



IN REPLY REFER TO:
A.1.2.(NE-RSS)

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US Army Corps of
Engineers
Norfolk District
Regulatory Office
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William T. (Tom) Walker, Chief
Regulatory Branch, USACE
Norfolk District
803 Front Street
Norfolk, VA 23510

Dear Mr. Walker:

As noted in our March 14 letter, the National Park Service (NPS) has consistently found the visual analysis provided by Dominion does not meet NPS standards. We also mentioned we retained the assistance of visual impact assessment experts from the NPS Air Resources Division and Argonne National Laboratory to provide expert advice and guidance on the scope of work for additional analysis and review of both prior and future assessments.

This letter provides specific comments on the existing visual analysis included in the September 15, 2015 *Cultural Resources Effects Assessment* (CREA). This letter supplements and expands upon our prior comments on the CREA and is intended to assist the Corps to ensure that the visual impact assessment completed for section 106 and National Environmental Policy Act (NEPA) meets necessary standards.

General Comments:

The CREA lacks the basic description of the landscape character overall and from each viewpoint. This "affected environment" would serve as the basis for identifying impacts through a contrast analysis as well as the baseline for assessment of visual resource impacts in a NEPA document. The description should include components such as landform, land cover, land use and structures visible from each viewpoint, as well as the forms, lines, colors and textures with which the proposed project would contrast so that a clearer basis for the level of effects can be identified.

An analysis of how the project components contrast with the existing landscape is missing. It is often difficult to understand how a conclusion of no effects or for adverse effects was reached with no consistent assessment of how the project would be different from and visible in the landscape.

The photos used in the effects sections are not informative to the analysis or conclusions. The arrows used on some indicate some vague location of project elements that could really be anywhere out to the far horizon of the photos. Direct reference to the simulations in the appendix would provide a better way for readers to understand potential impacts.

Key Observation Point (KOP) selection leaves out key locations associated with the Captain John Smith Chesapeake National Historic Trail. Additional simulations are needed to fully understand potential effects from locations on the trail. Specifically upstream and downstream simulations from close proximity to the proposed crossing will provide a sense of the impacts to trail users. These could be from locations such as viewpoints 4 and 5 on Figure 171 – and should be even closer as trail users will move close to and under the proposed project crossing.

Along with direct use of the simulations as part of the assessment, a description of the simulation development process should be provided – including the limitations of their use. Even the highest quality simulations have their limitations. The following points are from the Best Practices Guide:

- Visual simulations are not “real life views” – they are, however, very useful tools to assist in the assessment and decision making process whereby better informed and more transparent judgments on appearance and effects can be made.
- Visual simulations illustrate a two dimensional view of a proposed activity from a particular viewpoint as depicted in a photograph – not as it would appear as a three dimensional image as seen in the field with the human eye.
- Photographs are two dimensional images and cannot replicate a three dimensional image or what a person would actually see and experience from any particular viewpoint. Light and atmospheric conditions as well as the time of day will influence the photography and in particular the clarity of objects within the photograph
- Notwithstanding this, visual simulations are important and useful tools that enable an activity or development to be represented, viewed and assessed from each viewpoint in a manner that would otherwise not be possible. Visual simulations are used to illustrate the likely view of a proposed development from a particular viewpoint, as would be seen within a photograph – not as it would appear to the human eye in the field.

Specific Comments by Section:

Section 2.2 – general comment: The Visual Effects Assessment Methodology section provides information only about how visibility of the project was determined and actually says nothing about how the effects were determined and thus is incomplete. The section should provide information about how potential effects were identified and how they were evaluated. If there was a finding of “no adverse effects,” what was the basis for it?

Section 2.2 (pg. 2.17) “As described in more detail in Section 3.35 and Section 5.0, the APE is not pristine: located in or near it and visible from portions of the APE is Surry Power Station, Busch Gardens Amusement Park, Kingsmill Resort, an inactive BASF Chemical Plant, the Ghost Fleet and a working ferry.” -- What is relevant is what is visible from the potentially affected resources, not the visual qualities of the APE as a whole.

Section 2.2 (pg. 2.18) “For example, in some instances raising/lowering the observer elevation by as little as six inches can have a profound effect on which targets are visible or not visible.” -- The exact heights used for the analysis need to be provided, as well as information about the accuracy of the DSM.

Section 3.9 General Comment: A description of the existing visual setting, including visible intrusions would be very helpful to evaluate the impacts. Similarly, a description of what the proposed structures would look like, e.g., “the towers and conductors would be visible in a gap in the tree line. Additional towers and conductors would project above the top of the visible tree line, etc.” There is basically no description of what the structures would look like in the existing setting, how prominent they are, how they contrast with the existing surroundings, etc.

Section 3.9 (pg. 3.61) Analysis of effects to Carter’s Grove from Skiffes Creek Switching Station and Skiffes Creek to Whealton 230 kV Segments: The discussion references Photo Arrow 1A (from Figure 38) and Figure 40. The arrow and photo caption indicate that the photo is pointing away from the switching station and 230 kV segment, and the photo is therefore not relevant to the impact analysis. The discussion references Photo Arrow 1b (from Figure 38) and Figure 41. The arrow indicates that the photo is pointing northwest of the northwestern end of 230 kV segment, into an area with no existing line or towers, but the caption says the photo is looking at the existing line. There is no indication that a GIS-based line-of-sight analysis toward the 230 kV line was conducted, so it’s difficult to evaluate the accuracy of the impact assessment.

Section 3.9 (pg. 3.61) Analysis of effects to Carter’s Grove from Surry to Skiffes Creek 500 kV Segment: We note that an expert witness on visual simulations at the SCC hearing, found that there would be three towers visible. The Truescape simulations showed two, and Stantec’s line of sight analysis figure (Figure 38) indicates that 2 towers are visible. If the expert witness is correct, then both the Truescape simulations and Stantec’s LOS analysis are apparently wrong.

The expert witness’s firm used the tethered balloon approach, which Stantec said they could not do. The tethered balloon method is more definitive and Stantec should have used that approach. The fact that they did not use the tethered balloon method, and that the expert witness subsequently used that method to come up with different results than Stantec’s approach casts doubt on the accuracy of Stantec’s conclusions.

Section 3.33.1.4 (pg. 3.184) Effects analysis for Colonial Parkway Historic District: This section refers several times to the line appearing “distant.” At approximately 3.5 miles, the transmission line likely will be very noticeable at times, based on numerous observations as documented in the Transmission Visual Contrast Threshold Distance Analysis, even with generous allowance for the relatively poor air quality in the Eastern U.S. Saying that the line will appear “distant” is using an undefined term that seems to minimize the impacts but without any justification or meaningful logic.

On pg. 3.185, text references Figures 13 and 14 saying that the proposed line will be similar in appearance, “on a similar day.” This is very misleading. First, the small size and low resolution of the photos makes the transmission line substantially less visible (and likely smaller in apparent size) than it would be if viewed in person. Secondly, the photos look like they were taken on days when air quality was relatively poor. It is likely there would be many days when air quality is better and the transmission line would be more visible. It is important that simulations (and impact assessments) use days of good air quality (for the region) as that standard for assessment, as those days occur regularly. The photos shown in the report underrepresents the visibility of the transmission line, and should not be used at all in an analysis like this.

On pg. 3.185, the text says that the lighting “typically required” (L-864) may be visible up to 3.1 miles. This appears to be a misreading of the FAA guidance, which is likely referring to the lighting needing to meet a particular brightness standard at a given distance. The lighting will definitely be visible, and conspicuously so, based on many observations; the L-864 lighting is what is used on wind turbines, on which our experts have repeatedly observed these lights to be plainly visible at distances exceeding 30 miles. The expert witness in the SCC process said that strobes would likely be used. If this is the case, the impacts would be much greater than described here, and this should be determined one way or another before the impact assessment is done; it is too important a detail to not know when making an impact determination.

Section 3.33.2.4 (pg. 3.191) Effects Analysis for Jamestown Island Historic Site and Historic District. The text refers to the transmission line at 3 miles as “very distant.” It is closer than the line as viewed from the Colonial Parkway point described above, which was described as “distant.” As per above, the term is misleading, and even more so in this case, as the line is described as “very distant” when it is actually closer. At 3 miles, if the view is across an open flat river, the towers are likely to be very noticeable at times.

The lighting impacts comment above (for Colonial Parkway) would also apply here; at 3.0 miles, the lights on the transmission towers would be plainly visible, and if strobes were used, the impacts would be much worse.

Section 3.35.4 (pg. 218) Analysis of Effects for Eligible Historic District (Captain John Smith Trail). The text states that the proposed transmission line would appear similar to the transmission line in the photos of the James River Bridge in Appendix D.5. There are several photos in Appendix D.5, taken at a variety of distances and focal lengths. Some appear to be wide angle photos and some are substantially zoomed in, but there is no indication which photos approximate the view that the viewer would actually see when looking at the proposed project, and there is no information provided about the focal length or the appropriate photograph viewing distance for the photos in Appendix D.5. Consequently, there is no way to accurately compare the views described in the analysis with the photos in Appendix D.5.

The James River Bridge Crossing transmission line is a 230-kV line, which would normally mean that the towers are smaller and lower in height than the towers that would be used for a 500 kV line. No

information is provided in the report about the size and height of the structures shown in the Appendix D.5 photos, but they are likely to be smaller than the proposed 500 kV towers.

Furthermore, the photos in Appendix D.5 were evidently taken on a day of poor air quality, as is evident in the photos, which makes the transmission line components very difficult to see. While days of poor air quality no doubt do occur, they should not be considered representative of the air quality in the region. During summer 2015 visits to the Captain John Smith Chesapeake National Historic Trail, the air quality was substantially better than it appears in the Appendix D.5 photos, and consequently the transmission line would be more visible than shown in these photos.

More generally, in the Electric Transmission Visual Contrast Threshold Distance study (as in the Wind Energy Visual Impact Threshold Distance Analysis), when photographs of the facilities were compared to the real views of the facilities in the field, the photographs were consistently judged to underrepresent the visual contrasts created by the facilities, appearing less sharp and duller than the real views. In other words, even if the air quality was better when the photos in Appendix D.5 were taken, the transmission facilities would still be less visible in the photos than they would be seen in reality.

In the Electric Transmission Visual Contrast Threshold Distance study, 500 kV lines viewed at a distance of 1.5 miles were often visually prominent enough to be dominant visual elements in the views. In the James River Bridge wide-angle photos they are barely visible at 1.5 miles. Based on numerous observations of transmission lines, we believe the Appendix D.5 photos substantially underrepresent the average visibility of 500 kV transmission towers at the specified distances.

This point is important, because the photos presented in Appendix D.5 are repeatedly cited as evidence that the expected impacts of the proposed transmission project would be low. For example, on pg. 3.219: "Photographs taken at distances of 1.5, 3.0 and 4.5 miles of the riverine transmission line crossing at the James River Bridge indicated that the visual impact of the James River Bridge crossing and the bridge itself was minimized greatly between 3.0 and 4.5 miles from the structures (Appendix D.5)." Stating that the view of the proposed transmission project would be similar to the appearance of a different transmission project with towers likely smaller and lower in height, shown in a low-resolution photograph apparently taken on a hazy day and displayed at a small size in a report with no information about the focal length or viewing distance of the photo is inappropriate and invalid. It is very likely that the proposed project would often appear to be substantially more visible than shown in the Appendix D.5 images.

The analysis neglects to mention that persons floating the river, which is a water trail, would pass under the transmission line where it crosses the river, and thus would be subject to close-up views of the towers and conductors which would dominate views for a considerable distance away from the crossing. Discussing the impacts primarily from viewpoints at a considerable distance from the proposed project without also discussing the very large visual impacts that would occur close to the proposed project underrepresents the overall magnitude of the impacts.

The lighting impacts comment above (for Colonial Parkway) would also apply here; because the trail passes through the transmission crossing, the lights on the transmission towers would be very plainly visible, including navigation lighting, and if strobes were used, the impacts would be much worse.

Summary of Key Points:

In summary, there are a number of critical shortcomings of the visual analysis performed to date and its presentation in the CREA:

1. There is no clear baseline description of the visible landscape.
2. There are no clear statements of the degree of change in the landscape which would result from the project.
3. For multiple reasons described above the photographs published in the document are essentially meaningless for analytical purposes; they are not helpful references and are in fact misleading.
4. There are critical KOPs for which simulations are not provided, particularly along the Captain John Smith Chesapeake NHT and within the historic district.
5. There is no explanation of the methodology used for the simulations and no acknowledgement of their limitations.
6. Further, there is an over-reliance on simulations and comparisons that are inappropriate, rather than established findings and references from prior research.
7. As a result of all of the above, there is no clear rational, consistent method for measuring visual impacts.

We note that the comments above apply only to the visual analysis conducted for the CREA as part of Section 106, as that is all we have been provided to review. There would be an even broader scope of visual impact assessment which must be conducted under NEPA, such as impacts to recreation in the area. All of the principles discussed above would apply there as well, as do the guidelines cited in our March 14 letter. We expect to provide additional comments relative to the scope of NEPA visual impact analysis in our future conversations. We would also suggest that the Corps consider requiring video simulations from a selection of locations in future visual analysis for this project. Such video simulations are excellent at conveying the sense of movement that strobe lights entail, and a fly through type of simulation would be useful in understanding the view river users would have as they approach the towers and cross under the proposed transmission line.

Thank you again for your continuing attention to this vitally important matter. We look forward to talking with you soon about how to address these issues.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Frank R. Hays', with a stylized, flowing script.

Frank R. Hays
Associate Regional Director
Resource Stewardship and Science

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