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United States Army Corps of Engineers
Norfolk District
Attention: Randy Steffey
803 Front Street
Norfolk, Virignia 23510-1011

RE: Alternatives Analysis Summary

Similar to the Consolidate Effects Report we are providing the attached summary of alternatives analyses under the Section 404(b)(1) guidelines, the National Environmental Policy Act and the National Historic Preservation Act.

Should you have any questions or need additional information, please contact me at (804) 771-3599 or bob.mcguire@dom.com.

Sincerely,

Bob McGuire
Director, Electric Transmission Project Development & Execution

cc: Tom Walker, ACE
Christine Conrad, Stantec
Ben Stagg, VMRC
Larissa Ambrose, DEQ

Surry-Skiffes Creek-Whealton Line – Summary of Alternative Analyses Under the Clean Water Act, National Environmental Policy Act and National Historical Preservation Act - Standards for Review of Alternatives

I. Executive Summary

The United States Army Corps of Engineers ("Corps") is evaluating Dominion Virginia Power's ("DVP's") application under Section 404 of the Clean Water Act ("CWA") for discharges of dredged and fill material into waters of the United States related to the construction of the Surry-Skiffes Creek-Whealton Line ("the Project"). In addition to the alternatives analysis required under the CWA 404(b)(1) guidelines for that permit, the Corps must also evaluate alternatives under the National Environmental Policy Act ("NEPA") and the National Historic Preservation Act ("NHPA"). While each of these requirements for an alternatives analysis varies in some respects from the other in terms of focus, they all generally require the Corps first to define the project purpose, and to determine what practicable and reasonable alternatives exist in light of the project purpose and technological, logistical, economic, and other feasibility considerations. Only after the Corps has determined what alternatives are practicable and reasonable, does it carry those forward for a detailed alternatives analysis under the statutes noted above.[1]

- Under the CWA, the focus is on reducing impacts to aquatic life and water quality;
- Under NEPA, the focus is more broad – the human environment;
- The NHPA requires focused consideration of impacts to historic resources, with a higher focus on minimizing impacts on National Historic Landmarks.

These criteria are typically reviewed in one analysis with the statutory nuances duly noted. Courts have held that all three types of analyses are procedural in nature and as long as the

[1] Similarly, while those analyses also differ somewhat in focus from the alternatives analysis performed by the Virginia State Corporation Commission ("SCC"), they remain substantially similar. Thus, that robust investigation that led to SCC's approval of the Project provides additional information and findings that has aided in the Corps's review.

agency carefully considered the relevant factors, a court will not substitute its judgment for that of the agency.

This memorandum summarizes the CWA, NEPA, and NHPA alternative analyses requirements and applies them to the proposed alternatives identified for the Project.

II. Factual Background

Among its many other service areas, DVP provides electric service to 14 counties and seven cities largely located along the peninsula area of southeastern Virginia.. This region includes the counties of Charles City, James City, York, Essex, King William, King and Queen, Middlesex, Mathews, Gloucester, King George, Westmoreland, Northumberland, Richmond and Lancaster and the Cities of Williamsburg, Yorktown, Newport News, Poquoson, Hampton, West Point and Colonial Beach. For DVP's and the Project's purposes, this area is known as the North Hampton Roads Load Area ("NHRLA"). NHRLA is home to over 285,000 customers, including those living in historic Williamsburg and Newport News. In addition to the hundreds of thousands of residential customers, the following private businesses, government institutions and installations, and other entities are among many located in NHRLA: Newport News Shipbuilding; Canon; Thomas Jefferson National Accelerator Facility; Joint Base Langley-Eustis (Air Force-Army); Yorktown Naval Weapons Station; NASA Langley Research Center; College of William and Mary; Christopher Newport University; and Anheuser-Busch and Busch Gardens. As is readily apparent, NHRLA contains important centers of commerce, tourism, and education for Virginia, as well as important and strategic assets for the United States' national defense. Based on its current estimates, DVP expects the demand for electricity in NHRLA to grow by 8% between 2015 to 2020.

Consistent with its ongoing generation and transmission grid reliability evaluations, DVP initially determined that it needed to add additional electrical transmission facilities by 2019 to meet growing electric demands in NHRLA. As discussed in greater detail below, this timing was accelerated in December 2011 when the U.S. Environmental Protection Agency ("EPA") promulgated a new Clean Air Act ("CAA") rule, the Mercury Air and Toxics Standards ("MATS") Rule, to reduce the emission of toxic air pollutants from coal and oil-fired power plants. In light of this rule, DVP evaluated its existing generation facilities to identify which units, if any, would be affected. As a result of that evaluation, DVP determined that it must retire the two coal-fired units at its Yorktown facility because installation of pollution control equipment to meet the emissions standards set forth in EPA's rule would be far too costly in light of other options. Under EPA's rule, the two Yorktown units initially needed to be retired by April 2015, but DVP was able to apply for and obtain an extension of that deadline to April 2016. Due to delays in permitting the Project, DVP must soon apply for an additional one year extension until April of 2017. It is not known whether EPA will grant that extension as none have yet been granted. There are no opportunities for further extensions under the CAA. In order to avoid critical issues regarding federally mandated reliability in the NHRLA and elsewhere in the region, DVP now plans to complete the Project in time to redistribute power from other generation sources into the NHRLA before the Yorktown units are retired.

III. Summary of Standards for Alternatives Analysis Under Applicable Programs

A. Alternatives Analysis Under CWA § 404[2]

Permits issued by the Corps under Section 404 of the CWA are subject to water quality and other criteria for determining whether and under what conditions a Section 404 permit can be issued. These criteria are set forth at 40 C.F.R. pt. 230 and are referred to as the 404(b)(1) Guidelines. *See* 33 U.S.C. § 1344(b)(1).

The Guidelines prohibit the issuance of a permit where there "is a practicable alternative to the proposed discharge which would have less adverse impacts on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). In other words, a permit may only be issued for the least environmentally damaging practicable alternative. To be "practicable," an alternative must be "available and

[2] In fulfilling its statutory obligation under Va. Code §§ 56-265.2 and 56-46.1 to approve the construction of transmission lines in Virginia, the SCC also considers alternatives to the proposed project. Under Va. Code § 56-46.1(B), the SCC is required to determine whether a need for the proposed project exists and also whether the "corridor or route the line is to follow will reasonably minimize adverse impacts on the scenic assets, historic districts and environment of the area concerned." In addition, the SCC is required to consider impacts on economic development in the Commonwealth as well as the impact of the project on service reliability. Va. Code § 56-46.1(A). As part of the analysis to make the required determinations, the SCC evaluates all of the available alternatives based on the criteria under Va. Code § 56-46.1.

In conducting its review, the SCC not only considers the direct adverse impacts of the proposed project and the alternatives on the scenic assets, historic districts and environment of the area, but also balances these impacts against other factors such as economic and environmental factors, reliability of electric service, engineering feasibility and costs of construction for the alternatives. *BASF Corp. v. State Corp. Comm'n*, 770 S.E.2d 458, 468 (2015). These elements all contribute to the SCC's ultimate decision of what alternative best serves the total public interest. *Id.* at 468-69. As discussed herein, while the language focusing the SCC's analysis is somewhat different than that of the CWA, NEPA, or the NHPA, the agency ultimately looked at the same issues addressed under those statutes: impacts to the environment and cultural resources. Thus, while the Corps is conducting its own independent review of the Project, it can review and confirm the SCC's analysis and conclusions to bolster its own.

capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." *Id.* at § 230.10(a)(2).

Although the Guidelines have been promulgated as binding regulations, they provide the Corps with an inherent flexibility in their application. *See* 45 Fed. Reg. 85336, 85336 (Dec. 24, 1980) ("Of course, as the regulation itself makes clear, a certain amount of flexibility is still intended. For example, while the ultimate conditions of compliance are "regulatory", the Guidelines allow some room for judgment in determining what must be done to arrive at a conclusion that those conditions have or have not been met."). Guidance jointly issued by the Corps and EPA reflects this flexibility. Regulatory Guidance Letter 93-02, *Guidance on Flexibility of the 404(b)(1) Guidelines and Mitigation Banking* (Aug. 23, 1993) (hereinafter the "RGL")[3]. According to the RGL, the Guidelines provide that "the record must contain sufficient information to demonstrate that the proposed discharge complies with the requirements of Section 230.10(a) of the Guidelines. The amount of information needed to make such a determination and the level of scrutiny required by the Guidelines is commensurate with the severity of the environmental impact (as determined by the functions of the aquatic resource and the nature of the proposed activity) and the scope/cost of the project." RGL at 2. Furthermore, "[a] reasonable, common sense approach in applying the requirements of the Guidelines' alternatives analysis is fully consistent with sound environmental protection. The Guidelines clearly contemplate that reasonable direction should be applied based on the nature of the aquatic resource and potential impacts of a proposed activity in determining compliance with the alternatives test. Such an approach encourages effective decision making and fosters a better understanding and enhanced confidence in the Section 404 program." RGL at 6. One example of this common sense approach is that where the "alleged alternative is unreasonably expensive to the applicant, the alternative is not 'practicable.'" *Id.*; 45 Fed. Reg. at 85,343.

[3] Also available at http://water.epa.gov/lawsregs/guidance/wetlands/flexible.cfm.

The Fourth Circuit has only had one opportunity to directly review a 404(b)(1) practicable alternatives analysis. In that case, the court upheld the Corps's issuance of a permit over EPA's veto pursuant to section 404(c) of the CWA. *James City Cnty., Va v. EPA* (*JCC I*), 955 F.2d 254 (4th Cir. 1992), *rev'd on other grounds*, *JCC II*, 12 F.3d 1330 (4th Cir. 1993), *cert. denied*, 513 U.S. 823 (1994). The Fourth Circuit's affirmance of the permit in *JCC I* is instructive on the issues of practicable alternatives, despite the fact that it ultimately affirmed a second veto by EPA in *JCC II* for the same project. There, "James City County found itself faced with the unenviable task of finding a reliable, practical way to meet a 10.5 million gallon per day water deficit." *James City Cnty., Va. v. EPA*, 758 F. Supp. 348, 349 (E.D. Va. 1990). "[T]he Corps concluded that constructing a reservoir…was the only practical long term solution." *Id.* "In its Record of Decision [issuing the section 404 permit], the Corps found that no agency, including EPA, had identified any practicable, environmentally preferable alternatives for meeting James City County's desperate need for water." *Id.* at 350. Yet the EPA vetoed this decision, identifying a "three dam project, groundwater, desalinization, and conservation as alternative sources of water for the County." On review,[4] the Fourth Circuit reversed EPA's veto, concluding that none of the alternatives that EPA identified in its veto were actually "practicable." Specifically, the three dam project would require construction in a locality which opposed the project and would not issue a necessary permit to allow it, it also required a 404 permit which EPA was unlikely to approve, and water from the project would cost fifty percent more than water from the proposed reservoir. *JCC I*, 955 F.2d at 259. Additionally, the groundwater alternative was not practicable because the State Water Control Board would not permit additional groundwater withdrawals, the desalinization alternative involved an experimental process and required disposal of resulting salt, and the conservation alternative

[4] The Fourth Circuit applied the substantial evidence standard in reviewing EPA's decision, pursuant to the APA's provision for such "when a court reviews an administrative agency's action on the record of a hearing provided by statute." *Id.* at 259; 5 U.S.C. § 706(2)(E). However, the court stated in a footnote that even if it had applied the arbitrary and capricious standard, as in *Bersani v. Robichaud*, 850 F.2d 36 (2d Cir. 1988), *cert. denied*, 489 U.S. 1089 (1989), it would reach the same conclusion in reversing EPA's decision. *Id.* at 259 n. 5.

would still leave a substantial deficit of unmet water need. *See id.* at 260. In addition to the practicable alternative cases discussed below in Section IV, the foregoing makes clear that courts will defer to agency determinations under 404(b)(1) that alternatives are not practical and that substantial evidence must be presented to support a finding to the contrary.

B. Alternatives Analysis Under NEPA

NEPA Section 102(E) requires agencies to "study, develop, and describe alternatives of recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(E)*; see Mt. Lookout-Mt. Nebo Property Protection Ass'n v. FERC*, 143 F.3d 165, 172 (4th Cir. 1998) (explaining requirements of 42 U.S.C. § 4332(E)). To satisfy its requirements under NEPA to issue a 404 Permit, the Corps typically prepares an environmental assessment ("EA") rather than an environmental impact statement ("EIS"). 33 C.F.R. 230.7(a) (most permits normally require only an EA.). Under Corps regulations, "[a]n EA is a brief document which provides sufficient information to the district commander on potential environmental effects of the proposed action and, if appropriate, its alternatives, for determining whether to prepare an EIS or a FONSI." 33 C.F.R. § 230.10(a). Council on Environmental Quality ("CEQ") regulations echo this language. 40 C.F.R. § 1508.9(b) ("[An EA s]hall include brief discussions of the need for the proposal, of alternatives as required by NEPA Section 102(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.").

In reviewing the range of alternatives an agency considers in an EA, as discussed further below, courts apply a "rule of reason," meaning that "the concept of alternatives must be bounded by some notion of feasibility," and that agencies are required to deal with circumstances "as they exist and are likely to exist," but are not required to consider alternatives that are "remote and speculative." *Natural Res.Def. Council, Inc. v. Hodel*, 865 F.2d 288, 294-95 (D.C. Cir. 1988) (citations omitted). For an alternative to be reasonable under NEPA, it must be practicable and

feasible. Thus, while the CWA and NEPA regulations use different terminology to define the range of alternatives that must be given detailed consideration, in practice, agencies typically dove tail the requirements of these two statutes into a single analysis with the appropriate nuances to comply with each statute's particular focus.

Notwithstanding the rule of reason, an agency's consideration of environmental concerns must be more than a *pro forma* ritual. *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1128 (D.C. Cir. 1971). Considering environmental costs means seriously considering alternative actions to avoid them. *Id.* At the same time, "the duties to give full *consideration* to environmental protection" are procedural duties. *Id.* Therefore, courts generally uphold agency discussions and rejections of alternatives as reasonable that are not conclusory, even in an EIS. For example, in *Swinomish Tribal Community v. FERC*, 627 F.2d 499 (D.C. Cir. 1980), the court upheld the agency's rejection of other energy sources, such as electric power plants, as alternatives to the elevation of a dam to provide more electricity, as the agency found that power plants would be as expensive as the dam elevation and would also create environmental problems. As that court noted, the evaluation of these alternatives was necessarily subjective as mathematical comparisons were not possible. Equally, alternatives may be rejected if they will not accomplish the project objectives. *Id.*

The Supreme Court has stated the following regarding the relative responsibilities of agencies and courts in regard to the procedural duties imposed by NEPA:

> Neither the statute nor its legislative history contemplates that a court should substitute its judgment for that of the agency as to the environmental consequences of its actions. *See Scenic Hudson Preservation Conference v. FPC*, 453 F.2d 463, 481 (2d Cir. 1971), *cert. denied*, 407 U.S. 926 (1972). The only role for a court is to insure that the agency has taken a "hard look" at environmental consequences; it cannot "interject itself within the area of discretion of the executive as to the choice of the action to be taken."

Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976) (quoting *Natural Resources Defense Council v. Morton*, 458 F.3d 827, 838 (D.C. Cir. 1972)).

In the Fourth Circuit, "[w]hat constitutes a 'hard look' cannot be outlined with rule-like precision." *Nat' Audobon Soc'y v. Dep't of the Navy*, 422 F.3d 174, 185 (4th Cir. 2005). "At the least, however, it encompasses a thorough investigation into the environmental impacts of an agency's action and a candid acknowledgment of the risks that those impacts entail." *Id.* (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989)). Courts "may not, of course, use review of an agency's environmental analysis as a guise for second-guessing substantive decisions committed to the discretion of the agency." *Id.* Instead, "[i]n conducting our NEPA inquiry, we must make a searching and careful inquiry into the facts and review whether the decision was based on consideration of the relevant factors and whether there has been a clear error of judgment." *Id.* (internal citations and alterations omitted). Finally, "given all the possible factual variations in NEPA cases, an agency's obligations under NEPA are case-specific," which requires courts to recognize that "[a] 'hard look' is necessarily contextual." *Id.*

C. Alternatives Analysis Under NHPA § and 110(f)

NHPA § 106 provides that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, shall take into account the effect of the undertaking on any historic property." 54 U.S.C. § 306108 (formerly 16 U.S.C. § 470f). Implementing section 106, ACHP regulations require agencies to "consult with the SHPO/THPO and other consulting parties, including Indian tribes and Native Hawaiian organizations, to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties." 36 C.F.R. § 800.6(a). Courts hold that "Section 106 of NHPA is a 'stop, look, and listen'

provision that requires each federal agency to consider the effects of its programs." *Mont. Wilderness Ass'n v. Connell*, 725 F.3d 988, 1005 (9th Cir. 2013) (citation omitted). Also like NEPA "an agency has no duty to abandon or modify a project if the project is found to have an adverse effect that is not avoided or mitigated, but only to follow the mandated NHPA procedures." *Coliseum Square Ass'n, Inc. v. Jackson, 465 F.3d 215, 242* (5th Cir. 2006).

NHPA § 110(f) establishes a heightened standard of care beyond that imposed by section 106 and its implementing regulations, to be followed when undertakings adversely affect National Historic Landmarks ("NHLs"). *See* 54 U.S.C. § 306107 (formerly 16 U.S.C. § 470h-2(f)). Here, Carter's Grove in James City County is an NHL. The House Report on section 110(f) explains the process as follows:

> Section 110(f) establishes a higher standard of care to be exercised by federal agencies when considering undertakings that may directly and adversely affect [NHLs]. Agencies are directed to undertake, to the maximum extent possible, such planning and actions as may be necessary to minimize harm to such a landmark, and to provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on such proposed actions. Although the Committee [on Interior and Insular Affairs] deleted a mandatory requirement that an agency first determine that "no prudent and feasible alternative to such undertaking exists," the Committee does intend for agencies to consider prudent and feasible alternatives. This section does not supercede section 106, but complements it by setting a higher standard for agency planning in relationship to Landmarks before the agency brings the matter to the Council. This Committee expects the Council, in its implementing procedures for this Section, to provide clear guidelines to the agencies, including provisions for a sequential application of this section and section 106, when [NHLs] are affected by federal undertakings.

H.R. Rep. No. 96-1457 at 38 (1980).

Specifically, section 110(f) provides that "[p]rior to the approval of any Federal undertaking that may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall to the maximum extent possible undertake such planning and actions as may be necessary to minimize harm to the landmark." But much like section 106, courts have held that section 110(f) "is procedural in nature, and…does not impose any independent, substantive requirement on a federal agency." *Friends of Hamilton Grange v. Salazar*, 2009 WL

650262, at *20 (S.D.N.Y. Mar. 12, 2009); *but see Presidio Historical Ass'n v. Presidio Trust*, 2013 WL 2435089 (N.D. Cal 2013) (rejecting plaintiffs' section 110(f) claim without deciding if it imposes procedural or substantive requirements, because under either theory the Trust had satisfied its obligations). No agency has implementing authority for section 110(f). Instead, the ACHP's section 106 authority is the only regulatory mechanism for implementing section 110(f). ACHP's section 110(f) regulations provide that agencies must request ACHP involvement to resolve adverse effects and establish that the ACHP will use section 106 procedures for such. *See* 36 C.F.R. § 800.10. The agency must also invite the Secretary of the Interior to participate in the consultation. *See id.* at § 800.10(c).

While no agency has implementing authority regarding section 110(f), Congress did, however, empower the Secretary of the Interior to issue non-binding guidelines regarding section 110(f) compliance, which illustrate the considerations agencies must actually make under its heightened standard. This guidance provides the following: agencies should "consider all prudent and feasible alternatives to avoid an adverse effect on the NHL," and if "such alternatives appear to require undue cost or to compromise the undertaking's goals and objectives, the agency must balance those goals and objectives with the intent of section 110(f)." 63 Fed. Reg. 20,496, 20,503 (Apr. 24, 1998).[5] Balancing these factors requires the agency to consider: "(1) [t]he magnitude of the undertaking's harm to the historical, archaeological and cultural qualities of the NHL; [t]he public interest in the NHL and in the undertaking as proposed, and, (3) [t]he effect a mitigation action would have on meeting the goals and objectives of the undertaking." *Id.*

[5] In some senses, the section 110(f)'s prudent and feasible alternatives analysis as compared to the section 106 alternatives analysis is similar to the CWA § 404(b)(1) Guidelines' practicable alternatives analysis as compared to the NEPA alternatives analysis. The two former analyses infuse a substantive, resources-focused finding, while the two latter analyses focus more on process. Nevertheless, as discussed above and below, the similarities in these analyses far outweigh their differences. As such, agencies like the Corps typically perform a single alternatives analysis to meet all of these statutory requirements, and factor in the specific statutory nuances as required.

IV. Practical Considerations in Determining Project Purpose and Need

In order to determine whether an alternative is practicable, and thus carried forward for detailed consideration under the 404(b)(1) Guidelines, the Corps first must determine and state the overall project purpose. *See* 40 C.F.R. § 230.10(a)(2). In so doing, the Corps has an independent duty to ensure the applicant's stated purpose is legitimate, but also must take the applicant's goals and objectives into account. *Friends of the Earth v. Hintz,* 800 F.2d 822, 833-34 (9th Cir. 1986); *see La. Wildlife Fed'n, Inc. v. York,* 761 F.2d 1044, 1048 (5th Cir. 1985) ("it would be bizarre if the Corps were to ignore the purpose for which the applicant seeks a permit and to substitute a purpose it deems more suitable"); *see also Sylvester v. U.S. Army Corps of Eng'rs,* 882 F.2d 407, 409 (9th Cir. 1989) (same). Similarly, under NEPA, before determining what alternatives should reasonably be considered, the Corps must determine and state the applicant's underlying purpose and need to which the Corps is responding. 40 C.F.R. § 1502.13; *see* 33 C.F.R. § 325.1(d) (applications for Corps permits require applicant's to provide a statement of purpose and need). Finally, similar to the CWA and NEPA, before entering into consultation or considering alternatives or modifications to a project, the NHPA §§ 106 and 110 requires the Corps to determine the undertaking and its underlying purpose. 36 C.F.R. §§ 800.3(a), 800.10, 800.13(y).[6] Typically, in situations in which agencies must comply with multiple statutes requiring alternative analyses, agencies will produce one statement of project purpose to meet those requirements, as well as produce one alternatives analysis that includes any statutorily nuances. *See Pamlico-Tar River Found. v. U.S. Army Corps of Eng'rs*, 329 F. Supp. 2d 600, 612-15 (E.D.N.C. 2004) (using one statement of purpose and one alternatives analysis nuances to address the CWA's and NEPA's requirements)

[6] Given the similarities in the statutory obligations, the NHPA regulations permit and encourage federal agencies to coordinate their NEPA and NHPA compliance. 36 C.F.R. § 800.8. Thus, determining purpose and need under NEPA and the undertaking under NHPA should occur together. *Id*. § 800.8(a)(2). Based on this and the fact that the NHPA does not require as robust of an alternatives analysis as NEPA, we will consider the discussion of the alternatives under NEPA to include any similar requirement under the NHPA (with the caveat that to comply with the NHPA, the Corps, of course, must complete the NHPA consultation process).

Here, the record reflects that the Project originally was projected to be needed by 2019 to meet growing electric demands within the NHRLA. However, in December 2011, the MATS rule was promulgated prompting DVP to evaluate and determine what units, if any, would be affected by it. DVP determined that Yorktown Unit 1 and Unit 2 both would need to be retired no later than April 2015. With the retirement of these units by April 2015, DVP's power flow studies, confirmed by its Regional Transmission Operator, PJM Interconnection L.L.C., show that DVP's transmission system will not meet the North American Electric Reliability Corporation's ("NERC")[7] Reliability Standards without load shedding if the Project is not in service by the time the generating units retire. Recognizing that it could not have the Project permitted and constructed by April 2015, DVP sought and obtained a one-year extension that allows the Yorktown units to remain in service until April 2016. Due to the delays in permitting the Project, DVP is in the process of applying to EPA for an administrative order ("AO") that will, if granted, extend the deadline until April 2017.

In light of DVP's charter and overall purpose, as well as the legal and factual landscape impacting its current facilities and resources, including as discussed above, the overall purpose and need of the Project is to provide reliable, cost-effective bulk electric power delivery to the NHRLA to maintain compliance with NERC Reliability Standards.[8]

[7] As set out in the record, the interstate transmission of electricity, natural gas and oil is regulated by the Federal Energy Regulatory Commission (FERC). Under the Energy Policy Act of 2005, FERC was delegated the responsibility of protecting the reliability of the high voltage interstate transmission system across the nation through the implementation of reliability standards. FERC has designated NERC as the Electric Reliability Organization for this purpose. As such, NERC is responsible for the development and enforcement of reliability standards, annual and seasonal assessments of long-term reliability, monitoring the bulk power system and educating, training and certifying industry personnel.

[8] While this statement of purpose is brief, by necessity it incorporates the legal and factual requirements driving the need for the Project, as discussed above and made clear in the record. *See Pamlico-Tars*, 329 F. Supp. 2d at 614 (noting that the Corps cannot arbitrarily limit the number of practicable/reasonable alternatives by defining the project purpose too narrowly; upholding a 6-page single spaced statement of project purpose/purpose and need in light of the applicant's historical and current operations, planned operations, and issues impacting those operations).

V. Identifying Practicable/Reasonable Alternatives to Carry Forward for Consideration

As discussed above, the CWA and NEPA both provide guidance as to which alternatives must be carried forward for consideration, and which can be removed from further consideration. Under the CWA, the Corps need only consider "practicable" alternatives. 40 C.F.R. § 230.10(a)(1). An alternative is 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." *Id*. § 230.10(a)(2). While this definition appears to provide a singular criterion against which to measure whether an alternative is practicable, in practice alternatives are found to be impracticable if they do not meet the overall project purpose, if they are not available, or if they are not capable of being done for any number of reasons, including the factors listed in Subsection 230.10(a)(2). *See, e.g.*, *JCC I*, 955 F.2d at 259-60 (potential alternative not practicable because the land it would use was not available and it would cost fifty percent more than the proposed alternative); *Great Rivers Habitat Alliance v. U.S. Army Corps of Eng'rs*, 437 F. Supp. 2d 1019, 1032 (E.D. Mo. 2006) (potential alternatives not practicable because one presented serious engineering issues and another presented serious safety and logistical issues); *Pamlico-Tars*, 329 F. Supp. 2d at 613 (proposed alternative that was too costly was not practicable); *Water Works & Sewer Bd. v. Dep't of the Army*, 983 F. Supp. 1052, 1077 (N.D. Ala. 1997) (no action alternative not practicable because it did not provide an independent system and source of water, contrary to the stated project purpose; groundwater alternative not practicable because it would not yield water in sufficient quantities to meet the applicant's needs). In these situations, once an alternative is found not to be practicable, it need not be considered in detail under the 404(b)(1) Guidelines.

NEPA works the same way. There, only "reasonable" alternatives need be considered. 40 C.F.R. § 1502.14(a). CEQ guidance states that "[r]easonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense." In

addition, proposed alternatives that do not meet the purpose and need of the project are not reasonable. *See, e.g.*, *City of Alexandria v. Slater*, 198 F.3d 862, 869 (D.C. Cir. 1999) (a "'reasonable alternative" is defined by reference to a project's objectives"). *City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir. 1986) ("When the purpose is to accomplish one thing, it makes no sense to consider the alternative ways by which another thing might be achieved."); *Shenandoah Valley Network v. Capka*, 2009 U.S. Dist. LEXIS 80435, at *37-38 (W.D. Va. Sept. 3, 2009) (following *City of Alexandria* and *City of Angoon* and holding that proposed railway alternatives were not reasonable because they did not meet the purpose and need of the project to address traffic issues on Interstate 81); *Pamlico-Tars*, 329 F. Supp. 2d at 613 (alternative to import phosphate not reasonable in light of purpose to mine the resources company had acquired); *Shenandoah Ecosystems Def. Group v. U.S. Forest Serv*., 24 F. Supp. 2d 585, 593 (W.D. Va. 1998) ("alternatives that reduce road density and a roadless preservation alternative … do not meet the purpose and need for the proposed action to provide wood and fiber, including a non-declining sustained yield of forest products, nor would they contribute to attaining the Desired Future Condition in the Forest Plan. The Forest Service is not required to consider alternatives that do not achieve the purpose of the proposed action.") Indeed, even proposed alternatives that offer a partial or incomplete solution to the issue the project is addressing are not reasonable. *City of Alexandria*, 198 F.3d at 869 ("[I]t is simply a non sequitur to call a proposal that does not 'offer a complete solution to the problem' a 'reasonable alternative.'") (citations omitted).

When alternatives are not deemed reasonable, they should be "eliminated from detailed study," – that is, not carried forward for consideration as a full-fledged alternative, with a brief explanation as to why they were eliminated. 40 C.F.R. § 1502.14(a); *see, e.g.*, *Pamlico-Tars*, 329 F. Supp. 2d at 615 (the Corps's determination and explanation that alternatives were not reasonable and should not be carried forward for detailed consideration was reasonable and constituted the "hard look" NEPA requires).

Here, the record reflects in both an initial and revised alternatives analyses that the Corps has evaluated numerous proposed alternatives to the Project. As discussed in detail in those analyses,[9] and as set forth below, all but one of those alternatives (the Chickahominy-Skiffes 500kV alternative) are not practicable or reasonable under the 404(b)(1) Guidelines and the NEPA regulations because they either do not meet the statement of project purpose/purpose and need, or are not practicable or feasible for technical, logistical, costs, environmental, or other reasons. Therefore, the Corps need only carry the proposed Project, the Chickahominy-Skiffes 500kV alternative, and the no action alternative[10] forward for detailed analysis. For the remaining, eliminated proposed alternatives, the Corps need only provide a short explanation as to why each one was eliminated.[11] 40 C.F.R. § 1502.14(a); *see Pamlico-Tars*, 329 F. Supp. 2d at 615.

VI. Application of Standards for Alternatives Analysis to the Surry-Skiffes Creek Whealton Line Project

The following chart provides an analysis of the alternatives identified by DVP and other consulting parties. The chart reflects an evaluation of these alternatives under the relevant and respective criteria under the CWA, NEPA and the NHPA. With one exception, the alternatives need not be fully evaluated as to relative impacts on the environment because they fail to meet the project purpose and need. More specifically, they cannot meet the NERC Reliability Standards, their construction, operation and maintenance is not feasible, they are not cost effective or they cannot be constructed before the retirement of the Yorktown Units to meet the

[9] These analyses are available at the Corps Norfolk Division's Project Website under the Alternatives header, at http://www.nao.usace.army.mil/Missions/Regulatory/SkiffesCreekPowerLine.aspx.

[10] While the no action alternative also does not meet the project purpose/purpose and need, agencies are required to evaluate the no action alternative because it provides a baseline from which the impacts of the action alternatives can be measured. 40 C.F.R. § 1502.14(d); *CEQ 40 Questions*, Question 3.

[11] It is noteworthy, however, that while the Corps need not evaluate impacts related to alternatives not carried forward for detailed consideration, the record reflects that the Corps has in fact considered the various environmental and cultural impacts attendant to each proposed alternative.

extended April 2017 MATS compliance deadline, if it were to be granted. That one alternative, while viable at the time the alternatives were first considered, requires over four years for construction, and therefore no longer can be constructed in time.

Surry-Skiffes Creek-Whealton 500kV/230 kV Alternatives

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
1	**Surry -Skiffes 500 kV (proposed project)** The project includes an overhead 500 kV line extending approximately 7.4 miles from the Surry Nuclear Power Plant to a proposed switching station to be constructed in James City County. The proposed 500 kV line is currently routed as a new overhead crossing of the James River. See Stantec Revised Alternatives Analysis Report at i (Received by the U.S. Army Corps of Engineers on Jan. 8, 2015) (hereinafter "Stantec Revised Report")	**Practicable** 1. Meets the project Purpose and Need. • Meets NERC requirements (Rev. Table 3.1). • Can be constructed in approximately 13 months to meet MATS deadline (*See* Rev. Table 3.1). • Economically Practicable – Cost $178.7M (*See* Rev. Table 3.1). 2. Potential impacts: • 1.20 acres of tidal wetlands crossed, potential impact to less than 0 acres. • 0.41 acres of palustrine forested conversion. • New areal crossing of the James River. • Not likely to adversely affect protected species.	**Reasonable** 1. Meets the project Purpose and Need. • Meets NERC requirements. (Rev. Table 3.1). • Can be constructed in approximately 13 months to meet MATS deadline. (*See* Rev. Table 3.1). • Economically Practicable – Cost $178.7M (*See* Rev. Table 3.1). 2. Potential impacts: • 1.20 acres of tidal wetlands crossed, potential impact to less than 0 acres. • 0.41 acres of palustrine forested conversion. • New areal crossing of the James River. • Not likely to adversely affect protected species. • Minimal impact to water quality. • Minimal impact to the	**Prudent and Feasible** 1. Meets the project Purpose and Need. • Meets NERC requirements. (Rev. Table 3.1). • Can be constructed in approximately 13 months to meet MATS deadline. (*See* Rev. Table 3.1). • Economically Practicable – Cost $178.7M (*See* Rev. Table 3.1). 2. Potential impacts: • 1.20 acres of tidal wetlands crossed, potential impact to less than 0 acres. • 0.41 acres of palustrine forested conversion. • New areal crossing of the James River. • Not likely to adversely affect protected species.

[12] Permits issued by the Corps under Section 404 of the CWA are subject to a "**practicable alternatives**" analysis, pursuant to water quality and other criteria for determining whether and under what conditions to issue a Section 404 permit. The issuance of a permit where there is a practicable alternative to the proposed discharge which would have less adverse impacts on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

[13] The range of alternatives an agency considers in an EA are those that are reasonable. Reasonable alternatives "include those that are practical or feasible from the technical and economic standpoint and using common sense." 40 C.F.R. § 1502.14(a); *see also Natural Res. Def. Council, Inc. v. Hodel*, 865 F.2d 288, 294-95 (D.C. Cir. 1988) (agencies are required to deal with circumstances "as they exist and are likely to exist," but are not required to consider alternatives that are "remote and speculative.")

[14] Agencies should "consider all **prudent and feasible** alternatives to avoid an adverse effect on the NHL," and if "such alternatives appear to require undue cost or to compromise the undertaking's goals and objectives, the agency must balance those goals and objectives with the intent of section 110(f)." 63 Fed. Reg. 20496, 20503.

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	at http://www.nao.usace.army.mil/Missions/Regulatory/SkiffesCreekPowerLine.aspx	• Minimal impact to water quality. • Minimal impact to the subaqueous bottom (0.63 acres) and to oyster lease (<0.25 acres). (*See* Table 3.1).	subaqueous bottom (0.63 acres) and to oyster lease (<0.25 acres). (*See* Table 3.1).	• Minimal impact to water quality. • Minimal impact to the subaqueous bottom (0.63 acres) and to oyster lease (<0.25 acres). (*See* Table 3.1). • Potential effects on cultural resources are documented in Consolidated Effects Report dated July 29, 2015.
2	**No Action Alternative** DVP will retire Yorktown Units 1 and 2 by April 2016 and no project will be implemented. See Stantec Revised Report at 3.9-3.12.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. 2. Potential impacts: • Substantial economic and safety impacts due to electrical outages affecting areas within the NHRLA (Stantec, p. 3.10-3.11).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. 2. Potential impacts: • Substantial economic and safety impacts due to electrical outages affecting areas within the NHRLA (Stantec, p. 3.10-3.11).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Would not resolve NERC violations. 2. Potential impacts: • Substantial economic impact due to electrical outages affecting areas within the NHRLA (Stantec, p. 3.10-3.11).
3	**Retrofitting Yorktown Units 1 and 2 with Antipollution Control Equipment** This alternative will require making capital-intensive environmental equipment upgrades and additions to Units 1 and 2 to maintain compliance with current and proposed EPA regulations. See Stantec Revised Report, p. 3.12-3.13	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed in time to retire Yorktown Units 1&2 to meet MATS deadline (Stantec, p. 3.13). • Not economically practicable – cost over $1.0 Billion (Stantec, p. 3.13).	**Not Reasonable** • Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed in time to retire Yorktown Units 1&2 to meet MATS deadline (Stantec, p. 3.13). • Not economically practicable – cost over $1.0 Billion (Stantec, p. 3.13).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. 2. Would not resolve NERC violations. 3. Cannot be constructed in time to retire Yorktown Units 1&2 to meet MATS deadline (Stantec, p. 3.13). 4. Not economically practicable – cost over $1.0 Billion (Stantec, p. 3.13).

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	Retrofitting Yorktown 3 This alternative will require making capital-intensive environmental equipment upgrades and additions to Unit 3 to meet MATS and other EPA requirements. See Stantec Revised Report, p. 3.13.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Unites cannot cycle quickly enough to meet local reliability constraints (Stantec, p. 3.13). • Not economically feasible – added operation cost $2.5 million (Stantec, p. 3.13).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Units cannot cycle quickly enough to meet local reliability constraints (Stantec, p. 3.13). • Not economically feasible – added operation cost $2.5 million (Stantec, p. 3.13).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and Need. • Would not resolve NERC violations. • Units cannot cycle quickly enough to meet local reliability constraints (Stantec, p. 3.13). • Not economically feasible – added operation cost $2.5 Million (Stantec, p. 3.13).
4	**Repowering Yorktown** This alternative required repowering some or all of the Yorktown units to natural gas. See Stantec Revised Report at 3.13.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.13). • Insufficient natural gas supply for even one unit.	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.13). • Insufficient natural gas supply for even one unit.	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.13). • Insufficient natural gas supply for even one unit.
5	**Combining Generation Alternatives** DVP considered several combinations of retrofitting, repowering and retirement combined	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed before retirement of	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Would not resolve NERC violations. • Cannot be constructed

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	with transmission construction. See Stantec Revised Report at 3.15.	Yorktown to meet MATS deadline (Stantec, p. 3.15). • Not economically feasible/practicable (Stantec, p. 3.15).	MATS deadline (Stantec, p. 3.15). • Not economically feasible/practicable (Stantec, p. 3.15).	before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.15). • Not economically feasible/practicable (Stantec, p. 3.15).
6	**New Generation** New generation considered by DVP included combined-cycle and combustion turbine, coal units, biomass, wind and solar, and stand-alone generation. See Stantec Revised Report at 3.15; see also Revised Table 3.1 (Received by the U.S. Army Corps of Engineers on Jan. 15, 2015)	**Not Practicable** 1. Does not meet Project Purpose and Need. (*See* Table 3.1) • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.15). • Not economically practicable – cost is $715 Million (Table 3.1).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.15). • Not economically feasible – cost is $715 Million (Table 3.1).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. 2. Would not resolve NERC violations. 3. Cannot be constructed before retirement of Yorktown to meet MATS deadline (Stantec, p. 3.15). 4. Not economically feasible – cost is $715 Million (Table 3.1).
7	**Demand-Side Management** DSM resources include activities and programs undertaken to influence the amount and timing of	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Speculative and need not be considered (Stantec, p.	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations. • Speculative and need not be considered (Stantec, p. 3.16).	**Not Prudent and Feasible** 1. Does not meet undertaking's purpose and need. • Would not resolve NERC violations. • Speculative and need not be considered (Stantec, p.

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	electricity use, as well as market purchases from outside power generators to reduce overall demand. See Stantec Report at 3.16	3.16). • Cannot be assumed to be available because it is transient (Stantec, p. 3.16). • Voluntary and not effective in an instantaneous event (Stantec, p. 3.16.	• Cannot be assumed to be available because it is transient (Stantec, p. 3.16). • Voluntary and not effective in an instantaneous event (Stantec, p. 3.16).	3.16). • Cannot be assumed to be available because it is transient (Stantec, p. 3.16). • Voluntary and not effective in an instantaneous event (Stantec, p. 3.16).
8	**Line 214/263 230 kV Line Rebuild (James River Bridge Crossing) + Retrofit Generation** The NHRLA is currently connected to the Southampton Roads Load Area through two 230 kV overhead lines, Line 214 and Line 263, located adjacent to the James River Bridge. DVP evaluated rebuilding these lines to a higher capacity. See Stantec Revised Report at 3.16-3.18; see also Revised Table 3.1.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Does not resolve NERC violations (Stantec, p. 3.16) • Cannot be constructed before retirement of Yorktown Units 1&2 to comply with MATS deadline (Stantec, p. 3.18) • Requires 156 months for approvals and construction (Table 3.1). • Not economically feasible - Cost - $1,048.02M (Table 3.1).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Does not resolve NERC violations (Stantec, p. 3.16). • Cannot be constructed before retirement of Yorktown Units 1&2 to comply with MATS deadline (Stantec, p. 3.18). • Requires 156 months for approvals and construction. • Not economically feasible - Cost $1,048.02M (Table 3.1)	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Does not resolve NERC violations (Stantec 3.16). • Cannot be constructed before retirement of Yorktown Units 1&2 to comply with MATS deadline (Stantec, p. 3.18). • Requires 156 months for approvals and construction. • Not economically feasible – Cost - $1,048.02M (Table 3.1).
9	**Chuckatuck – Newport News 230 kV Line (Whittier Hybrid)** This line 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	**Not Practicable** 1. Does not meet Project Purpose and Need. • Does not resolve NERC violations (Stantec p. 3.19). • Piecemeal approach that does not eliminate need for proposed Surry-Skiffes Creek Line (Stantec p. 3.19).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Does not resolve NERC violations (Stantec p. 3.19) • Piecemeal approach that does not eliminate need for proposed Surry-Skiffes Creek Line (Stantec p. 3.19).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Does not resolve NERC violations (Stantec p. 3.19) • Piecemeal approach that does not eliminate need for proposed Surry-Skiffes Creek Line (Stantec p. 3.19).

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	Substations. See Stantec Revised Report at 3.18-3.19.			
10	**Surry – Whealton 500 kV Line** The existing Line 214 corridor extends from the Whealton Substation in Hampton to the Surry Power Station in Surry County. The line crosses the James River adjacent to the James River Bridge. This alternative would entail the construction of a new 500 kV line from Surry to Whealton. See Stantec Revised Report at 3.19-3.20.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Not Practicable because construction of the Surry-Whealton line would physically block DVP's ability to construct a 500 kV line from Surry at any point in the future to respond to future growth and reliability issues in a cost effective manner, and undermines the operational capacity of the Surry Nuclear Power Plant (Stantec p. 3.19). • Cannot be constructed before retirement of Yorktown Units required to meet MATS deadline due to need to expand ROW and substation located in developed congested residential and commercial area requiring demolition of residences and businesses (Stantec p. 3.20).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Not Feasible because construction of the Surry-Whealton line would physically block DVP's ability to construct a 500 kV line from Surry at any point in the future to respond to future growth and reliability issues in a cost effective manner, and undermines the operational capacity of the Surry Nuclear Power Plan (Stantec p. 3.19) • Cannot be constructed before retirement of Yorktown Units required to meet MATS deadline due to need to expand ROW and substation located in developed congested residential and commercial area requiring demolition of residences and businesses (Stantec p. 3.20).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Not Practicable/Feasible because construction of the Surry-Whealton line would physically block DVP's ability to construct a 500 kV line from Surry at any point in the future to respond to future growth and reliability issues in a cost effective manner, and undermines the operational capacity of the Surry Nuclear Power Plan (Stantec p. 3.19). • Cannot be constructed because retirement of Yorktown Units required to meet MATS deadline due to need to expand ROW and substation located in developed congested residential and commercial area requiring demolition of residences and businesses (Stantec p. 3.20).
11	**Chickahominy – Lanexa 500 kV Line** The existing Lanexa corridor extends from the Chickahominy Substation in Charles City County to	**Not Practicable** 1. Does not meet Project Purpose and Need. • Fails to resolve the potential for cascading outages and NERC violations (Stantec p. 3.20).	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Fails to resolve the potential for cascading outages and NERC violations (Stantec p. 3.20).	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need • Fails to resolve the potential for cascading outages and NERC violations (Stantec p.

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	the Lightfoot Substation in Lightfoot, Virginia. This alternative evaluated the potential to expand a 14.3 mile section of this existing corridor (which is currently occupied by three 230 kV lines bringing bulk power from West of Richmond to NHRLA) to construct a new overhead 500 kV line. See Stantec Revised Report at 3.20			3.20).
12	**Chickahominy – Skiffes Creek 500 kV Line** Utilizes an existing ROW owned by DVP 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. See Stantec Revised Report at 3.20-3.22, see also Revised Table 3.1.	**Not Practicable** 1. As of August 28, 2015 (the date of this submission), it does not meet Project Purpose and Need because it requires 51 months for approvals and construction (Table 3.1). 2. Potential impacts: • 8.64 acres of tidal wetlands crossed, potential impact to less than 0.1 acres (Table 3.1). • 93.32 acres of non-tidal wetlands crossed (Stantec p. 3.21). • 62 acres of palustrine forested conversion (Table 3.1). • New areal crossing of the Chickahominy River (Table 3.1). • Potential impacts to the	**Not Reasonable** 1. As of August 28, 2015 (the date of this submission), it does not meet Project Purpose and Need because it requires 51 months for approvals and construction (Table 3.1). 2. Potential impacts: • 8.64 acres of tidal wetlands crossed, potential impact to less than 0.1 acres (Table 3.1). • 93.32 acres of non-tidal wetlands crossed (Stantec p. 3.21).. • 62 acres of palustrine forested conversion (Table 3.1). • New areal crossing of the Chickahominy River (Table 3.1). • Potential impacts to the bald eagle, the small whorled pogonia, and sensitive joint vetch (Table 3.1). • Potential visual effects to resources along new ROW (Table	**Not Prudent and Feasible** 1. As of August 28, 2015 (the date of this submission), it does not meet Undertaking's purpose and need because it requires 51 months for approvals and construction (Table 3.1). 2. Potential Impacts: • 8.64 acres of tidal wetlands crossed, potential impact to less than 0.1 acres (Table 3.1). • 93.32 acres of non-tidal wetlands crossed (Stantec p. 3.21).. • 62 acres of palustrine forested conversion (Table 3.1). • New areal crossing of the Chickahominy River (Table 3.1). • Potential impacts to the

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
		bald eagle, the small whorled pogonia, and sensitive joint vetch (Table 3.1). • Requires the construction of a tower within the river (Stantec p. 3.21)..	3.1). • There are 68 archaeological sites within the ROW (Table 3.1). • There are unknown underwater archeological sites within the ROW (Table 3.1). • There are 1,129 houses within 500' of the ROW (Table 3.1). • Requires the construction of a tower within the river - Chickahominy Indian Tribe considers the river an important resource (Stantec p. 3.21)..	bald eagle, the small whorled pogonia, and sensitive joint vetch (Table 3.1). • Potential visual effects to resources along new ROW (Table 3.1). • There are 68 archaeological sites within the ROW (Table 3.1). • There are unknown underwater archeological sites within the ROW (Table 3.1). • There are 1,129 houses within 500' of the ROW (Table 3.1). • Requires the construction of a tower within the river - Chickahominy Indian Tribe considers the river an important resource (Stantec p. 3.21)..
13	**Chickahominy – Skiffes Creek 230 kV Double Circuit Line + Retrofit** Underground crossing of the James River using a double circuit 230 kV line with total capacity of 2,000 megavolt-amps (MVA). See Stantec Revised Report at 3.22-3.23, see also Revised Table 3.1	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations (Stantec 3.16). • Additional projects required to resolve NERC violations could not be constructed before retirement of Yorktown Units by MATS compliance deadline – 96 months for approvals and construction (Table 3.1). • Not economically feasible – cost is $1 Billion (Table	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations (Stantec 3.16). • Additional projects required to resolve NERC violations could not be constructed before retirement of Yorktown Units by MATS compliance deadline - 96 months for approvals and construction (Table 3.1). • Not economically feasible – cost is $1 Billion (Table 3.1). 2. Potential Impacts:	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. 1. Would not resolve NERC violations (Stantec 3.16). • Additional projects required to resolve NERC violations could not be constructed before retirement of Yorktown Units by MATS compliance deadline - 96 months for approvals and construction (Table 3.1). • Not economically feasible –

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
		3.1). 2. Potential Impacts: • Underground crossing of the James River (Table 3.1). • Water quality impacts include turbidity, and release of contaminants; • Direct impacts to subaqueous bottom (Table 3.1). • Direct impacts likely to oyster lease (Table 3.1). • Potential impacts to the Atlantic sturgeon (Table 3.1).	• Underground crossing of the James River (Table 3.1). • Water quality impacts include turbidity, and release of contaminants (Table 3.1). • Direct impacts to subaqueous bottom (Table 3.1). • Direct impacts likely to oyster lease (Table 3.1). • Potential impacts to the Atlantic sturgeon (Table 3.1). • Potential visual effects from onshore towers (0.8 mi from Carters Grove) (Table 3.1). • There are 7 archaeological sites within the ROW (Table 3.1). • There are 6 underwater archeological sites which may be directly impacted (Table 3.1). • There are 84 houses within 500' of the ROW (Table 3.1).; • Existing gas line located within the river in the vicinity of the project. (Stantec 3.26).	cost is $1 Billion (Table 3.1). 2. Potential Impacts: • Underground crossing of the James River (Table 3.1). • Potential visual effects from onshore towers (0.8 mi from Carters Grove) (Table 3.1). • There are 7 archaeological sites within the ROW (Table 3.1). • There are 6 underwater archeological sites which may be directly impacted (Table 3.1).
14	**Alternative Surry-Skiffes Creek Underground 230 kV Line + Retrofit** Underground crossing of the James River using a single 230 kV line with capacity of 1,000 MVA. See Stantec Revised Report at 3.22-3.23; see also Revised Table 3.1.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations (Stantec 3.23)	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Would not resolve NERC violations (Stantec 3.23)	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Would not resolve NERC violations (Stantec 3.23)

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
15	**Surry – Skiffes Creek 500 kV Underground (AC)**. See Stantec Report at 3.23-3.24.	**Not Practicable** 1. Does not meet Project Purpose and Need. • Speculative and experimental technology need not be considered (Stantec 3.23). • The reliability of this alternative is unknown (Stantec 3.24). • Operational concerns associated with repairing the lines (Stantec 3.24). • Cannot be constructed in time for retirement of Yorktown Units to meet MATS compliance deadline. 2. Potential impacts: • Increased environmental impacts (Stantec 3.24). • Existing gas line located within the river in the vicinity of the project (Stantec 3.26). • Dredging would be required in shallow areas of the bank (Stantec 3.26). • Adverse impact on anadromous fish and private oyster lease holders (Stantec 3.26)..	**Not Reasonable** 1. Does not meet Project Purpose and Need. • Speculative and experimental technology need not be considered (Stantec 3.23). • Cannot be constructed in time for retirement of Yorktown Units to meet MATS compliance deadline. 2. Potential impacts: • Increased environmental impacts (Stantec 3.24). • Existing gas line located within the river in the vicinity of the project (Stantec 3.26). • Dredging would be required in shallow areas of the bank project (Stantec 3.26). • Adverse impact on anadromous fish and private oyster lease holders; • Highly experimental; • The reliability of this alternative is unknown; • Operational concerns associated with repairing the lines (Stantec 3.24). • Underwater anomalies have been noted within the project area as a result of an underwater archaeological survey (Stantec 3.26)..	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need. • Speculative and experimental technology need not be considered (Stantec 3.23). • Operational concerns associated with repairing the lines (Stantec 3.24). • The reliability of this alternative is unknown (Stantec 3.24). 2. Potential impacts: • Increased environmental impacts (Stantec 3.24). • Existing gas line located within the river in the vicinity of the project (Stantec 3.26). • Dredging would be required in shallow areas of the bank (Stantec 3.26). • Adverse impact on anadromous fish and private oyster lease holders (Stantec 3.26). • Underwater anomalies have been noted within the project area as a result of an underwater archaeological survey (Stantec 3.26)..
16	**Surry – Skiffes Creek 500 kV Underground (HVDC).** See Stantec Revised Report at 3.24-	**Not Practicable** 1. Does not meet Project Purpose and Need.	**Not Reasonable** 1. Does not meet Project Purpose and Need.	**Not Prudent and Feasible** 1. Does not meet Undertaking's purpose and need.

	Alternative Action	CWA 404(b)(1) Guidelines[12]	NEPA[13]	NHPA[14]
	3.26; see also Revised Table 3.1.	• Speculative and experimental technology. • Cannot be constructed in time for retirement of Yorktown Units to meet MATS compliance deadline – 96-120 months to permit and construct (Table 3.1). • Not economically feasible – cost is $700 Million - $1.0 Billion (Table 3.1). 2. Potential impacts: • Considerable impacts to the subaqueous bottom (Table 3.1). • Considerable impact to oyster lease (Table 3.1). • Potential impacts to the Atlantic sturgeon (Table 3.1).	• Speculative and experimental technology. • Cannot be constructed in time for retirement of Yorktown Units to meet MATS compliance deadline – 96-120 months to permit and construct (Table 3.1) • Not economically feasible – cost is $700 Million - $1.0 Billion (Table 3.1) 2. Potential impacts: • Considerable impacts to the subaqueous bottom (Table 3.1). • Considerable impact to oyster lease (Table 3.1). • Potential impacts to the Atlantic sturgeon (Table 3.1). • Potential visual effects from large (5-8 story) converter stations on both sides of James River (Table 3.1). • Unknown archaeological sites for the converter stations (Table 3.1). • There are 6 underwater archaeological sites which may be directly impacted (Table 3.1). • There are 84 houses within 500' of the ROW (Table 3.1). • Existing gas line located within the river in the vicinity of the project (Stantec 3.26). • Routing and siting constraints. • Land acquisition requirements.	• Speculative and experimental technology. • Cannot be constructed in time for retirement of Yorktown Units to meet MATS compliance deadline – 96-120 months to permit and construct (Table 3.1) • Not economically feasible – cost is $700 Million - $1.0 Billion (Table 3.1) 2. Potential impacts: • Potential visual effects from large (5-8 story) converter stations on both sides of James River (Table 3.1). • Unknown archaeological sites for the converter stations (Table 3.1). • There are 6 underwater archaeological sites which may be directly impacted (Table 3.1).

VII. U.S. Army Corps of Engineers, Norfolk District - DVP Power Surry-Skiffes Creek-Whealton Permit Record

Documents in the Corps record include:

- The proposed project location map prepared by Stantec;
- Project impact maps created by Stantec and received by the Corps on May 21, 2015;
- Memo to Mr. Randy Steffey, U.S. Army Corps of Engineers from Christine Conrad, Stantec, dated May 12, 2014. The memo listed the comments received during the public notice period for the Surry – Skiffes Creek –Whealton application. The memo also summarized the responses from the U.S. Coast Guard, Corps Operation Branch – Design Section, the Environmental Protection Agency (EPA), the Department of Conservation and Recreation (DCR), James City County, the City of Newport News, and the Newport News Williamsburg International Airport;
- Letter to Mr. Randy Steffey, U.S. Army Corps of Engineers from Christine Conrad, Stantec, dated September 8, 2014 concerning the Section 106 Coordination Consulting Party Comment and Response;
- Memo to Mr. Randy Steffey, U.S. Army Corps of Engineers from Christine Conrad, Stantec, dated February 27, 2015 providing a summary of Corps public notice comments & questions from the December 9, 2015 consulting parties meeting;
- The original alternatives analysis document prepared for the U.S. Army Corps of Engineers by DVP Virginia Power, received on November 7, 2014;
- Additional alternative analysis summary prepared for the U.S. Army Corps of Engineers by DVP Virginia Power, dated December 18, 2014;
- Revised alternatives analysis document prepared for the U.S. Army Corps of Engineers by DVP Virginia Power, received on January 8, 2015;
- Revised Table 3.1, Alternatives that will address 2021 NERC Reliability Violations, received by the Corps on January 15, 2015;
- May 20, 2015 Section 106 Consultation and Public Involvement Plan;
- Area of Potential Effect Map – Battlefield, received by the Corps on May 20, 2015;
- Direct Area of Potential Effect Map – Archeological Resources, received by the Corps on May 21, 2015;
- Indirect Area of Potential Effect Map – Archeological Resources, received by the Corps on May 20, 2015;
- Eligibility concurrence for archeological structures from the Virginia Department of Historic Resources to the Corps, dated May 1, 2015;

- Eligibility concurrence for architectural structures from the Virginia Department of Historic Resources to the Corps, dated May 1, 2015;

- Eligibility concurrence for trails and landscape from the Virginia Department of Historic Resources to the Corps, dated May 11, 2015;

- Letter from Courtney R. Fisher to Thomas Walker dated August 14, 2015 providing responses to requests for additional information;

- "Responses to ACOE Questions Received on June 25, 2015, dated July 6, 2015.

- List of Historic properties;

- Description of historical properties potentially affected by the project;

- Surry interactive simulation prepared by DVP, received by the Corps on March 24, 2015;

- National Trust for Historic Preservation Animation (https://www.youtube.com/watch?v=Bg-cJzqAz0c&feature=youtu.be);

- Addendum to the visual effects assessment for the proposed DVP Virginia Power Surry to Skiffes Creek 500 kV Transmission Line – Green Springs Battlefield prepared for DVP by Stantec, and dated November 10, 2014;

- Visual effects assessment for the proposed DVP Virginia Power Surry to Skiffes Creek 500 kV Transmission Line prepared for DVP by Stantec and dated March 2014 (received by the Corps on April 25, 2014); and

- Addendum to the visual effects assessment for the proposed DVP Virginia Power Surry to Skiffes Creek 500 kV Transmission Line prepared for DVP by Stantec, and dated October 29, 2014.

See http://www.nao.usace.army.mil/Missions/Regulatory/SkiffesCreekPowerLine.aspx. The Corps website also has a link to DVP Power's website (https://www.dom.com/corporate/what-we-do/electricity/transmission-lines-and-projects/surry-skiffes-creek-500kv-and-skiffes-creek-whealton-230kv-projects) for the Surry-Skiffes Creek 500kV and Skiffes Creek-Whealton 230kV Projects.