SC DEPARTMENT *of*
ENVIRONMENTAL
SERVICES

Bureau of Air Quality
Response to Comments on Air Quality
Dominion Energy South Carolina, Inc. - Canadys Station
Walterboro, Colleton County, South Carolina
Permit Number PSD-50000027 v1.0

The following is the South Carolina Department of Environmental Services, Bureau of Air Quality's (herein referenced as SCDES or Department) response to the comments made during the formal comment period held September 18, 2026, through October 27, 2026, regarding the draft Air Prevention of Significant Deterioration Permit for Dominion Energy South Carolina, Inc. - Canadys Station (herein referenced as Dominion, Dominion Energy, or Canadys). An availability session with a presentation of the proposed project to answer questions from the public along with a public hearing to receive oral and written comments on the proposed project, were held by the Department on October 20, 2026.

The written Department Decision, final determination, permit, statement of basis, this response document, and a letter of notification are located for viewing at the SCDES Columbia office located at 2600 Bull Street, Columbia SC 29201, and on our webpage at https://des.sc.gov/programs/bureau-air-quality/air-quality-department-decisions.

Hard copies of all the above-listed documents and written comments received can be requested by contacting our Freedom of Information Office at (803) 898-3882.

The following is a summary of the comments received and the Department responses to those comments:

Best Available Control Technology (BACT) Analysis

Comments on Best Available Control Technology: Comments were received requesting the Department require the best available control technology to limit the impact of the project on the public and environment. Another comment asserted that SCDES should evaluate whether the permit satisfies best available control technology (BACT) standards.

Response: The draft permit is a PSD air construction permit that would allow Canadys to construct a new combined-cycle power block consisting of three combined-cycle combustion turbines (CCCT). When drafting PSD permits, the permitting authority must establish

emission limitations based on BACT for each pollutant that is subject to PSD at a new major stationary source. As such, the Department conducted a BACT review and included BACT limitations and monitoring requirements in the draft permit for the three proposed combustion turbines and supporting equipment emitting Particulate Matter (PM) (Filterable), Particulate Matter <10 Microns (PM_{10}), Particulate Matter <2.5 Microns ($PM_{2.5}$), Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_X), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Greenhouse Gas (GHG) represented as Carbon Dioxide (CO_2) equivalent emissions (CO_2e). The PSD preliminary determination details this review and provides the basis for the Department's determination that the BACT limits contained in the draft permit satisfy the regulatory requirement that the proposed limits reflect the maximum degree of controls that can be applied to reduce emissions, considering energy, environmental, and economic impacts.

It is important to note that not all CCCTs are the same. There is a range of different CCCT makes (manufacturers) and models, and CCCTs at different sites may be designed and intended to meet different objectives specific to a given project. For instance, higher combustion-zone temperatures and residence times generally result in more complete combustion, lower VOC emissions, and higher efficiency. However, higher temperatures also generally result in higher NO_X formation. Therefore, if a CCCT is designed to be more efficient (e.g., higher temperature) or to meet a certain VOC level, then its NO_X emissions might be higher. Given the variety of potential project designs and objectives, CCCTs are considered inherently different and often cannot be directly compared, and emissions from different CCCTs controlled by the same technology may vary. In addition, if a company plans to install a CCCT because it meets their specific business purpose, the BACT process is not intended to force that company to install a specific model (e.g., GE, Siemens, or Mitsubishi). Therefore, emissions limits associated with different CCCT projects may not be directly comparable due to the differences in makes (manufacturers) and models of CCCTs, differences in project scope, needs, and design. BACT emission limits are evaluated on a case-by-case basis.

Comparison to BACT Limits from Combustion Turbines Permitted at other Facilities

Comments Comparing Similar Facilities: Comments were received comparing the BACT emission limits and averaging times to combustion turbines permitted at other facilities:

Response: The following table lists facilities used by the commenter for comparison with the BACT limits at Canadys:

Date Issued	Facility	Turbine Model	Status
6/12/26	Lowman Energy Center	Mitsubishi 501JAC (Natural Gas Only)	Not Constructed

Date Issued	Facility	Turbine Model	Status
5/2/24	Mill Creek Generating Station	Mitsubishi 501JAC (Natural Gas Only)	In Construction
1/5/24	Longview Power	Mitsubishi 501JAC (Natural Gas Only)	Not Constructed
11/9/20	Plant Barry	Mitsubishi 501JAC with 550 MMBtu/hr Duct Burner (Natural Gas Only)	Operating
6/24/19	Chickahominy Power	Mitsubishi 501JAC (Natural Gas Only)	Not Constructed
Draft	Plant McIntosh	Undisclosed (5,325 MMBtu/hr)	Not Constructed
1/29/26	Plant Bowen	Undisclosed (5,292 MMBtu/hr)	Not Constructed
4/29/21	Renova Energy Center	GE 7HA.02	Cancelled
12/19/25	Chesterfield Energy Reliability Center	GE 7FA.05	Not Constructed
7/29/22	Lincoln Land Energy Center	Siemens, Unknown	Not Constructed
6/23/22	Marshall Energy Center	Undisclosed (3,064 MMBtu/hr)	In Construction
6/19/23	Maple Creek Power Plant	GE 7HA.03	Not Constructed
4/26/18	Novi Energy C4GT	GE 7HA.02	Cancelled

As reflected in the chart above, one factor to be weighed in reviewing other previously permitted CCCT projects is the construction status of the previously permitted project. Although permits for unconstructed sources with unverified limits are relevant in a BACT analysis, it is proper for the determination of BACT for a facility to consider all available information, including manufacturer's information specific to their equipment and operating profile. As discussed above, emission limits associated with different CCCT projects may not be directly comparable due to the differences in make, model, project scope, needs, and design. Factors such as maximum heat rate can differ among turbine models, which can affect CO, VOC, and NO_X emissions. The Canadys' model turbines also differ from the other Mitsubishi models because they are configured as dual-fuel turbines. This configuration changes internal parts to allow for the use of different burners. The presence and size of duct burners can also affect the emissions. Although the BACT limits from unconstructed facilities or different combustion turbine models and configurations need to be taken into account, the absence of construction prevents a verifying demonstration of compliance, and

the BACT emissions limit ultimately should be developed based on the best information available which can include the manufacturer's information and the knowledge of the predicted operating profile of the turbines.

Further responses to more specific BACT-related comments should be viewed as incorporating by reference the above.

Comment on Fuel Oil Usage: A comment was received requesting that SCDES restrict the combustion turbines from using fuel oil or at least impose more restrictive fuel oil usage limits. The commenter listed five facilities with similar model turbines that were not permitted to use fuel oil.

Response: BACT is a case-by-case determination based on specifics of individual projects. The absence of fuel oil from the projects referenced reflects the needs and design choices of the individual projects at the time of issuance. Each project must be evaluated based on its distinct scope, needs, and requirements. In this case, as discussed in the supporting BACT determination and Statement of Basis, the project at issue relies on the use of natural gas as primary fuel, with fuel oil only to be used as a secondary fuel supply. Per the facility, this fuel selection provides the level of reliability and resiliency necessary to meet critical baseload power demands. As such, further restriction on the use of fuel oil would not be in keeping with the project's scope and design needs, and would therefore redefine the project and need not be considered. As set forth in the permit and BACT determination, use of fuel oil in the combustion turbines is limited to 720 hours over a 12-month period, and water injection will also be required for control of NO_X when using fuel oil in the combustion turbines.

Comment on BACT Limits for Nitrogen Oxides (NO_X) Emissions: A comment was received requesting that the DES impose a more protective emission limit for NO_X citing three facilities with the same limit as the Canadys facility but lower averaging times for the limit when firing natural gas. Three facilities were also listed with either lower averaging times or a lower limit when firing fuel oil.

Response: The commenter lists three facilities that have lower NO_X limit averaging times than Canadys' turbines. Each of these facilities were permitted for the same model turbine which is a Mitsubishi 501JAC. As mentioned above, the Longview Power and Chickahominy Power facilities have not been constructed. The only one of the three facilities that is operating is Plant Barry. Although the turbine model is identical, the duct burners the Canadys' facility will use are approximately 35% larger (850 lb/MMBtu vs 550 lb/MMBtu), which can impact emissions. The larger heat input by the Canadys' facility could potentially increase the thermal NO_X formation. All three of the listed facilities are also natural gas only boilers. As stated in the Preliminary Determination, the 24-hour averaging period selected as BACT for Canadys aligns with other recent determinations and was proposed to account for operational variability of the CCCT powertrains. The selective catalytic reduction systems

dynamically adjust the ammonia injection rate based on the turbine load. Due to the larger heat input at the Canadys' turbines, a 24-hour averaging time is more appropriate to allow for the shifts in turbine operating loads. None of the facilities firing fuel oil with the lower averaging times have been constructed, and the turbine models were not disclosed for two of the three. The Renova Energy Center has a lower listed NO_X emission rate and averaging time, but the turbine is a different model, and the project has been cancelled. As discussed above, differences in turbine models and configuration need to be taken into account when developing BACT limits. Additionally, differences in maximum heat rate can affect CO, VOC, and NO_X emissions.

Comment on the NO_X limit for Startup and Shutdown Operations: A comment was received stating the draft permit's NO_X limit of 96 ppm (24-hour average) during startup, shutdown, periods of tuning, and operating below 70% capacity, is not as restrictive as other facilities. The commenter listed ten facilities and their corresponding startup/shutdown limits. The commenter also expressed concern over the allowance of 2,928.5 hours per year of startup and shutdown events and sought clarification as to whether this limitation includes tuning and other low-load operations referenced in Condition B.23. The comments were concerned that the startup/shutdown allowance was inconsistent with a characterization of the project as a baseload power generation station and requested a reduction in authorized startup/shutdown events or justification for the appropriateness of the hours level authorized.

Response: Of the ten facilities listed, none of them have been constructed. The 24-hour averaging time stated for Canadys' combustion turbines is also incorrect. The averaging time is 4 hours. The startup and shutdown procedures across facilities/permits tend to be individualized, represent a fraction of the operating time, and are difficult to compare among facilities. The 2,928.5 hours only applies to startups and shutdowns. The 2,928.5 hours of startup and shutdown events were compared by the commenter with the Chesterfield Energy Reliability Center, which is a peaking facility and is limited to 1,500 hours per year. The turbines at the Chesterfield facility are simple cycle turbines which have a dramatically shorter startup and shutdown time compared to combined cycle turbines. Also, the 2,928.5 startup and shutdown hours are the total for all three combustion turbines.

As discussed above, emissions limits, including startup and shutdown limits, associated with different CCCT projects may not be directly comparable due to the differences in CCCT models, and differences in project scope, needs, and design. The specific numerical limits in the permit for startup and shutdown are derived from emissions information provided by the CCCT manufacturer. These are based on what the manufacturer has indicated can be achieved over the life of the equipment. As stated above, CCCTs are designed to meet different objectives specific to a given project, and as such there may be variations in what

the manufacturer indicates is achievable for a given turbine for a given project need. BACT emission limits are evaluated on a case-by-case basis.

Comment on Proposed BACT VOC Limits: A comment was received stating that facilities with the exact same model combustion turbines (Mitsubishi 501JAC) have been permitted with more stringent limits VOC limits. These facilities were the Lowman Energy Center, Longview Power, and Chickahominy Power.

Response: The facilities mentioned in the comment have not constructed the combustion turbines so a demonstration with compliance has not been performed. The combustion turbines for the other listed facilities are also natural gas-only. The VOC BACT limit for the combustion turbines at Canadys was based on the use of good combustion practices and reduction from the Cat-O_X and manufacturer's data. The technologies and practices identified as BACT are consistent with those other sources identified in the comment. The specific numerical limit is derived from emissions data provided by the manufacturer. These are based on what the manufacturer has indicated can be achieved over the life of the equipment. As stated above, CCCTs are designed to meet different objectives specific to a given project. As such, there may be variations in what the manufacturer indicates is achievable for a given turbine for a given project need. Factors such as maximum heat rate can differ among turbine models which can affect CO, VOC, and NO_X emissions.

Comment on Proposed BACT $PM_{2.5}$ Limits: A comment was received stating that for gas-fired turbines, facilities with the exact same model turbines (Mitsubishi 501JAC) have been permitted with more stringent $PM_{2.5}$ limits, and that for oil-fired turbines, similar turbines (GE 7HA.02) at another facility were permitted with a more stringent $PM_{2.5}$ limit, and that the Canadys limits do not represent BACT for $PM_{2.5}$ as required by law. These facilities were the Lowman Energy Center, Longview Power, and Chickahominy Power for natural gas burning turbines. Renova Energy Center was listed for using fuel oil.

Response: The facilities mentioned in the comment have not constructed the combustion turbines, so a demonstration of compliance has not been performed to verify achievability. Although the BACT limits from unconstructed facilities or different combustion turbine models need to be taken into account, the BACT emissions limit ultimately should be developed based on the best information available which can include the manufacturer's information and the knowledge of the predicted operating profile of the turbines. $PM_{2.5}$ emissions from combustion turbines are based on the small amount of contaminants and sulfur in the fuel, and the formation of ammonia salts from the small percentage of ammonia slip from the selective catalytic reduction system. The Canadys combustion turbines will require larger catalysts than other facilities to accommodate the dual-fuel configuration. The larger catalyst can enhance the formation of SO_3 from SO_2, also causing an increase in $PM_{2.5}$. The $PM_{2.5}$ BACT for the combustion turbines at Canadys was based on low ash/low sulfur

fuels, inlet air filtration, and good combustion practices. These control technologies are consistent with those used by similar sources identified in the comment. The specific numerical limit for both natural gas and oil firing is derived from emissions data provided by the CCCT manufacturer. These are based on what the manufacturer has indicated can be achieved over the life of the equipment. As stated above, CCCTs are designed to meet different objectives specific to a given project, and as such there may be variations in what the manufacturer indicates is achievable for a given turbine for a given project need.

Comment on Proposed BACT PM Limits: A comment was received similar to the $PM_{2.5}$ comment above stating that the PM BACT limits are not as stringent as other similar facilities.

Response: Similar to the $PM_{2.5}$ response above, the facilities mentioned in the comment have not constructed the turbines so a demonstration with compliance has not been performed. Although the BACT limits from unconstructed facilities or different combustion turbine models need to be taken into account, the BACT emissions limit ultimately should be developed based on the best information available which can include the manufacturer's information and the knowledge of the predicted operating profile of the turbines. The manufacturer's data was relied upon for the development of the limit. Please refer to response to Comment on Proposed BACT $PM_{2.5}$ Limits above for further information.

Comment on Proposed BACT CO Limits: A comment was received stating that facilities with the exact same model turbines (Mitsubishi 501JAC) and similar turbines have been permitted with more stringent CO limits.

Response: The facilities mentioned in the comment have not constructed the turbines so a demonstration with compliance has not been performed. The facilities mentioned are also natural gas only. Although the BACT limits from unconstructed facilities or different combustion turbine models need to be taken into account, the BACT emissions limit ultimately should be developed based on the best information available which can include the manufacturer's information and the knowledge of the predicted operating profile of the turbines. The CO limit for the turbines at Canadys was based on good combustion practices and the reduction from the Cat-O_X, as well as manufacturer's data. These control technologies and practices are consistent with those used by other sources identified in the comment. The specific numerical limit for CO when firing on natural gas is derived from emissions information provided by the CCCT manufacturer. These are based on what the manufacturer has indicated can be achieved over the life of the equipment. As stated above, CCCTs are designed to meet different objectives specific to a given project, and as such there may be variations in what the manufacturer indicates is achievable for a given turbine for a given project need.

Comment on Proposed BACT Greenhouse Gases (GHG): A comment was received stating the BACT limits for GHGs must be no less stringent than the applicable New Source

Performance Standard set forth in 40 C.F.R. Part 60 Subpart TTTTa. The commenter also listed similar and "identical" facilities with more stringent limits.

Response: Regarding similar and identical facilities, the only facility that is operating is Plant Barry. CO_2 emissions are a direct result of the amount of fuel a turbine uses. There are no add-on control devices for the reduction of CO_2. Although Plant Barry uses the same model turbines, the duct burners for Canadys' combustion turbines are significantly larger making a direct comparison inaccurate.

The rationale outlining the establishment of the CO_2 BACT limit is outlined in the Department's Preliminary Determination for this project and Canadys' application. Based on the review of similar sources, BACT was determined to be good combustion practices, efficient operation, and/or the use of low emitting fuels (e.g., pipeline-quality natural gas). Consistent with other sources, the proposed BACT limits for this project are based on (1) the purchase, installation, and operation of high-efficiency Mitsubishi model 501JAC combined cycle combustion turbines, (2) the implementation of processes and procedures that promote energy efficient operation of the turbines, including performing periodic burner tune-ups, employing a maintenance program, and (3) using low-carbon fuels (i.e., natural gas). This is also consistent with 40 CFR Part 60, Subpart TTTTa Phase I standards that are based on efficient generation, not add-on controls.

The CCCTs Canadys has chosen are considered highly efficient. Based on the manufacturer's website information, the Mitsubishi model 501JAC in the one-on-one configuration has a combined-cycle efficiency of approximately 64%[1]. This highly efficient combined-cycle operation compares to older simple-cycle units with thermal efficiencies as low as 42%[2]. The implementation of a maintenance program for the CCCTs will not only retain the energy efficiency of the units but also help minimize GHG emissions.

The specific numerical limit for both natural gas and oil firing is calculated based on anticipated operational load, and effects on efficiency such as hot ambient temperatures and turbine degradation over time. The CO_2 emissions rate included in the condition and used in the calculation of the BACT limit is derived from emissions data provided by the CCCT manufacturer, Mitsubishi. These are based on what the manufacturer has indicated can be achieved over the life of the turbines. As stated above, CCCTs are designed to meet different objectives specific to a given project. As such, there may be variations in the CO_2 emissions the manufacturer indicates is achievable at a given load for a specific turbine based on a given project need.

[1] Mitsubishi Power (Powermhi.com)

The Department agrees that BACT cannot be less stringent than any applicable standard under 40 CFR Part 60. Since NSPS Subpart TTTTa is an applicable standard for the proposed CCCTs, the commentor is correct that the proposed CO_2 BACT shall be at least as stringent as the limits proposed in Subpart TTTTa. Considering this, the CO_2 emissions information provided by manufacturer, Mitsubishi, for these turbines for this given project need, and the regulatory uncertainty surrounding the regulation of greenhouse gases and Subpart TTTTa, the Department drafted a two-prong approach to establishing the CO_2 BACT limit. The first prong establishes a limit that can be achieved in practice by these turbines during all operating conditions and scenarios over the life of the source and second prong requires the CCCTs meet any applicable limit for CO_2 emissions as codified at 40 CFR Part 60, including without limitation, as applicable, under Subpart TTTT and/or Subpart TTTTa. The facility will have to manage the operational load condition to ensure compliance with any applicable limits in Subpart TTTTa, even if that operational load condition is allowed in the first prong of the BACT condition as long as the NSPS is in effect. It should be noted that the conditions, including the CO_2 limit and methods for compliance, from NSPS Subpart TTTTa are included in the permit in Conditions B.46 through B.54, as such the Department did not include those details in the BACT condition but rather cited the NSPS.

Relaxation of EPA Regulations

Comment on EPA Relaxation of Limits: A comment was received concerning the potential roll back of certain Clean Air Act provisions. Comments argued the Department should also adopt and enforce more stringent requirements than federal minimums.

Response: The Department's permitting decision is based on a technical review of the application and regulatory requirements in effect at the time the application was submitted, and whether the facility has demonstrated the ability to meet all applicable air quality regulations if operated according to the information provided in the application. Since the construction permit is a prevention of significant deterioration (PSD) permit, it already contains emission limits that are as restrictive or more restrictive than emission limits for PSD pollutants under federal regulations. For example, the federal limit for NO_X from 40 CFR 60 Subpart KKKKa is 5 ppm, while the PSD limit is 2 ppm. As set forth in the relevant permit conditions, the NSPS and BACT requirements for greenhouse gases under the permit will apply to the facility so long as the underlying federal Subpart TTTTa regulations remain in effect and CO_2 and other GHGs remain regulated NSR pollutants, as defined by regulation. The regulatory status of and decision-making concerning federal GHG and other emissions regulations and the federal endangerment finding are matters before the EPA and are outside the scope of this permit action. The Department will continue to implement and enforce applicable requirements for GHGs as long as the relevant federal regulations remain in effect. Additionally, irrespective of the regulatory status of GHGs specifically, the use of energy efficient and inherently lower-emitting processes, work practices, and design criteria

to meet BACT limits for other pollutants will result in lower natural gas consumption and lower resulting emissions of GHGs as compared to a less efficient model CCCT.

Emissions Controls and Monitoring

Comment: Comments were received requesting that if the application cannot be denied, the facility should include the strictest controls and monitoring. Comments were received requesting the facility to use state-of-the-art emissions monitoring technology including the use of continuous emissions monitoring systems (CEMS) for all stack outflows.

Response: The PSD construction permit contains emission limitations, pollution control requirements, testing, monitoring, recordkeeping, and reporting requirements necessary to demonstrate compliance with the applicable state and federal air quality requirements, including PSD BACT limitations. These requirements include, but are not limited to, the installation and operation of selective catalytic reduction and oxidation catalyst control devices on each turbine to reduce emissions of regulated pollutants. The permit also requires the facility to conduct initial source tests on the turbines to demonstrate compliance with applicable permit limits for filterable PM, PM_{10}, $PM_{2.5}$, $NO_{X,}$ VOC, and sulfuric acid mist emissions from the turbines. The permit also includes a requirement for the facility to install and operate continuous emissions monitoring systems (CEMS) on the turbines for ongoing compliance with NO_X and CO emission limits. Along with emissions testing and CEMS operation, the permit requires the facility install and operate a continuous parametric monitoring system (CPMS) for monitoring oxidation catalyst inlet temperature as an indicator of proper operation. The facility is required to maintain monitoring records, as well as additional records such as hours of operation of fuel oil usage, hours of operation in simple cycle mode, number of cold start, warm start, hot start and shutdown events, fuel switch hours of operation, heat input, tuning sessions, and water system adjustments. Additional monitoring, recordkeeping, and reporting requirements are required for the ancillary equipment and are included in the draft permit.

The facility is required to install, operate, and maintain NO_X and CO CEMS on each turbine per the air permit. The CEMS are operated continuously to demonstrate compliance with applicable limits and ensure the equipment is operating properly. Records are required to be submitted to the Department quarterly.

The Cat-O_X temperature will be used to monitor VOCs. Fuel supplier certifications will be used to monitor sulfuric acid and sulfur dioxide emissions. Inlet air filtration inspections will be used to monitor particulate emissions. Heat input records will be used to monitor greenhouse gas emissions. Pollutants such as SO_2 and particulates that are controlled by the use of clean fuels rather than add-on control devices can be effectively monitored by fuel supplier certifications rather than CEMs.

The monitoring, testing, recordkeeping, and reporting requirements in an air permit are the responsibility of the facility. The Department will review all compliance information submitted by the facility (or obtained on site) to determine compliance and will take enforcement action against a permitted facility for any violations identified, as appropriate. The Department's regional inspectors will also conduct routine unannounced inspections to verify that the conditions of the permit are being met, as well as additional inspections on a complaint driven basis. During inspections, the Department may review the records the facility is required to maintain to determine compliance and will take enforcement action against a permitted facility for violations, as appropriate. Alleged violations are referred to the Department Bureau of Air Quality's (BAQ) Enforcement Section. If the Enforcement Section determines that a violation has occurred, the Department may require corrective action and payment of civil penalties.

Comment: Another comment was received stating the CEMS data should be publicly available without a FOIA request.

Response: Title V facilities are required to report emissions to the Department and EPA as part of their periodic compliance reports and Emissions Inventory. The EPA compiles and publishes Emission Inventory data annually from across the country, and this data is accessible to the public. Alternatively, emission inventory data and compliance reports submitted to the Department may be requested from the Department as part of a FOIA request. Records required to be maintained onsite but not required to be specifically reported to the Department must be maintained for at least five years from the date generated, will be reviewed during inspections, and must otherwise be made available to the Department upon request.

Health and Environmental Impacts

Comments on the Health of People: Comments were received concerning the effects of emissions from the facility on the health of the people in the surrounding area of the facility.

Response: Federal and state air quality regulations are established to be protective of public health and the environment using scientific data and human health risk assessments. These regulations include standards for ambient air quality, emissions limits, control requirements, and operational requirements for industrial facilities. The EPA is required to designate areas of the country as nonattainment when monitoring data shows pollutant concentrations exceed or violate a set federal standard. There are no nonattainment areas in South Carolina for any pollutants.

As part of the Department's technical review of this application, ambient air dispersion modeling was conducted to evaluate the potential air quality impacts of emissions from the proposed facility. This modeling analysis uses EPA-approved computer programs to simulate

how the facility's maximum emissions would be dispersed into the atmosphere surrounding the proposed site. The modeling demonstrated compliance with applicable ambient air quality standards beginning at the facility fenceline and extending outward. See a more detailed discussion on this analysis in modeling section discussion below.

The facility will also be subject to multiple Maximum Achievable Control Technology (MACT) standards (under 40 CFR Part 63, National Emissions Standards for Hazardous Air Pollutants) that protect public health by setting federal limits on emissions of hazardous air pollutants.

Air Dispersion Modeling

Comment: Comments asserted various flaws in the source impact analysis for the facility resulted in an artificially low background concentration for annual $PM_{2.5}$. Specifically, the comments asserted flaws in the monitor site selection (North Charleston monitor as opposed to Savannah L&A monitor), the data timeframe (2022-2024 as opposed to 2023-2025), and the use of an adjusted as opposed to unadjusted design value. Other comments stated concern with the use of existing monitors for purposes of pre-construction air quality monitoring and development of background concentrations as opposed to additional monitoring nearer to the site.

Response:

1. Monitor Site Selection and Design Value Years

a) Timeframe – SCDES maintains a statewide network of $PM_{2.5}$ air monitoring stations that provide background concentrations used in modeling demonstrations. The most recent certified monitoring data available from this network at the time the Canadys application was submitted is for the 2022-2024 period (modeling background values are based on 3 consecutive years of data).

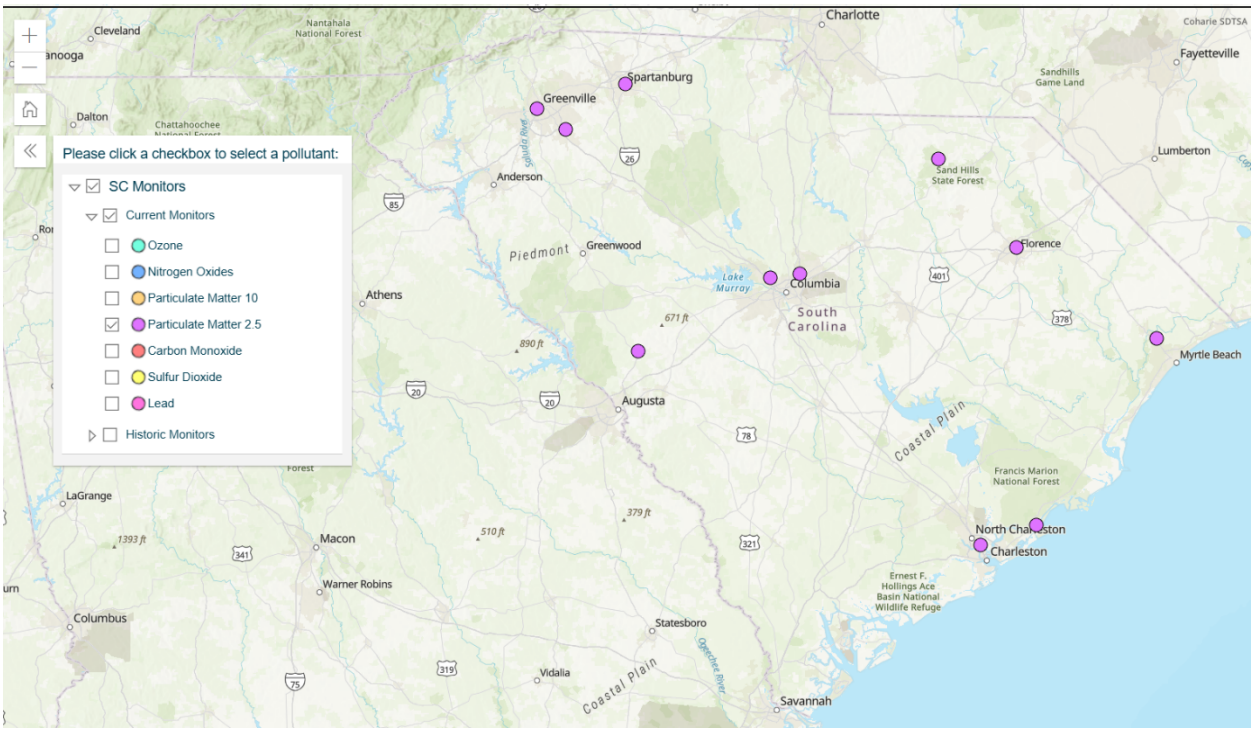
b) Preferred use and adequacy of SCDES monitor data in background modeling – Section 2.4 of EPA's Ambient Monitoring Guidelines for Prevention of Significant Deterioration[2] (EPA-450/4-87-007) permits the use of existing representative air quality data in place of preconstruction monitoring data, provided monitor location, quality of data, and currentness of data are acceptable. The area near the proposed facility is generally free from the impact of other point sources and area sources associated with human activities. Additionally, this area is free of complex terrain. Therefore, it has been determined that the data SCDES obtained for background concentrations are representative of, or more conservative than, the ambient pollutant concentrations in the area of the proposed facility, considering the land use and human activity affecting both the project site location and the monitor.

[2] https://www.epa.gov/sites/default/files/2015-07/documents/monguide.pdf

According to the EPA document listed above, monitoring data from regional monitor sites may be used as representative background data in this case, and SCDES approves the use of this data to fulfill preconstruction monitoring requirements. As discussed further in response to other comments below, SCDES prefers to use its own SCDES monitor data it maintains, quality-assures, and certifies in accordance with EPA requirements. Applicants are encouraged to rely on existing SCDES monitoring data to apply background concentrations and preconstruction monitoring requirements.

c) Proximity – The North Charleston Fire Station $PM_{2.5}$ monitor in the statewide network is about 40 miles from the Canadys project site and is the nearest monitor to the project site. Savannah L&A monitor is approximately 72 miles from the project. Thus, the proximity indicator favors North Charleston over Savannah.

South Carolina Air Monitoring Network



The air monitoring network is available to the public at the South Carolina Air Quality Network Map. This map shows each monitor in the state, including $PM_{2.5}$ at North Charleston Fire Station. The existing monitor at North Charleston Fire Station is representative of the regional area. As stated on page 7 of the modeling summary, this monitor is 40 miles from the project site.

d) Land Use / Development – The Canadys project site is in a more rural, less-developed area than North Charleston and Savannah. One way to demonstrate this is by comparing the

percentage of "urban" land use within 3 kilometers of Canadys to that near each monitor. This is shown in the table below. SCDES-BAQ's Land Use Tool (https://gis.des.sc.gov/landcover/) was used to compile the data, where "Urban" land use is the sum of the "Developed – Medium Intensity" and "Developed – High Intensity" land use categories (per SCDES Guideline).

Urban Land Use Comparison (% of area within 3 km)			
Land Use Category	**Canadys Project Site**	**$PM_{2.5}$ Monitors**	
		North Charleston	**Savannah**
Developed – Medium Intensity	0.8	21.2	29.6
Developed – High Intensity	0.3	21.6	22.5
Urban	1.1	42.8	52.1

This indicates that monitor concentrations from both Savannah and North Charleston will likely overestimate ambient concentrations because they are in more developed regional areas than those observed at other more rural monitors (such as Chesterfield) in the state. Based on the North Charleston site's less developed land use as compared to the Savannah site, it is considered to be closer to representative of background $PM_{2.5}$ concentrations near the Canadys location.

e) Climate and Topography – There is no significant difference in climate between the two monitors. All three locations are regularly affected by sea breezes. Also, there is no significant difference in topography between Canadys and the two monitors, nor is there a topographical barrier between any of the monitors and Canadys. Thus, these factors do not favor one monitor over the other.

As suggested by the commenter, the Savannah monitor may initially appear to be a reasonable candidate for background characterization due to its predominantly upwind location under prevailing transport conditions. However, this monitor is located approximately 72 miles from the Canadys project site, which raises significant questions regarding its representativeness of local background conditions in the immediate vicinity of Canadys. Additionally, Savannah is an urban neighborhood-scale monitor, and a vast stretch along the trajectory between Savannah and the project site consists of abundant low-lying rural areas, which will disrupt $PM_{2.5}$ concentration transport and distribution as the pollutant traverses and disperses across the rural area. The Savannah monitor is deemed overly conservative as a background reference for the local area of Canadys, and the climate and topography indicator suggests no clear preference between the two monitors.

Conclusion – Data from the North Charleston Fire Station monitor best represent the $PM_{2.5}$ background concentrations near Canadys. The existing monitoring network is adequate for the use of preconstruction monitoring for the reasons discussed above.

2. Adjusted Data

The North Charleston Fire Station $PM_{2.5}$ monitor data used in the modeling analysis were adjusted via data exclusions performed by SCDES-BAQ. The discussion below details the foundation and rationale for these exclusions.

Relevant EPA guidance provides a framework for states to exclude ambient air data that are not considered to be representative, including (but not limited to) data reflecting events that are atypical activities that are not expected to occur again in the future.[3] Such data may arise from events including, but not limited to, construction, roadway repairs, forest fires [wildfires], or unusual agricultural activities. Prescribed fires generally are also considered to be atypical activities. Wildfires and prescribed fires were the focus of SCDES exclusions. EPA's guidance also recognizes that state permitting authorities retain discretion regarding how they evaluate background concentrations using appropriate criteria.

To exclude the impacts of atypical activities from a monitored $PM_{2.5}$ data set, it is necessary to first identify monitored days that are potentially influenced by atypical activities. The SCDES approach for qualifying a day as atypical generally follows the EPA $PM_{2.5}$ Wildland Fire Exceptional Events Tiering Document.[4] The "Clear Causal Relationship" element was satisfied for each Atypical Activity demonstration. With sufficient justification for exclusion, Tier 1 and Tier 2 exclusions were applied at all $PM_{2.5}$ monitored locations in South Carolina. The tiering thresholds were based on the lesser value of either (a) the most recent 5-year month-specific 98th percentile for 24-hour $PM_{2.5}$ data, or (b) the minimum annual 98th percentile for 24-hour $PM_{2.5}$ data for the most recent 5-year period as prescribed by the EPA guidance.

Tier 1 days were days that were greater than or equal to 1.5 times the tiering threshold (the 98th percentile as described above). To exclude a Tier 1 day, fire emissions had to be linked to the monitor location using one of the following two criteria: Evidence from satellite

[3] See, e.g., 40 C.F.R. Part 51, Appendix W (Guideline on Air Quality Models), Section 8.3.2(c)(ii); U.S. EPA, Additional Methods, Determinations, And Analyses to Modify Air Quality Data Beyond Exceptional Events https://www.epa.gov/sites/default/files/2019-04/documents/clarification_memo_on_data_modification_methods.pdf U.S. EPA, Guidance on Developing Background Concentrations for Use in Modeling Demonstrations (https://www.epa.gov/system/files/documents/2024-11/background-concentrations.pdf).

[4] https://www.epa.gov/system/files/documents/2024-04/final-pm-fire-tiering-4-30-24.pdf.

imagery (daytime visible satellite, Aerosol Optical Depth imagery, Smoke Dust Mask, or daily true color images from VIIRS or MODIS for wildfire events); or evidence from Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) forward and backward trajectories with a connection to smoke plumes from the National Oceanic and Atmospheric Administration (NOAA) Hazard Mapping System (HMS) products and/or South Carolina Forestry Commission historical fire information.

Tier 2 days were days with a 24-hour average between the tiering threshold and 1.5 times the tiering threshold. In addition to evidence from one of the above under Tier 1, at least two additional pieces of evidence demonstrating that the fire emissions affected the monitor were necessary to exclude a day. The following additional evidence was reviewed for exclusions under Tier 2: meteograms, smoke text narratives, HRRR near-surface smoke graphics and BlueSky $PM_{2.5}$ hourly maps, SC Forestry Commission Prescribed Fire information, and significant changes in hourly temporal patterns during the $PM_{2.5}$ event.

Additionally, if the data were impacted by fireworks (categorized under exceptional events by a holiday and/or cultural event), those data were also excluded if hourly observations also spiked during the standard celebration times. Further, the SCDES Air Lab typically marked fireworks-impacted data with an "IH" qualifier code. A few additional exclusions were made when the SCDES Air Lab flagged events with a smoke indicator separately, using hourly observations and the aforementioned smoke maps, to mark this data with the appropriate smoke-impacted monitor qualifier code. Many additional days were identified as Tier 3 days under the Exceptional Events rule, but SCDES elected not to investigate or exclude them because of the workload involved, unless the SCDES Air Lab had already flagged those events as Canadian wildfire smoke events (noted as "Tier 3" in the table below). In addition, some Tier 2 data did not qualify for exclusion, as noted in the table below.

SCDES excluded a significant amount of 2023 data mainly because of Canadian wildfire smoke. As shown in the table below, a total of 25 days were found to be impacted by Canadian wildfire smoke. In addition, 13 prescribed fire days were excluded from the final adjusted background data in 2023. The number of adjustments made to years 2022 and 2024 due to prescribed fire was similar to 2023, with 5 days excluded in 2022 and 11 days excluded in 2024.

A design value is a 3-year average that intentionally smooths any variation between individual years, similar in principle to a rolling average. The 2023 monitor data is largely contaminated with Canadian wildfire activity that meets the criteria for atypical activity and exceptional events. This has contributed to a significantly higher-than-typical 3-year design value average over the past three design value years. Specifically, the unadjusted 2023 annual average was 8.0 $\mu g/m^3$, while the same 2022 and 2024 unadjusted annual averages were 7.3 $\mu g/m^3$ and 7.2 $\mu g/m^3$, respectively. The inclusion of the higher 2023 annual average

carries over for the three years to calculate the design value. Although the data may seem "typical" to the naked eye based on longer-term trends across a wide area, the individual exclusions reflect specific events in location and time that are not considered to be typical or are unlikely to recur in the near future.

Prescribed fires and other actions to mitigate wildfire risk are also regularly considered exceptional events eligible for exclusion from air monitoring data for regulatory determinations. The South Carolina Forestry Commission has developed a Smoke Management Plan that outlines guidelines to reduce smoke impacts from forestry, wildlife, and agricultural prescribed burning. The South Carolina Forestry Commission also grants permits to burn on favorable weather days to mitigate fire spread. Prescribed burns and other actions to mitigate wildfire risk, consistent with the state's Smoke Management Plan, make American forests and communities safer, healthier, and cleaner. Consideration of such events as atypical and unrepresentative when analyzing air quality monitoring data appropriately accounts for their impact in mitigating against more extreme and atypical air quality impacts associated with wildfires and promotes the efficient use of state air quality resources. Such consideration is also consistent with current EPA policy discouraging actions that would limit the strategic deployment of wildland prescribed fire as part of a control strategy for attainment and maintenance of the NAAQS.[5]

The SCDES process applies best professional and technical judgment, consistent with relevant guidance, to exclude data as an atypical activity. In some cases, there were not

enough indicators in the Tier 2 demonstrations to confidently exclude such data. Thus, those days were retained (noted as "deferred" as atypical activity) in the calculations to derive background data for air dispersion modeling purposes. See the table below for more information on the screening method applied to North Charleston Fire Station monitoring data used as background data for the Canadys project. Some dates are grouped by event to abbreviate the table.

Table 1. List of days when the measured 24-hour average $PM_{2.5}$ concentrations at the North Charleston site were greater than the applicable Tier 1 or Tier 2 screening thresholds and/or flagged by the SCDES air lab as a smoke, dust, or fireworks event. Data is sorted from earliest to latest date.

Date	Daily Value ($\mu g/m^3$)	Atypical?	Event Type	Criteria for Exclusions*

[5] https://www.epa.gov/system/files/documents/2025-10/signed_final_prescribed-fire-policy-memo_25-06684-oar-gsg.pdf

Date	Daily Value (µg/m³)	Atypical?	Event Type	Criteria for Exclusions*
1/15/22	16.6	Yes	Prescribed fire	B, D, E
2/11/22 – 2/12/22	(Max) 17.8	Deferred	Prescribed fire	B, D – Not excluded
2/13/22	16.9	Yes	Prescribed fire	A, B, D, E
3/3/22 – 3/4/22	(Max) 17.1	Yes	Prescribed fire	A, B, D, E
3/31/22	14.8	Deferred	Prescribed fire	N/A – Not excluded
5/19/22	13	Yes	Western U.S fire	A, D, E
6/14/22	14.7	Yes	Saharan dust	A, B, D
6/23/22	11.7	Yes	Prescribed fire	B, D, E, G, H
7/4/22	13.3	Yes	Fireworks	F, H
7/28/22	11.4	Deferred	Canadian wildfire	N/A – Not excluded
7/31/22	11.8	Deferred	Canadian wildfire	D – Not excluded
8/10/22 – 8/11/22	(Max) 17.5	Yes	Saharan dust	A, B, D, E, G
9/21/22 – 9/22/22	(Max) 11.6	Yes	Western U.S fire	A, D, E
1/11/23	16	Yes	Prescribed fire	B, D, E
2/24/23	16.2	Yes	Prescribed fire	B, D, E
2/26/23	14.1	Deferred	Prescribed fire	D, E – Not excluded
2/28/23	14.3	Yes	Prescribed fire	A, D, E
3/1/23	20.2	Yes	Prescribed fire	B, D, E
3/3/23	14.5	Yes	Prescribed fire	B, D, E
3/16/23	15.8	Yes	Prescribed fire	A, B, D, E
6/7/23 – 6/8/23	(Max) 14.2	Yes	Canadian wildfire	A, D, E, G
6/9/23 – 6/10/23	(Max) 24	Yes	Canadian wildfire	A, G, Tier 1
6/11/23	12.1	Yes	Canadian wildfire	A, D, E, G
6/17/23	17.3	Yes	Canadian wildfire	A, D, E, G
6/25/23 – 6/27/23	(Max) 14	Yes	Canadian wildfire	A, D, E, G
6/28/23 – 6/30/23	(Max) 22	Yes	Canadian wildfire	A, G, Tier 1
7/1/23	14.6	Yes	Canadian wildfire	A, D, E, G
7/2/23	11.2	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
7/4/23 – 7/5/23	(Max) 16.1	Yes	Fireworks	F, H

Date	Daily Value (µg/m³)	Atypical?	Event Type	Criteria for Exclusions*
7/17/23	11.3	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
7/20/23	18.3	Yes	Canadian wildfire	A, G, Tier 1
8/13/23	12.1	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
8/20/23	11.6	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
8/21/23	20.3	Yes	Western U.S fire	A, G, Tier 1
8/22/23 – 8/23/23	(Max) 17.2	Yes	Canadian wildfire	A, D, E, G
9/6/23 – 9/7/23	(Max) 14.2	Yes	Prescribed fire	B, D, E, G
9/25/23 – 9/26/23	(Max) 12.9	Yes	Canadian wildfire	B, D, E, G
10/3/23	16.1	Yes	Canadian wildfire	B, D, E, G
10/11/23	12.7	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
11/10/23	10.7	Yes	Canadian wildfire	G, Tier 3 Canadian Wildfire
11/5/23 – 11/9/23	(Max) 18.8	Yes	Prescribed fire	A, B, D, E, G
3/13/24 – 3/14/24	(Max) 18.9	Yes	Prescribed fire	A, D, H
3/21/24	14.4	Yes	Prescribed fire	A, D
4/20/24	14.1	Yes	Prescribed fire	B, D, E
7/15/24	13.9	Yes	Prescribed fire	A, D
8/10/24	14.8	Yes	Prescribed fire	A, D
8/13/24	15.8	Yes	Prescribed fire	A, D
8/16/24 – 8/17/24	(Max) 14.2	Yes	Prescribed fire	A, D, H
10/24/24	13.6	Yes	Prescribed fire	B, D, H
12/7/24	14	Yes	Prescribed fire	A, D, H

*See below for criteria used for exclusion on specific days:
A – SC daytime visible satellite imagery, SC Aerosol Optical Depth (AOD) and/or Smoke Dust Mask, or daily true color images from VIIRS or MODIS
B – HYSPLIT backward and forward trajectories AND fire point/smoke polygon data
C – Meteograms with smoke or haze symbols

Date	Daily Value (µg/m³)	Atypical?	Event Type	Criteria for Exclusions*
D – Smoke text narrative discussions from NOAA's Office of Satellite and Product Operations E – Near-surface smoke present in the HRRR Model OR BlueSky $PM_{2.5}$ hourly map (100 meters) F – Data flagged during the day with a fireworks (IH) qualifier code G – Data flagged during the day with a dust or smoke impact (IA, IM, IT, IF, IG) qualifier code H – Evidence of changes in hourly temporal patterns not typical of the normal diurnal pattern Tier 1 – One day (or more for multiple) that qualifies as a Tier 1 Exceptional Event Tier 3 – One day (or more for multiple) that qualifies as a Tier 3 Exceptional Event and flagged as a Canadian smoke day				

In conclusion, the SCDES adjustments to the 2022-2024 certified design value are appropriate and reflect accepted practices for identifying eligible days for exclusions for purposes of evaluating background concentrations for facility modeling analysis. Sufficient evidence supports the conclusions made here and the adjustments to the background concentrations.

Comment: Comments asserted that the modeling for the Canadys facility understates ambient impacts from the plant. The comments assert that the annual $PM_{2.5}$ modeling for the facility improperly relied solely on inputs at 100% load, excluding emission rates and exhaust parameters associated with worst-case normal operating load and those associated with startup and shutdown events.

Response: 40 CFR Part 51, Appendix W (Section 8.2.1.b) states that a facility's "potential operating conditions" are "required inputs to air quality models and are needed to determine maximum potential impacts." For stationary source applications, "changes in operating conditions that affect the physical emission parameters (e.g., release height, initial plume volume, and exit velocity) shall be considered to ensure that maximum potential impacts are appropriately determined in the assessment." (Section 8.2.2.d).

The Department disagrees with the commenter and considers the annual $PM_{2.5}$ modeling for the facility to have appropriately considered facility operating conditions. First, the annual $PM_{2.5}$ modeled emission rate was developed by assuming operation on fuel oil at the maximum fuel oil $PM_{2.5}$ emission rate for all hours allowed by the permit and operation on natural gas at the maximum natural gas $PM_{2.5}$ emission rate during all remaining hours of

the year. The permit limits fuel oil operation to 720 hours per year. The maximized modeled annual emission rate is based on the following calculations:

Annual $PM_{2.5}$ from Fuel Oil = 93.0 lb/hr (AP-42 max) x 720 hr/yr (limit) = 66,960 lb/yr

Annual $PM_{2.5}$ from Natural Gas = 42.0 lb/hr (AP-42 max) x 8040 hr/yr (remaining hr/yr) = 337,680 lb/yr

Total Modeled Annual $PM_{2.5}$ = 404,640 lb/yr per turbine = 202.32 tpy per turbine = 607.0 tpy (3 turbines)

These calculations assume the turbines operate throughout the year at the maximum applicable $PM_{2.5}$ emission rate for each fuel type for all three units. Actual annual emissions are expected to be lower than those calculated above due to normal variations in load, operational cycling, and limited use of fuel oil.

Specific inclusion of startup and shutdown $PM_{2.5}$ emissions would not increase the maximum annual $PM_{2.5}$ emissions modeled for compliance purposes. As stated in Section 2.6.2.3 of the Canadys Modeling Report, "the higher emission value across all four scenarios" was used for all applicable $PM_{2.5}$ modeling analyses. Appendix A-2 and Appendix A-4 of the PSD application compare ton per year emissions from the four scenarios, including startup and shutdown scenarios. $PM_{2.5}$ emission rates during startup and shutdown periods are not greater than the maximum emission rates already assumed in the annual analysis, which is based on continuous operation at the specified maximum rates. Accordingly, separate quantification of startup and shutdown $PM_{2.5}$ emissions is not necessary for the annual $PM_{2.5}$ modeling analysis. This differs from the analysis for pollutants such as NO_X and CO, for which startup and shutdown conditions may increase emission rates and warrant separate consideration.

With respect to variations in operational physical exhaust parameters (e.g., exit velocity, flow rates, and stack temperature) and ambient conditions (e.g., temperature and humidity), it is understood that turbines do not operate at a single load, fuel, and set of ambient conditions for the entire year. The vendor data provides a wide range of expected parameters and presents the expected emissions for those operations and conditions. Thus, a preliminary load screening analysis was performed to determine worst-case parameters.

If the unit is operating at a high load and combusting a lot of fuel, the exhaust stack velocity (feet/second), exhaust volume (cubic feet/minute), and exhaust temperatures would be high. Conversely, at lower loads, fuel consumption decreases, resulting in lower exhaust temperatures, reduced stack velocities, and lower exhaust flow rates, which can lead to less effective dispersion and potentially higher ground-level concentrations for a given emission rate (1 gram/second, as modeled). Furthermore, operating load also affects the pollutant mass emission rate (lb/hr). Low-load conditions typically involve lower fuel use and correspondingly lower mass emissions, while high-load conditions generally produce higher

mass emissions. As a result, the worst-case ambient impact is not determined solely by stack parameters or dispersion characteristics. When identifying the worst-case modeling case, both the emission rate and the associated exhaust conditions for each operating scenario should be evaluated, as the scenario with the highest ground-level concentration may occur under a balance of lower dispersion and lower emissions or higher dispersion and higher emissions. The results revealed that the design scenarios (as modeled for annual averages) for the three turbines were the worst-case scenarios as determined by the annualized emissions-weighting approach, as shown in the results table below. Performance data changes with specific ambient conditions (temperatures of -10°F, 0°F, 29°F, 59°F, 80°F, 98°F, and 110°F and corresponding test relative humidities) showed insignificant variability in resulting concentration. The 59°F temperature is most representative of an annual average ambient temperature, and some (such as -10°F, 0°F, and 110°F) are unlikely to ever occur at the Canadys location. Thus, the table below is condensed to show only ambient conditions that are reflective of the annual average temperature (59°F) for brevity.

Table 2. Worst-case load analysis for PM weighted by maximum annual emissions associated with each scenario. Simplified to only show average ambient conditions.

Case (1)	**Scenario Maximum PM Annual Emission Rate (tons/year)**	**Maximum 1-hour Unity Concentration Rate (µg/m³)/(g/s)** (2)	**Maximum Annual Unity Concentration Rate (µg/m³)/(ton/yr)** (3)	**Annualized Emissions-Weighted Model Concentration (µg/m³)** (4)
NG8_1	100.50	1.21	3.48E-03	0.3499
NG19_1	140.70	1.26	3.63E-03	0.5100
NG30_1	**168.78**	1.27	3.65E-03	**0.6167**
NG37_1	72.42	1.56	4.49E-03	0.3250
NG44_1	64.45	1.57	4.52E-03	0.2911
FO4_1	33.49	0.80	2.30E-03	0.0771
FO11_1	24.49	1.12	3.22E-03	0.0789
FO18_1	23.40	1.17	3.37E-03	0.0788

1) See Supporting Vendor Information for full details of each case.
2) See Table A-3 of the Canadys Modeling Report.
3) Units conversion and applied AERSCREEN scaling ratio (0.1) for annualizing.
4) Annual Emission Rate (tons/year) x Unity Concentration Rate (µg/m³)/(ton/yr)

The unity (per gram/second) impacts from operating the equipment in all scenarios concluded that worst-case design parameters came from the low load scenarios (less than

full load, as shown by the sample cases NG37 and NG44 in the table above). When unity impact results from the loading analysis are appropriately weighted by the potential annualized emission rate (and considering a 720-hour permit limit on fuel oil usage) for each respective load case, the worst-case scenario is identified as Case 30 (the maximum load case) after considering the emission inputs under each scenario. While it makes sense to require worst-case source parameters to be modeled for short-term averaging periods (even when factoring in the emission rates under such conditions), it is overly conservative to assume that those same worst-case short-term operating conditions will occur often enough to significantly contribute to a normalized annual average of the data when the equipment is operated under those scenarios infrequently, as demonstrated by emissions-weighted outputs.

Thus, given the conservatism already built in by modeling maximum annual emission rates (which would not occur in such low-load scenarios) and assuming the worst-case stack parameters (as indicated by the loading analysis scenarios), the calculated annual impact is conservative. When scenario impacts are based on maximum short-term concentrations (for example, the highest 1-hour or 24-hour modeled concentration), the results often contain substantial variability because they are driven by rare meteorological conditions, unusual operating states, or isolated peak events. However, annualizing the impacts (whether modeled or observed) produces a smoother distribution because it spreads these peak-driven effects over a longer time horizon. On an annualized basis and given that the highest emission rate is already modeled, the evidence supports the premise that the source will comply with applicable standards for long-term annual average concentrations, and no further analysis is necessary.

Similarities between Canadys and Duke Anderson

Comment: A comment was received concerning the modeling analyses showing very similar results to the Duke Energy Anderson plant.

Response: SCDES meteorologists thoroughly reviewed the model inputs and outputs and ran all modeling analyses during the project review. Turbines are high-emission sources, but dispersion characteristics are designed to disperse emissions efficiently in the atmosphere with minimal impact at ground level.

The table below compares the model stack designs for Canadys and the Duke Anderson plant. For simplicity, the table below shows only the turbine parameters, including modeled annualized PM and NO_X emission rates (similar to the comment provided), stack height, temperature, exit velocity, and diameter for the design case.

	Total PM Emission Rate (TPY)	Total NOx Emission Rate (TPY)	Stack Height (ft)	Stack Temp (F)	Stack Velocity (ft/sec)	Stack Diameter (ft)
Canadys (3 turbines)	607	662	199	160	72	23
Duke Anderson (2 turbines)	389	422	200	165	66.5	23.5

As shown in the table above, the emission rates input to the model are indeed higher for Canadys, as the commenter stated. However, the exit velocity at the turbine stacks is notably higher at Canadys than at Duke Anderson. The higher velocity more effectively disperses the emissions coming from the Canadys stacks, which helps reduce pollutant concentrations at ground level.

Beyond the factors presented in the table above, the modeling domains differ with respect to terrain. The area surrounding Canadys is predominantly flat, whereas the area surrounding Duke Anderson includes simple elevated terrain features (such as gently rolling hills). Elevated terrain can affect dispersion patterns and, in some cases, increase modeled ground-level concentrations because the terrain surface is closer to the pollutant plume. As a result, terrain effects may contribute to higher maximum concentrations in the Duke Anderson modeling domain relative to the flatter Canadys setting. Furthermore, the analyses for the two facilities are based on different sets of representative surface meteorological data from airports in different climate regimes: Charleston Airport for Canadys and Anderson Airport for Duke Anderson. This difference complicates any comparison of modeling results between the two facilities.

Considering these distinctions, the similarity between the modeled concentrations is not necessarily unexpected and is consistent with the combined influence of the respective emissions, surrounding terrain, and meteorological inputs used in each analysis.

Requests for Additional Air Quality Monitoring

Comment: Comments were received stating concern about the distance to the nearest network monitors and requesting that the Department should place monitors for all criteria pollutants in Colleton, Dorchester, Hampton, Jasper, and/or Beaufort Counties and, for PM2.5, stations in Canadys and Smoaks/Ruffin, the closest affected communities, and Walterboro, the most populous.

Response: South Carolina maintains a statewide network of air monitoring stations as required by EPA regulations to demonstrate compliance with the NAAQS. This air permit decision is separate from the siting of South Carolina's network monitors. The Department maintains, quality assures, and certifies the air monitors and data. South Carolina follows requirements set and approved by the EPA for strict quality assurance procedures, including established Quality Assurance Project Plans (QAPP), Standard Operating Procedures (SOP), and set sampling schedules. The monitors must also meet completeness requirements to be used for regulatory purposes. An air monitoring network map is available to the public at the South Carolina Air Quality Network Map. These air monitoring stations are located throughout the state of South Carolina, some of which are located near the facility in the Upstate region in Clemson and Greenville. Air monitoring stations collect data throughout the year and follow EPA siting requirements. South Carolina follows EPA regulations found in 40 CFR Part 58, Appendix D for determining where ambient air monitors are placed and the number of ambient air monitors required for each pollutant. The number of required monitors is based on population in Metropolitan Statistical Areas (MSAs), which are established by the federal Office of Management and Budget. Siting requirements are designed to ensure that data captured by the monitors is representative of a given area. The real time data from the air monitoring stations is available on AirNow.gov. The data collected from these monitors are not only used to determine whether South Carolina is meeting the requirements of the NAAQS but also provides background information used in modeling demonstrations. Applicants rely on existing SCDES monitoring data for applying a background concentration and preconstruction monitoring requirements (as further discussed in the modeling discussion above). For all these reasons, the Department primarily relies on monitors from its established statewide network for monitoring of ambient air quality, and as there are no applicable state or federal regulations requiring facility installation of additional monitors, the permit does not include such a requirement.

Impacts on Plants and Animals and Facility Additional Impacts Analysis

Comment: Comments were received concerning the effects of emissions from the facility on plants and animals in the surrounding area of the facility. One commenter stated that the Department must determine whether the applicant has performed the additional impacts analysis (including growth and visibility) required by PSD and asserted that the record did not support that the applicant had satisfied relevant requirements.

Response: The primary NAAQS are designed to protect public health. The secondary NAAQS and other EPA screening reference values are designed to protect the environment and public welfare, including crops, vegetation, visibility, animals and wildlife. EPA establishes both sets of primary and secondary standards.

As part of the additional impacts analysis, PSD review requires an analysis of any potential adverse impacts to soils and vegetation[6] as well as visibility impacts and growth that may occur as a result of the proposed facility/sources. The modeling results and analysis, which SCDES reviewed, indicated that the project will not cause or contribute to any violations of secondary NAAQS. There were also no exceedances of any EPA screening reference values. In conclusion, the facility has adequately addressed all applicable S.C. Regulation 61-62.5, Standard No. 7 requirements associated with additional impacts, including growth, visibility, and soils and vegetation.

Significant Impacts to Public Places

Comment: Comments were received stating concern that schools, churches, childcare facilities and community centers are in the significant impact area for modeling or close to areas of modeled maximum impact.

Response: The significant impact area in PSD New Source Review modeling is the area where preliminary modeling analyses predict concentrations in excess of a threshold significant impact level. Preliminary modeling results in excess of a significant impact level are not themselves indicative that pollutant concentrations would exceed any applicable standard. Rather, a significant impact on PSD modeling means that the proposed source has the potential to cause a meaningful change in ambient air quality that warrants further evaluation. A significant impact is not a violation. Rather, the project's impact is significant enough to warrant a more detailed analysis via cumulative impact analyses to address NAAQS and PSD increment standards. If the proposed project's impacts exceed a significant impact level at a given location and time when and where there is also a predicted model violation, the applicant will not receive a permit. Significant impacts *could* contribute to a violation of the NAAQS if the modeling analyses identified a NAAQS or PSD increment violation. However, cumulative impact modeling analyses for this project show no NAAQS or PSD increment violations. As discussed above, the primary NAAQS are designed to protect public health, including sensitive and vulnerable populations.

Cumulative Impacts

Comment: Comments included a request for a comprehensive cumulative health risk assessment.

[6] See, e.g., "Responses of Plants to Air Pollution" Lerman, S.L., and E.F. Darley. 1975. "Particulates," pp. 141-158 (Chap. 7). In J.B. Mudd and T.T. Kozlowski (eds.); "Diagnosing Injury Caused by Air Pollution" (EPA-68-02-1344); "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" (EPA-450/2-81-018, 1980)

Response: Applicable state and federal air quality regulations do not include provisions for a cumulative health risk assessment study as part of the air permitting process. Such a study therefore is not required as part of an air construction permit application, and no such analysis was reviewed in the Department's evaluation of Dominion's air PSD construction permit. As discussed above, the facility submitted air dispersion modeling as part of the ambient air quality analysis to demonstrate the facility will not interfere with the attainment of the NAAQS for PM_{10}, $PM_{2.5}$, NO_2, SO_2, and CO. Background concentrations (which account for emissions from other facilities and naturally occurring emissions) were included in the analysis. A cumulative impact analysis as required by 40 CFR Part 51, Appendix W - Guideline on Air Quality Models (Guideline) and discussed above was performed.

Harvard Study

Comments: Comments were received expressing concerns about the information presented in the October 2025 study commissioned by the Southern Environmental Law Center entitled "Air Pollution from the Proposed Canadys Gas Plant" (the "Harvard Study"). One comment suggested that SCDES should require Dominion and Santee Cooper to address the Harvard Study with their own scientifically supported predictions of the Project's effects on the environment and the people who live there. Another comment noted that the Harvard Study was based on 164.3 tons per year of $PM_{2.5}$ while the submitted application now projects 613.1 tons per year.

Response: The PSD regulations and other applicable air quality regulations together require subject facilities to predict the project's impact on the public and environment using EPA-approved air dispersion modeling analyses, evaluate and apply the Best Available Control Technology (BACT), and comply with all applicable state and federal air quality standards. As explained above, SCDES has reviewed the proposed application and determined the project can meet the applicable standards for criteria pollutants, greenhouse gases, and hazardous air pollutants.

The above-mentioned air dispersion modeling analysis was conducted based on the final project emissions estimates submitted in the PSD air construction permit application. These rates, and not the ones presented in the Harvard Study, were evaluated in the Department's review and demonstrated compliance with the most recent NAAQS established for $PM_{2.5}$.

Learn about how EPA sets standards for the six common air pollutants, by visiting https://www.epa.gov/naaqs. This website provides scientific and technical information about the current and prior reviews of the NAAQS. EPA reviews these standards and the science behind them periodically to determine whether changes are warranted. For more information about other standards and regulations applicable to the power sector, visit EPA.gov/power-sector.

Location

Comments on the Facility Location: Comments were received concerning the location of the facility relative to the Edisto River, the ACE Basin, schools and other community locations.

Response: As part of the Department's technical review of this application, air dispersion modeling was conducted to evaluate the potential air quality impacts of emissions from the proposed facility. The PSD regulations require the applicant to analyze the impairment of soils, vegetation and ecosystems. The modeling results demonstrated compliance with applicable ambient air quality standards beginning at the facility fenceline and extending outward. These ambient air quality standards are established to protect public health and welfare, including soils, vegetation, structures and water bodies.

The Department recognizes that commenters have concerns about the facility's proximity to schools and other community locations. However, zoning decisions are made by local authorities and are not part of the Department's technical review of an air construction permit application. The Department does not have authority to dictate a facility's siting decisions but rather bases its permit decision on whether the permit applicant has demonstrated compliance with relevant state and federal requirements.

Environmental Justice

Comments on Environmental Justice and Related Concerns: Comments were received asserting environmental justice and health vulnerability concerns related to the proposed project. Comments reference South Carolina State Health Assessment Companion Report data and demographic data for Colleton County, as well as other data, asserting concerns that the permit will not adequately protect an already vulnerable community from dangers of exposure to air pollution from the project.

Response: The Department is committed to protecting the health and environment of all communities in South Carolina and to working closely with communities and permit applicants to address concerns raised during the permitting process. We actively engage with residents and stakeholders across South Carolina to ensure that all communities have meaningful opportunities to participate in our decision-making. For this permit, the Department provided a public notice period from September 18, 2026, through October 27, 2026, and held an availability session and public hearing on October 20, 2026.

As stated above, the Department's technical review of this application includes an air dispersion modeling analysis that is required to evaluate the potential air quality impacts of emissions from the proposed facility. Background concentrations (which account for emissions from other facilities and naturally occurring emissions) were included in the analysis. The modeling demonstrated compliance with applicable ambient air quality

standards beginning at the facility fenceline and extending outward including nearby schools. These ambient air quality standards are established to protect public health and the environment, including sensitive or vulnerable populations.

South Carolina air quality regulations do not require an environmental justice analysis or further assessment of a facility's cumulative effects. As discussed, facilities are required to ensure that NAAQS are not violated and that applicable regulatory requirements are met. South Carolina is currently and has a long history of meeting the NAAQS statewide.

Data Centers and Electricity Need

Comments on Data Centers: Comments were received tying the need for this facility to the proliferation of data centers and their need for electricity.

Response: The Department does not have the authority to dictate where a public utility delivers electricity produced by that public utility. The Department's permitting decision is based on the technical review of the application and regulatory requirements in place at the time the application was submitted and whether the facility has demonstrated that it can meet all applicable state and federal air quality regulations if operated according to the information provided in the application. These requirements aim to protect public health and the environment.

The Department has determined that Dominion Energy has demonstrated it can meet the standards and requirements of all applicable state and federal air quality regulations by complying with the conditions of the construction permit, including monitoring for each PSD pollutant at Canadys Station. The Public Service Commission is responsible for evaluating the proposed project regarding the need and the demand for electricity.

Subsequent Industry and Associated Growth

Comment: Comments were received expressing concern that if this project is approved, it will attract other industries to Colleton County that will have additional air pollution impacts and that analysis of 'associated growth' for the project is required.

Response: Any future facility wishing to locate in Colleton County that would emit a regulated air pollutant would be required to apply for and obtain an air construction permit from the Department before constructing and operating, unless otherwise exempt. Before an air construction permit may be issued, an applicant must demonstrate that the proposed facility can comply with all applicable state and federal regulatory requirements for an air permit. These regulations are designed to be protective of human health and the environment. The applicant's modeling report, which was posted to the Department's website, includes an associated growth analysis section supporting the conclusion that the

project is not expected to induce significant associated growth that would result in a measurable deterioration of ambient air quality.

Public Service Commission

Comment: Comments were received on the Public Service Commission's permitting process. Some comments also raised concerns about the permit applicant's transparency before the Public Service Commission and more generally with the public in regard to health and environmental impacts.

Response: The Public Service Commission reviews applications for new utility projects in the state and issues Certificates of Environmental Compatibility and Public Convenience and Necessity. The Public Service Commission's permitting process is entirely separate and independent from the Department's air permitting process. The facility is not required to submit this certificate as part of an air construction permit application with the Department and the Public Service Commission's order was not reviewed as part of the technical review for this air permit application. The need for a particular project is not regulated by State or Federal air quality regulations and was therefore not considered during the Department's review for the air quality construction permit. Additionally, commenters' concerns regarding the permittee's transparency in other proceedings and with the public are outside the scope of the Department's permitting review, as the Department's review is based on all information submitted with the air permit application and the applicant's demonstration of its ability to comply with all applicable state and federal air quality requirements.

Utility Rates

Comment: Comments were received expressing concerns that this project will end up raising electricity rates

Response: Any potential impact on utility rates is not part of the Department's review of the proposed project and is outside the scope of this permitting action, as the Department must review the proposed project based on state and federal air quality regulations.

Alternative Energy Production

Comments on Alternative Energy Production: Comments were received suggesting that alternative energy sources should be constructed such as solar power, battery storage, and wind energy.

Response: The Department's evaluation of an application for a PSD air quality construction permit is based on the equipment and operations proposed by the applicant and all relevant state and federal air quality requirements in effect at the time of the Department's technical

review. For this project, the facility plans to install 3 combined cycle combustion turbines. The permit application and its supporting materials demonstrate that the proposed facility can meet the applicable regulatory standards using the equipment and control technologies specified in the application. The Department does not have the authority, through this air permitting process, to require the applicant to redesign the source or change the fundamental scope of the project.

Largest Power Plant

Comments on the Size of the Proposed Power Plant: Comments were received concerning the size of the proposed power plant and that this would be the largest power plant in the state.

Response: The proposed power plant will not be the largest in the State of South Carolina. The Oconee Nuclear Plant operating by Duke Energy and the Cross coal-fired power plant operated by Santee Cooper are each larger in capacity than the proposed power plant. As discussed above, the department does not have the authority, through this air permitting project, to require the applicant to redesign the source or change the fundamental scope of the project.

Pipeline

Comment: Comments were received concerning the pipeline that would deliver natural gas to the proposed site and emission and environmental impacts associated with upstream natural gas transport. Concerns were expressed about the fact that the pipeline would cut across the ACE Basin and could leak.

Response: The Department's permitting decision for the Canadys project is based on a technical review of the application and regulatory requirements in effect at the time the application was submitted, and whether the facility has demonstrated the ability to meet all applicable air quality regulations if operated according to the information provided in the application. Of note, this permit decision is for the specific source and equipment as described in the permit and supporting documents; upstream activities such as extraction and pipeline transport are outside the scope of this permit action. The Elba Express Company (a Kinder Morgan company) Bridge Project Expansion is a separate natural gas pipeline project. This project will be subject to its own environmental permitting by SCDES. No applications have been submitted to SCDES for the pipeline at this time.

Past Impacts of Coal Plant and Coal Ash

Comment: Comments were received concerning the past impacts from the coal plant that used to operate on the Canadys site and residual coal ash impacts from that operation.

Response: The Canadys Station Site previously operated as a coal-fired power plant by South Carolina Electric and Gas (SCE&G) and later its successor Dominion from 1962 to 2013. Since 2013, activities at this site have been focused on demolition and decommissioning of the coal-fired power plant and ancillary facilities. Included in decommissioning was closure of wastewater ponds within the Canadys Station Site. Closure plans consistent with the facility's wastewater permit and State regulations governing the proper closeout of wastewater treatment facilities have been implemented. The following reports provide an overview of the closure plans, and the subsequent documentation closure of wastewater had been completed:

- Close Out Plan for the Canadys Station Plant Side Ponds, dated May 2018 (see Appendix A for soil data)
- Engineer Certification - Canadys Station Plant Side Closure, dated November 2025

Water-related Impacts

Comment: Comments were received concerning the facility's potential water usage (drought vulnerability), wastewater discharges, and the potential contamination of water.

Response: Potential water usage, water discharges, and potential impacts on water quality are outside the scope of Department air quality permitting and air regulatory requirements. However, Dominion is responsible for coordinating and complying with other regulations related to such matters and for submitting applications accordingly. SCDES has developed a website to keep the public informed on the Canadys Station Project. Please visit www.des.sc.gov/CanadysPlant.

CZC

Comment: Comments were received raising various concerns regarding review of coastal zone consistency for this permit.

Response: Pursuant to authority under the state Coastal Tidelands and Wetlands Act and the S.C. Coastal Zone Management Program ("CZMP") document, coastal consistency review and certification was required prior to issuance of an air quality permit for this project. Such review and certification are conducted by the Bureau of Coastal Management ("BCM"). BCM has reviewed public comments submitted pertaining to its coastal zone consistency review. Upon review, BCM has issued a coastal zone consistency ("CZC") certification for this project. Please refer to the issued CZC certification memorandum for further details regarding certification for this project. As discussed above, the Department Bureau of Air Quality's permit decision for the Canadys project is based on a technical review of the application and regulatory requirements in effect at the time the application was submitted, and whether

the facility has demonstrated the ability to meet all applicable air quality regulations if operated according to the information provided in the application.

Stormwater Permit

Comment: Comments were received concerning the application seeking coverage under the NPDES General Permit for Stormwater Discharges from Construction Activity for clearing portions of the site.

Response: Comments received on the draft air permit during the open public comment period for the stormwater permit application were forwarded to the appropriate staff for consideration.

SCDES held a public hearing on September 22, 2026, on the proposed Canadys Station Combined Cycle Generating Plant – Phase 1 / Initial Grading project. Program staff for the stormwater permit are continuing to review the application and comments submitted. No decision related to this application has been made.

General Support or Opposition

Comments for General Support or Opposition: Comments were received expressing general support for or in opposition to issuance of the permit.

Response: The Department's technical review of a prevention of significant deterioration (PSD) air construction permit application is conducted in accordance with applicable current state and federal air quality requirements established to protect public health and the environment. Before a PSD air construction permit may be issued, an applicant must demonstrate that the proposed facility can comply with the applicable regulatory requirements. In its application, Dominion Energy has provided all the necessary information to demonstrate that it can comply with all relevant state and federal regulations. The Department's permitting decision cannot be based on the number of comments received supporting or opposing a proposed project. Rather, the Department must evaluate the technical and regulatory issues raised in the comments and determine whether those issues affect the facility's ability to comply with applicable current air quality requirements.

The Department has reviewed the comments received regarding the draft construction permit and has addressed the substantive issues raised, as reflected throughout this response-to-comments document.