REGION 3

PHILADELPHIA, PA 19103

U.S. Environmental Protection Agency
Region 3

Outer Continental Shelf Air Permit

Dominion Energy

Coastal Virginia Offshore Wind Commercial Project

Response to Comments on Draft EPA Permit

OCS-R3-01

I. Introduction

On January 29, 2024, the Environmental Protection Agency (EPA) Region 3 office published a notification in *The Virginian-Pilot* newspaper to commence the 30-day public comment period for the draft Outer Continental Shelf (OCS) air permit for the Coastal Virginia Offshore Wind Commercial Project (CVOW-C) to be constructed by Electric and Power Company, doing business as Dominion Energy Virginia (Dominion Energy, or Permittee). The Draft Permit allows for the construction of up to 176 Wind Turbine Generators (WTGs) and WTG Foundations, three Offshore Substations (OSSs) and OSS Foundations, inter-array cables connecting the WTGs and OSSs, all of which will be located within federal waters on the OCS off the coast of Virginia. In addition to the newspaper publication, EPA emailed interested parties about the start of the public notice period. The public notice, Fact Sheet and draft OCS Air Permit were made available at https://www.epa.gov/caa-permitting/caa-permitting-epas-mid-atlantic-region. Additionally, the Administrative Record for this permitting action was available at https://www.regulations.gov/docket/EPA-R03-OAR-2023-0632.

In addition to accepting written public comments on the Draft Permit, EPA held a virtual public hearing on February 28, 2024. No oral comments were given during the public hearing. EPA received three timely written comment submissions on the Draft Permit – one comment was supportive of the proposed project and did not provide any substantial public comments on the Draft Permit; EPA is not responding to that comment. The remaining two written timely comment submissions were from the Committee for A Constructive Tomorrow (CFACT) and Dominion Energy and consisted of multiple comments. EPA considered all significant comments submitted during the public comment period in its final decision-making process and after a careful review of the submitted comments, the EPA is issuing the final OCS Air Permit (Final Permit) for the CVOW-C Project. As required by 40 C.F.R. part 124 (Procedures for Decision Making), EPA has prepared this document, known as the "Response to Comments" (RTC), to address all comments received during the public comment period.

II. Comments Received on EPA's Initial Draft Permit Proposed January 29, 2024 Through February 28, 2024

A. Comments from CFACT

CFACT Comment 1: The commenter expresses concern that permit fails to carefully assess the use of battery powered electric vessels for the construction and operation of the windfarm. Specifically, the commenter points to two articles that are intended to provide examples of the use of battery powered vessels for offshore wind applications. The commenter asserts that EPA's best available control technology (BACT) analysis fails to consider that such vessels are not only available and feasible, but should be required as BACT for the CVOW-C project.

EPA Response to Comment 1: EPA disagrees with this comment. First, EPA notes that battery powered vessels were considered as part of the BACT analysis and were identified as being a potentially available option. See November 15, 2023 Application pages 64-67 and Fact Sheet pages 37-38. However, the applicant determined, and EPA concurs, that the use of battery powered engines is technically infeasible for the CVOW-C project, due to power storage capacity and vessel range limitations. While battery-powered marine vessels exist, EPA has found no available information indicating that such vessels are capable of meeting the vessel propulsion and engine power requirements necessary to construct and operate/maintain the various pieces of heavy equipment needed for CVOW-C's very large turbines. In addition, the EPA's RACT/BACT/LAER Clearinghouse (RBLC) contains no permitting determinations in which battery power is required for construction or operation and maintenance of offshore wind farms. Beyond the information available in the RBLC, EPA has no knowledge of any instances where battery powered marine vessels have been determined to meet BACT or other control requirements for any OCS source, deepwater port, or other source subject to permitting under the Clean Air Act.

Second, with respect to the two web-based articles submitted by the commenter,[1] EPA notes that they are not directly relevant to the CVOW-C project. The first article relates to the potential use of battery-powered crew transfer vessels (CTVs) for the construction of floating turbines in a project which has not yet begun. The second article relates to the "unveiling" of a battery-powered service operations vessel (SOV) to be used in the construction of offshore wind projects. However, none of the CTVs and SOVs associated with the CVOW-C project are permitted to operate as OCS sources, and are therefore not subject to BACT. There are only three instances covered by the CVOW-C permit where a vessel will be an OCS source, and thus subject to BACT: the primary jack-up vessel (Charybdis) during construction and operation of the windfarm, a back-up vessel to be used in place of the Charybdis if the Charybdis where to be unavailable, and an alternative jack-up vessel that may be used (during construction only) in place of a dynamically positioned vessel for the installation of the monopiles and transition pieces. Therefore, the specific vessels identified in the articles submitted by the commenter are not relevant to the BACT determination for the CVOW-C permit. Furthermore, while these are promising developments for the future of clean energy and battery-powered technologies, the commenter has not provided any evidence or analysis that battery-powered vessels are technically feasible for use in the CVOW-C project, that one or more such vessels exist that it (or they) would be available to Dominion, or that EPA's determination to reject battery-powered vessels as technically infeasible was in error.

In addition to the uncertainty of whether a battery-powered jack-up vessel can perform the necessary work for this CVOW-C project, whether a suitable vessel is available at the time it is needed is also an important consideration. As noted in the application and in the Fact Sheet for the CVOW-C permit, the worldwide fleet of vessels capable of performing this specialized work is

[1] See "*Electric Boats To Jumpstart Japan's Floating Offshore Wind Industry*" (https://cleantechnica.com/2023/04/10/electric-boats-to-jumpstart-japans-floating-offshore-wind-industry/, accessed 04/03/24); and *"In a first, this electric SOV is charged by offshore wind turbines"* https://electrek.co/2023/11/28/electric-sov-offshore-wind/, accessed 04/03/24).

extremely limited. In fact, EPA is currently unaware of any battery-powered jack-up vessels in operation worldwide. EPA has only identified one instance where a hybrid drive jack-up vessel is under construction and slated to begin operating in 2026. See "Havfram Wind's giant jack-up WTIV will be used for Hornsea 3," (https://www.marinelog.com/news/havfram-wind-giant-jack-up-wtiv-will-be-used-for-hornsea-3/, accessed 04/03/24). Even in the event that this vessel was at some point determined to be capable of performing the work for this project, it might be unavailable at the time it is needed due to its being contracted for use for another project, and this is one of the main reasons why EPA is providing for alternative permit conditions in case the Charybdis were to be unavailable. Therefore, battery-powered vessels currently have questionable availability for purposes of consideration as BACT for the CVOW-C project.

With respect to the Charybdis, another important consideration is compliance with the Jones Act. The Jones Act requires that goods being transported between U.S. ports be transported on domestically flagged vessels. Foreign flagged jack-up vessels would require an additional network of support vessels to transport materials from U.S. ports to the project site and onto the jack-up vessel. According to Dominion, the Charybdis will be the first Jones Act compliant vessel that is designed to install the large turbines that are integral to the design of the CVOW-C project.[2] Even if a battery-powered vessel were available and technologically capable of meeting the specific needs of the CVOW-C project, it is not clear that emissions would be meaningfully reduced, given the need for additional support vessels to transport materials from U.S. ports to the project site and onto the jack-up vessel.

Therefore, EPA disagrees with the commenter and is retaining the BACT requirements outlined in CVOW'C's Draft Permit and Fact Sheet.

CFACT Comment 2: The commenter states that EPA should assess its concern that wind speeds will be reduced as air passes through wind turbines in the CVOW-C wind farm lease area. When winds are directed onshore, reduced wind speeds exiting the wind farm will extend to the onshore areas of Virginia. These reduced wind speeds will then contribute to higher onshore ground-level ozone (O_3) concentrations. This may interfere with the ability of onshore areas, such as the Norfolk- Virginia Beach-Newport News (Hampton Roads), VA Area, to maintain the 8-hour ozone National Ambient Air Quality Standards (NAAQS).

EPA Response to Comment 2: The EPA believes the turbine wake effects cited by the commenter would have minimal to no impact on the O_3 levels at the eastern Virginia coastline, including the Hampton Roads Area, given the placement of the wind turbines and the distance between the wind farm and the nearest shoreline.

Dominion's air permit application included an analysis that specifically addressed O_3 impacts of its operation and maintenance (O&M) phase. This was discussed in section A.4.9.3.6 of EPA's Appendix: Modeling Fact Sheet document for the CVOW-C project. Dominion's analysis was part of requirements under 40 CFR § 52.21(k) through (n), 40 CFR § 52.21(o) and 40 CFR § 52.21(p).

[2] See November 15, 2023 Application pp. 18, 32, and 57-58.

Dominion estimated the ozone impact of the CVOW-C project using EPA's *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool*[3] *for Ozone and for $PM_{2.5}$ under the PSD Permitting Program*. This guidance outlines a method for utilizing photochemical modeling to relate the modeled air-quality impacts based on a source's annual nitrogen oxide (NOx) and volatile organic compound (VOC) emissions. Both NOx and VOC are ozone precursors contributing to the formation of ground-level ozone.

The final impact of CVOW-C's O&M phase emissions on O_3 concentrations was estimated by the modelling to be 0.3401542 parts per billion (ppb). In accordance with EPA's guidance, CVOW-C's modeled impact was added to a background O_3 concentration taken from the NASA-Langley Research Center (station ID 51-650-0008). A map displaying the location of this ozone monitor was provided in Figure 12 of EPA's Appendix: Modeling Fact Sheet document for the CVOW-C project. The NASA-Langley Research Center monitor had the highest design value[4] for the Hampton Roads area in 2022. Dominion therefore used this monitor to model the background O_3 concentration.

NASA-Langley Research Center's modeled background O_3 concentration (2022 design value) was 58 ppb. Adding Dominion's estimated impact from its O&M phase is expected to increase local O_3 concentrations in eastern Virginia by at most 0.34 ppb (0.00034 ppm). The current (2015) O_3 NAAQS is 70 ppb (or 0.070 ppm). Therefore, EPA does not expect that these modeled impacts from CVOW-C's O&M phase would bring monitor concentrations in eastern Virginia above the O_3 NAAQS.

Additionally, the Hampton Roads Area is currently a maintenance area for the 8-hour ozone NAAQS. On June 1, 2007 (72 FR 30490), EPA approved a redesignation request (and maintenance plan) from the Virginia Department of Environmental Quality (VADEQ) for the Hampton Roads Area for the 1997 O_3 NAAQS. EPA approved a second maintenance plan for the Hampton Roads Area on October 17, 2023 for the 1997 ozone NAAQS (88 FR 71487). This second maintenance plan applies through December 31, 2032. This current maintenance plan, which is Virginia's plan to maintain air quality at or below the 1997 O_3 NAAQS, contains a contingency plan designed to promptly correct or prevent any violation of the NAAQS that might occur after redesignation. Section 175A of the Clean Air Act (CAA) requires that a maintenance plan include such

[3]Tier 1 involves the use of technically credible relationships between precursor emissions and secondary ambient impacts based on existing modeling studies deemed sufficient for evaluating a project source's impacts as described in EPA's *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and PM-2.5 under the PSD Permitting Program (*April 30, 2019, Memorandum from the Office of Air Quality Planning and Standards). See also https://www.epa.gov/nsr/guidance-development-modeled-emission-rates-precursors-merps-tier-1-demonstration-tool-ozone.

[4] A design value is a statistic value that describes the air quality status of a given location relative to the level of the National Ambient Air Quality Standards (NAAQS). Design values are computed and published annually by EPA's OAQPS and reviewed in conjunction with EPA Regional Offices (https://www.epa.gov/air-trends/air-quality-design-values). See also 40 CFR Part 50.10 and 40 CFR Part 50 Appendix I.

contingency measures as the EPA deems necessary to assure that a state will have in place measures to implement, if needed, to assure continued maintenance of a NAAQS after the area has been redesignated. Thus, there are provisions in the EPA-approved Virginia maintenance plan to address any violations of the ozone NAAQS should they occur after CVOW-C becomes operational.[5] Additionally, Virginia included a projection inventory for its second maintenance plan that included nonattainment area emissions from the CVOW-C project (including marine emissions from the project inside the state seaward boundary).[6]

Based on this information, the EPA believes CFACT's concerns have been fully accounted for regarding the impacts of the CVOW-C project on O_3 concentrations for the Newport News area of Virginia.

Furthermore, the EPA believes the wake effects the commenter raised will be localized. Wind turbine spacing is designed to minimize wake effects of individual wind turbines on neighboring turbines.[7] This design consideration minimizes electricity production loses from the wind farm. CVOW-C will have 176 wind turbines located within its lease area. The lease area is estimated to be approximately 176 square miles (133 square nautical miles) or about two and a half times the size of the District of Columbia. This works out to an average density of 1 wind turbine per square mile.[8] Wake effects from individual wind turbines, therefore, will be spread out over a large area lessening their overall downwind impacts.

The EPA also believes the extended distance between the CVOW-C wind farm and the nearest land will further mitigate the already minimized wake effects from individual wind turbines. The CVOW-C lease area is approximately 28 miles (24 nautical miles) from the closest shoreline. This means air exiting the wind farm will take several hours to reach the coast using average wind speeds from the modeling analysis; the average hourly wind speed was about 13.8 miles per hour (12 knots). Upon exiting the wind farm, air flow will be subject to the same regional pressure gradient it was as it entered it. This regional pressure gradient will cause the air to reaccelerate for

[5] The specific measures and the events that would trigger Virginia's implementation of those specific measures, are set out at length is EPA's proposed approval of the Hampton Roads Area maintenance plan. See 88 FR 57020 (August 22, 2023). As previously indicated, EPA has approved this maintenance plan, including the contingency measures.
[6] See 88 FR 71487 and EPA-R03-OAR-2023-0089; ID EPA-R03-OAR-2023-0089-0006, Supporting and Related Material.
[7] Wind turbine placement spacing to minimize wake effects is described in section 2.1.1.1 of Dominion's *Construction and Operations Plan Coastal Virginia Offshore Wind Commercial Project Introduction, Project Siting and Design Development, Description of Proposed Activity (revised September 8, 2023). Available at: https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-0* .
[8] Actual wind turbine separation is estimated to be between 0.86 and 1.07 miles as stated in section 2.1.1.1 of Dominion's *Construction and Operations Plan Coastal Virginia Offshore Wind Commercial Project Introduction, Project Siting and Design Development, Description of Proposed Activity (revised September 8, 2023). Available at: https://www.boem.gov/renewable-energy/state-activities/coastal-virginia-offshore-wind-project-construction-and-0.*

several hours raising its kinetic energy (wind speed) as it moves towards land.[9] Onshore flow, therefore, will be faster than when it exited the CVOW-C wind farm.

Given these circumstances, reductions in wind speed the commenter raised are likely to be minimal and have little to no effect on onshore ozone concentrations.

CFACT Comment 3: The commentor states that, while not an air quality issue, projects like CVOW-C are likely to produce large plumes of suspended sediments that should be assessed under the Clean Water Act (CWA); however, the commentor states that no evidence of an assessment and/or permitting has been found. The commentor suggests that the National Marine Fisheries Service (NMFS) should be involved with this type of assessment.

EPA Response to Comment 3: Because, as the commenter acknowledges, this is not an air quality issue, any comments pertaining to Clean Water Act (CWA) requirements are beyond the scope of EPA's action on CVOW-C's application for an Outer Continental Shelf air permit pursuant to the CAA. While not relevant to or at issue in this CAA action, EPA notes that water quality issues were analyzed as part of the Environmental Impact Statement (EIS) prepared by Bureau of Ocean Energy Management (BOEM), the United States Army Corps of Engineers (USACE) Record of Decision on permit NAO-2013-00418 / 408-NAO-2022-0056 under Section 404 of the Clean Water Act (CWA 404), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), and Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408 Section 408); and by the National Marine Fisheries Service.

EPA notes that NMFS has been a cooperating agency as part of the NEPA process and has reviewed the CVOW-C project. NMFS issued the Endangered Species Act Section 7 Consultation Biological Opinion on September 18, 2023, prepared a Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Letter, dated July 21, 2023, and issued the Marine Mammal Protection Act Incidental Take Authorization, dated January 23, 2024.

These water-quality related actions are not part of this action, and may not be challenged through any proceeding on the OCS air permit. EPA makes no representations as to whether the actions of BOEM, USACE, or NMFS are subject to challenge in any other forum.

B. Comments from Dominion Energy

Dominion Comment 1: The commentor requests that definitions be added to define "12-month Rolling Total" and "Daily Emissions." Additionally in this comment Dominion has requested that the monitoring and recordkeeping frequency be monthly for 12-month rolling total emission limits and no less than every 7 days for daily emissions.

EPA Response to Comment 1: EPA agrees that it is reasonable for the 12-month rolling total to be

[9] J.M. Wallace and P.V. Hobbs (2006), *Atmospheric Science An Introductory Survey* (2nd Edition), Chapter 7.2: Dynamics of Horizontal Flow, Academic Press.

calculated once per month since the emission limit is based on a monthly rolling total. Therefore, EPA is revising the Permit to reflect that the Permittee will be required to calculate and record the monthly emissions and the 12-month rolling total within 7 days of the end of each calendar month.

The daily emission limits will remain calculated and recorded no less frequently than every 7 days, which ensures short-term impacts are being monitored frequently to minimize potential violations. EPA agrees with the Commenter that adding definitions will improve the clarity of the Permit.

EPA has revised Section III. Definitions to include the definitions of "12-month rolling total emissions" and "daily emissions" as follows:

> *"12-Month Rolling Total Emissions means the facility-wide rolling total emissions for a 12-month period that are calculated and recorded within 7 days of the end of each calendar month. The Permittee will calculate and record the tons of each air pollutant emitted by all emission sources identified in Section IV.A.6. by adding the Daily Emissions for each emission source for that month within 7 days of the end of the month. Daily Emissions for that month will then be added to the tons of the corresponding air pollutant from the previous 11 months to get the 12-month rolling total tons of each air pollutant."*
>
> *"Daily Emissions means the facility-wide daily emissions from all emission sources identified in Section IV.A.7. that are calculated and recorded no less frequently than every 7 days."*

EPA has revised Section IV.A.6. to clarify the frequency of calculating the 12-month rolling total emissions, as follows:

> "[1]12-month rolling total, calculated and recorded ~~every 7 days~~ *within 7 days of the end of each calendar month.* Note that the Construction Phase limits apply to construction and commissioning activities immediately upon commencement of the Construction Phase Start Date and ends the day when the last WTG to be constructed begins producing commercial power. The O&M Phase limits apply to operation and maintenance activities immediately upon commencement of the Operational Phase Start Date."

EPA has revised Section IV.A.9. to clarify the frequency of calculating the 12-month rolling total emissions, as follows:

> "Beginning at the Construction Phase Start Date, the Permittee shall incorporate daily emissions calculated in Section IV(A)(6) into the Construction Phase 12-month rolling total for NOx, VOC, CO, SO2, PM10, PM2.5, and GHGs, compiled ~~no less frequently than every 7 days~~ *within 7 days of the end of each calendar month*. These emissions shall be summed from all the emission sources defined in Section IV(A)(6) for determining compliance with the Construction Phase facility-wide emissions cap. This requirement ends when the Construction Phase ends and the last WTG to be constructed begins producing commercial

power."

EPA has revised Section IV.A.11. to clarify the frequency of calculating the 12-month rolling total emissions, as follows:

> "Beginning at the Operation Phase Start Date, the Permittee shall incorporate daily emissions calculated in Section IV(A)(6) into the O&M Phase 12-month rolling total for NOx, VOC, CO, SO2, PM10, PM2.5, and GHGs, compiled ~~no less frequently than every 7 days~~ *within 7 days of the end of each calendar month*. These emissions shall be summed from all the emission sources defined in Section IV(A)(6) for determining compliance with the O&M Phase facility-wide emissions cap."

EPA has revised Section VII.A.4. to clarify the frequency of calculating the 12-month rolling total emissions, as follows:

> "Per Section IV(A)(6), Section IV(A)(9), and Section IV(A)(11), records of the 12-month rolling total of NOx, VOC, CO, SO2, PM10, PM2.5, and GHG emissions, for the OCS source calculated and recorded ~~every 7 days~~ *within 7 days of the end of each calendar month*."

Section IV.C.9. and IV.C.10. reference a 12-month rolling total limit on the hours the permanent non-emergency engines are allowed to operate. The Permit requires compliance with these limits to be demonstrated monthly. EPA has revised Section IV.C.9. to clarify the frequency of calculating the 12-month rolling total, as follows:

> "CVOW-42 through CVOW-44 Permanent Non-emergency Diesel Engines (563 kW) – During the Construction Phase, the three (3) permanent diesel engines on the OSSs will be used for non-emergency purposes. The three (3) non-emergency generators each shall not operate more than 7,320 hours per year, calculated on a 12-month rolling total basis. Compliance for the consecutive 12-month period shall be demonstrated ~~monthly~~ *within 7 days of the end of each calendar month* by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months."

EPA has revised Section IV.C.10. to clarify the frequency of calculating the 12-month rolling total, as follows:

> "CVOW-42 through CVOW-44 Permanent Non-emergency Diesel Engines (563 kW) – During the O&M Phase, the three (3) permanent diesel engines on the OSSs are only allowed to be used for emergency purposes. The three (3) generators each shall not operate more than 100 hours per year for non-emergency purposes, which includes maintenance and readiness testing, calculated on a 12-month rolling total basis. Compliance for the consecutive 12-month period shall be demonstrated ~~monthly~~ *within 7 days of the end of each calendar month* by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months."

Dominion Comment 2: In this comment, Dominion has requested that the definition of "available" in Permit Condition No. IV.B.6 be revised in order to broaden the circumstances under which an alternate jack-up vessel may be used for O&M purposes. This request is limited to the O&M portion of the project. Dominion asserts that this change is necessary because the Charybdis is not being exclusively built for the construction and operations of the CVOW-C project. According to Dominion, Blue Ocean Energy Marine (Blue Ocean), a subsidiary of Dominion Energy Inc., was formed to construct and operate Charybdis to support the development, installation, and maintenance of offshore wind generation projects throughout the United States, not just for the CVOW-C project. While Dominion has the Charybdis under contract for the construction phase, there may be times during the O&M phase when that vessel is contractually obligated to another project, and is therefore not available for use by Dominion on the CVOW-C project. Dominion's comment requests that Permit Condition No. IV.B.6 be revised to provide for the use of an alternative jack-up vessel during O&M (under the conditions outlined in the Draft Permit) when the Charybdis is contractually obligated to a different project, and therefore not available to Dominion for charter and use on the CVOW-C project.

EPA Response to Comment 2: Draft Permit Condition IV.B.6. addresses the allowable use of Charybdis and alternative vessels as identified in the Draft Permit in the context of the two phases where jack-up vessels will be used – during the construction, and for operation and maintenance of the CVOW-C project.

Based on representations by Dominion, it is EPA's understanding that Dominion has contracted with Blue Ocean to use the Charybdis for the construction phase from 2025 – 2027.[10,11] These dates are also consistent with the construction schedule submitted by Dominion in its November 15, 2023, air permit application. Therefore, there is no need to alter the requirement for the construction phase of the project, where the language in the draft permit would allow for the use of an alternative vessel only when the Charybdis is not in good operating condition and would not be capable of performing the necessary work.[12]

However, EPA will grant the requested relief for the operation and maintenance phase. The operation and maintenance phase has an estimated lifecycle of 30 years. EPA has determined that it is reasonable to assume that the Charybdis may be contractually obligated to other projects during that lengthy period of time, and those periods of contractual obligation will make the Charybdis unavailable to service the necessary and time-constrained operations and maintenance activities at the CVOW-C project. Therefore, EPA will revise Section IV.B.6 to allow the use of an alternative jack-up vessel when the Charybdis is contractually obligated to another

[10] See Dominion Energy's website at https://www.dominionenergy.com/projects-and-facilities/wind-power-facilities-and-projects/charybdis (accessed March 11, 2024)
[11] Dominion projects that full installation of the CVOW-C Project will be completed no later than February 4, 2027, based on a weather-corrected schedule (Petition for Clarification or Reconsideration, Commonwealth of Virginia State Corporation Commission, Case No. PUR-2021-00142, August 25, 2022).
[12] Should circumstances beyond Dominion's control arise that necessitate additional flexibility or relief from this requirement, Dominion could submit a permit modification for EPA to review and consider.

project during a time when Dominion requires a jack-up vessel for operations and maintenance activities at CVOW-C. This will be in addition to the existing language allowing for use of an alternative jack-up vessel when the Charybdis is not mechanically capable of performing the necessary work, which applies during both the construction and the operations and maintenance phases of the CVOW-C project.

EPA has revised Section IV.B.6. as follows:

> "Main WTG Installation Vessel (Charybdis) and Alternative WTG Installation Vessel – During construction, operation, and maintenance, the Charybdis Vessel~~, provided it is available,~~ shall be the sole vessel authorized to operate as an OCS source for activities requiring a jack-up vessel for purposes of installing WTG components above the transition piece *during the Construction Phase* or performing maintenance and repair work during O&M~~. For purposes of this Permit condition, "available" shall be defined as being in good operating condition such that it is capable of performing the work required. In the event the Charybdis is not available, the Permittee may contract an alternative jack-up vessel to operate as an OCS source provided:~~ *, except:*
>
> *i) If, during either the Construction Phase or O&M, the Charybdis is undergoing repair or otherwise not mechanically capable of performing the work required, the Permittee may contract an alternative jack-up vessel to operate as an OCS source provided:*
>
> *a. The Permittee notifies the EPA in writing within 24 hours of obtaining the alternate vessel. The notification must include the reason for and expected duration of the Charybdis' unavailability.*
>
> *b. Each notification shall be signed by the Responsible Official, and shall be submitted with the following certification:*
>
> *"This information was prepared either by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my evaluation, or the direction and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, I hereby certify under penalty of law, to the best of my knowledge and belief, this information is true, accurate, and complete. I understand that there are significant penalties for submitting false, inaccurate, or incomplete information to the United States."*

ii) *If, during the O&M Phase, the Charybdis is mechanically capable of performing the work required, but is legally contracted to perform services at a separate project that make it unavailable during a period of time that would substantially interfere with necessary operations and maintenance activities at CVOW-C, the Permittee may contract an alternative jack-up vessel to operate as an OCS source provided:*

a. *The Permittee notifies the EPA in writing within 24 hours of obtaining the alternate vessel. The notification must include the reason for and expected duration of the Charybdis' unavailability and whether or not Dominion could reasonably reschedule O&M activities to a period when the Charybdis is available.*
b. *Each notification shall be signed by the Responsible Official, and shall be submitted with the following certification:*
"This information was prepared either by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my evaluation, or the direction and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, I hereby certify under penalty of law, to the best of my knowledge and belief, this information is true, accurate, and complete. I understand that there are significant penalties for submitting false, inaccurate, or incomplete information to the United States."

Dominion Comment 3: Dominion asserts in this comment that the term Load Factor ("LF") in the equation in Permit Condition No. IV.A.8 is not defined correctly, because it will underestimate the actual engine load for cases where an engine operates less than 24 hours in a day.

EPA Response to Comment 3: EPA acknowledges the Commenter's concerns regarding the load factor equation in the Permit. To clarify, the load factor can be calculated by dividing the actual fuel consumed during the engine operating time by the maximum fuel that could be consumed during the same timeframe.

Regarding the Commenter's example load factor calculation, the original load factor equation in the Permit was intended to produce the same computation as the Commenter's proposed load factor equation. Whether the engine operates at 100% load for 4 hours or 24 hours does not change the load factor from being 1.

Nonetheless, EPA recognizes that the current language in the Permit is not clear. EPA is revising the Permit to clarify that the load factor shall be calculated based on the number of hours the engines operate per day. Section IV.A.8 is being revised as follows:

"LF = Engine load factor per operating day = ~~daily fuel rate for a given engine (kg/day)/ maximum fuel rate for a given engine (kg/day)~~ *Actual Fuel Rate (kg/hr)/ Maximum Fuel Rate (kg/hr) =*

Actual Fuel Rate = Actual fuel consumed by a given engine during operating day (kg)/ engine operating time during operating day (hr)

Maximum Fuel Rate = Maximum hourly fuel consumption rate for a given engine (kg/hr)"

To provide further clarification, the load factor equation should be applied as follows:
Consider the same example that the Commenter provided with an engine with a rating (ER) of 2,238 kW and a maximum hourly fuel rate of 477 kg/hr. If this engine were to operate at 100 percent load for 4 hours during the operating day, then the resulting actual fuel consumed would be 1,908 kg, and the resulting engine load factor LF would be:

LF = AFR/MFR = (1,908 kg/ 4hrs)/ (477 kg/hr) = (477 kg/hr)/ (477 kg/hr) = 1

If the engine were to operate at 100 percent load for 24 hours during the operating day, then the resulting actual fuel consumed would be 11,448 kg and the resulting engine load factor would be:

LF = AFR/MFR = (11,448 kg/ 24 hrs)/ (477 kg/hr) = (477 kg/hr)/ (477 kg/hr) = 1

Dominion Comment 4: In this comment, Dominion has requested that EPA clarify in Condition IV.B.5 when 40 CFR Part 1042 emission standards apply to Category 1, Category 2, and Category 3 engines on vessels while operating as OCS source(s).

EPA Response to Comment 4: EPA agrees that this language could unintentionally subject engines to the most stringent emission standards in any of the engine categories. EPA has made the following revisions to Section IV.B.5.:

"Each Category 1, Category 2, and Category 3 engine on vessels while operating as OCS source(s) shall comply with BACT emission limits derived from applicable emissions standards in 40 C.F.R. Part 60, Subpart IIII and shall meet the ~~most stringent emission standards within 40 C.F.R. Part 1042~~ *following* emission standards within 40 C.F.R. Part 1042, *as determined in paragraphs i) and ii) below.*"

i. The Category 1 and Category 2 engines shall meet the most stringent emission standards (e.g., *Tier* 3 or Tier 4) *for the applicable engine category* ~~as contained~~ within 40 C.F.R. Part 1042, of the available vessels at the time the vessel is contracted. The engines may meet the next most stringent emission standard if the total emissions associated with the use of a vessel with an engine(s) that meet the most stringent emission standards would be greater than the total emissions associated with the use of the vessel with an engine(s) that meet the next most stringent emission standards. For purposes of this subparagraph, when determining the total emissions associated with the use of a vessel with a particular engine, the Permittee shall include the emissions of the vessel that would occur when the vessel would be in transit to the OCS source from the vessel's starting location. At a minimum, Category 1 and Category 2 engines shall comply with applicable NOX, HC, CO, and PM emission standards at 40 C.F.R. Part 60, Subpart IIII as well as NOx+THC (or NOx+NMHC for engines below 37 kW), CO, and PM

emission standards equal to or cleaner than EPA Tier 2 standards contained within 40 C.F.R. Part 1042, Appendix I.

ii. The Category 3 engines shall meet the most stringent emission standards (e.g., Tier 3) *for Category 3 engines* within 40 C.F.R. Part 1042, of the available vessels at the time the vessel is contracted. The engines may meet the next most stringent emission standards if the total emissions associated with the use of a vessel with an engine(s) that meet the most stringent emission standards would be greater than the total emissions associated with the use of the vessel with an engine(s) that meet the next most stringent emission standards. For purposes of this subparagraph, when determining the total emissions associated with the use of a vessel with a particular engine, the Permittee shall include the emissions of the vessel that would occur when the vessel would be in transit to the OCS source from the vessel's starting location. At a minimum, Category 3 engines shall comply with applicable NOx and PM emission standards at 40 C.F.R. Part 60, Subpart IIII and CO and HC emission standards equal to or cleaner than EPA Tier 2 standards contained within 40 C.F.R. Part 1042.104."

Dominion Comment 5: Dominion Energy believes that 40 CFR Part § 52.21 should be added as an underlying requirement for Permit Conditions IV.C.4 – IV.C.8.

EPA Response to Comment 5: EPA agrees with the comment and will add a citation of 40 CFR § 52.21 to Permit Section IV.C.4 – IV.C.8

Dominion Comment 6: Permit Section V.A, cites 40 C.F.R. §60.4206 as its basis, which does not include the word "install"; therefore, Dominion Energy requests that the word "install" be deleted from this condition.

EPA Response to Comment 6:
EPA agrees with the commentor and has revised Section V.A. as follows:

"The Permittee must ~~install,~~ operate~~,~~ and maintain all engines to achieve the emissions standards at 40 C.F.R. § 60.4204(b) over the entire life of the engine.

Dominion Comment 7: Permit Section V.C cites 40 C.F.R. §60.4211(a)(1) as its basis, which does not include the word "install"; therefore, Dominion Energy requests that the word "install" be deleted from this condition.

EPA Response to Comment 7:
EPA agrees with the commentor and has revised Section V.C. as follows:

"The Permittee shall ~~install,~~ operate~~,~~ and maintain all engines and control devices according to the manufacturer's emission-related written instructions."

Dominion Comment No. 8: Dominion Energy requests that the word "applicable" be inserted before the phrase "emission standards" in Permit Sections V.A. and V.B to provide clarity for these conditions.

EPA Response to Comment 8:
Because the underlying requirements in the referenced conditions do not contain the word "applicable", EPA disagrees with the commentor, and does not propose any additional changes to Conditions V.A and V.B other than those identified above in response to Dominion's Comment 6 and 7.

Dominion Comment 9: Dominion requests that the word "applicable" be inserted before the phrase "EPA test requirements" in Permit Condition No. VI.B to provide clarity for this condition, or alternatively to delete the last sentence in the proposed condition because the specific test methods are already indicated in the condition.

EPA Response to Comment 9:
EPA does not agree with the commentor that there is a need to clarify Permit Condition No. VI.B. Section VI.B. currently reads as follows:

> "For each engine operating on OCS source vessels identified in EUG 1, the Permittee shall conduct a visible emission test for 30 consecutive minutes using the EPA test Method 22 when the vessel is operating as an OCS source, once per 30 operating days. If during the Method 22 test visible emissions are observed for more than 3 consecutive minutes, within 14 calendar days the Permittee shall conduct a visible emission test using the EPA Method 9. An operating day is defined as any calendar day in which the vessel operated as an OCS source. All visible emission tests for this specific permit condition shall be conducted in accordance with the EPA test requirements specified in 40 C.F.R. Part 60, Appendix A, Methods 9 and 22."

EPA believes that use of the word "applicable" before the phrase "EPA test requirements specified in 40 C.F.R. Part 60, Appendix A, Methods 9 and 22" is not necessary to clarify this requirement. The use of the term "specified" in the draft permit provides the necessary clarity to understand which test requirements apply-the ones that apply are the ones that are "specified." Adding "applicable" would not enhance the clarity of this provision. However, adding the term "applicable" could call into question whether there is some intention to deviate from EPA's long-standing interpretation of CAA 113(a) and (e) that those sections of the CAA allow for EPA to bring a Federal enforcement action ''on the basis of any information available to the Administrator, '' and that Congress gave EPA clear statutory authority to use any credible evidence—not just data from reference tests or other federally promulgated or approved compliance methods—in pursuing CAA violations. See Credible Evidence Revisions, 62 F.R. 8314, 8321 (February 24, 1997).

Dominion Comment 10: Dominion Energy requests that the word "pre-construction" be removed from condition Section VII.A and VII.A.3. The Draft Permit and permit application only address two project phases, construction, and operations activities. Dominion asserts in its comment that pre-construction is not an activity associated with the CVOW OCS air permit or subject to OCS regulations as pre-construction would be prior to establishment of the first OCS air source.

EPA Response to Comment 10:
EPA agrees with the commentor and has revised Section VII.A as follows:

> "The Permittee shall maintain records as listed below. These records should be retained for a period of at least five years from the date of recording, inspection, testing, or repair, and shall be made available to regulatory representatives upon request. The records shall be maintained during ~~pre-construction,~~ construction~~,~~ and operation activities."

Section VII.A.3 has been revised as follows:

> "Records documenting the make, model, maximum rated horsepower, engine displacement (L/cylinder), and manufacturing date of: engine(s) located on the OSS and WTG(s), all engines on vessels that meet the definition of an OCS source, and all engines on vessels servicing or associated with the OCS source when those vessels are at the OCS source, or en route to or from the OCS source and are within the 25 NM square boundary around the centroid of the OCS source's centroid. The records should be maintained during ~~pre-construction,~~ construction~~,~~ and operation activities."

III. Other Changes to the Permit

EPA has revised Section VI, Permit Condition VI.C.1 to clarify that a request submitted by Dominion pursuant to 40 C.F.R. § 55.7 cannot be used to request a waiver or exemption for performance test requirements under 40 C.F.R. Part 60, Subpart IIII. The revised condition VI.C.1. now reads as follows:

> "EUG 1 – The Permittee shall determine compliance with the applicable 40 C.F.R. Part 60, Subpart IIII NO_x and PM emission standards specified in this Permit for each of the Category 3 marine engines as follows:
>
> 1. Conducting an initial performance test to demonstrate initial compliance with the emission standards, and annual performance tests, thereafter in accordance with 40 C.F.R. *§* 60.4211(d)(1) and (d)(3). This compliance requirement shall apply unless and until such time as the Permittee requests a waiver ~~or exemption~~ for performance test requirements pursuant to 40 C.F.R. § 60.8(b)(4) ~~or 40 C.F.R. § 55.7~~ and the EPA grants such a request."

Additionally, EPA has revised Section V, Permit Condition No. V.F to reflect that 40 C.F.R. § 55.7 can be used to request an exemption from control technology requirements under 40 C.F.R. Part 60, Subpart IIII. The revised Condition No. V.F now reads as follows:

> "The Permittee shall comply with all applicable requirements of 40 C.F.R. Part 60, Subpart IIII, New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (CI ICE)~~.~~, *except to the extent EPA has granted a request for exemption from such requirements under 40 C.F.R. § 55.7."*
>
> [*40 C.F.R. § 55.7, 40 C.F.R. § 55.13(c),* 40 C.F.R. Part 60, Subpart IIII (§§60.4200–60.4219, Table 1–Table 8)]