

**REVISED
FINDING OF NO ADVERSE AFFECT
FOR THE APPROVAL OF A RESEARCH ACTIVITIES PLAN
FOR THE COASTAL VIRGINIA OFFSHORE WIND PROJECT
ON THE OUTER CONTINENTAL SHELF OFFSHORE VIRGINIA**

FEBRUARY 15, 2019

FINDING

The Bureau of Ocean Energy Management (BOEM) has made a revised Finding of No Adverse Effect (Finding) for this undertaking, pursuant to 36 CFR § 800.5(b). Though there are historic properties present within the area of potential effects (APE), either the undertaking's effects do not meet the criteria of adverse effect at § 800.16(a)(1), or BOEM will require the lessee to operate under conditions designed to avoid adverse effects.

DOCUMENTATION IN SUPPORT OF THE FINDING

1 Description of the Undertaking

1.1 Background and Federal Involvement

The Energy Policy Act of 2005, Pub. L. No. 109-58, added subsection 8(p) to the Outer Continental Shelf Lands Act, which grants the Secretary of the Interior the authority to issue leases, easements, or rights-of-way on the Outer Continental Shelf (OCS) for the purpose of renewable energy development. The Secretary delegated this authority to the former Minerals Management Service, now BOEM. BOEM issues leases to other Federal agencies and to the states for the purpose of conducting renewable energy research that supports the future production, transportation, or transmission of renewable energy pursuant to 30 CFR § 585.238. The terms of these types of research leases are negotiated by the Director of BOEM and the head of the Federal agency or the governor of the relevant state, or their authorized representative on a case-by-case basis.

The Commonwealth of Virginia, Department of Mines, Minerals and Energy (DMME), submitted a research lease application to BOEM on February 8, 2013, for the Virginia Offshore Wind Technology Advancement Project (VOWTAP). The Virginia Electric and Power Company, a wholly owned subsidiary of Dominion Resources, Inc. (Dominion) would be the operator of VOWTAP and would work under the terms of an operator agreement with DMME and the terms of the Section 238 research lease.

On July 30, 2013, BOEM published a "Public Notice of an Unsolicited Request for an OCS Research Lease, Request for Competitive Interest, and Request for Public Comment" (78 FR 45965). In December 2013, BOEM published a "Determination of No Competitive Interest"

(78 FR 73882) for the research lease request. On January 30, 2014, BOEM made a Finding of No Historic Properties Affected pursuant to 36 CFR § 800.4 (d)(1) for the issuance of the requested research lease for the VOWTAP. See: www.boem.gov/Support-Finding-Historic-Properties-Affected-VOWTAP.

The applicant subsequently submitted a research activities plan (RAP) consistent with regulations at 30 CFR § 585.620–585.629 describing the proposed construction, operation, maintenance, and decommissioning of the project, along with the results of site characterization studies, including archaeological survey and historic property identification reports. See: <http://www.boem.gov/Research-Activities-Plan>.

On April 3, 2014, BOEM initiated consultation under Section 106 of the National Historic Preservation Act regarding approval of the RAP. BOEM determined that approving a RAP constitutes an undertaking subject to Section 106 of the National Historic Preservation Act (54 U.S.C. § 300101), and its implementing regulations (36 CFR 800) and that the activities proposed under the RAP have the potential to affect historic properties.

BOEM consulted with the Virginia State Historic Preservation Officer (VA SHPO), Narragansett Indian Tribe, Lenape Tribe of Delaware, Virginia Army National Guard (VAARNG), and Naval Facilities Engineering Command Mid-Atlantic regarding the APE, scope of identification efforts, and the bureau’s preliminary findings. As a result of this consultation, BOEM prepared a Finding of No Adverse Effect pursuant to 36 CFR 800.5(b) which it shared with the consulting parties on April 6, 2015. See: <https://www.boem.gov/VOWTAP-RAP-Documentation-in-Support-of-a-Finding-of-No-Adverse-Effect/>. BOEM subsequently approved the RAP on March 23, 2016. See: <https://www.boem.gov/Approval-of-VOWTAP-Research-Activities-Plan/>.

On December 28, 2017, DMME submitted a revised RAP to BOEM proposing modifications to project elements under the previously approved plan. These modifications to the project, now known as the Coastal Virginia Offshore Wind Project (CVOW), included changes to the height and foundation type of the wind turbine generators, changes to the onshore interconnection cable route, and the deployment of one wave and current buoy instead of the previously proposed installation of three metocean instrumentation platforms. BOEM reinitiated Section 106 review of these amendments to the RAP as they presented changes to the undertaking, the APE, and the identification of historic properties within the APE. As a result of this review, BOEM prepared a revised Finding of No Adverse Effect which it shared with the consulting parties on August 29, 2018. See: <https://www.boem.gov/CVOW-Documentation-in-Support-of-a-Finding-of-No-Adverse-Effect/>.

On October 31, 2018, DMME submitted to BOEM modifications to the revised RAP proposing additional changes to the CVOW project, specifically alteration of the onshore interconnection cable route. BOEM again reinitiated Section 106 review of the modifications to the revised RAP as they present changes to the APE and the identification of historic properties previously considered under the August 29, 2018 revised Finding of No Adverse Effect. As a result of this review, BOEM has prepared this revised Finding of No Adverse Effect pursuant to (36 CFR 800.5(b)). Additional historic properties have been identified within the APE and additional conditions of approval have been developed with the parties that, along with the previously developed conditions, will ensure that adverse effects to historic properties will be avoided.

This document describes BOEM’s compliance with Section 106 of the National Historic Preservation Act and documents the bureau’s revised Finding for the undertaking of approving the CVOW revised RAP. BOEM has prepared this documentation in support of the revised Finding following the standards outlined at 36 CFR § 800.11(e). This revised Finding and supporting documentation are being provided to the VA SHPO, the Narragansett Indian Tribe, the Lenape Indian Tribe of Delaware, VAARNG, Naval Facilities Engineering Command Mid-Atlantic, and the Virginia DMME, as consulting parties. Additionally, the revised Finding will be made available for public inspection by placement on BOEM’s public website.

1.2 Project Location and Description

The research lease area issued to DMME consists of six OCS sub-blocks within the Currituck Sound Protraction No. NJ18-11: from Block Number 6061, sub-blocks H, L, and P, and from Block Number 6111, sub-blocks D, H, and L (Figure 1). The six sub-blocks are located immediately adjacent to the western edge of the Virginia commercial lease area. The western edge of the research lease area is approximately 22.8 nautical miles (nmi; 42.3 kilometers [km]) from Virginia Beach and the eastern edge is approximately 23.5 nmi (43.5 km) from Virginia Beach. The entire area is approximately 2,135 acres (ac; 864 hectares [ha]).

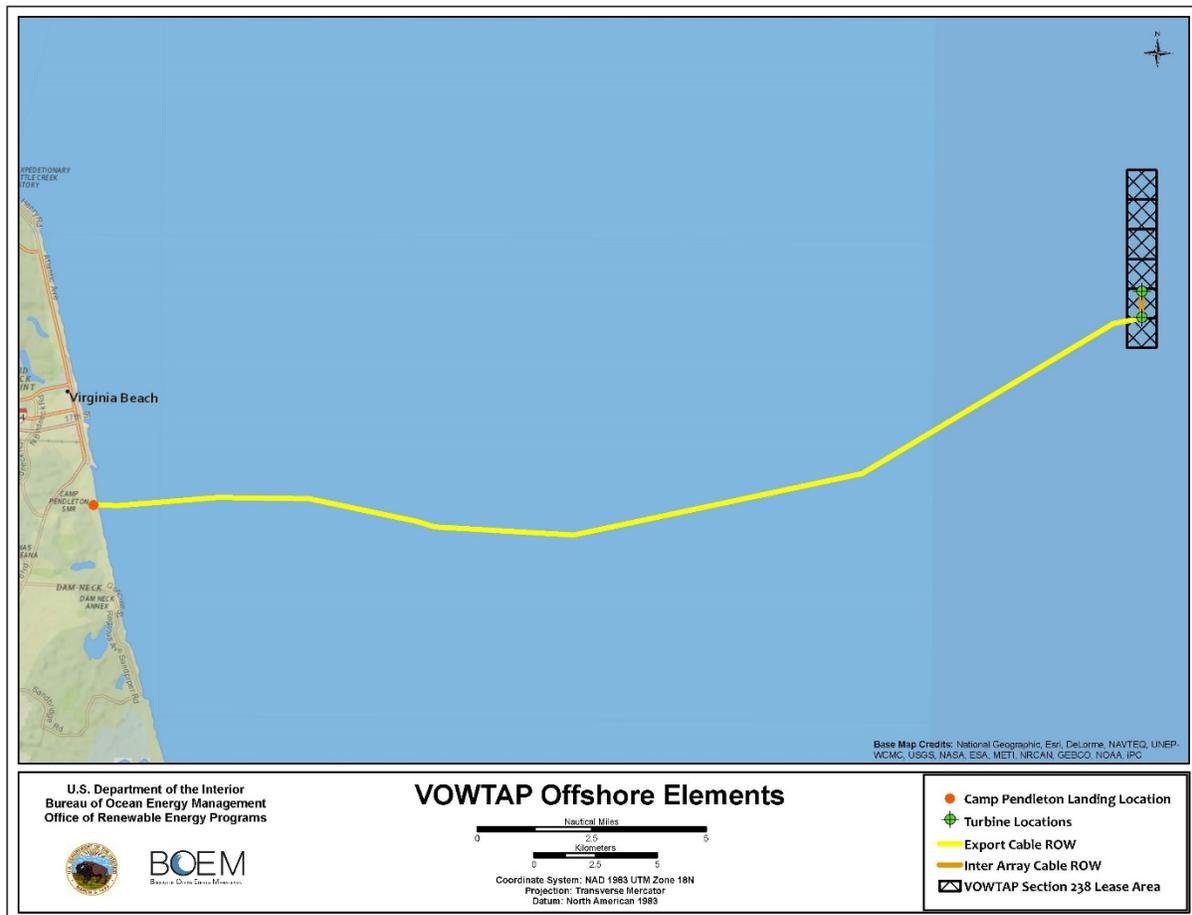


Figure 1. Project offshore location and elements.

The CVOW's offshore elements will consist of two 6-megawatt wind turbine generators (WTGs), an inter-array cable, and an export cable (see Figure 1). The WTGs and inter-array cables will be located within Federal waters on the OCS within Lease block 6111, aliquot H.

Each of the WTGs will be installed atop cylindrical monopile foundations (Figure 2). The diameter of each monopile foundation at the seabed is approximately 26.2 feet (ft; 8 meters [m]) for a total footprint of approximately 0.01 ac (0.005 ha). The monopile foundations will require scour protection which will consist of a filter layer of crushed rock material deployed in a radius of approximately 72.2 ft (22 m) around each foundation base. Installation of the WTG foundations will be carried out via a jack-up vessel.

The WTGs will be arranged in a north-south configuration spaced approximately 3,445 ft (1,050 m) apart, and will be connected by means of a 34.5 kilovolt alternating current, submarine inter-array cable. The inter-array cable will connect the two WTGs for a total length of approximately 0.54 nmi (1.00 km). During installation of the monopile foundations, WTGs, and inter-array cable, bottom-disturbing activities may take place within a 50 ac (20.2 ha) construction footprint surrounding the turbine locations.

A separate, bundled 34.5-kilovolt alternating current submarine transmission and communications cable, referred to as the export cable, will connect the WTGs to the existing onshore electrical grid. The export cable will be located within a 200-ft (61-m) wide right-of-way (ROW). The export cable will originate at the southern WTG and travel approximately 27 nmi (43 km), traversing both Federal and state waters, to a landfall site located at Camp Pendleton Military Reservation (Camp Pendleton). The target depth of burial for the Export Cable is approximately 6.6 ft (2 m). Installation of the cable will be achieved using a jet plow. Due to water-depth constraints in the nearshore areas, installation via jet plow will be supported by a maximum 8-point anchored barge from the proposed horizontal directional drilling (HDD) punch-out location, for a distance of approximately 3.9 nmi (7.2 km) followed by the use of dynamically positioned cable-lay vessel for the remainder of the offshore route.

The maximum height of each WTG will be between 341-364 ft (104-111 m), measured from mean sea level to rotor tip (Figure 3). In compliance with Federal Aviation Administration (FAA) and U.S. Coast Guard (USCG) regulations, the WTGs will have nighttime lighting. FAA lighting will consist of an L-864 medium intensity aeronautical light with a flash rate of 20 flashes per minute atop each WTG nacelle. USCG lighting will consist of two quick flashing, amber lights with 4 nmi (7.4 km) 360 degree visibility placed on the foundation of each WTG at a height of not more than 50 ft (15 m) above the highest astronomical tide.

Approximately 2 months prior to construction, a small wave and current buoy will be deployed within the area previously surveyed and evaluated as having no historic properties. The buoy, which will remain in place for less than 1 year, will monitor real time weather conditions in the project area prior to and during construction. Figure 4 depicts the locations of various offshore project elements, including the buoy.



Figure 2. Illustration of monopile foundation with scour protection.

The CVOW's onshore elements include the onshore interconnection cable, fiber optic cable, switch cabinet, and interconnection station (Figure 5). The onshore interconnection cable will convey the energy produced by the two WTGs from the landfall site to existing transmission infrastructure located on the southern side of South Birdneck Road. The landfall site will serve as the transition point where the export cable will be spliced to the onshore interconnection cable and separate fiber optic cable. A work area will be established near the export cable landfall site. This temporary work area will support the offshore HDD drilling rig, associated pumping units, and mud ponds, as well as contain a site office and material storage area. The switch cabinet will measure approximately 6 ft long by 6 ft wide by 6 ft tall (2 m long by 2 m wide by 2 m tall), and will be constructed within the footprint of the proposed onshore HDD work area. The interconnection station will be located at an existing paved turnout area at the southern end of the Gate 10 Access Road within Camp Pendleton.

The modified Onshore Interconnection Cable Route will originate at the proposed Switch Cabinet located within an existing parking lot at the end of Rifle Range Road and extend along the route illustrated in Figure 5, which crosses under Lake Christine and terminates at the proposed interconnection station north of the entrance for Camp Pendleton at Gate No. 10 off of South Birdneck Road. The total length of the modified Onshore Interconnection Cable Route from the Switch Cabinet at Camp Pendleton Beach to Dominion's existing electrical infrastructure is approximately 1.0 mi (1.6 km). The onshore interconnection cable will be installed using both HDD in a series of six segments and open cut excavation in areas where the HDD grades out from target burial depth. This will require the excavation of approximately three HDD splice pits approximately 4 ft long by 8 ft wide by 4 ft deep (1.2 m by 2.4 m by 1.4 m), in addition to open cut trenches in six areas approximately 2 ft wide by 4 ft deep (0.6 m by 1.4m) and ranging in length from 35 ft to 219 ft (10.6 m to 66.7 m). The Onshore Interconnection Cable and Fiber Optic Cable will be buried to an approximate depth of 3.3 ft (1 m) consistent with local utility standards. Upon completion of the interconnection and fiber optic cable installation, the areas will be returned to pre-construction conditions and Dominion will maintain a 25 ft (8 m) wide ROW for operations and maintenance during the life of the project.

1.3 Area of Potential Effects

As defined at 36 CFR§ 800.16(d), the APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may differ for different kinds of effects caused by the undertaking. The APE was determined by BOEM in consultation with the VA SHPO and other consulting parties through meetings and circulation of the CVOW survey reports, and documented in the April 6, 2015, Finding of No Adverse Effect and the August 8, 2018, revised Finding of No Adverse Effect.

Specific to the undertaking under discussion in this Finding, the APE is considered as:

- the depth and breadth of the seabed potentially impacted by any proposed seafloor/bottom-disturbing activities offshore;
- the depth and breadth of the ground where ground-disturbing activities are proposed onshore; and
- the viewshed from which renewable energy structures would be visible.

The APE for marine archaeological survey includes the offshore construction footprint and any associated anchoring or construction impact areas to the depth of disturbance as described above and illustrated in Figures 1 and 4. Although elements of the WTG design and installation have been modified, all proposed bottom-disturbing activities are within the previously defined APE.

The APE for the terrestrial archaeological survey includes the onshore construction footprint and any associated laydown or staging areas to the depth of disturbance. As illustrated in Figure 5, this area has been modified from what was previously presented in the August 29, 2018, revised Finding of No Adverse Effect and is considered under the Revised Terrestrial Archaeological Assessment (Appendix P), discussed below.

Finally, the APE for the viewshed from which renewable energy structures would be visible includes an area 25 statute miles (mi; 22 nmi; 40 km) from the offshore WTGs; NRHP-Listed Properties within 0.25 mi (0.22 nmi; 0.40 km) of shoreline and 10 mi (8.7 nmi; 16 km) to north and south of aboveground facilities; and 0.5 mi (0.4 nmi; 0.8 km) from aboveground facilities (Figure 6). Although the proposed WTG height has increased by 7 ft to 33 ft (2 to 10 m), this modification is unlikely to increase the onshore visibility of the project, as based on the results of the amendment to the Visual Impact Assessment (Appendix R). Therefore, this modification has not resulted in a change to the previously defined APE.

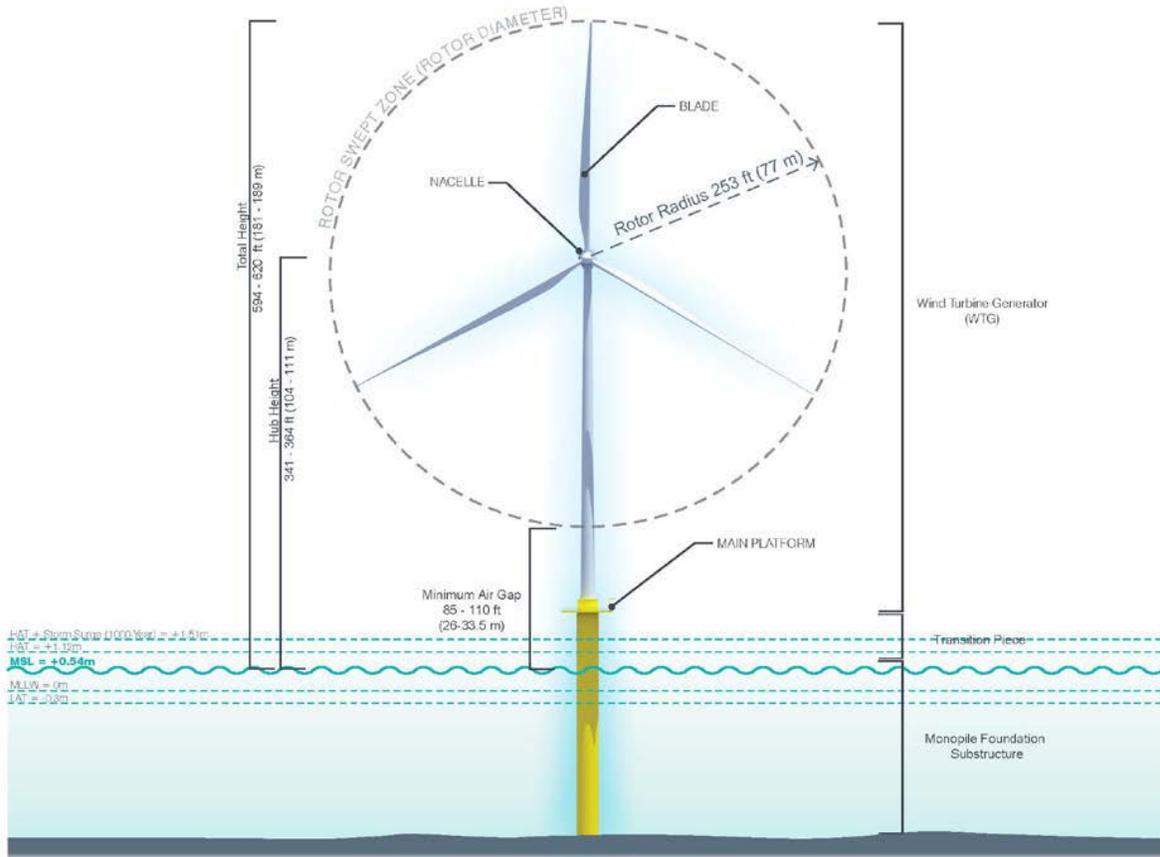


Figure 3. Conceptual rendering of the proposed WTG and foundation.

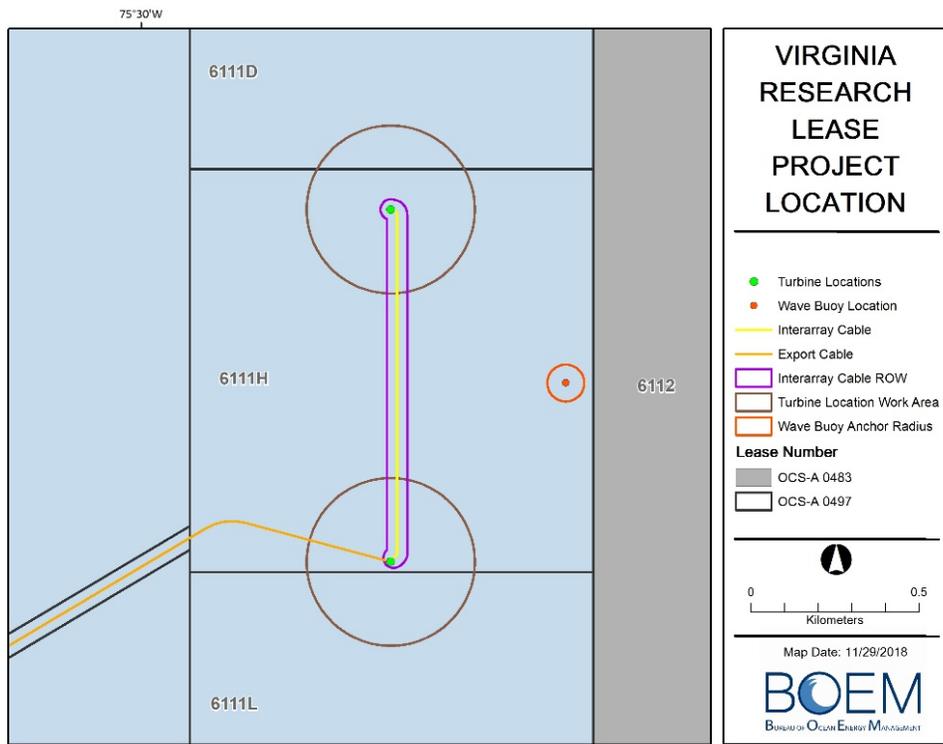


Figure 4. Detail of project offshore elements, including buoy location.



Figure 5. Project onshore location and elements.

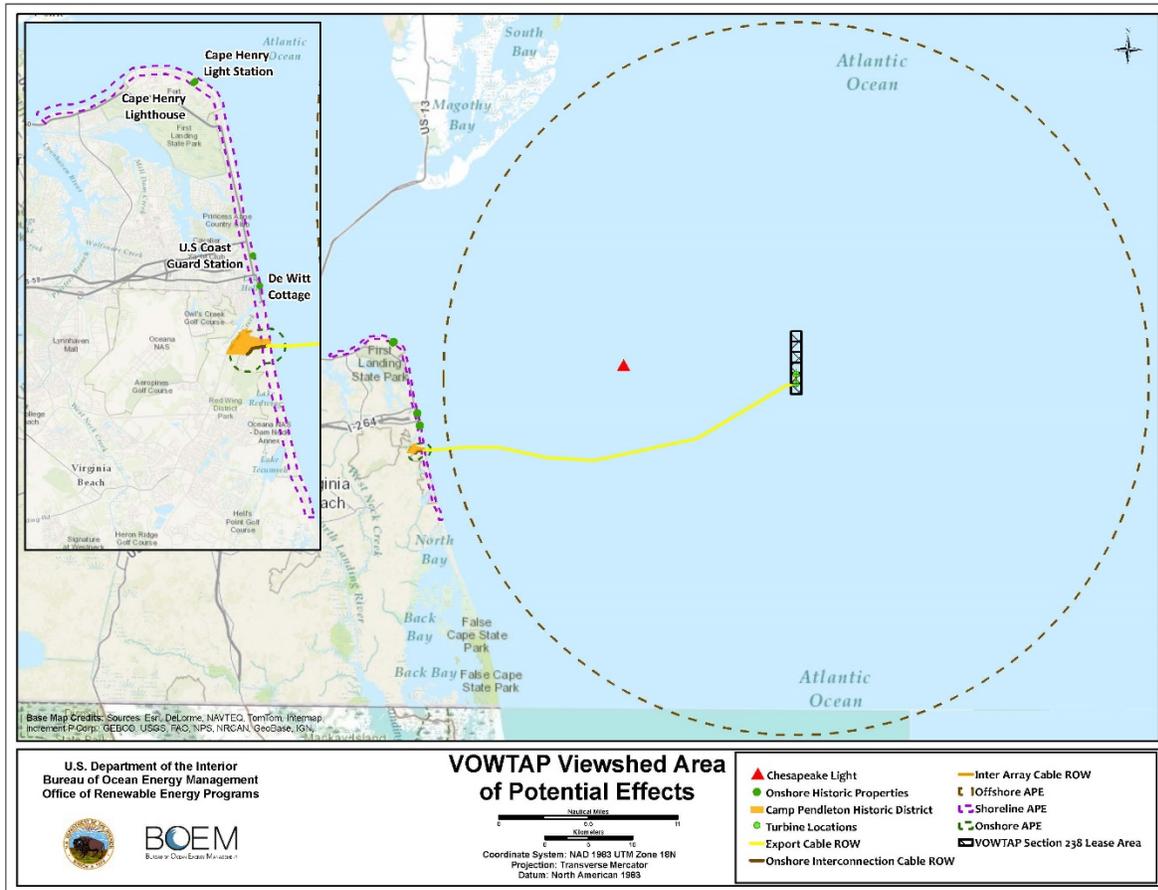


Figure 6. Project viewshed Area of Potential Effects.

2 Description of the Steps Taken to Identify Historic Properties

2.1 Existing and Available Information

BOEM has reviewed existing and available information regarding historic properties within the APE. Sources of this information include consulting with the appropriate parties and the public; gathering information shared by the VA SHPO's office; reviewing archaeological survey and historic properties identification reports provided to BOEM in support of the RAP and RAP amendments; and accessing information gathered by BOEM for an updated study of archaeological resource potential on the Atlantic OCS, known as the Atlantic Shipwreck Database (ASD). The ASD compiles information on historic shipwrecks and models the potential for archaeological sites predating European contact based on reconstruction of past landscapes, human settlement patterns, and site formation and preservation conditions (TRC Environmental Corporation 2012). Additionally, BOEM collected supplementary high-resolution acoustic data and conducted scientific diving operations at locations identified in historic properties identification reports as being likely to contain archaeological sites.

2.1.1 BOEM's Atlantic Shipwreck Database

Existing government databases formed the core of the data for BOEM's ASD, which was then supplemented by commercial databases. The National Oceanic and Atmospheric Administration maintains the Automated Wreck and Obstructions Information System, a database of wrecks and obstructions compiled from hydrographic surveys and field reports. The U.S. Navy created the Non-Submarine Contact List for military use in distinguishing shipwrecks from submarines hiding on the ocean floor. The U.S. Navy also maintains a database entitled Partial List of Foundered U.S. Navy Craft. Ships from this source were added to the database as well. Portions of three commercial databases were also obtained and included: The Global Maritime Wrecks Database, the International Registry of Sunken Ships, and the Northern Shipwrecks database (TRC Environmental Corporation 2012). BOEM's ASD does not represent a complete listing of all potential shipwrecks located on the Atlantic OCS, but rather it serves as a baseline source of existing and available information for the purposes of corroborating and supporting identification efforts. In many cases, the locational accuracy of database entries varies greatly.

A May 2018 review of BOEM's ASD resulted in no previously-reported shipwrecks or obstructions within the APE.

2.2 Consultation and Public Participation

2.2.1 Public Participation

To satisfy the public participation component of the Section 106 process, 36 CFR 800.2(d)(2), BOEM published a Federal Register notice inviting public input on the identification of historic properties or potential effects to historic properties. BOEM received no public comments on this Federal Register notice. BOEM also has made this Finding available to the public through its website.

On March 14, 2014, BOEM formally notified the public through the Federal Register (79 FR 14534-5), of its intent to prepare an Environmental Assessment (EA) to consider the reasonably foreseeable environmental consequences associated with the project and to use responses to the notice and the EA to obtain public input for its Section 106 review (36 CFR § 800.2(d)(3)). None of the comments received concerned historic properties, the scope of historic properties identification efforts, or any other topic relevant to Section 106 review. On December 2, 2014, BOEM announced the publication of the EA for public review and comment (79 FR 71446). Specific to the Section 106 review, comments were submitted by Dominion and are discussed in Section 4 below. No additional comments were received concerning historic properties, the scope of historic properties identification efforts, or any other topic relevant to Section 106 review.

Additionally, BOEM held public meetings in Virginia Beach, Virginia, on April 3, 2014 and December 17, 2014, in part to solicit comments and information on historic properties to inform the bureau's Section 106 review of the RAP. None of the comments received at these meetings concerned historic properties, the scope of historic properties identification efforts, or any other topic relevant to Section 106 review.

BOEM initiated Section 106 consultation on April 3, 2014, through letters of invitation, telephone calls, and emails (Appendix A). This outreach and notification included contacting over 50 individuals and entities from 27 organizations, including federally-recognized tribes, local governments, SHPOs, state-recognized tribes, and the public (Table 1). Additionally, BOEM has conducted formal government-to-government consultation with the Narragansett Indian Tribe and the Shinnecock Indian Nation. Furthermore, BOEM has identified and contacted 16 state-recognized tribes, one of whom chose to consult with BOEM on this undertaking, the Lenape Indian Tribe of Delaware. Subsequently, BOEM held webinars and meetings to circulate and discuss the project survey reports and this Finding, in draft. This included an in-person meeting with the consulting parties held August 27, 2014, at the Virginia Department of Historic Resources (DHR) in Richmond, Virginia.

Table 1. Entities Solicited for Information and Concerns Regarding Historic Properties and the Proposed Undertaking

Federal Agencies	State Agencies	Local Governments	Federally-recognized Tribes	State-recognized Tribes
<ul style="list-style-type: none"> • Advisory Council on Historic Preservation • Bureau of Indian Affairs • Fort Monroe National Monument • National Park Service • U.S. Army Corps of Engineers • U.S. Department of Energy • Naval Facilities Engineering Command Mid-Atlantic 	<ul style="list-style-type: none"> • Virginia Department of Environmental Quality • Virginia Department of Historic Resources • Virginia Department of Military Affairs-Virginia Army National Guard • Virginia Department of Mines, Minerals, and Energy • Virginia Marine Resources Commission 	<ul style="list-style-type: none"> • Accomack-Northampton Planning District Commission • Board of Supervisors Accomack County • City of Chesapeake • City of Hampton • City of Newport News • City of Norfolk • City of Portsmouth • City of Suffolk • City of Virginia Beach • Hampton Roads Planning District Commission • James City County • Suffolk City Council • Town of Accomac 	<ul style="list-style-type: none"> • Narragansett Indian Tribe • Shinnecock Indian Nation • Chickahominy Tribe • Eastern Chickahominy Tribe • Monacan Indian Nation • Nansemond Tribe • Pamunkey Tribe • Rappahannock Tribe • Upper Mattaponi Tribe 	<ul style="list-style-type: none"> • Cheroenhaka (Nottoway) Indian Tribe • Lenape Indian Tribe of Delaware • Mattaponi Tribe • Nanticoke Indian Association, Inc. • Nanticoke Lenni-Lenape Indians • Nottoway Indian Tribe • Patawomeck Indian Tribe • Powhatan Renape Nation • Rampanough Mountain Indians

Note: Since the initiation of consultations in 2014, seven Virginia tribes have become Federally recognized. BOEM continues to consult with these tribes in a government-to-government basis for this and other projects.

2.3 Review of Archaeological Resources Survey and Historic Properties Identification Reports and BOEM’s Additional Investigations

As discussed above, BOEM’s renewable energy regulations require a lessee to provide the results of surveys with its plan for the areas potentially affected by the activities proposed in each plan (see 30 CFR § 585.610(b) and 585.626(a)), including the results of a shallow hazards survey, geological survey, geotechnical survey, and archaeological resource identification survey. BOEM refers to these surveys as “site characterization” activities and provides guidelines for the submission of the results of these activities. See: Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 at: https://www.boem.gov/Guidelines_for_Providing_Archaeological_and_Historic_Property_Information_Pursuant_to_30CFR585/, which advises lessees to survey the proposed area of impact in its entirety. Additionally, BOEM requires lessees to provide the results of onshore historic properties identification activities conducted in accordance with the standards and guidelines of the relevant SHPOs, in this case the Virginia Department of Historic Resources.

In reviewing the RAP, BOEM also reviewed four appendices to the RAP, including a Marine Archaeological Assessment (Schmidt et al. 2014); a Terrestrial Archaeological Assessment (Tetra Tech 2014a); a Historic Structures Survey Report (Sexton 2014); and a Visual Impact Assessment (Tetra Tech 2014b). These four reports are also attached to this Finding (Appendices B through E) and their results are summarized below.

Subsequent to the 2018 revised RAP, Dominion submitted an amendment to the Marine Archaeological Assessment (Schmidt 2018; Appendix O); a Revised Terrestrial Archaeological Assessment (Tetra Tech 2018a; Appendix P); an amendment to the Historic Properties Survey Report (Tetra Tech 2018b; Appendix Q); and an amendment to the Visual Impact Assessment (Tetra Tech 2018c; Appendix R).

2.3.1 Identification of Historic Period Shipwrecks within the Offshore Area of Potential Effects

Within the offshore and nearshore submerged lands comprising the research lease area and the inter-array and export cable corridors, three potential historic period archaeological resources had been identified, which were interpreted from their geophysical signatures to be potential shipwrecks (Schmidt et al. 2014; Schmidt 2018; Appendix F). These included targets CR001, CR002, and LA001. Subsequent to this survey, BOEM independently collected additional high-resolution data and conducted scientific diving operations on these three targets and removed one (CR002) from consideration, on the basis that it constitutes a modern concrete buoy mooring anchor (Figure 7). As it does not constitute a historic property, CR002 will not be discussed further in this Finding. However, seafloor disturbing activities associated with the undertaking have the potential to affect Targets CR001 and LA001; these potential historic properties are discussed in Section 3, below.

2.3.2 Identification of Paleochannels and Analysis of their Potential for Precontact Archaeological Resources within the Offshore Area of Potential Effects

Eight paleochannels were identified in the cable corridor 10-20 km offshore in water depths of 15-20 m mean lower low water (MLLW) (Table 2). Paleochannels were identified from compressed high intensity radar pulse seismic data based on evidence of erosion/incision, nature

of the internal channel-fill reflectors, and overall geometry (Schmidt et al. 2014). These paleochannels were individually analyzed for their potential to contain intact remnants of the past landscape that could have the potential to contain precontact archaeological deposits. Paleochannels P-2 through P-5 clustered 11-12 km offshore in the depth range of 15-18 m MLLW. These may represent channel migration within a channel system rather than separate, individual channels. Paleochannel P-1 (located approximately 10.5 km offshore at depths of 10 m MLLW) and unmarked channel “a”, (located approximately 18 km offshore in water depths of 20 m MLLW) consist of multiple channels, which may also reflect channel migration. Paleochannel P-6 (located approximately 13.5 km offshore in depths of 17 m MLLW) and Paleochannel P-7 (located approximately 15 km offshore in depths of 18 m MLLW) both exhibit narrow widths, and poorly defined features. All channels/systems appear to be oriented roughly shore parallel. Considering the evidence of extensive erosion/reworking of sedimentary units immediately below the transgressive sand sheet for all paleochannels, it is unlikely that natural levee sediments have been preserved, with the exception of the lowermost channel identified in P-1, which is too old to have experienced human occupation. Therefore, the 10-20 km segment of the cable corridor has a low potential for preservation of natural levee deposits and associated cultural materials. Based on these results, further core sampling was not recommended (Schmidt et al. 2014) and these paleochannels do not constitute historic properties. Thus, they will not be discussed further in this Finding.



Figure 7. Target CR002 was determined by BOEM to be a concrete buoy mooring anchor and will not be considered further in this Finding.

2.3.3 Identification of Historic Properties within the Onshore Area of Potential Effects

Historic period archaeological resources situated onshore Virginia are associated primarily within Camp Pendleton State Military Reservation Historic District, which is listed in the National Register of Historic Places (NRHP; see Figure 6). Though Camp Pendleton's present listing documents the property's contributions to broad patterns of history and embodies architectural, military, and transportation elements of significance for the periods 1911-1950, the area had previously been subject to extensive landscape modifications. From post-contact period settlement through the development of the area for military training activities, the onshore project area was primarily agricultural (Tetra Tech 2014a, 2018a). A previously identified archaeological site within the immediate vicinity of the project area, a 19th to early 20th century domestic trash pit (Tetra Tech 2014a, 2018a), either predates or is contemporary with the earliest military activities. Consistently, within the onshore lands comprising the construction footprint and associated laydown or staging areas, multiple isolated historic period artifacts (glass, brick, and bullet fragments) were identified in various locations throughout, though none were of sufficient number in any given area to constitute an archaeological site (Tetra Tech 2014a, 2018a). Thus, they will not be discussed further in this Finding.

Table 2. Paleochannels Identified within the Area of Potential Effects and their Potential for Containing Pre-contact Period Archaeological Resources.*

Paleo-channel	Distance Offshore	Water Depth (MLLW)**	Description	Potential for Pre-contact Period Archaeological Resources
P-1	10.5 km	10 m	Poorly defined in the seismic profile data, with no visible flanks, but appears as a faint system of “cut and fill” structures. Exhibits up to 6 m relief, residing between 2 and 8 m below the seafloor (mbsf).	Two sediment cores (VC-005 and VC-006) collected in the general vicinity depict a transgressive sand sheet and ravinement surface. Low potential for preservation of pre-contact archaeological resources.
P-2	11 km	15 m	Narrow (.06 - 0.23 km) thin (2 - 4 mbsf) well-defined channel with prograding infill. Some lines exhibit multigenerational cut and fill structures suggesting multi-episodes of channel reactivation.	Two sediment cores (VC-005 and VC-006) collected in the general vicinity depict a transgressive sand sheet and ravinement surface. Low potential for preservation of pre-contact archaeological resources.
P-3	12 km	16 m	Consists of two distinct channels, both very well defined, with high-resolution prograding infill from the east Exhibits up to 7 m of relief, ranging from ~ 1 to ~8 mbsf and varies in width from ~0.09 to ~0.45 km.	Two sediment cores (VC-005 and VC-006) collected in the general vicinity depict a transgressive sand sheet and ravinement surface. Low potential for preservation of pre-contact archaeological resources.
P-4	12 km	17 m	Exhibits up to 5 m in relief, ranging from ~1 to ~6 mbsf and is well to very well defined consisting of high-resolution prograding channel fill units from the west.	Prograding fill units appear to have truncated surfaces, suggesting erosion, likely by shoreface ravinement during the Holocene sea-level rise. Low potential for preservation of pre-contact archaeological resources.
P-5	12 km	17 m	Poorly defined and narrow, ranging from 0.06 to 0.12 km in width, and is relatively shallow ranging from 1 - 2 to 4 - 5 mbsf. The channel is poorly defined and internal reflectors are faint to nonexistent with no detectable infilling pattern. Holocene in age.	Lateral channel migration likely reworked any natural levee deposits present, thereby decreasing the preservation potential. Low potential for preservation of pre-contact archaeological resources.

* Descriptions and interpretations are quoted directly from Schmidt et al. 2014.

**MLLW refers to mean lower low water, a measurement of tidal datum that is the arithmetic mean of the lower low water heights of each tidal day observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). For stations with shorter series, simultaneous observational comparisons are made with a control tide station to derive the equivalent of the National Tidal Datum Epoch. MLLW has been designated for use in lieu of MLW as the adopted reference NOS chart and sounding datum in most coastal tidal waters per the National Tidal Datum Convention of 1980.

Table 2 (Continued). Paleochannels Identified within the Area of Potential Effects and their Potential for Containing Pre-contact Period Archaeological Resources.*

Paleo-channel	Distance Offshore	Water Depth (MLLW) **	Description	Potential for Pre-contact Period Archaeological Resources
P-6	13.5 km	17 m	Narrow with a consistent width of 0.06 - 0.08 km. It exhibits up to 2 m of relief ranging from 2 - 4 mbsf. The channel is poorly defined on seismic data and no internal reflectors were detected.	Truncation of the underlying channel, and associated levee deposits, likely occurred by shoreface ravinement during the Holocene transgression. The surficial 1.2 m of Core VC-007 includes a layer of dark gray silty sand with clay lenses that may be interpreted as natural levee deposits. While the clay would be consistent with levee deposition, the gravel component would suggest a channel lag or ravinement surface. More likely, it is an amalgamation of all three environments possibly reworked during the Holocene transgression. Low potential for preservation of pre-contact archaeological resources.
P-7	15 km	18 m	Very narrow, but consistently .03 km in width. The channel is not well-defined, but contains faint, parallel internal reflectors. P-7 exhibits up to 5 m in relief ranging from ~1 to 6 mbsf.	The overlying ~1 m-thick TSS has a relatively flat base and, although truncation of channel fill units is not visible, erosion has likely occurred as described for the other channels. Low potential for preservation of pre-contact archaeological resources.
P-a	18.5 km	20 m	A series of separate channels; should be considered a channel system. Individual channels exhibit up to 4 m relief, ranging from 1-2 to 6 mbsf. The system width extends beyond the end of two of the three seismic lines, but it is likely km-scale in width. Channels are poorly to well-defined on seismic data, with both parallel and prograding infill.	Shore face ravinement and lateral channel migration during the Holocene sea-level rise likely eroded, or reworked, channel fill and natural levee deposits. Low potential for preservation of pre-contact archaeological resources.
P-a	18.5 km	20 m	A series of separate channels; should be considered a channel system. Individual channels exhibit up to 4 m relief, ranging from 1-2 to 6 mbsf. The system width extends beyond the end of two of the three seismic lines, but it is likely km-scale in width. Channels are poorly to well-defined on seismic data, with both parallel and prograding infill.	Shore face ravinement and lateral channel migration during the Holocene sea-level rise likely eroded, or reworked, channel fill and natural levee deposits. Low potential for preservation of pre-contact archaeological resources.

* Descriptions and interpretations are quoted directly from Schmidt et al. 2014.

**MLLW refers to mean lower low water, a measurement of tidal datum that is the arithmetic mean of the lower low water heights of each tidal day observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). For stations with shorter series, simultaneous observational comparisons are made with a control tide station to derive the equivalent of the National Tidal Datum Epoch. MLLW has been designated for use in lieu of MLW as the adopted reference NOS chart and sounding datum in most coastal tidal waters per the National Tidal Datum Convention of 1980.

Portions of the APE for the amended onshore interconnection cable route and alternative not previously investigated under the 2014 Terrestrial Archaeological Assessment (Tetra Tech 2014a) were reviewed in the Revised Terrestrial Archaeological Assessment (Tetra Tech 2018a). This assessment indicates that the amended onshore APE is within an area previously subjected to systematic shovel test pit survey as part of a survey conducted on behalf of Camp Pendleton State Military Reservation by the William and Mary Center for Archaeological Research (Monroe, Lewes and Chapman 2017). One archaeological site, 44VB0394, was identified within the APE for the modified alternative interconnection cable route. The site is located on the east side of Lake Christine adjacent to Lake Road and consists of a scatter of lithic artifacts and a concentration of modern architectural materials. Site 44VB0394 was determined to be ineligible for listing in the NRHP and will not be discussed further in this Finding. Archaeological site, 44VB0393, represents a domestic site dating from as early as the eighteenth century through the twentieth century and is located within the APE associated with open cut trench excavation for the revised onshore interconnection cable. Site 44VB0393 is co-located with Building 94 (State Representative's House, Care Taker's Cottage DHR Resource No. 134-0413-0036) and its associated outbuildings. As a result of investigation through the William and Mary study, site 44VB0393 was determined to be ineligible for listing in the NRHP and will not be discussed further in this Finding (Monroe, Lewes and Chapman 2017).

Consultation with the VAARNG indicated that resources that contribute to the NRHP-listed Camp Pendleton/State Military Reservation Historic District (DHR Resource No. 134-0413) are within the onshore APE. Three contributing resources—the Beachfront Rifle Range (DHR Resource No. 134-0413-0160), the Beachfront cultural landscape (DHR Resource No. 134-0413-0170), and the Observation Deck (DHR Resource No. 134-0413-0168)—are adjacent to the location for the proposed cable switch cabinet. Two contributing resources—the Beachfront Rifle Range (DHR Resource No. 134-0413-0160) and Building 94 (State Representative's House, DHR Resource No. 134-0413-0036) and its associated outbuildings (Guest House One, DHR Resource No. 134-0413-0117; Guest House Two, DHR Resource No. 134-0413-0118; Garage, DHR Resource No. 134-0413-0188; and Shed DHR Resource No. 134-0413-0189)—are within the APE for the modified onshore interconnection cable route.

As analyzed in BOEM (2007), visual impacts from the proposed project include a temporary increase in the volume of lighted vessel traffic. Lighted vessel traffic associated with the undertaking is indistinguishable from other existing vessel traffic and is temporary in nature. Moreover, the presence of the WTGs will have no effect (as defined in 36 CFR § 800.16(i)) upon the Camp Pendleton State Military Reservation Historic District, the Cape Henry Lighthouse, the Cape Henry Light Station, De Witt Cottage, the U.S. Coast Guard Station, and the Chesapeake Light because the undertaking will not change the attributes of the historic properties that have qualified them to be listed in the NRHP or to be recommended as NRHP eligible (Sexton 2014; Tetra Tech 2014b, 2018b). Thus, the Cape Henry Lighthouse, the Cape Henry Light Station, De Witt Cottage, the U.S. Coast Guard Station, and the Chesapeake Light will not be further discussed in this Finding.

3 Description of Affected Properties

The following section includes a description of historic properties potentially affected by the undertaking, including information on the characteristics that qualify them for the National Register.

3.1 Offshore Historic Properties

BOEM's good faith effort to identify historic properties offshore resulted in the location of two potential historic period archaeological resources that have the potential to be affected by the proposed undertaking: CR001 and LA001. These properties are interpreted from their geophysical signatures to be potential shipwrecks (Schmidt et al. 2014; Schmidt 2018) and may yield information important in history. BOEM administratively treats identified submerged potential historic properties as eligible for inclusion on the National Register under Criteria D, and requires lessees to avoid them unless lessees choose to conduct additional investigations to confirm or refute their qualifying characteristics. In this case, both submerged potential historic properties CR001 and LA001 will be avoided through conditions of BOEM's RAP approval, including the use of protective buffers. These potential historic properties were registered with the Virginia Department of Historic Resources and designated as sites 44VB0376 and 44VB0377.

3.1.1 Target CR001 (44CB0376)

Target CR001 is located within the export cable survey corridor, in close proximity to the outer border of the APE, at a water depth of 15.5 m MLLW. This target comprises one magnetic anomaly; no side-scan sonar or sub-bottom anomalies were associated with this target. This target does not correlate with any shipwrecks or cultural resources identified during archival and background research. The target exhibits high amplitude (193.38 nT), and a medium duration (42.8 m) with a "dipolar" profile, but contour data captures only a single pole, indicating the anomaly extends outside the APE. It was recorded with a sensor height of 3.66 m. The lack of a side-scan sonar target indicates that the target is buried. Magnetic contour analyses indicate that Target CR001 possesses characteristics that may represent a submerged cultural resource, such as a shipwreck (Schmidt et al. 2014; Schmidt 2018).

3.1.2 Target LA0001 (44VB0377)

Target LA001 comprises two adjacent magnetic anomalies located in BOEM Lease Block 6111, Aliquot H at a water depth of 24.5 m MLLW; no side-scan sonar or sub-bottom anomalies were recorded that could be associated with this target. This target does not correlate with any shipwrecks or cultural resources identified during archival and background research. The first anomaly exhibits medium amplitude (55.45 nT), medium duration (28.7 m), and a dipolar signature. It was recorded with a sensor height of 3.27 m. The adjacent anomaly exhibits low amplitude (27.58 nT), medium duration (33.8 m), and a dipolar signature. It was recorded with a sensor height of 5.12 m. The magnetic characteristics of Target LA001 may represent a potential submerged cultural resource, such as a shipwreck (Schmidt et al. 2014; Schmidt 2018).

3.2 Onshore Historic Properties

BOEM's good faith effort to identify historic properties onshore that may be potentially affected by the proposed undertaking includes one historic district potentially affected by the introduction of a switch cabinet and installation of the onshore interconnection cable. Camp Pendleton State Military Reservation Historic District is a VAARNG facility located in the City of Virginia Beach. Originally located on farmland and beachfront, the district now occupies 343.01 ac (138.8 ha) of largely intact landscape defined by military architecture, recreational facilities, and native woodland vegetation. The district includes 121 contributing buildings and structures.

The Camp Pendleton Rifle Range (DHR Resource No. 134-0413-0160) is a contributing element to this district, which is listed in the NRHP under Criteria A and C for its association with the military training and build-up associated with both world wars, and for its collection of exemplary military architecture. The Observation Deck (DHR Resource No. 134-0413-0168) is also a contributing element to this district, which is listed in the NRHP under Criteria A for its association with the history of Camp Pendleton through its use as a platform to watch for sightings of German U-boats off the Atlantic Coast. Building 94 (State Representative's House, DHR Resource No. 134-0413-0036) and its associated outbuildings are also contributing elements to this district and significant under Criteria A and C for their association with the early development of the camp property and their Craftsmen architectural style.

4 Description of the Undertaking's Effects on Historic Properties

The following section includes a description of the undertaking's effects on historic properties.

4.1 Offshore Historic Properties

The undertaking's effects on historic properties include proposed seafloor disturbance in the portion of the APE surrounding magnetic anomalies CR001 (44VB0376) and LA001 (44VB0377). Seafloor disturbance related to construction and operation of the CVOW has the potential to destroy or damage archaeological resources, thus directly and adversely affecting them.

4.2 Onshore Historic Properties

The undertaking's potential effects on historic properties include the introduction of a switch cabinet south of the Camp Pendleton Rifle Range within the Camp Pendleton State Military Reservation Historic District. The proposed location for the switch cabinet is in the vicinity of three resources that contribute to the NRHP-listed Camp Pendleton/State Military Reservation Historic District: the Beachfront Rifle Range, the Beachfront cultural landscape, and the Observation Deck. The computer-generated viewshed model prepared for the purpose of determining potential visibility of onshore project elements suggests that visibility of the switch cabinet will be limited to undeveloped portions of Camp Pendleton and the observation deck, currently used as a picnic/grilling area (Tetra Tech 2014b, Sexton 2014, Tetra Tech 2018c).

The undertaking's potential effects on historic properties also include ground disturbing and other construction activities associated with installation of the modified onshore interconnection cable adjacent and through the western extent of the Beachfront Rifle Range and adjacent to Building 94 and its associated outbuildings.

5 Application of Criteria of Adverse Effect and Conditions to Avoid Effects to Historic Properties

5.1 Offshore Historic Properties

With respect to seafloor disturbance in the portion of the APE surrounding magnetic anomalies CR001 (44VB0376) and LA001(44VB0377), BOEM administratively treats identified submerged potential historic properties as eligible for inclusion on the National Register under Criteria D, and requires lessees to avoid them unless lessees choose to conduct additional investigations to confirm or refute their qualifying characteristics. In this case, both submerged potential historic properties CR001 (44VB0376) and LA001(44VB0377) will be avoided by the lessee through conditions of BOEM's RAP approval, including the use of protective buffers. BOEM has determined that a 50-m buffer from the center point of both CR001 (44VB0376) and LA001 (44VB0377) will ensure that adverse effects to these potential historic properties will be avoided during construction and operation of the CVOW.

5.2 Onshore Historic Properties

With respect to the introduction of the switch cabinet, the application of the criteria of adverse effect concluded that the proposed introduction would not alter, directly or indirectly, any of the characteristics of the contributing historic properties that qualified them for inclusion in the National Register, nor would it diminish their integrity with respect to location, design, setting materials, workmanship, feeling, or association. Consideration was given to all qualifying characteristics of the contributing properties. Views of the switch cabinet would be partially to completely screened by existing vegetation, topography (i.e., sand dunes), and/or an existing restroom structure located just north of the switch cabinet which has already introduced vertical elements into the landscape. Portions of the switch cabinet that would be visible would be seen in the context of the existing restroom facility which is similar in form and line.

Nevertheless, in consultation with the VAARNG, BOEM concluded that the addition of subsequent screening and an appropriate paint scheme would further reduce the visibility of the switch cabinet from the Beachfront Rifle Range (DHR Resource No. 134-0413-0160), the Beachfront cultural landscape (DHR Resource No. 134-0413-0170), and the Observation Deck (DHR Resource No. 134-0413-0168), thus ensuring avoidance of possible adverse effects through application of the following conditions of BOEM's RAP approval:

The Virginia Department of Mines, Minerals and Energy must coordinate with the Virginia Department of Military Affairs – Virginia Army National Guard, in determining the final location, color, and installation of vegetative screening for the proposed switch cabinet. DMME must design the switch cabinet so that its placement and appearance minimize direct and visual impacts to historic properties on Camp Pendleton, and to the extent possible, the switch cabinet must be co-located with other facilities at the beach parking lot. The color of the switch cabinet must

minimize its visibility. To screen the switch cabinet, vegetative material is preferred. Location, color, and screening of the switch cabinet must be consistent with guidance in the "Integrated Natural Resources Management Plan: Camp Pendleton Collective Training Center, City of Virginia Beach, Virginia, Fiscal Years 2013-2017" (draft) (Camp Pendleton INRMP), and the "Virginia Department of Military Affairs Camp Pendleton Real Property Master Plan Vision Plan," August 31, 2012, prepared by the Louis Berger Group, Inc. (Vision Plan).

With respect to the installation of the modified onshore interconnection cable within the vicinity of Building 94 (DHR Resource No. 134-0413-0036) and its associated outbuildings, the application of the criteria of adverse effect concluded that the proposed installation activities would not alter, directly or indirectly, any of the characteristics of the contributing historic properties that qualify them for inclusion in the National Register, nor would it diminish the integrity of the properties with respect to location, design, setting materials, workmanship, feeling, or association. Consideration was given to all qualifying characteristics of the contributing properties. Although temporary ground disturbing activities would occur as a result of the interconnection cable installation, the proposed construction footprint and associated work area will avoid all components of the Building 94 complex, including the landscape, trees, and vegetation contributing to the property's setting. Dominion has further committed to return the open cut trenches to pre-construction conditions subsequent to cable installation with the exception of a manhole cover, which will be required to provide access to the cable splice.

However, in consultation with the VAARNG, BOEM concluded that measures are warranted to further ensure that all construction and staging activities are confined within the delineated open cut trench and work area adjacent to Building 94. Avoidance of possible adverse effects to this property will be further ensured through application of the following condition of BOEM's approval of the RAP amendments:

The Virginia Department of Mines, Minerals and Energy must implement avoidance measures and precautions, including installation of safety fencing, before any work commences in the area of Building 94 and its outbuildings, to ensure protection of the architectural historic properties and their setting.

With respect to the installation of the modified onshore interconnection cable through the western extent of the Beachfront Rifle Range (DHR Resource No. 134-0413-0160), the application of the criteria of adverse effect concluded that the proposed onshore interconnection installation would not alter, directly or indirectly, any of the characteristics of the contributing historic property that qualify it for inclusion in the National Register, nor would it diminish the property's integrity with respect to location, design, setting materials, workmanship, feeling, or association. Although temporary ground disturbing activities would occur as a result of the cable installation, use of HDD will limit the extent of ground disturbance and the splice pit and open cut trench excavation proposed in the vicinity of the Rifle Range will be confined to the disturbed areas adjacent to existing roadways. Dominion has committed to return splice pits to pre-construction conditions subsequent to cable installation with the exception of manhole covers, which will be required to provide access to the cable splice. There will be no visible alteration of landscape features within the range as a result of the cable installation.

However, in consultation with the VAARNG, BOEM concluded that the potential exists for the inadvertent discovery of archaeological resources directly associated with both the historic domestic occupation of Building 94 (DHR Resource No. 134-0413-0036) and its associated outbuildings and the historic military activities at the Beachfront Rifle Range (DHR Resource

No. 134-0413-0160). Avoidance of possible adverse effects to potential archaeological resources associated with these properties will be ensured through application of the following conditions of BOEM's approval of the RAP amendments:

The Virginia Department of Mines, Minerals and Energy must coordinate with the Virginia Department of Military Affairs – Virginia Army National Guard regarding all project-related construction activities within Camp Pendleton. DMME must provide VAARNG with "for construction" drawings for review and comment prior to the start of work to ensure the avoidance of adverse effects to historic properties.

A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualifications Standards, must perform on-site archaeological monitoring of all ground-disturbing activity, in particular within the vicinity of Building 94 and its associated outbuildings and the Beachfront Rifle Range. DMME must follow the VAARNG "SOP for the Inadvertent Discovery of Cultural Materials" for all ground-disturbing activities within Camp Pendleton throughout the duration of the project.

6 Views of Consulting Parties and the Public

This section summarizes views of the consulting parties provided to BOEM as part of its Section 106 review. The public has made no comments on this project pertaining to historic properties or to BOEM's Section 106 review.

6.1 VAARNG

At the August 27, 2014, consultation meeting, the VAARNG requested the use of vegetative screening around the switch cabinet on Camp Pendleton because the proposed general location for the switch cabinet is in the vicinity of three resources that contribute to the NRHP-listed Camp Pendleton/State Military Reservation Historic District (DHR Resource No. 134-0413): the Beachfront Rifle Range (DHR Resource No. 134-0413-0160), the Beachfront cultural landscape (DHR Resource No. 134-0413-0170), and the Observation Deck (DHR Resource No. 134-0413-0168). VAARNG subsequently sent an email detailing its request for the opportunity to participate in determining the location and color of the cabinet as well as vegetative screening (see discussion in Section 5, above). BOEM has incorporated this request as a condition of BOEM's RAP approval. On May 18, 2015, VAARNG concurred with BOEM's April 14, 2015 Finding of No Adverse Effect (Appendix G). On September 30, 2018, VAARNG concurred with BOEM's August 29, 2018, Revised Finding of No Adverse Effect with the request that Dominion be required to coordinate with VAARNG prior to beginning construction activities (Appendix H). BOEM conducted additional consultation with VAARNG during November 2018 regarding the revised RAP amendment and modified onshore interconnection cable route. Through emails and phone conversations VAARNG expressed concern regarding potential effects to Building 94 and the beachfront Rifle Range and requested additional measures regarding archaeological monitoring and avoidance of structures during construction activities. BOEM has incorporated these requests as conditions of BOEM's RAP amendment approval, as reflected in Section 5.2 above.

6.2 VA SHPO

VA SHPO corresponded with BOEM on September 11, 2014 and February 10, 2015 providing comments regarding the August 27, 2014, consultation meeting and review of the historic property identification reports and revisions (Appendix I and J). Regarding the onshore APE, VA SHPO concurred that no sites are present within this portion of the APE and that no further investigation is warranted. Regarding the viewshed APE, VA SHPO also concurred that additional survey is not warranted and that the undertaking will not adversely affect the Chesapeake Light Station or the five identified NRHP-listed resources (Camp Pendleton [DHR Resource No. 134-0413], Cape Henry Lighthouse Historic District [DHR Resource No. 134-0007], Cape Henry Light Station [DHR Resource No. 134-0079], De Witt Cottage [DHR Resource No. 134-0066], and the U.S. Coast Guard Station [DHR Resource No. 134-00047]).

Regarding the offshore APE, VA SHPO concurred with the results of the identification survey and the recommendation that targets CR001 and LA001 may represent historic period shipwrecks that should be avoided or subjected to further evaluation and that the identified paleochannels do not retain integrity and are unlikely to contain intact archaeological deposits. VA SHPO correspondence references targets CR001, CR002, and LA001. In subsequent emails and telephone calls, VA SHPO clarified that target CR002 is not a potential site and does not warrant recordation based on BOEM's investigation that confirmed the target as a concrete buoy mooring anchor and not a potential shipwreck.

VA SHPO further requested that:

- Targets CR001 and LA001 are formally recorded with DHR as archaeological sites to aid in their future management;
- The Chesapeake Light Station is formally recorded with DHR as an architectural resource to aid in its future management, and;
- The existing survey forms are updated for the remaining NRHP-listed resources (Camp Pendleton [DHR Resource No. 134-0413], Cape Henry Lighthouse Historic District [DHR Resource No. 134-0007], Cape Henry Light Station [DHR Resource No. 134-0079], De Witt Cottage [DHR Resource No. 134-0066], and the U.S. Coast Guard Station [DHR Resource No. 134-00047]).

Dominion subsequently fulfilled these requests in March and April 2015. CR001 and LA001 were registered with the Virginia Department of Historic Resources as sites 44VB0376 and 44VB0377, respectively. The Chesapeake Light Station was recorded as DHR Resource No. 134-5301. On May 15, 2015, VA SHPO concurred with BOEM's April 14, 2015 Finding of No Adverse Effect (Appendix K).

6.3 Narragansett Indian Tribe

The Narragansett Indian Tribe of Charlestown, Rhode Island, requested to participate as a consulting party in this Section 106 review. BOEM met with the Narragansett in government-to-government consultation at the Narragansett Indian Longhouse in Rhode Island on June 25, 2014. The Narragansett also attended the Section 106 consultation meeting (via teleconference) on August 27, 2014. During the later meeting, the Narragansett Deputy Tribal Historic Preservation Officer (THPO) shared aspects of the tribe's oral traditions, including that native

people have been present on the OCS for more than 100,000 years. He requested that the agency should consider requiring direct archaeological sampling (e.g., vibracoring) of potential paleolandscape features of that age, not just horizons with archaeological potential falling within the time frame recognized by archaeologists to represent the known period of human habitation on the North American Continent (i.e., dating to circa 12,000 to 15,000 years B.P. or more recent). He also requested additional information and possibly another consultation meeting or webinar to review the sub-bottom and vibracoring data collected as part of the project.

BOEM held subsequent telephone consultations and exchanged emails with the Deputy THPO in an effort to provide additional information and dialogue concerning his requests (specifically his review of the sub-bottom and vibracoring data) and to schedule the requested additional consultation meeting or webinar. The Deputy THPO replied that he would review the reports and notify BOEM by September 23, 2014, if he still felt he desired the originally requested additional consultation meeting or webinar. The Deputy THPO ultimately did not request the additional consultation meeting or webinar, but instead sent a letter on September 22, 2014, communicating the following points:

- the need to more adequately address the potential for encountering the presence of submerged relic Paleo-cultural resources as a component of this undertaking's identification and avoidance process;
- the recommendation for a "standard diagnostic technique" involving the placement of specific cores at locations identified by Tribal Historic Preservation Specialists; and
- the recommendation for an expanded role for THPOs and Tribal Historic Preservation Specialists to shape the search for the presence of submerged relic Paleo-cultural resources.

Deputy THPO Harris also suggested in his letter that there may have been a lack of systematic survey conducted on the OCS in general, and that it is a shortcoming of the identification effort that the vibracores used for ground truthing the geologic interpretation of the sub-bottom profiler data were not located specifically for the purpose of identifying archaeological resources. This letter is included as Appendix L.

With respect to these comments, BOEM has conducted a reasonable and good faith effort to identify historic properties, including specific consideration of pre-contact archaeological sites and paleolandscapes within the APE. The entirety of the APE was surveyed using industry-standard, state-of-the-art technologies and in a manner consistent with BOEM survey guidelines (Schmidt et al. 2014; Schmidt 2018). All paleolandscape features were specifically analyzed for the potential presence of these types of historic properties (see Section 2, above). BOEM believes that the placement of cores was sufficient both to ground truth geological interpretations of the sub-bottom profiler data as well as to adequately inform the archaeological analysis. Moreover, in response to requests from the Deputy THPO regarding tribal involvement in survey activities, BOEM has included provisions in its commercial leases to provide opportunities for the involvement of tribal representatives during geophysical data collection and geotechnical testing and exploration activities.

6.4 Lenape Indian Tribe of Delaware

The Lenape Indian Tribe of Delaware also requested to participate as a consulting party in this Section 106 review. During the August 27, 2014, consultation meeting, Chief Dennis Coker voiced agreement with Deputy THPO Harris (of the Narragansett Indian Tribe) concerning his desire to further review the results of the marine archaeological surveys with respect to the paleolandform reconstruction conducted. After reviewing the data and reports, Chief Coker held a telephone consultation with BOEM on September 22, 2014, during which he asked extensive questions about the vibracoring and sub-bottom profiling, and engaged in dialogue about the likelihood of identifying precontact sites post-approval given the nature of the undertaking and the ability of the geophysical instruments to remotely sense archaeological sites. He said he appreciated the inclusion of the post-review discoveries clause and the protections that it would afford any subsequently-discovered archaeological resources. Chief Coker also reiterated that the bureau's sensitivity to the possibility of submerged archaeological resources on the OCS was commendable. The Lenape Indian Tribe sent BOEM a letter on September 22, 2014, concurring with the conclusions and recommendations endorsed by BOEM as presented in the marine archaeological report. This letter is included as Appendix M.

6.5 Dominion

Dominion submitted comments in response to the December 2, 2014 publication of the EA for public review and comment (79 FR 71446). These comments stated that the results of the archaeological interpretation conducted by Schmidt et al. (2014) of the offshore survey data concluded that further study was warranted to determine whether magnetic anomalies CR001 and LA001 are potential archaeological resources, since it is not possible to make this determination based on the geophysical signature alone. The comments additionally stated that the archaeological consultants recommended an avoidance buffer of 50-m for CR001 and 35-m for LA001. These comments are included as Appendix N.

BOEM, through review of the archaeological report submitted by the applicant and in consultation with the parties under Section 106, has determined that two of the remote sensing anomalies have the potential to be historic properties (CR001 and LA001). BOEM is administratively treating these potential historic properties as eligible for inclusion on the National Register under Criteria D and will require the applicant to avoid them unless the applicant chooses to conduct additional investigations to confirm or refute their qualifying characteristics. This has been communicated with the consulting parties (of which the applicant is included) through the draft Finding and during the August 2014 consultation meeting at the Virginia Department of Historic Resources. The applicant has indicated that avoidance of these targets is feasible. Therefore, BOEM will not require additional investigation of the targets and will continue, for the purpose of completing Section 106 review, to administratively treat the targets as eligible properties.

BOEM does not concur with the recommendation of the applicant regarding a 35-m buffer for LA001. BOEM will require avoidance of both CR001 and LA001 by a 50-m buffer through conditions of RAP approval. This has been communicated to the applicant via the draft Finding and also during August 27, 2014, meeting at the Virginia Department of Historic Resources.

7 The Basis for the Determination of No Adverse Effect

BOEM reinitiated Section 106 review of the modifications to the RAP amendment as they present changes to the undertaking and the APE. As a result of this review, BOEM has prepared this revised Finding (36 CFR 800.5(b)). Though there are historic properties present within the APE, either the undertaking's effects do not meet the criteria of adverse effect at 36 CFR 800.16(a)(1), or conditions will be maintained on BOEM's approval of the RAP and revised RAP in order to avoid adverse effects.

BOEM believes a good faith effort has been made to identify historic properties with the APE for this undertaking (Tetra Tech 2014a, 2014b, 2018a, 2018b, and 2018c; Schmidt et al. 2014; Schmidt 2018; and Sexton 2014). Two potential historic period archaeological resources were identified offshore which are interpreted from their geophysical signatures to be potential shipwrecks. BOEM has required the Lessee to avoid these two resources through conditions of RAP approval, by a buffer of 50 meters around the center point of each. As illustrated in the amendment to the marine archaeological survey (Schmidt 2018), the 50-m avoidance buffers of CR001 (44VB0376) and LA001 (44VB0377), required as a condition of RAP approval, will be maintained. Therefore, adverse effects to these potential historic properties will be avoided.

BOEM has determined that the introduction of a switch cabinet within the Camp Pendleton State Military Reservation Historic District does not meet the criteria of adverse effect pursuant to 36 CFR § 800.5(a)(1) (Sexton 2014). However, BOEM has additionally required as a condition of RAP approval any potential effects to be further minimized through the introduction of vegetative screening and selection of appropriate paint colors in coordination with the Virginia Department of Military Affairs – Virginia Army National Guard. BOEM has determined that the installation of the onshore interconnection cable within the vicinity of Building 94 and the Beachfront Rifle Range does not meet the criteria of adverse effect pursuant to 36 CFR § 800.5(a)(1); however, BOEM will additionally include conditions of RAP modification approval requiring pre-construction coordination with VAARNG, archaeological monitoring, and avoidance of Building 94 during construction activities to further minimize the potential for any effects.

Although effects to historic properties may occur from an unanticipated, post-review discovery during construction, the required implementation of the unanticipated discoveries clause at 30 CFR § 585.802 and the inclusion of a post-review discoveries clause as a condition of RAP approval, ensures that any discoveries are reported and reviewed under the National Historic Preservation Act.

8 References

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- Tetra Tech, Inc. 2018b. Amendment to the Historic Properties Survey Report. Prepared for Dominion Resources, Inc. by Tetra Tech, Inc. 10 pp.
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APPENDICES

Appendix A: Correspondence from BOEM to Virginia Department of Military Affairs – Virginia Army National Guard, April 3, 2014; a similar letter was sent to all potential consulting parties on this date.

Appendix B: Marine Archaeological Resources Assessment for the Virginia Offshore Wind Technology Advancement Project, with Attachments (previously shared with the consulting parties July 31, 2014).

Appendix C: Terrestrial Archaeology Survey Report for the Virginia Offshore Wind Technology Advancement Project (previously shared with the consulting parties on January 14, 2015).

Appendix D: Historic Properties Survey Report for the Virginia Offshore Wind Technology Advancement Project (previously shared with the consulting parties on January 14, 2015).

Appendix E: Visual Impact Assessment Report for the Virginia Offshore Wind Technology Advancement Project (previously shared with the consulting parties on January 14, 2015).

Appendix F: Location of Offshore Historic Properties and Avoidance Buffers.

Appendix: G: Correspondence from Virginia Department of Military Affairs – Virginia Army National Guard to BOEM, May 18, 2015.

Appendix H: Correspondence from Virginia Department of Military Affairs – Virginia Army National Guard to BOEM, September 30, 2018.

Appendix I: Correspondence from Virginia Department of Historic Resources to BOEM, September 11, 2014.

Appendix J: Correspondence from Virginia Department of Historic Resources to BOEM, February 10, 2015.

Appendix K: Correspondence from Virginia Department of Historic Resources to BOEM, May 15, 2015.

Appendix L: Correspondence from the Narragansett Indian Tribe to BOEM, September 22, 2014.

Appendix M: Correspondence from the Lenape Indian Tribe of Delaware to BOEM, September 22, 2014.

Appendix N: Correspondence from Dominion Resources Services, Inc. to BOEM, January 5, 2015.

Appendix O: Amendment to the Marine Archaeological Assessment, October 5, 2018.

Appendix P: Revised Terrestrial Archaeological Assessment, October 2018.

Appendix Q: Amendment to the Historic Properties Survey Report, May 10, 2018.

Appendix R: Amendment to the Visual Impact Assessment, May 10, 2018.