existing crossing at the James River, it is unknown whether underwater archaeological resources may be affected by this alternative. Condemnation of some homes and/or businesses would be likely for the expansion of ROW and upgrade of the Whealton or Winchester substations to a switching station.

<u>Surry – Skiffes Creek 500 kV Underground (HVDC) (Section 3.3.3)</u>

An exact route for the Surry – Skiffes Creek 500 kV Underground (HVDC) alternative was not identified; however, trenching impacts to tidal wetlands within Hog Island would likely occur if a northern route were required to avoid crossing the natural gas pipelines in the James River. Additionally, the large (10 – 20 acre) sites required on both sides of the river for stations to convert the voltage from alternating current to direct current could lead to significant direct impacts to tidal wetlands (Hog Island) or PFO wetlands, depending on the location of the sites. PFO wetland conversion impacts from the overland line segment between the James River and the Skiffes Creek switching station would be similar to either the proposed project or the 230 kV underground alternatives depending on the James River crossing route required. A ROW width was not determined. However, oyster leases are prevalent in the area and any proposed HVDC crossing would result in significant direct impact. The installation of the submarine cable required for the Surry – Skiffes 500 kV Underground (HVDC) alternative would result in temporary impacts to water quality during construction due to increased turbidity and potential release of contaminants bound to sediment in the river.

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Survey information collected for the proposed project indicates that small-whorled pogonia would not be present for the HVDC alternative. NMFS has not evaluated the effect that trenching or jet-plowing over a 4 mile crossing would have on Atlantic sturgeon; however, potential adverse effects could occur depending upon the timing and duration of proposed dredging. Like the proposed project, this alternative would be unlikely to disturb bald eagles.

Although no structures would be located in the James River, large converter stations five to eight stories (up to nearly 100 feet tall) would need to be constructed on both sides of the river. The potential effect of these large structures on nearby architectural resources (Carters Grove, Hog Island) has not been evaluated. Underwater archaeological effects cannot be evaluated without a proposed route; however, the required trenching for this alternative would lead to adverse effects to any resources along the route. The Surry – Skiffes Creek 500 kV Underground (HVDC) alternative would have effects to homes similar to the proposed project.

Thank you for your prompt review of this material. If you have any questions or require additional information, please advise me at your earliest convenience.

Regards,

**STANTEC CONSULTING SERVICES,INC.**

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Attachment: Modified Table 3-1. Additional Analyses Summary Results

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Ben Stagg, Virginia Marine Resources Commission
Larissa Ambrose, Department of Environmental Quality